Program Review

Master of Science in Biomedical Science

Joan C. Edwards School of Medicine

November 2014

MARSHALL UNIVERSITY

Program Review
 Marshall University

Date: November 1, 2014

Program: Master of Science in Biomedical Science

Date of Last Review: Academic Year 2009 - 2010

Recommendation

Marshall University is obligated to recommend continuance or discontinuance of a program and to provide a brief rationale for the recommendation.

Recommendation

Code (#):

1. Continuation of the program at the current level of activity; or
2. Continuation of the program at a reduced level of activity or with corrective action: Corrective action will apply to programs that have deficiencies that the program itself can address and correct. Progress report due by November 1 next academic year; or
3. Continuation of the program with identification of the program for resource development: Resource development will apply to already viable programs that require additional resources from the Administration to help achieve their full potential. This designation is considered an investment in a viable program as opposed to addressing issues of a weak program. Progress report due by November 1 next academic year; or
4. Development of a cooperative program with another institution, or sharing of courses, facilities, faculty, and the like; or
5. Discontinuation of the program

Rationale for Recommendation: (Deans, please submit the rationale as a separate document. Beyond the College level, any office that disagrees with the previous recommendation must submit a separate rationale and append it to this document with appropriate signature.)

Recommendation: Todd L. Green
Signature of person preparing the report: 11/3/14
Date:

Recommendation: Todd L. Green
Signature of Program Chair: 11/3/14
Date:

Recommendation: Signature of Academic Dean: 11/3/14
Date:

Recommendation: Signature of Chair, Academic Planning Committee: (Baccalaureate programs only)
Date: 1/30/2015

Recommendation: Signature of Chair, Faculty Senate/Chair, Graduate Council:
Date: 3/2/15

Recommendation: Signature of the Provost and Senior Vice President for Academic Affairs:
Date: 4/9/15

Recommendation: Signature of the President:
Date: 4/13/15

Recommendation: Signature of Chair, Board of Governors:
Date:
College/School Dean’s Recommendation

Deans, please indicate your recommendation and submit the rationale.

Recommendation:

1. Continuation of the program at the current level of activity

Rationale:
(If you recommend a program for resource development identify all areas for specific development)

The MS program in Biomedical Sciences is an excellent program and supports the mission of Marshall University by providing graduates who have broad knowledge of the biomedical sciences. There is a need for these graduates to support research at Marshall and to be a pipeline for applicants to the Joan C. Edwards School of Medicine. Our graduates enhance the quality of health care in the region. The Medical Sciences area of emphasis has a very good track record of placing graduates in medical school, with 87% of those students applying since 2009 matriculating into medical school. And almost all of these students enter the Joan C. Edwards School of Medicine. Many of the research MS students enter our PhD program.

The faculty in the program are well-qualified and contribute to the teaching, research, and service functions of the University. All are involved in the training and education of our graduate and medical students. There are fewer assistant professors in the program compared to the last review in 2009, but efforts are being made to increase the size of the faculty, which will benefit both teaching and research.

Plans are in place to improve the quality of the education of our students. New courses are being developed, and graduate students will no longer have to take medical school courses as part of their curriculum. These changes will begin this fall with the entering class of students.

Plans are also in place to increase the diversity of the student population and to provide enhanced career counseling to our students.

Funding is always an issue. We are working diligently to increase the capability of our faculty to receive extramural funding, which will improve the research environment at Marshall.

The MS program in Biomedical Sciences is a quality program that makes an important contribution to graduate education at Marshall. The program prepares graduates for success in both medicine and biomedical research. I recommend continuation of the program at the current level of activity.

Signature of the Dean

Date

2-12-15
Marshall University
Program Review

For purposes of program review, the academic year will begin in summer and end in spring.

Program: Master of Science in Biomedical Science
College: Joan C. Edwards School of Medicine
Date of Last Review: Academic Year 2009 - 2010

I. CONSISTENCY WITH UNIVERSITY MISSION
The mission of the Biomedical Sciences (BMS) Research M.S. program is to produce graduates who have broad didactic knowledge in the biomedical sciences, but also have specialized research training in one of our five interdisciplinary research clusters: Cancer Biology; Cardiovascular Disease, Obesity, and Diabetes; Infectious and Immunological Diseases; Neuroscience and Developmental Biology; Toxicology and Environmental Health Sciences. The mission of the M.S. Medical Sciences area of emphasis is to provide an opportunity for students to enhance their competitiveness for admission to medical school. This increases the pool of qualified applicants to the Marshall University Joan C. Edwards School of Medicine.

The M.S. in Biomedical Sciences supports the mission of Marshall University by providing high quality graduate education for the state and region, enhancing the quality of health care in the region, promoting economic development through research, educating a citizenry capable of living and working effectively in a global environment, and furthering the intellectual life of the community and region.

The M.S. in Biomedical Sciences supports the mission of the School of Medicine by producing new knowledge in biomedical research and providing a source of highly qualified applicants for training as physicians by our School of Medicine.

II. Adequacy of the Program

1. Curriculum:
The BMS Program offers both thesis and non-thesis Master of Science (M.S.) degrees. All students are required to complete core courses in foundations of biomedical science, biostatistics, seminar, and introduction to research. All thesis students take courses in communication skills and the research ethics. In addition, each research cluster has course requirements for students who choose to do research in their cluster (see Appendix I). The thesis M.S. usually takes three years to complete. Students in the Medical Sciences area of
emphasis take a two-year curriculum to complete the requirements for their M.S. Most of their classes are taken with the medical students at the Joan C. Edwards School of Medicine. These students also must take the core courses in the BMS program. Thirty-six credit hours are required for a non-thesis Master’s and 32 hours for a thesis Master’s.

2. Faculty:
At present (October 2014), the BMS faculty consists of 27 full-time faculty whose primary appointments are in the three basic science departments (Anatomy and Pathology, Biochemistry and Microbiology, and Pharmacology, Physiology and Toxicology) within the Joan C. Edwards School of Medicine. We do not have part time faculty and have no immediate plans to employ such faculty members. There are 3 additional faculty from the Dean’s Office in the School of Medicine, 3 faculty from departments in the College of Science who hold joint appointments in BMS departments, and 1 faculty from the School of Pharmacy. All have various levels of graduate faculty status that enable them to participate in training of graduate students. Of the 34 total full-time faculty associated with the program, 29 are tenured. The rank of full-time faculty consists of 21 full professors, 9 associate professors and 4 assistant professors. Compared with the previous five-year report, there are an increased number of full professors and fewer assistant professors. We believe this is due to 1) promotion of associate professors to full professors, 2) hiring of a new Dean in the School of Medicine, which resulted in the hiring of new full professors, and 3) hiring of fewer new assistant professors. Almost all of the full-time faculty teach medical and graduate students. The BMS faculty have an exceptional record of teaching, research and service. This is documented in the Faculty Data Sheets (Appendix II). (The Medical School does not use Digital Measures.)

3. Students:

a. **Entrance Standards:**
Applicants to the BMS Program must meet the admission requirements of the Marshall University Graduate College and the Graduate Studies Committee (GSC) of the Biomedical Sciences Program at the Marshall University Joan C. Edwards School of Medicine. Applicants must possess a baccalaureate degree with undergraduate-level course work that includes one year of general biology, one year of general physics, one year of introductory chemistry, and one year of organic chemistry, all with associated laboratories. Qualified applicants are expected to have a minimum undergraduate GPA of 3.0 on a 4.0 scale.

While there is no set minimum for scores on the Graduate Record Examination (GRE), applicants should have scores at or above the 50th percentile. (Before August 1, 2011, scores for each section were scaled from 200-800 in 10-point increments. Applicants were expected to have cumulative scores of at least 1,000. After August 1, 2011, scores for each
section were scaled from 130-170 in 1-point increments, thus the switch to percentiles.) Medical Sciences applicants should score 22 or above on the Medical College Admission Test (MCAT). Three letters of reference and a personal statement are also required. Applicants to the M.S. degree program are accepted on a rolling admissions basis, with a deadline for fall admission of June 1st. These students are not eligible for a research assistantship from the BMS program.

b. **Entrance and Exit Abilities of past five years of graduates:**
Appendix III shows that in the last five years our M.S. graduates from all areas of emphasis entered the program with yearly mean undergraduate GPAs that ranged from 3.29 to 3.42. The yearly mean GRE Verbal percentiles ranged from 44 to 68, and the yearly mean GRE Quantitative percentiles ranged from 49 to 54. Appendix III also shows the entrance abilities for the research and medical sciences areas of emphasis separately.

No standardized licensing or proficiency tests exist to measure the abilities of M.S. degree graduates in biomedical sciences. Each graduate demonstrates his/her ability based upon performance in course work, and successful defense of the thesis.

To qualify for the M.S. degree in Biomedical Sciences, a student must maintain at least a 3.0 GPA. A minimum of 36 credit hours for a non-thesis M.S. degree or 32 credit hours for a thesis M.S. degree is required. All M.S. students must pass Foundations of Biomedical Science (BMS 600), Statistics (BMS 617, EDF 517, BSC 517, or MTH 518), Biomedical Sciences Seminar (BMS 680, 4 hours), and Introduction to Research (BMS 685). All research M.S. students must also pass Communications Skills in Biomedical Sciences I and II (BMS 660 + 661) and Thesis (BMS 681). Medical Sciences students must also pass Neurophysiology (PHS 628), and Medical Microbiology I and II (MCB 631 + 632). All students have additional required course(s) as mandated by their area of emphasis. Elective courses approved by the student’s advisory committee provide the remainder of credit hours.

In addition to the successful completion of course work, Medical Sciences students must pass a comprehensive exam (70% correct or better) covering the required courses - BMS 600, PHS 628, MCB 631, and MCB 632. Students in the research areas of emphasis may either write a thesis completed to the satisfaction of his/her advisory committee or write a review paper on a subject relevant to their research. The student must orally defend either the thesis or the review paper to the satisfaction of his/her advisory committee. The advisory committee consists of three or more faculty members with appropriate expertise for the student’s area of emphasis.

Appendix IV shows that these graduates also compiled respectable GPAs during their graduate program, with yearly means ranging from 3.24 to
3.53. The GPAs for the M.S. graduates are also separated into research and medical sciences areas of emphasis.

4. Resources:

a. Financial:

Table 1. Personnel Support

<table>
<thead>
<tr>
<th>FY 2013-14</th>
<th>STATE</th>
<th>GRANTS/CONTRACTS/OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS Faculty/Staff</td>
<td>$5,251,920</td>
<td>$ 751,496</td>
</tr>
<tr>
<td>BMS Student Stipends</td>
<td>$ 322,320</td>
<td>$ 181,000</td>
</tr>
</tbody>
</table>

Table 2. Support Resources

<table>
<thead>
<tr>
<th>FY 2013-14</th>
<th>STATE</th>
<th>GRANTS/CONTRACTS/OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>$ 100,000</td>
<td>$5,187,734</td>
</tr>
<tr>
<td>Operating Budget</td>
<td>$ 228,903</td>
<td>$ 57,000</td>
</tr>
<tr>
<td>Res. &amp; Grad. Ed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Budget</td>
<td>$ 330,000</td>
<td></td>
</tr>
<tr>
<td>3 BMS Departments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Tech.</td>
<td>$ 200,000</td>
<td></td>
</tr>
<tr>
<td>Health Science Lib.</td>
<td>$ 500,000</td>
<td></td>
</tr>
<tr>
<td>Animal Resources</td>
<td></td>
<td>$ 65,000</td>
</tr>
<tr>
<td>Radiation Safety</td>
<td>$ 101,874</td>
<td></td>
</tr>
<tr>
<td>Total Tables 1 &amp; 2</td>
<td>$7,035,017</td>
<td>$6,242,230</td>
</tr>
</tbody>
</table>

In the current Joan C. Edwards School of Medicine budget, approximately $7 million of state-appropriated funds are allocated to the BMS program. This represents an increase from the amount allocated to the BMS program in the last 5-year program review ($6,116,778). This change is due in part to the increase in number of BMS faculty and staff and an increase in the operating budgets due to increased fee income from the Medical Sciences students. Of the amount dedicated to the student stipends in the BMS program, $320,000 is used to support fully or in part 20 Ph.D. stipends (research assistantships) at $23,000 - $25,000/student. (When a Ph.D. student enters their third year of the program, the BMS Program pays half of the stipend and the other half is derived from the head of the lab, the department, or grants.) $155,800 of grant money is used to support an additional 9 Ph.D. stipends. These funds come from
the STEM Fellows grant from the WV State Research Challenge fund. This grant was competitively renewed for an additional 4 years in January 2014. One student was supported by the University Chancellor's Scholar Program.

Two M.S. students have Graduate Assistantships, which pay $2320 in stipends.

It should be noted that in the current fiscal year, 2014-15, the BMS Program and each department received a 12% budget cut because of a reduction in state monies.

A large grant of note is the Infrastructure of Biomedical Research Excellence grant, which was renewed in the fall of 2014. Although this is a statewide grant, Dr. Gary Rankin, Chair of Marshall's Pharmacology, Physiology and Toxicology Department, is the Primary Investigator and Marshall is the lead institution. This 5 year award amounts to ~$17.6 million over a five year period (2014 - 2019). This grant was not included in the 2009 review.

Effect of Program Termination: If the BMS program were to be terminated the State would recover the $320,000/year used for Ph.D. stipends. Also the cost of administrative supplements to the BMS Dean, Director of Graduate Studies, one full-time staff member and one part-time staff member could be recovered. $180,000 in the animal resources budget might be recovered if the University decided to discontinue all research and training involving animals. $101,874 in the radiation safety budget might be recovered if the University decided to discontinue all research and training involving radiation. However, termination of the BMS program would likely result in a loss of a significant number of productive faculty members who consider research and graduate education as essential to their professional development. This loss in turn would reduce the quality of medical education, because practicing scientists bring the latest information in their field to medical students and physician faculty members. Loss of this program would likely jeopardize accreditation of the medical school by the LCME. In addition if the BMS program were terminated most, if not all, of the collaborations with the College of Science and the Marshall Institute for Interdisciplinary Research would be lost. It would likely result in many empty laboratories in the BBSC and the TGRI. Lastly, the University, through the BMS faculty, would likely lose a significant amount of the indirect cost funds that accompany most of the grants awarded to our faculty. It should be noted that School of Medicine faculty currently bring in the majority of grant funds awarded to Marshall University.
b. **Facilities:**

The majority of the BMS program is housed in the Robert C. Byrd Biotechnology Science Center (BBSC) located on the main campus of Marshall University. Most of the Anatomy section and all of the Pathology section of the Anatomy and Pathology Department is still housed in the Coon Education Building (CEB) on the Huntington VA Medical Center Campus. The BMS faculty and students currently occupy ~12,000 sq. ft. of laboratory space, ~3,200 sq. ft. of shared core facilities and ~4,000 sq. ft. of faculty office space. The BMS administrative suite contains ~ 1,800 sq. ft. of office space for the Director of Graduate Studies and various staff members involved in BMS program affairs. The suite also contains a high throughput copier, computer grading equipment, a small kitchen and a conference room. Additional shared facilities with the College of Science include a 128-seat classroom, and a 50-seat classroom. Both classrooms are equipped with ceiling mounted LCD projectors and well as video cameras for distance transmission of classes. There are also three large (350 sq. ft.) conference rooms equipped for video conferencing. Also a state-of-the-art animal resource center (~ 6,000 sq. ft.) is located on the first floor of the BBSC.

The Genomics and Bioinformatics Core in the BBSC has 1,200 sq. ft. of space. It is currently equipped with an Illumina HiSeq1500 next generation sequencer, a Covaris S2 DNA Shearing Station, Linux server with 48 Terabytes for storage of sequencing data, 48 CPUs and 128GB memory, a Mac OS X Server with 12 CPUs, 6TB storage and 48GB memory, an ABI Model 7000 Sequence Detection Systems (for RT PCR), an ABI 3130 Genetic Analyzer, one ABI StepOne Plus Real Time PCR system, three Agilent 2100 Bioanalyzers (two of which handle high sensitivity DNA Chips), 2 Qubit and 2 NanoDrop spectrophotometers, a Luminex 200 system, five MJ/BioRad PTC200 Thermal Cyclers, one Savant SpeedVac Concentrators and a Fast Prep FP120 Homogenizer.

The CEB contains ~ 75,000 sq. ft. of usable space. At the present time, approximately 20% of that space is used by BMS faculty.

The new Charles H. McKown, Jr. Translational Genomics Research Institute (TGRI) is located on the top floor of the Edwards Cancer Center on the Cabell Huntington Hospital campus approximately one mile from the main campus. BMS faculty and students occupy 2,250 sq. ft. of laboratory space, 1,550 sq. ft. of shared core facilities, and 700 sq. ft. of office space.

Faculty and staff in the Biotechnology Center have both Ethernet access to the main campus computer network, as well as WiFi access throughout all campus locations. Students have WiFi access throughout all campus locations. The IT infrastructure in the CEB and BBSC includes local area network, which provides gigabit Ethernet connectivity to the desktop for the internal LAN. The BBSC backbone exists on the campus internal fiber network. The CEB backbone provides 100MB connection to the campus network.
internal network. Ubiquitous wireless 802.11g/n connectivity is also provided across all campus locations.

The main Health Sciences Library is located in the Robert C. Byrd Rural Health Center on the Medical Center Campus. It currently has access to over 500 online journals. Students and faculty are likely to use the electronic/online journals. This trend has been accelerated in recent years due to the popularity of “open access” journals that allow free access and download of their content. In addition many of the basic science departments and faculty have online subscriptions to specialty journals. This is supplemented with electronic delivery via email of articles that are not contained in the current holdings of the Health Sciences Library.

5. Assessment Information:

a. A summary of the 2013-14 program assessment is included in Appendix V.

b. Other Learning and Service Activities:
The BMS students have a very active graduate student organization (GSO). They have helped the program in talking to prospective students, mentoring new students in the program, and tutoring students taking BMS 600. The GSO is active in a number of service projects in the community, and they fund two $500 student scholarships. A representative selected by the GSO serves on the Graduate Studies Committee, which is the admissions and policy-making body for the BMS program. Senior students have the opportunity to teach courses in the program and in the College of Science.

c. Plans for Program Improvement:

1) We need to improve the quality of our introductory biochemistry and cell biology course, Foundations of Biomedical Science (BMS 600). It is currently a 7 credit hour course taught in one semester. This places too great a burden on students to do well. If a student gets a C in this course, it usually takes 2-3 semesters to improve their GPA to 3.0 to be removed from academic probation. And 7 hours of C in BMS 600 reduces significantly a Medical Sciences student's chances for admission to medical school. A task force was convened to look at the course and make recommendations to the GSC. This task force concluded that the material should be taught as a series of courses over one year. The recommendation is to teach the material in four courses - BMS 601, 602, 603, and 604. Each course will be 1-3 credit hours, so if a student does poorly in one course, it will have less of a negative impact on their GPA. The goal is to start teaching the new courses in the 2015-16 academic year.
**Time Line**

November 2014: Draft syllabi for each course are presented to the GSC for approval.
November-December 2014: New course approval forms are submitted to Graduate Council.
Fall semester 2015: BMS 601 and 602 are taught.
Spring semester 2016: BMS 603 and 604 are taught.

2) We need to increase the diversity of our student population. Representatives from the BMS Program have attended the Annual Biomedical Research Conference for Minority Students. The BMS Program also sponsors the Summer Research Internship for Minority Students (SRIMS), which brings in 4 students each summer to work in the laboratories of BMS faculty. Dr. Green attended a GRE workshop designed to help programs establish and run a GRE preparatory course. But more could be done to increase diversity by improving the applications of students, particularly in the Ph.D. program. We also need to do more to retain the students already in the program.
The goal is to increase our underrepresented minority student population to 10%.

**Time Line**

November 2014: Meet with Dr. Shelvy Campbell, Assistant Dean for Diversity, to develop plans for increasing diversity and retaining students already in the program.
Spring semester 2015: Meet with the HELP Center to discuss ways to improve study and test-taking skills.
Spring semester 2015: Meet with the Dr. Joseph Shapiro, Dean, School of Medicine, and University representatives to develop methods for funding partial or full stipends of M.S. students along with tuition waivers.
Summer 2015: As part of the SRIMS Program, Dr. Green will teach a GRE preparatory course.
Fall 2016: Fund 1-2 underrepresented minority students in the M.S. program.

3) We need to increase the number of career options for our students. Most of the M.S. students are in the Medical Sciences area of emphasis and want to attend medical school. But even with our high success rate of matriculation, not all students are successful applicants. We have started a career awareness series for the Ph.D. students that includes outside speakers and internships. We can use this model for the M.S. students. We also plan to develop dual degree options.
The goals are to establish dual degrees for our M.S. students by the 2016-17 academic year and involve the M.S. students in the career awareness program.
Time Line
January 2015: Meet with Dr. William Pewen, Program Director, Graduate Program in Public Health, College of Health Professions to discuss dual M.S. - M.P.H. degree.
Meet with Haiyang Chen, Dean, Lewis College of Business, to discuss dual M.S. - M.B.A. degree.
Spring semester 2015: Begin career speaker series for M.S. students.
Fall semester 2015: Begin internship program for M.S. students.
Fall semester 2015: Begin dual M.S. - M.P.H. degree.
Fall semester 2016: Begin dual M.S. - M.B.A. degree.

4) We need to institute an exit survey of our graduates. We established a database of graduates, which was one of the goals of the program in the 2009 review. We are in contact with most of our graduates, which will allow us to contact them for a survey. The goal is to survey our graduates by the end of the 2014-15 academic year.

Time Line
November 2014: Meet with Ms. Diana Maue, Recruitment Coordinator, to plan exit survey.
Spring semester 2015: Pilot exit survey with selected group of graduates.
Summer 2015: Begin exit survey with all graduates.

d. Graduate Satisfaction:
The best measure of graduate and employer satisfaction is either the number of students accepted into medical school (medical sciences area of emphasis) or the number of graduates employed or engaged in further training in biomedical sciences. Over the last five years, a total of 82% of our M.S. graduates are either in professional school or working in their field of study. For the medical sciences students, 85% are either in medical or pharmacy school.

As stated above, one of the program goals is to institute an exit survey of our graduates. That will give us more information on their satisfaction with the program.

e. The previous five years of assessment report evaluations for the MS in Biomedical Science are provided in Appendix IX.

6. Previous Reviews: At its meeting on April 22, 2010, the Marshall University Board of Governors recommended that the MS in Biomedical Science continue at its current level of activity.
7. **Identify weaknesses and deficiencies** noted in the last program review and provide information regarding the status of improvements implemented or accomplished.

In its last program review, completed in academic year 2009 – 2010, the M.S. in Biomedical Science identified the following weaknesses. These are transcribed verbatim from that report.

**Space:** Although most of the BMS faculty moved into the Biotechnology Center two years ago, we are already short on space. This is due to having to reserve two 600 square foot labs on each of the floors the BMS faculty occupy for President Kopp’s MIIR and to the hiring of new very research-active faculty members. A recent grant from HRSA to fund the completion of shell space on the top floor of the Edwards Cancer Center will help to alleviate the space crunch. It is likely that several BMS faculty who currently have labs in the Biotech Center will move their labs into space within the Edwards Cancer Center. The acquisition of this new lab space should temporarily address the acute issue of research space. Longer term, President Kopp has mentioned the possibility of research space for some BMS faculty in the planned Engineering/Nanotechnology building next to the Biotechnology Center on the main campus. Also a second building at the Fairfield Medical campus is part of the long-range plans of the School of Medicine. This building could have research laboratories for basic and clinical faculty engaged in translational research.

**Status of improvements**
The opening of the TGRI has for now alleviated the space crunch described in the last program review. If more faculty are hired into the program, then space will become an issue again.

The last current weakness is our inability to provide medical insurance for our graduate students. We have raised this topic with the former and current Provost, the former Dean of the Graduate School and with the Dean of the School of Medicine. None of these avenues has been successful. The Graduate Studies Committee will again revisit this issue in the current 2009-2010 AY.

**Status of improvements**
In 2013-14, we instituted a policy of providing $850 towards the cost of health insurance for our Ph.D. students. We do not provide money for health insurance for our M.S. students.

8. **Current Strengths/Weaknesses:**

**Strengths**
The quality of the BMS faculty is a major strength of the BMS program. The faculty spend many hours teaching graduate and medical students. We teach the same courses as larger medical schools that have more faculty. With the emphasis by the LCME on active learning in the medical school curriculum, this
has increased the number of contact hours faculty have with students. Thus the BMS faculty do more teaching than faculty at most medical schools. In addition to teaching, BMS faculty have an active research program. Despite the very restrictive funding rate for extramural grants, faculty have been able to obtain extramural funding. But there is room for improvement. A summary of faculty achievements is provided in Appendix II.

Our students are another of our strengths. The M.S. students in the Medical Sciences area of emphasis continue to be accepted into medical schools at a very high rate. The president of each of the current medical school classes was a Medical Sciences student. Most of our research M.S. students are accepted into Ph.D. programs.

Another strength of our program is our emphasis on communication skills. This includes a formal course in speaking and writing in the first year followed by several different types of oral presentations such as a formal teaching lecture appropriate for graduate classes, a scientific talk to a lay audience, two presentations at scientific meetings, a scientific seminar midway through their research project and a final dissertation seminar. Feedback from colleagues at other universities where our students have presented seminars has been uniformly positive.

**Weaknesses**

One weakness is the lack of new faculty at the assistant professor level. Senior faculty are retiring but are not being replaced. It is possible that if no new assistant professors are hired, within 2-3 years all of the BMS faculty will be at the associate or full professor level. Without new faculty and their approaches to research and teaching, it is difficult for the current faculty to change. And as older faculty retire, there is no one to replace them in the teaching of courses, adding to the load of the current faculty. A search is on for the new chair of the Biochemistry and Microbiology Department. The new chair may be able to hire 1-2 assistant professors in the department.

Another weakness is the difficulty in obtaining NIH extramural funding by junior faculty. The success rate for all investigator-initiated RO1 grants from the NIH is low; our faculty have been unsuccessful in obtaining these grants. They have done better with R15 AREA grants, which are given to investigators in states such as West Virginia. To improve the success rates for NIH grants, the School of Medicine has instituted a series of small pilot grants of $25,000. The School is also in the process of submitting a large multi-investigator grant with both junior and senior faculty to the NIH. A successful application will help junior investigators in obtaining extramural funding.
III. Viability of the Program:

1. Articulation Agreements:
   Marshall University has signed exchange agreements with Universita’ dell’Aquila in Italy, with the Institute of Clinical Physiology, CNR, Siena, Italy, and with the Ceinge Research Institute, University of Naples, Italy for graduate students to spend short times (3-6 months) in the host country performing research that contributes to their thesis research. There is no formal delivery of courses, but students may sit in on a course of their choosing. Marshall also has an articulation agreement with the Zhejiang Academy of Agricultural Sciences in Hangzhou, China. Students can go to the Academy for short-term study.

2. Off-Campus Classes:
   Not applicable

3. Online Courses:
   Not applicable

4. Service Courses:
   Not applicable

5. Program Course Enrollment:
   See Appendix VI.

6. Program Enrollment:
   See Appendix VII.

7. The trend line for program enrollment and graduation numbers is provided in Figure 1, which follows Appendix VII.

8. Enrollment Projections:
   We expect enrollment to remain constant in the next 5 years, with 1-2 research MS and 12-18 Medical Sciences MS students entering each year. There will be a pool of students both inside and outside of West Virginia who will be interested in attending either medical or other health-related professional schools.

IV. Necessity of the Program:

1. Advisory Committee:
   The M.S. degree program in Biomedical Sciences is supervised by the Graduate Studies Committee (GSC), which functions as the internal advisory and quality control committee of the Program. Actions of the GSC are subject to approval by the Deans of the Graduate College and Medical School and the Graduate Council.
   Functions of the GSC include:
   a. evaluation of student applications and selection of new students
b. allocation of assistantships

c. monitoring composition and activities of student advisory committees

d. formulation of guidelines relating to: (1) student conduct; (2) student leave of absence; (3) responsibilities of assistantship; (4) academic progress; and (5) dismissal procedures

e. review of curriculum

f. review and recommendation of BMS faculty for membership in the Graduate Faculty of Marshall University

Organizational structure of the GSC includes:

a. Coordinators of the five different Research Clusters serve as voting members of the GSC for as long as they hold the Coordinator position.

b. The Biomedical Sciences Dean (position currently vacant) serves as an *ex officio* member for an indefinite term.

c. The Director of Graduate Studies serves as the Chair of the GSC for an indefinite term. The Chair of the GSC only has voting privileges in case of a tie vote by members of the GSC.

d. Two at-large BMS faculty representatives serve three-year terms. One of these at large representatives must be from the College of Science.

e. One BMS doctoral student selected by the Graduate Student Organization is *ex officio* member serving an indefinite term.

In addition to the GSC, the BMS program, as a result of obtaining a STEM Fellows grant from the WV Research Challenge program, has an External Advisory Committee. This committee consists of Joel Hockensmith, Ph.D., Assistant Dean of Graduate Research and Training at the University of Virginia, Theresa O’Brien, Ph.D., Associate Dean for Research Strategy, School of Medicine, University of California, San Francisco, and Bob Sanders, Ph.D., Professor of Molecular Genetics and Microbiology, University of Texas – Austin. The committee has visited Marshall four times, with the most recent in August 2013.

2. **Graduates:**

   Most of our M.S. students are in the Medical Sciences area of emphasis and were accepted into either allopathic or osteopathic medical schools. Two research M.S. graduates were accepted into a Ph.D. program, including the Marshall BMS Program. Two research M.S. graduates are working in laboratories at Marshall.

V. **RESOURCE DEVELOPMENT (If applicable)**

Not applicable.
Appendix I
Required/Elective Course Work in the Program

Degree Program: **Biomedical Sciences M.S.**  
Person responsible for the report: **Todd L. Green**

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours</th>
<th>Elective Credit Required by the Major (By Course Number and Title)</th>
<th>Elective Hours</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL STUDENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 600 - Foundations of the Biomedical Sciences</td>
<td>7</td>
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<tr>
<td>BMS 680 - Seminar</td>
<td>4</td>
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<tr>
<td>BMS 685 - Introduction to Research</td>
<td>3</td>
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</tr>
<tr>
<td>ALL RESEARCH STUDENTS</td>
<td>3</td>
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<tr>
<td>BMS 617 - Statistical Techniques for the Biomedical Sciences</td>
<td>3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BMS 644 - Responsible Conduct of Research</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BMS 660 - Communication Skills I</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BMS 661 - Communication Skills II</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 681 - Thesis</td>
<td>3-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 882 - Research</td>
<td>1-15</td>
<td></td>
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</tr>
</tbody>
</table>

**MEDICAL SCIENCES STUDENTS**
- PHS 629 - Mammalian Physiology
- PMC 621 - Medical Pharmacology I
- PMC 622 - Medical Pharmacology II

**RESEARCH STUDENTS**
Electives vary by area of emphasis and decision of student's advisor and advisory committee. Appendix I Supplement lists available electives.

**Related Fields Courses Required**
- BSC 517/MTH 518 - Biostatistics (Medical Sciences students only)

**Total Related Hours**
- 3
Appendix I
Required Course Work in the Program

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
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<th>Elective Credit Required by the Major (By Course Number and Title)</th>
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<tbody>
<tr>
<td><strong>ALL MEDICAL SCIENCES STUDENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHS 628 - Neurophysiology</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MCB 631 - Medical Microbiology I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MCB 632 - Medical Microbiology II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><em>Each research cluster has required courses.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CANCER BIOLOGY STUDENTS</strong></td>
<td></td>
<td></td>
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<tr>
<td>BMS 651 - Cancer Biology</td>
<td>4</td>
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</tr>
<tr>
<td>BMS 652 - Cancer Colloquium</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td><strong>CARDIOVASCULAR DISEASE, OBESITY, AND DIABETES (CODRC) STUDENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 665 - CODRC Colloquium</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>PHS 628 - Neurophysiology</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PHS 629 - Mammalian Physiology</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>PHS 666 - Physiology of the Cell</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
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Required Course Work in the Program

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<th>Total Required Hours</th>
<th>Elective Credit Required by the Major (By Course Number and Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INFECTIOUS AND IMMUNOLOGICAL DISEASES STUDENTS</strong></td>
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</tr>
<tr>
<td>MCB 622 - Current Topics in Molecular Biology</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>MCB 631 - Medical Microbiology I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MCB 632 - Medical Microbiology II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MCB 643 - Principles of Immunology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MCB 648 - Molecular Aspects of Pathogenesis</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>NEUROSCIENCE AND DEVELOPMENTAL BIOLOGY (NDB) STUDENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 631 - NDB Literature Review</td>
<td>1-6</td>
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</tr>
</tbody>
</table>
### Appendix I

**Required Course Work in the Program**

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours</th>
<th>Elective Credit Required by the Major (By Course Number and Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neuroscience Track</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 628 - Neuroscience I AND BMS 629 - Neuroscience II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>OR ACB 633 - Neuroanatomy I AND ACB 634 - Neuroanatomy II</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>OR PHS 628 - Neurophysiology</td>
<td>2</td>
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</tr>
<tr>
<td><strong>Developmental Biology Track</strong></td>
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<tr>
<td>BMS 641 - Molecular Developmental Biology</td>
<td>3</td>
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<tr>
<td><strong>TOXICOLOGY AND ENVIRONMENTAL HEALTH SCIENCES STUDENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMC 650 - General Toxicology</td>
<td>3</td>
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<tr>
<td>PMC 655 - Toxicology Reviews</td>
<td>1-3</td>
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</tbody>
</table>

Professional society that may have influenced the program offering and/or requirements: None
## Appendix I - Supplement
### Elective Course Work in the Program

<table>
<thead>
<tr>
<th>Elective Credit (By Course Number and Title)</th>
<th>Elective Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 628 - Neuroscience I</td>
<td>3</td>
</tr>
<tr>
<td>BMS 629 - Neuroscience II</td>
<td>3</td>
</tr>
<tr>
<td>BMS 631 - NDB Literature Review</td>
<td>1</td>
</tr>
<tr>
<td>BMS 651 - Cancer Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 652 - Cancer Colloquium</td>
<td>1</td>
</tr>
<tr>
<td>BMS 665 - CODRC Colloquium</td>
<td>1</td>
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<tr>
<td>BMS 670 - Molecular Cloning</td>
<td>2</td>
</tr>
<tr>
<td>BMS 674 - Teaching Practicum</td>
<td>1</td>
</tr>
<tr>
<td>BMS 675 - Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td>BMS 679 - Special Problems</td>
<td>1-3</td>
</tr>
<tr>
<td>ACB 621 - Gross Anatomy I</td>
<td>2</td>
</tr>
<tr>
<td>ACB 622 - Gross Anatomy II</td>
<td>6</td>
</tr>
<tr>
<td>ACB 629 - Microscopic Anatomy I</td>
<td>1</td>
</tr>
<tr>
<td>ACB 630 - Microscopic Anatomy II</td>
<td>3</td>
</tr>
</tbody>
</table>
## Appendix I - Supplement
### Elective Course Work in the Program

<table>
<thead>
<tr>
<th>Elective Credit (By Course Number and Title)</th>
<th>Elective Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACB 632 - Principles of Mammalian Development</td>
<td>3</td>
</tr>
<tr>
<td>ACB 633 - Neuroanatomy I</td>
<td>2</td>
</tr>
<tr>
<td>ACB 634 - Neuroanatomy II</td>
<td>2</td>
</tr>
<tr>
<td>ACB 640 - Current Topics in Cell Biology</td>
<td>1-3</td>
</tr>
<tr>
<td>ACB 650 - Research in Cell Processes</td>
<td>1-4</td>
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<tr>
<td>ACB 660 - Current Topics in Neurobiology</td>
<td>1-3</td>
</tr>
<tr>
<td>ACB 675 - Special Topics</td>
<td>1-4</td>
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<tr>
<td>ACB 676 - Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td>ACB 677 - Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td>BIC 638 - Advanced Molecular Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIC 643 - Molecular Signal Transduction</td>
<td>3</td>
</tr>
<tr>
<td>BIC 675 - Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td>MCB 622 - Current Topics in Molecular Biology</td>
<td>1</td>
</tr>
<tr>
<td>MCB 631 - Medical Microbiology I</td>
<td>3</td>
</tr>
<tr>
<td>MCB 632 - Medical Microbiology II</td>
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</tbody>
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## Elective Course Work in the Program

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<tr>
<th>Elective Credit (By Course Number and Title)</th>
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</tr>
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<tbody>
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<td>3</td>
</tr>
<tr>
<td>MCB 648 - Molecular Aspects of Pathogenesis</td>
<td>3</td>
</tr>
<tr>
<td>MCB 679 - Special Problems</td>
<td>1-3</td>
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<tr>
<td>PHS 628 - Neurophysiology</td>
<td>2</td>
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<tr>
<td>PHS 629 - Mammalian Physiology</td>
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<tr>
<td>PHS 641 - Recent Advances in Physiology</td>
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<tr>
<td>PHS 666 - Physiology of the Cell</td>
<td>3</td>
</tr>
<tr>
<td>PHS 675 - Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td>PMC 621 - Medical Pharmacology I</td>
<td>6</td>
</tr>
<tr>
<td>PMC 622 - Medical Pharmacology II</td>
<td>2</td>
</tr>
<tr>
<td>PMC 650 - General Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>PMC 655 - Toxicology Reviews</td>
<td>1</td>
</tr>
<tr>
<td>PMC 675 - Special Topics</td>
<td>1-4</td>
</tr>
</tbody>
</table>
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: **Nader Abraham**  
Rank: **Vice Dean for Research**

Status (Check one): Full-time **X**  Adjunct ______  Current MU Faculty: Yes **X**  No ___

Highest Degree Earned: **Ph.D.**  
Date Degree Received: **1975**
Conferring Institution: **Mount Sinai School of Medicine**

Area of Degree Specialization: **Biomedical Science**

Professional Registration/Licensure: __________________________________________________________

Field of Registration /Licensure: ____________________________________________________________

Agency: ________________________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  2

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. *(Expand the table as necessary)*

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.**

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research  
2) Service  
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.  
4) Awards/honors (including invitations to speak in your area of expertise) or special
1) Publications


Grants
Hormonal Regulation of Blood Pressure
NIH/NHLBI PPG
April 2011 - June 2016
$1,950,000

Heme Oxygenase Regulation of Eicosanoids Biosynthesis
NIH/NIDDK RO1 DK56601
July 2010 - January 2015
$2,350,000

Oxidative Stress and HO in Diabetes
NIH/NIDDK RO1 DK068134
$1,950,000

PPG Hormonal Regulation of Blood Pressure
NIH/NHLBI
July 2006 - December 2010
$1,950,000

3) American Heart Association
American Society of Hematology
American Society of Nephrology
American Physiological Society
Federation of American Societies for Experimental Biology
National Institutes of Health

Editorial Board - Frontiers in Oxidant Physiology

Journal Reviewer:
Proceedings of the National Academy of Sciences USA
Journal of Biological Chemistry
Science
FASEB Journal
American Journal of Physiology
Journal of Pharmacology and Experimental Therapeutics
Circulation
Circulation Research
Nature
Cancer Research Therapy and Control
Nitric Oxide
Hypertension Research
Hypertension Journal
Journal of Experimental Medicine
Austrian Research Council and The Wellcome Trust (UK) external reviewer
Chairman of International Conferences on Molecular Biology and Hematopoiesis

4) Rabin Medical Center; Tel Aviv, Israel 2010
   Institute of Rambam; Tel Aviv, Israel 2010
   University of Mobile; Alabama 2011
   Visiting Professor, Taiwan Physiological Society and Taiwan National Defense
   Hospital; Taipei, Taiwan 2011
   University of Florida; Gainesville, Florida 2011
   Experimental Biology Meeting 2011
   Eicosanoids in Cardiovascular Disease course; Erice, Sicily 2011
   Advances in Heme Oxygenase and Oxidative Stress Conference; Catania, Italy 2012
   Symposium Chairman, Emerging Role of Heme Oxygenase in Cardiovascular and
   Metabolic Diseases, Experimental Biology Meeting 2012
   Chair, HO-1 in diabetes and metabolic syndrome, 7th International Conference on
   Heme Oxygenase; Edinburgh, Scotland 2012
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Eric Blough

Rank: Professor

Status (Check one): Full-time_____ Adjunct __X___

Current MU Faculty: Yes _X___ No ___

Highest Degree Earned: PhD Date Degree Received: 12/97

Conferring Institution: Ohio State University

Area of Degree Specialization: Exercise Physiology

Professional Registration/Licensure: N/A

Field of Registration/Licensure: N/A

Agency: N/A

Number of years at Marshall (can be in either teaching or administration) 11

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>N/A</td>
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For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special
1. **SCHOLARSHIP / RESEARCH**

**FUNDING (ACTIVE)**

1. **“Mechanical unloading and irradiation-induced musculoskeletal loss and dysfunction: molecular mechanisms and therapeutic nanoparticles.”**
   - Principle Investigator: Miaozong Wu, Ph.D., co-PI and PI-mentor: Eric Blough, Ph.D.
   - Agency: NASA-EPSCoR
   - The long term objective of this project is to determine the efficacious of novel interventional strategies in preventing muscle atrophy.
   - $750,000 (Direct costs); (10/1/13-9/31/16)

2. **“Effects of cerium oxide nanoparticles on X-ray irradiated human keratinocytes”**
   - Principal Investigator: Nicole Winston, PharmD, Eric Blough Ph.D. (co-investigator)
   - Agency: West Virginia, Space Grant Consortium
   - The long term objective of this project is to determine if cerium oxide nanoparticles can protect skin cells from exposure to X-rays.
   - $10,000 (Direct costs); (6/15/2013-6/14/2014)

3. **“Establishment of a Center for Diagnostic Nanosystems”**
   - Principal Investigator: Eric Blough, Ph.D.
   - Agency: Department of Energy
   - The long term objective of this project is to establish a new research center at Marshal University
   - $4,765,515; (7/1/2010-9/30/2015)

**FUNDING HISTORY**

4. **Obesity-induced alteration of bone structure and function: molecular mechanisms and DMSO intervention”**
   - Principle Investigator: Miaozong Wu, Ph.D., Eric Blough Ph.D. (co-investigator)
   - Agency: West Virginia, Space Grant Consortium
   - The long term objective of this project is to determine if DMSO can improve bone mineral density under conditions of stimulated weightlessness.
   - $20,000 (Direct costs); (6/15/2012-6/14/2013)

5. **“Evaluation of niacin to improve vascular endothelial function in dialysis patients”**
   - Principal Investigator: Miaozong Wu, Ph.D., Eric Blough Ph.D. (co-PI)
   - Agency: Rezulin funding for translational intiatives.
   - The long term objective of this project is to determine the efficacy of niacin as a therapy to improve quality of life in dialysis patients.
   - $10,000 (Direct costs); (11/1/2012-10/31/2013)

6. **“The efficacy of trichostatin A to improve bone quality and function in hindlimb unloaded rat.”**
   - Principal Investigator: Miaozong Wu, Ph.D., Eric Blough Ph.D. (co-investigator)
   - Agency: West Virginia, Space Grant Consortium
   - The long term objective of this project is to determine if TSA can improve bone mineral density under conditions of stimulated weightlessness.
   - $20,000 (Direct costs); (6/15/2012-6/14/2013)

7. **“Trichostatin A as a countermeasure to aortic dysfunction following hindlimb unloading.”**
   - Principal Investigator: Miaozong Wu, Ph.D., Eric Blough Ph.D. (co-investigator)
   - Agency: West Virginia, Space Grant Consortium
   - The long term objective of this project is to determine if TSA can prevent changes in aortic stiffness following under conditions of stimulated weightlessness.
   - $10,000 (Direct costs); (6/15/2012-6/14/2013)

8. **“Establishing obese Zucker rats (Leprfa/fas) as a model of cardiovascular dysfunction for ONGLYZA (Saxagliptin) intervention”**
Principal Investigator: Eric Blough, Ph.D.
Agency: Bristal Meyer Squibb
The long term objective of this project is to determine the suitability of the obese Lepr/fa/fa as a model of cardiovascular dysfunction.
$85,050 (Direct costs); (4/1/2011-6/30/2013)

9. “Establishing the efficacy of TYLENOL for the prevention or attenuation of cardiovascular and skeletal muscle dysfunction in metabolic syndrome”
Principal Investigator: Eric Blough, Ph.D.
Agency: McNeil Pharmaceutical
The long term objective of this project is to determine if acetaminophen can prevent the development of metabolic syndrome in the obese Zucker rat.
$56,500 (Direct costs); (12/1/2010-11/30/2011)

10. “Effect of Exjade on hepatic fibrosis and iron regulatory protein expression following iron overload”
Principal Investigator: Eric Blough, Ph.D.
Agency: Novartis Pharmaceutical
The long term objective of this project is to determine if iron chelation is efficacious for the prevention of iron fibrosis following iron overload.
$49,500 (Direct costs) (11/15/2010-11/14/2011)

BOOK EDITOR

BOOK CHAPTERS


PUBLICATIONS (corresponding author; # undergraduate; 64 of 82 as corresponding author)


58. Regulation of iron-related molecules in the rat hippocampus: sex- and age-associated differences

57. Control of myosin activity by the reversible alteration of protein structure for applications in the
   development of a bionano device. Nalabotu SK, Takatsuki H, Kolli M, Frost L, Crowder L, Yoshiyama

   Pharmacology, 2:72, Nov. 2011.

55. Intratracheal instillation of cerium oxide nanoparticles induces hepatic toxicity in male Sprague dawley
   rats. Nalabotu SK, Kolli MB, Triest WE, Ma JY, Manne NDK, Katta A, Addagarla HS, Rice KM, and Eric

54. Submicron bioactive glass tubes for bone tissue engineering. Xie J, Eric R. Blough, and Wang C.

53. Long term efficacy of deferasirox in preventing cardiovascular complications in the iron overloaded gerbil.

52. Transport of single cells using an actin bundle muscle bionanomotor system. Takatsuki H, Tanaka H, Rice
   17,22(24):245101.

51. Deferasirox protects against iron-induced hepatic injury in Mongolian gerbil. Al-Rousan RM, Rice KM,


49. Acetaminophen improves protein translational signaling in aged skeletal muscle. Wu M, Liu H, Fannin J,
   2010 Sep 6.


47. Akt / protein kinase B in skeletal muscle physiology and pathology. Wu M, Falasca M, and Eric R.

46. Age and sex mediated changes in epicardial fat adipokines. Fei J, Cook C, Eric R. Blough, Santanam N.

45. Chronic acetaminophen attenuates age-associated increases in cardiac ROS and apoptosis in the Fischer
   Epub 2010 Apr 21.

44. Important roles of Akt/PKB signaling in the aging process. Wu M, Wang B, Fei J, Santanam N, and Eric


8. “Development of chromatin actuator for nanoscale manipulation”, Georgel P and E. R. Blough* 
9. “Antioxidants alone or in combination with iron chelation treat and prevent protein S-nitrosylation related 
disorders and diseases”, Wu M and E. R. Blough* 
10. “Prevention of Akt / protein kinase B s-nitrosylation and improvement of Akt-associated disorders and 
diseases”, Wu M and E. R. Blough* 
11. “Application of acetaminophen for prevention and treatment of dysregulation of phosphatase and tensin 
homolog deleted on chromosome 10 (PTEN)”, Wu M and E. R. Blough* 
kinas (MAPK)”, Wu M and E. R. Blough* 
13. “Application of acetaminophen for improvement of glucose transporter (Glut) expression, prevent and treat 
hyperglycemia” Wu M and E. R. Blough* 
Blough* 
15. “Use of acetaminophen for heavy metal chelation”, Walker EM and E. R. Blough 
16. “Use of acetaminophen for analysis of heavy metal levels”, Walker EM and E. R. Blough

Abstracts: Undergraduate author’s underlined
1. Utilizing the OSCE concept to help pharmacy student develop business planning skills embedded in a 

2. Acetaminophen Attenuates High Glucose-induced Oxidative Stress and Fibrogenesis in the Human Renal 

3. Obesity-associated renal injury: role of endoplasmic reticulum stress and the protective effects of 

4. Therapeutic potential of cerium oxide nanoparticles for the treatment of sepsis induced kidney 
oxide nanoparticle treatment for the treatment of sepsis induced cardiac dysfunction”. INBRE Research 
Symposium, Morgantown, WV, June, 2014.

Blough. Nanotek 2013, Los Vegas, December, 2013 (Best Poster Award)

6. Therapeutic application of nanoceria in treatment of sepsis induced heart injury”. Tanner M, Justice J, 
Doyle W, Manne NPK, Rice K, Frankhanel E, Ale J, and Eric R. Blough. 2013 MUSOM Research day, 
December, 2013.

7. Therapeutic application of nanoceria in treatment of sepsis induced kidney injury”. Justice J, Tanner M, 
Doyle W, Manne NPK, Rice K, Frankhanel E, Ale J, and Eric R. Blough. 2013 MUSOM Research day, 
December, 2013.

8. Therapeutic application of nanoceria in treatment of sepsis induced lung injury”. Ale J, Rice KM, 
Fankhane E, Doyle W, Tanner M, Justice J, Manne N, and Eric R. Blough. 12th annual WV-INBRE 
Summer Research Symposium 2013

9. Therapeutic application of nanoceria in treatment of sepsis induced liver injury”. Ale J, Rice KM, 
Fankhanel E, Doyle W, Tanner M, Justice J, Manne N, and Eric R. Blough. 12th annual WV-INBRE 
Summer Research Symposium 2013

Association of Colleges of Pharmacy, 2013.


Faculty awards:
2014- Nominated: Hedrick Award for the Outstanding Faculty Member at Marshall University
2013- Nominated: Hedrick Award for the Outstanding Faculty Member at Marshall University

University Committees
MU Faculty Senate (2013-)
MU Senate Research Committee (2013-)
MU Athletic Committee (2011-)

Pharmacy School Committees
Curriculum committee (2014-) Chair
Assessment committee (2014-) Vice Chair
ACPE steering committee (2012-)
ACPE writing committee 2013, 2014
Curriculum committee (2012-2013) Vice Chair, (2014- ) Chair
Assessment committee (2012- 2014) Chair, (2014- ) Vice Chair
Student executive committee (2012- ) Faculty representative
Faculty Affairs committee (2012- ) Elected representative for faculty
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: ___________ Pier Paolo Claudio _____________ Rank: __Associate professor__________

Status (Check one): Full-time __X__ Adjunct ______ Current MU Faculty: Yes __X__ No _____

Highest Degree Earned: __MD, PhD_________ Date Degree Received: ____1989, 1994__________

Conferring Institution: __________University of Naples, Federico II, Italy________________

Area of Degree Specialization: ____Medicine, Maxillofacial Sciences, Cancer Biology________

Professional Registration/Licensure: ______________________________________________________________________

Field of Registration /Licensure: _________________________________________________________________________

Agency: ____________________________________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) ____8____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<td>Cancer Biology Cluster Course: Tumors’ Overview, Tumors’ Etiology, and Cellular transformation; Cancer Stem Cells; Cancer Therapeutics (I and II).</td>
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<td></td>
<td>Cancer Grand Rounds Marshall University</td>
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<td>2013</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

A. Publications (books, articles, chapters, reviews, abstracts etc.)

BOOKS


BOOK CHAPTERS


PEER REVIEWED ARTICLES


19. Asen Begashev, Shongshan Fan, Ruma Mukerjee, Pier Paolo Claudio, Tinatin Chabrushvili, Roger Leng, Samuel Benchimol, Bassel E Sawaya. Cdk9 phosphorylates Pirh2 protein and


REVIEWS


B. Regional or National Presentations

Talks


8. **Pier Paolo Claudio.** *ChemID assay for personalized chemotherapy in solid tumors.* Saladax, June 29, 2012

9. **Pier Paolo Claudio.** *ChemID assay for personalized chemotherapy in solid tumors.* CDDC Symposium February 29, 2012


13. **Pier Paolo Claudio** Chemosensitivity assay for targeting cancer stem-like cells in malignant solid tumors. Taussig Cancer Institute, Cleveland Clinic, August 18, 2014. Cleveland, OH.

14. **Pier Paolo Claudio** Chemosensitivity assay for targeting cancer stem-like cells in malignant solid tumors. Case Comprehensive Cancer Center and University Hospitals, August 20, 2014. Cleveland, OH.


**Posters**


6. Wolf, M.A. and **P.P. Claudio.** (May **2013.** Benzyl isothiocyanate enhances chemotherapy and reduces migration and invasion of head and neck squamous cell carcinoma cells. 4th World Congress of the International Academy of Oral Oncology, Rhodes Island, Greece.


8. Rounak Nande and **Pier Paolo Claudio.** Joan C. Edwards School of Medicine, 25th Annual Research Day, **2013.** “Targeting a newly established spontaneous feline fibrosarcoma cell line by gene transfer.”

9. Rounak Nande and **Pier Paolo Claudio.** 87th annual meeting of the West Virginia Academy of Science and the 4th biennial STaR Symposium, WV State University, April, **2012.** “Comparison of micro-bubble assisted p53, pRB, and p130 gene therapy in combination with radiation therapy in prostate cancer in vitro and in vivo.”


11. Sarah Mathis and **Pier Paolo Claudio.** Marshall University 24th Research Day March 20th, **2012.** Marshall University Joan C. Edwards School of Medicine, Cabell Huntington Hospital in Huntington, WV. “Personalized Chemotherapy Identified for a Case of Progressing Spinal Ependymoma.”

12. Sarah Mathis and **Pier Paolo Claudio.** Advances in Cell Differentiation and Development Symposium March 23rd, **2012.** Cell Differentiation and Development Center (CDDC) Second Annual Symposium, Memorial Student Center, Marshall University. “Personalized Chemotherapy Identified for a Case of Progressing Spinal Ependymoma.” **First place in the graduate student category.**


14. Sarah Mathis and **Pier Paolo Claudio.** CCTS Center for Clinical and Translational Science Spring Conference March 29th **2012.** University of Kentucky, Lexington KY. “Personalized Chemotherapy Identified for a Case of Progressing Spinal Ependymoma.”

15. Sarah Mathis and **Pier Paolo Claudio.** ARCC Appalachian Regional Cell Conference October 12th **2012.** Charleston Area Medical Center in Charleston, WV. “Personalized Chemotherapy Identified for a Case of Progressing Spinal Ependymoma.” **Best in Group poster competition**

16. Sarah Mathis and **Pier Paolo Claudio.** STaR Symposium April 20-21st, **2012.** West Virginia State University, Institute, WV. “Personalized Chemotherapy Identified for a Case of Progressing Spinal Ependymoma.”

17. Rounak Nande and **Pier Paolo Claudio.** Appalachian Regional Cell Conference (ARCC), Charleston Area Medical Center in Charleston, WV. October **2012.** “Comparison of micro-bubble assisted p53, pRB, and p130 gene therapy in combination with radiation therapy in
prostate cancer in vitro and in vivo.” Best Overall Poster Presentation.


C. International Presentations


49

**Italy. May 2012.**

4. **Pier Paolo Claudio.** Developing an Effective Targeted Gene Transfer System for Prostate Cancer with the Potential to Translate from the Laboratory to the Clinic. TM's 1st World Molecular & Cell Biology Online Conference. February 16-18, 2012.


7. **Pier Paolo Claudio.** Developing an Effective Targeted Gene Transfer System for Prostate Cancer with the Potential to Translate from the Laboratory to the Clinic. Invited Talk, National Cancer Institute “Fondazione Senatore Pascale”, Naples, Italy. June 18, 2013.


10. **Pier Paolo Claudio** ChemoID assay for personalized chemotherapy in solid tumor. Medica Superspeciality Hospital, Kolkata, India, August 18, 2013.

11. **Pier Paolo Claudio** ChemoID assay for personalized chemotherapy in solid tumor. Saroj Gupta Cancer Center & Research Institute, Kolkata, India, August 19, 2013.

12. **Pier Paolo Claudio** ChemoID assay for personalized chemotherapy in solid tumor. TATA Medical Cenetr, Kolkata, India, August 20, 2013.

13. **Pier Paolo Claudio** ChemoID assay for personalized chemotherapy in solid tumor. Chittaranjan National Cancer Institute CNIC, Kolkata, India, August 21, 2013.

14. **Pier Paolo Claudio** ChemoID assay for personalized chemotherapy in solid tumor. Apollo Gleneagles Hospitals, Kolkata, India, August 22, 2013.

15. **Pier Paolo Claudio** ChemoID assay for personalized chemotherapy in solid tumor. HGC Healthcare Global Enterprises, Bangalore, India, August 23, 2013.


2) **Service**

**2006-present** Member of Marshall University Library Committee

**2007-present** Member of the Marshall University Institutional Biosafety Committee (IBC)

**2010-present** Course director BIC820

**2012-present** Member Admission Committee Joan C. Edwards Medical School

**2012-2013** Member Search Committee for a Faculty Position in the Department of Biochemistry and Microbiology

**2012-2012** Chair Mid-Term Tenure Review Committee for a Faculty in the Department of Biochemistry and Microbiology
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

ORGANIZATIONS:
Since 1990 Societa’ italiana dei Giovani Chirurghi (S.P.I.G.C.)
Since 1990 Societa’ Italiana di Chirurgia Maxillo Facciale (S.I.C.M.F.)
Since 1991 European Association for Cranio-Maxillo-Facial Surgery (E.A.C.M.F.)
Since 2000 American Association for Cancer Research (AACR)
Since 2008 President and Founder of the Green Hope Foundation for Cancer Research and Molecular Medicine.
Since 2009 American Society for Gene & Cell Therapy. (ASGCT)
Since 2009 Head & Neck Optical Diagnostics Society (HNODS)
Since 2011 American Association Clinical Oncology (ASCO)

MEETINGS:
ASCO 2013, CHICAGO, IL
ASCO 2014, CHICAGO, IL
5th RAHMS Conference, Cyprus, July 2014.
CANCER STEM CELL MEETING 2014, CLEVELAND

GRANT REVIEW PANEL:
2011 Member NIBIB Review Panel NIH, Bethesda, MD
2011 Grant evaluator NIH, Bethesda, MD (PostDoc Fellowship Program)
2011-present Grant evaluator NEURASIA (International Bureau of the Education and Research Aerospace Center)
2012 Ad Hoc reviewer of Bioengineering Sciences and Technologies (BST) member conflict Special Emphasis Panel.
2012 - AIRC (Italian Association for Cancer Research)
2012 - MIURC (Italian Ministry of Research and Instruction)
2013 - INTAS Program (Science, Research and Development) (EURASIA organization)
2013 - NIH, Bethesda, MD (Ad Hoc reviewer), June 26th-28th 2013, MONC meeting

4) Awards/honors (including invitations to speak in your area of expertise) or special


4. Pier Paolo Claudio Chemosensitivity assay for targeting cancer stem-like cells in malignant solid tumors. Taussig Cancer Institute, Cleveland Clinic, August 18, 2014. Cleveland, OH.

5. Pier Paolo Claudio Chemosensitivity assay for targeting cancer stem-like cells in malignant solid tumors. Case Comprehensive Cancer Center and University Hospitals, August 20, 2014. Cleveland, OH.


PATENTS:

Appendix II

Faculty Data Sheet
(Information for the period of this review)

Name: ___Piyali Dasgupta________ Rank: _____Associate Professor__________________________

Status (Check one): Full-time__X___ Adjunct _____ Current MU Faculty: Yes __X__
No ___

Highest Degree Earned: __Ph.D_________________ Date Degree Received: __Jan.
2000____

Conferring Institution: __Jawaharlal Nehru University___________________

Area of Degree Specialization: __Life Sciences________________

Professional Registration/Licensure: _____NA__________________________

Field of Registration /Licensure: _____NA__________________________

Agency: __________NA___________________________________

Number of years at Marshall (can be in either teaching or administration) ___7____

List courses you taught during the final two years of this review. If you participated in a team-
taught course, indicate each of them and what percentage of the course you taught. For each
course include the year and semester taught (summer through spring), course number, course
title and enrollment. (Expand the table as necessary)

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<td>Structure and Function III</td>
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<td>PHS 629</td>
<td>Mammalian Physiology</td>
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<td>Foundations of Biomedical Sciences</td>
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<td>2013/Spring</td>
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<tr>
<td>2013/Spring</td>
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<td>Mammalian Physiology</td>
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<tr>
<td>2012/Fall</td>
<td>BMS600</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special

1. SCHOLARLY ACTIVITY

1.1 Publications (Published or Accepted)

A. Chapters In Scholarly Books


B. Journal Articles


1.2 Abstracts presented in Conferences

A. International Conferences


**B. Conference Presentations in WV/ Marshall University**


2. SERVICE / OUTREACH

2.1 International Service Activity

- I was invited to serve as an external examiner for A.T. Jolayemi’s doctoral thesis entitled "Studies on some Pharmacological Properties of Capsicum Frutescens-derived Capsaicin in Experimental Animal Models". University of KwaZulu-Natal, Durban, South Africa in 2012.

2.2 National Service Activity

- I was invited by Oak Ridge Associated Universities (ORAU) to serve as a reviewer for Pennsylvania Department of Health (PA DOH) grant applications in the category "Nicotine Effects on Lung Cancer Promotion: From Cells to Patients", in the year 2012.

2.3 Service on Marshall Committees

- Faculty Search Committee for Assistant/Associate Dean for Biomedical Graduate Education, Marshall University, 2014.
- Faculty Search Committee for Associate/Assistant Professor, Department of Biochemistry, Microbiology and Immunology, 2012.
- Faculty Search Committee for Associate/Assistant Professor, Department of Pharmacology, Physiology and Toxicology, 2012.
- Member of the University Curriculum Committee, 2011-present
• Member, Tobacco Prevention Committee, Marshall University, 2012-2013
• Member of the Curriculum Committee, 2011-present
• Member, MS1 sub-committee, 2011-present
• Member, Faculty Senate Committee, 2010-2014
• Member, Faculty Development Committee, 2010-present
• Faculty Search Committee for Associate Professor, Department of Biochemistry, Microbiology and Immunology, 2011

2.4. Other Service Activities, Marshall University

• My laboratory hosted a visit from Dr. Robin Connelly and her students, Department of Anthropology, Marshall University, 2012. Twelve students visited our laboratory and observed us performing experiments.
• Member Tobacco Prevention Committee, Marshall University 2012. The objective of the Tobacco Prevention Committee was to make Marshall University a healthier campus by working toward tobacco free policy. Marshall University became a tobacco-free campus on July 1, 2013.
• Judge for poster presentations on Cell Differentiation and Development Center (CDDC) research retreat Marshall University, 2012.
• Brain Expo, Marshall University, April 2010: Presented an interactive learning station called “Touching a Sheep’s Brain” to teach children as part of Brain Awareness Week, an international campaign to educate children and the public about neuroscience and neuroscience research.

2.5 Editorial Positions

Journal of Cell Science and Therapy, 2010-present

2.5 Journals Reviewed

• Cancer Research, 2013-present
• British Journal Of Cancer, 2013-present
• Pharmacological Research, 2013-present
• PLOS One, 2012-present
• Recent Patents on Anti-Cancer Drug Discovery, 2012-present
• British Journal of Pharmacology, 2011-present
• Journal of Oncology, 2011-present
• Breast Cancer Research and Treatment, 2010-present
• Biochemistry and Cell Biology, 2010-present
• Annals of Surgery, 2010-present
• Experimental Lung Research, 2009-present
• Molecular Cancer, 2008-present
• Drug Discovery Reviews, 2008-present
• International Journal of Cancer, 2008-present
• Neoplasia, 2007-present

2.6. Other Service to the Community

• **Member, Cabell County Coalition for a Tobacco Free Environment, April 2009-present:** The Cabell County Coalition for a Tobacco Free Environment is an organization whose mission is to inform people about the dangers of tobacco, secondhand smoke and thirdhand smoke. The Coalition also encourages tobacco prevention and cessation programs as well as improves clean indoor air regulations for the local community.

• I was invited to be a judge for the Cabell-Lincoln H.S.T.A (Health Sciences and Technology Academy) symposium, 2011.

3. PROFESSIONAL DEVELOPMENT ACTIVITIES

3.1 Membership in Professional Societies

• American Association for Cancer Research
• American Society for Investigative Pathology
• American Society of Pharmacology and Experimental Therapeutics
• Sigma-Xi Scientific Society

4. INVITED PRESENTATIONS

4.1 National Presentations

• Invited to chair a minisymposium entitled “Lung Cancer” organized by the American Society of Investigative Pathology, Experimental Biology Conference San Diego, CA, April 26-30, 2014.

• Invited for oral presentation entitled “Long-term nicotine exposure elevates the expression of alpha7-nicotinic receptors (α7-nAChRs) in human squamous cell lung cancer cells via Sp1/GATA proteins.” at the minisymposium “Lung Cancer” organized by the American Society of Investigative Pathology, Experimental Biology Conference San Diego, CA, April 26-30, 2014.

• Invited for oral presentation entitled “Nicotine/Acetylcholine Signaling Pathway-the effects on Town and Gown”. Flight Attendant Medical Research Institute, Thirteenth Scientific Symposium, 2014, Miami, FL.
• Invited for oral presentation entitled “Nicotine increases the expression of alpha7-nicotinic receptors (α7-nAChRs) in human squamous cell lung cancer cells via Sp1/GATA pathway.” at the minisymposium “Molecular Biology of Lung Malignancy” organized by the American Society of Investigative Pathology, Experimental Biology Conference, Boston, MA, April 20-24, 2013.

• Invited for oral presentation entitled “Nicotine/Acetylcholine Signaling Pathway: Novel Molecular Targets for Lung Cancer Therapy”. Flight Attendant Medical Research Institute, Thirteenth Scientific Symposium, 2014, Miami, FL.

• Invited to chair a minisymposium entitled “Modeling cancer: Biological and Therapeutic Implications” organized by the American Society of Investigative Pathology, Experimental Biology Conference San Diego, CA, April 21-25, 2012.

• Invited for oral presentation entitled “Nicotine induces the up-regulation of alpha-7-nicotinic receptors (α7-nAChRs) in human squamous cell lung cancer cells via transcriptional mechanisms” at the minisymposium “Modeling Cancer: Biological and Therapeutic Implications” held by the American Society of Investigative Pathology, Experimental Biology Conference San Diego, CA, April 21-25, 2012.

• Invited Speaker, Food and Drug Administration (FDA) national meeting entitled “Risks and Benefits of long-term use of Nicotine Replacement Therapies”, Washington DC, 2010. This meeting was sponsored by the Center for Drug Evaluation and Research (CDER).

4.2 Local Presentations

• Invited Speaker at the “Oncology Grand Rounds” seminar organized by the Marshall University School of Medicine, 2014.

• Invited Speaker at the “Research in Progress” seminar organized by the Marshall University School of Medicine, 2013.

• Invited Speaker at the “Cancer Colloquium” seminar organized by the Marshall University School of Medicine, 2013.

• Invited Speaker at the “Pat Logan Symposium of Scholars” organized by the MU-ADVANCE, 2011.

• Invited to deliver a guest lecture entitled “Cell Biology of Cancer” in the course BSC 322: Principles of Cell Biology by Professor Marcia Harrison, Dept of Biology, College of Sciences, in 2010. This is a required core course for most biology majors and all biomedical sciences majors.
5. AWARDS AND FELLOWSHIPS

- Selected as the co-chair of the Neoplasia Special Interest Group, American Society for Investigative Pathology, 2014.
- Awarded the “Dean’s Award for Excellence in Basic Science Research.” Marshall University, 2013.
- Invited to chair the minisymposium entitled, “Modeling Cancer: Biological and Therapeutic Implications” in Experimental Biology Conference 2012.
- Awarded the “John and Francis Rucker Outstanding Graduate Faculty of the Year.” Marshall University, 2011, for providing outstanding mentorship to students.
- Invited to participate in the “Early Career Women Faculty Professional Development seminar”, 2011, organized by the American Association of Medical Colleges.
- My research was featured in a West Virginia Public Television (WV-PBS) segment within the MU-ADVANCE program, February 25, 2011. MU-ADVANCE is a National Science Foundation (NSF)-supported program that aims to increase recruitment and retention of female faculty at Marshall University through faculty development initiatives, enhanced recruitment efforts, and improved institutional climate.
- My research involving diabetic retinopathy was featured in WOWK-TV (the CBS affiliate for Charleston-Huntington, WV; Channel 13) on January 14, 2012 (http://www.wowktv.com/video?clipId=6638047&autostart=true).

6. GRANTS SUPPORT

6.1 Current Grant Support

A. National Institute of Health R-15 AREA grant
   PI on Grant
   Title: Capsaicin and Small Cell Lung Cancer Therapy
   Duration of Grant: 2012-2015
   Budget: $100,000/year

B. American Institute of Cancer Research Grant,
   PI on Grant
   Title: Anti-Metastatic Activity of Capsaicin in Small Cell Lung Cancers
   Duration of Grant: 2014-2016
   Budget: $75,000/year
6.2 Completed Grant Support

A. Young Clinical Scientist Award Program from Flight Attendant Medical Research Institute
   PI on Grant
   Duration of Grant: 2009-2014
   Title: *Nicotine/Acetylcholine Signaling in Lung Cancer*
   Budget: $100,000/year

B. American Retina Foundation
   PI on Grant
   Duration of Grant: 2009-2010
   Title: *Nicotine/Acetylcholine Signaling in ARMD*
   Budget: $12,000/year

C. ASPET-Astellas Award Program from American Society of Pharmacology and Experimental Therapeutics
   PI on Grant
   Duration of grant: 2009-2010
   Title: *α7-nicotinic receptor inhibitors in small cell lung cancer therapy*
   Budget: $30,000

D. MU-ADVANCE Faculty Fellowship and minigrant
   PI on Grant
   Duration of grant: 2009-2010
   Title: *Nicotinic Receptor Signaling in Retinal Angiogenesis*
   Budget: $22,000

E. MU-CDDC Pilot grant from Cell Differentiation and Development Center, Marshall University
   PI on Grant
   Duration of the grant: 2009-2010
   Title: *Nicotinic Receptor signaling in atherogenesis*
   Budget: $20,000
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name:____Beverly Delidow__________________   Rank:__Associate Professor    ________

Status (Check one): Full-time__X__   Adjunct _____  Current MU Faculty:  Yes _X__    No ___

Highest Degree Earned: __Ph.D_______    Date Degree Received: __1988________

Conferring Institution: __University of California, Berkeley____________________________

Area of Degree Specialization: ____Physiology________________________________

Professional Registration/Licensure:  _______________________________________________

Field of Registration /Licensure:  ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  _21___

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<td>F 2012</td>
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<td>BMS 661</td>
<td>Communication Skills for Biomedical Sciences II</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
   INBRE students (summer research support for undergraduate students, 2010, 2012, 2013, 2014)
   TIGRE proposal team (2013)
   NSF ADVANCE co-PI

2) Service
   (Current)
   Cluster Coordinator, Cancer Biology Research Cluster
   Member Graduate Studies Committee
   Member, BMS 600 Task Force
   Member, Mentoring Committee
   Member, Faculty Personnel Committee
   Chair, Women in Medicine and Science Executive Council (current)
   Member, Women in Medicine and Science Executive Council (2012-2014)
   MU ADVANCE Path Forward Committee

   Recent
   Member, MS-1 Subcommittee (7/2012 – 6/2014)

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

   AAAS
   ASCB
   ASBMB
   Endocrine Society
   Sigma Xi (local treasurer until Sept 2014)

   Student intern presentations:
   Undergraduate Research Day at the Capitol 2011, Lindsay Sobotka (INBRE intern)

   ASBMB Special Symposium, Student Centered Education in the Molecular Life Sciences, July 2011.
   Poster Presented: Communication Skills for Biomedical Science Students: An interactive course designed to enhance skills pertinent to the graduate career and future professional development; BC Delidow and AM Silvis
   WV STaR Symposium presentation 2010

   NSF GRF panels Feb 2011, 2012
   NDSEG fellowship panel, Feb 2012

4) Awards/honors (including invitations to speak in your area of expertise) or specialty
   GSO 2014 Faculty Award
   Nov 2014 – UK pilot course in communications
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: 
James Denvir ______________________________   Rank:  Assistant Professor ________________

Status (Check one):  Full-time__X__   Adjunct _____  Current MU Faculty:  Yes X__  No ___

Highest Degree Earned: _Ph.D.______ Date Degree Received: 1995__________
Conferring Institution: _University of Warwick_____________________________________

Area of Degree Specialization: __Mathematics_______________________________________

Professional Registration/Licensure:  _______________________________________________
Field of Registration /Licensure:  ___________________________________________________
Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  13______

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment.
(Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>BMS 617</td>
<td>Statistical Methods for Biomedical Sciences</td>
<td>11</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>MED 751</td>
<td>Disease and Therapeutics 1 (2 hours only)</td>
<td>72</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>BMS 617</td>
<td>Statistical Methods for Biomedical Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Grant funding:
West Virginia Infrastructure Network of Biomedical Research Excellence, co-investigator (Gary Rankin, PI). 2014-2019, 20% FTE.
West Virginia Infrastructure Network of Biomedical Research Excellence, co-investigator (Gary
Rankin, PI). 2009-2014, 70% FTE.

Publications:


Abstracts:


5. Denvir, J; Georgel, PT; James, C. An analytical approach to determining characteristics provided by the differential expression of CHD1 protein on cell differentiation. Presented at the INBRE Symposium, Morgantown WV July 2012.


7. Fahrmann, JF; Ballester, OF; Ballester, G; Witte, TR; Salazar, AJ; Ion, G; Primerano, DA; Boskovic, G; Denvir, J. Inhibition of nuclear factor kappa B activation in early stage chronic lymphocytic leukemia by omega 3 fatty acids. Presented at UK Research meeting, June 2012.

8. Hagerman, TA; Fu, Q; Denvir, J; Lindsay, S; Georgel, PT. Chromatin stability at low concentration depends on histone octamers saturation levels. 20th International AUC Conference, San Antonio, TX, March 2012.


high throughput DNA sequencing. Presented at the WVU School of Dentistry Research Day Symposium March 12 2012.


2) Service

Departmental:
- Member of search committee for Next Generation Sequencing Analyst position, August 2013 – September 2014.

University:
- Faculty senate 2012-present
- Faculty council 2012-present. Nominated for chair-elect, October 2014.

State:
- WV-INBRE steering committee, ad-hoc member 2011-2014
- West Virginia Cancer Genomics Network 2010-2014

International:
- Functional Genomics Data Society board meeting June 2013, Seattle, WA.

Reviewing Activities:
1. Ad-hoc reviewer for BMC Genetics, April 2014.
2. Review of *Java 8 for the really impatient*, Cay Horstmann, prior to publication for Addison Wesley. 2013.

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships

International Society for Computational Biology
Association of Biomolecular Resource Facilities

Meetings Attended:

1. National IDeA Symposium for Biomedical Research Excellence (NISBRE), June 2014, Washington DC.
3. National IDeA Symposium for Biomedical Research Excellence (NISBRE), June 2012, Washington DC.
4. Great Lakes Bioinformatics (GLBIO) 2012, May 2012, Ann Arbor, MI
6. National IDeA Symposium for Biomedical Research Excellence (NISBRE), June 2010, Washington DC

4) Awards/honors (including invitations to speak in your area of expertise) or special
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Richard Egleton       Rank: Associate Professor

Status (Check one): Full-time _X_ Adjunct _____ Current MU Faculty: Yes _X_ No ___

Highest Degree Earned: PhD       Date Degree Received: 1995

Conferring Institution: University of London

Area of Degree Specialization: Physiology

Professional Registration/Licensure: NA

Field of Registration/Licensure: NA

Agency: NA

Number of years at Marshall (can be in either teaching or administration) 7

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 Fall</td>
<td>PMC621 (20%)</td>
<td>Graduate Medical Pharmacology</td>
<td>10</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>PMC720 (15%)</td>
<td>Medical Pharmacology</td>
<td>70</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>MED725 (1%)</td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>PMC785 (100%)</td>
<td>Clinical Pharmacology Elective</td>
<td>1</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>BMS641 (25%)</td>
<td>Developmental Biology</td>
<td>1</td>
</tr>
<tr>
<td>2012 Fall</td>
<td>PMC650 (5%)</td>
<td>Toxicology</td>
<td>6</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>PMC621 (20%)</td>
<td>Graduate Medical Pharmacology</td>
<td>10</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>MDC711 (2%)</td>
<td>Structure and Function I</td>
<td>70</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>MDC712 (2%)</td>
<td>Structure and Function I</td>
<td>70</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>PMC785 (100%)</td>
<td>Clinical Pharmacology Elective</td>
<td>1</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>MDC750 (5%)</td>
<td>Principals of Disease</td>
<td>70</td>
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<tr>
<td>2013 Fall</td>
<td>MDC752 (30%)</td>
<td>Disease &amp; Therapeutics II</td>
<td>70</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>BMS641 (25%)</td>
<td>Developmental Biology</td>
<td>1</td>
</tr>
<tr>
<td>2014 Spring</td>
<td>PHS666 (10%)</td>
<td>Physiology of the cell</td>
<td>4</td>
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</tbody>
</table>
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

**Book Chapters:**


**Peer Review Manuscripts:**


**Meeting Abstracts:**


Marcelo, A., and Egleton, R. The Potential Role of Vascular Endothelial Growth Factor (VEGF) in the Diabetic Brain Microvasculature. Selected for Poster Presentation at the 22nd Annual
Research Day, MUSOM, Huntington, WV; Winner for best basic science poster presentation, March 2010.


2) Service

Marshall:
- Vertical Integration Committee
- Member MS2 Sub-Committee
- Member of LCME Response Team
- Member of the Curriculum Committee
- Cluster Coordinator for Neuroscience and Developmental Biology
- Graduate Studies Committee
- Faculty Search Committee for Assistant / Associate Professor, Department Anatomy
- Recruitment Conference for Minority Biomedical Sciences students SACNAS
- Member of the AdHoc Tenure Advisory Committee

National:
- American Heart Association Grants Brain 1 study section reviewer
- American Diabetes Association grant reviewer
- American Heart Association Abstract reviewer for international stroke conference

International:
- Grant Reviewer for European Commission’s 7th Framework Programme for Research for the topic: HEALTH-2009-2.2.1-4: Understanding the blood brain barrier (BBB) to improve drug delivery to the brain

Local:
- Science Café Host for Cabell Midland High School, Spring 2013
- Judge for the Cabell County HSTA student research presentations, Spring 2010

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships:
- Society for Neuroscience
- International Brain Barriers Society
- International Society for Cerebral Blood Flow and Metabolism

Conferences Attended:
- XXVth International Symposium on Cerebral Blood Flow, Metabolism and Function and the Xth International Conference on Quantification of Brain Function with PET, Barcelona, Spain
May 2011.
• Society for Neuroscience, October 2009.

Professional Development:
• Academic Citizen Excellence Award 2013

4) Awards/honors (including invitations to speak in your area of expertise) or special

• Faculty Mentor Award BMS Program 2012
• Invited Speaker at Penn States symposium on “Prevention of Metabolic Syndrome by Dietary Phytochemicals.” State College, PA, September 2011. Title: Metabolic Syndrome and the Blood Brain Barrier.
• Invited Speaker UT-Houston Medical School Dept. of Integrative Biology & Pharmacology, March, 2009. “Modulation of Brain Microvasculature in Diabetes”
Appendix II
Faculty Data Sheet
(for the period of this review)

Name: _Philippe Georgel________________  Rank: _Professor___________________

Status (Check one):  Full-time__X__   Part-time_____   Adjunct ____
Current MU Faculty:  Yes _X   No ___

Highest Degree Earned: _PhD_______________  Date Degree Received:  June 1993
Conferred by: _Oregon State University _

Area of Specialization: __ Biochemistry and Biophysics _

Professional Registration/Licensure_______________     Agency:

__________________________________________

Years non-teaching experience              ____ 5____
Years of employment other than Marshall    ____ 21____
Years of employment at Marshall             ____ 12____
Years of employment in higher education    ____ 16____
Years in service at Marshall during this period of review    ________

List courses you taught during the final two years of this review. If you participated in a
team-taught course, indicate each of them and what percentage of the course you
taught. For each course include the year and semester taught (summer through
spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
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<tr>
<td>2013/Fall</td>
<td>BSC 450/550</td>
<td>Molecular Biology</td>
<td>40</td>
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<tr>
<td>2013/ Fall</td>
<td>BSC 104</td>
<td>Introduction to Biology</td>
<td>59</td>
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<td>2013/ Spring</td>
<td>FYS</td>
<td>First Year Seminar</td>
<td>23</td>
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<tr>
<td>2013/ Spring</td>
<td>BSC622</td>
<td>Graduate Seminar</td>
<td>21</td>
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<td>2013/ Spring</td>
<td>BMS 651</td>
<td>Cancer Biology (5%)</td>
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<td>2014/ Fall</td>
<td>BSC 450/550</td>
<td>Molecular Biology</td>
<td>38</td>
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<tr>
<td>2014/ Fall</td>
<td>BSc 454/581</td>
<td>Methods in Modern Molecular Biology</td>
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<td>2014/ Spring</td>
<td>BMS 630</td>
<td>Neuroscience (30%)</td>
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<tr>
<td>2014/ Spring</td>
<td>BSC 456/556</td>
<td>Genes and Development</td>
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<tr>
<td>2014/ Spring</td>
<td>FYS</td>
<td>First Year Seminar</td>
<td>22</td>
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</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this
document.
1) If your degree is not in your area of current assignment, please explain.

(For each of the following sections, list only events during the period of this review and begin with the most recent activities.)

2) Activities that have enhanced your teaching and or research.

| Membership in professional organizations | Member of Sigma –Xi Research Society |
| Subscription to professional journal | Subscription to Biotechniques |
| Attendance at professional meetings | Indo-GLOBAL Health Care Summit and Expo, Hyderabad, India (June 10-13, 2014) |
| | STaR Symposium, WVU, Morgantown (October 22-23, 2013) |
| | NCI Symposium Chromosome Biology, NIH Bethesda (April. 4-5 2013) |
| Obtaining advanced degrees, education credits, etc. | Workshop on Bioinformatics (Ingenuity Pathway Analysis training) August 30-31, 2013 |
| Competitive grant awards supporting development | Maternal consumption of omega 3 fatty acids to reduce breast cancer risk in offspring (DoD grant, PI: Georgel, P.T, Awarded May 2010, Budget: $320,750) |
| Submitted, but not yet accepted (or rejected) | Epigenetic regulations modulated by sulforaphane modulate telomererase activity in prostate cancer cell lines. Abbas, A., Hall, J.A.,Patterson, W., Ho, E., Al-Mulla, F., and Georgel, P.T. Manuscript submitted to PLOS One |
Epigenetic contributions associated with maternal diet lead to a decreased incidence of breast cancer in female offspring. Abbas, A.\textsuperscript{1,2}, Witte, T.\textsuperscript{3}, Patterson, W.\textsuperscript{1}, Wilson, J.E.\textsuperscript{4}, Fahrmann, J.\textsuperscript{3}, Hall, J.A.\textsuperscript{2,3}, Ion, G.\textsuperscript{3}, Denvir, J.3, Hardman, W.E.\textsuperscript{3}, Georgel, P.T.\textsuperscript{1,2,3} (Abstract submitted to Biochemistry and Cell Biology for the International Asilomar Chromatin and Chromosome Conference, Dec. 2012, Publication in June 2013)


Presentations

<table>
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<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Investigating the complex interplay between diet, epigenetics, and cancer.</td>
<td>University of Manitoba, Winnipeg, Canada, August 14, 2013</td>
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</table>

National conference/seminar/etc.

<table>
<thead>
<tr>
<th>Invited</th>
<th>Investigating the complex interplay between diet, epigenetics, and cancer. West Virginia University, Morgantown March 26, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigating the complex interplay between diet, epigenetics, and cancer.</td>
<td>PennState University, Hershey PA, April 14, 2014</td>
</tr>
<tr>
<td>Investigating the complex interplay between diet, epigenetics, and cancer.</td>
<td>Morehead State University, Morehead, KY, January 19, 2014</td>
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</table>

Contributed | NCI Symposium Chromosome Biology, NIH Bethesda (April. 4-5 2013) |
<table>
<thead>
<tr>
<th>Regional/Sectional conference/seminar/etc</th>
<th>Invited</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>State Conference/seminar/etc.</th>
<th>Invited</th>
</tr>
</thead>
<tbody>
<tr>
<td>STaR Symposium, WVU, (October. 22-23 2013, Morgantown.)</td>
<td></td>
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</tbody>
</table>

| Contributed | Potential role for omega-3 fatty acid in the inhibition of breast cancer metastasis mediated by modulation of human leukocytes antigen-g (hla-g) expression Melinda Johnson¹, Bradley P. Schell², Ata Abbas¹, ³, Philippe T. Georgel¹, ³ Sigma-Xi Research Day Presenter: Melinda Johnson (Capstone student) |

<table>
<thead>
<tr>
<th>Grants and Contracts</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Master’s Theses, Undergraduate Research/Honors Projects, Graduate Student Presentations, Capstone Projects</th>
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</thead>
<tbody>
<tr>
<td>Primary Supervisor</td>
<td>Post-doctoral fellow: Ata Abbas</td>
</tr>
<tr>
<td></td>
<td>Ph.D Student: Frank Lutz</td>
</tr>
<tr>
<td></td>
<td>MS Student (graduated): Elizabeth Fet</td>
</tr>
<tr>
<td></td>
<td>MS Student (graduated): William Patterson</td>
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<tr>
<td></td>
<td>MS Student: Hannah Mick</td>
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<tr>
<th>Other member/reader</th>
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<tbody>
<tr>
<td>PhD Student: Tina Ray</td>
<td></td>
</tr>
<tr>
<td>PhD Student (Univ. of Manitoba) Dilshad Hussain</td>
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</tr>
<tr>
<td>University Service</td>
<td>Description of Activities</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>University, College or Department Committee Leadership</td>
<td>Chair of BAPC (until Fall 2013)</td>
</tr>
<tr>
<td></td>
<td>Assistant Chair of MU Faculty Senate (since Fall 2014)</td>
</tr>
<tr>
<td></td>
<td>Chair of APC (Fall 2013-Summer 2014)</td>
</tr>
<tr>
<td>University, College or Department Committee Membership</td>
<td>Member of BAPC University Committee (Fall 2009- Fall 2013)</td>
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<tr>
<td></td>
<td>Member of APC (University Committee (Fall 2013-Summer 2014)</td>
</tr>
<tr>
<td></td>
<td>Member of Biology Curriculum Committee</td>
</tr>
<tr>
<td></td>
<td>Member of Graduate Student Committee (BMS)</td>
</tr>
<tr>
<td></td>
<td>Member of Grade Appeal Committee (Fall 2009- Fall 2013)</td>
</tr>
<tr>
<td>Liaison for Student/Faculty Organizations</td>
<td></td>
</tr>
<tr>
<td>Ambassadorial Activities (e.g. recruitment, internal letters of recommendation)</td>
<td>Presentation on behalf of the Department of Biological Sciences (College of Science) for the College of Science for prospective BSC students</td>
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</table>

### Professional Service

<table>
<thead>
<tr>
<th>Description of Activities</th>
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<tbody>
<tr>
<td>Professional Organizations</td>
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<td>Leadership</td>
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<tr>
<td>Other active membership</td>
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<tr>
<td>Chairing sessions/panels</td>
</tr>
<tr>
<td>Participating on panels</td>
</tr>
<tr>
<td>Refereeing, reviewing, and editing</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Refereeing materials for peer review</td>
</tr>
<tr>
<td>Reviewed for BBA</td>
</tr>
<tr>
<td>Reviewed for Biochemistry and Cell Biology</td>
</tr>
<tr>
<td>Refereeing grant proposals</td>
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<tr>
<td>Australian Research Council grant reviewer</td>
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</table>

**Community Service (Discipline Specific)**

<table>
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<tr>
<th>Expert Assistance</th>
<th>Description of Activities</th>
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</thead>
<tbody>
<tr>
<td>Giving lectures to general audiences</td>
<td></td>
</tr>
<tr>
<td>Consulting that is not leading to publication or presentation</td>
<td>Volunteer for Brain Expo 2014 and 2013</td>
</tr>
<tr>
<td>Judging science fairs</td>
<td></td>
</tr>
<tr>
<td>Organizing and assisting with SCORES, Marshall Mathematics Field Day, etc.</td>
<td>Assisting during MU COS open House (Fall and Spring 2013)</td>
</tr>
</tbody>
</table>

3) Discipline-related books/papers published (provide a full citation).
4) Papers presented at state, regional, national, or international conferences.
5) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
6) Externally funded research grants and contracts you received.
7) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
8) Community service as defined in the *Greenbook*.
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: **Todd L. Green**

Rank: **Associate Professor**

Status (Check one): Full-time **X** Adjunct _____ Current MU Faculty: Yes **X** No ____

Highest Degree Earned: **Ph.D.**

Date Degree Received: **1986**

Conferring Institution: **University of Virginia**

Area of Degree Specialization: **Microbiology**

Professional Registration/Licensure: ________________________________

Field of Registration /Licensure: ________________________________

Agency: _______________________________________________________

Number of years at Marshall (can be in either teaching or administration) 23

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. *(Expand the table as necessary)*

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
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<tbody>
<tr>
<td>2012/Fall</td>
<td>BMS 600</td>
<td>Foundations of the Biomedical Sciences* (24%) <strong>Course Director</strong></td>
<td>23</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>BMS 674</td>
<td>Teaching Practicum</td>
<td>4</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>FSC 624</td>
<td>Forensic Biochemistry* (17%)</td>
<td>19</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>IDM 725</td>
<td>Molecular Basis of Medicine* (4%)</td>
<td>72</td>
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<tr>
<td>2012/Fall</td>
<td>IDM 777</td>
<td>Neuroscience* (3%)</td>
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<tr>
<td>2012/Fall</td>
<td>PHS 628</td>
<td>Neurophysiology* (12%)</td>
<td>14</td>
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<tr>
<td>2013/Spring</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research* (7%)</td>
<td>11</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>BMS 674</td>
<td>Teaching Practicum</td>
<td>3</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>BMS 685</td>
<td>Introduction to Research</td>
<td>12</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PHS 701</td>
<td>Mammalian Physiology* (12%)</td>
<td>72</td>
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<tr>
<td>2013/Spring</td>
<td>PHS 629</td>
<td>Mammalian Physiology* (12%) <strong>Course Director</strong></td>
<td>20</td>
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<tr>
<td>2013/Fall</td>
<td>BMS 600</td>
<td>Foundations of the Biomedical Sciences* (29%) <strong>Course Director</strong></td>
<td>25</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>BMS 674</td>
<td>Teaching Practicum</td>
<td>4</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>FSC 624</td>
<td>Forensic Biochemistry* (17%)</td>
<td>19</td>
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</table>
### Course Details

<table>
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<th>Year</th>
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<th>Course Title (with asterisk for team-taught courses)</th>
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<tr>
<td>2013/Fall</td>
<td>MDC 710</td>
<td>Elements of Medicine* (3%)</td>
<td>75</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC 711</td>
<td>Structure and Function I* (3%)</td>
<td>75</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC 712</td>
<td>Structure and Function II* (1%)</td>
<td>75</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>PHS 628</td>
<td>Neurophysiology* (10%)</td>
<td>11</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research* (7%)</td>
<td>5</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>BMS 685</td>
<td>Introduction to Research</td>
<td>7</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MDC 713</td>
<td>Structure and Function III* (3%)</td>
<td>75</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MDC 714</td>
<td>Structure and Function IV* (12%)</td>
<td>75</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>PHS 629</td>
<td>Mammalian Physiology* (10%) Course Director</td>
<td>9</td>
</tr>
</tbody>
</table>

*team-taught courses

**NOTE:** Part-time adjunct faculty do not need to fill in the remainder of this document.

---

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1. **Scholarship/Research**
2. **Service**
3. Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4. **Awards/honors (including invitations to speak in your area of expertise) or special**

---

### 1) Scholarship/Research

**Publications**


**Grants Funded**

Grants Submitted
DOD Breast Cancer Concept Award: “An endogenous histaminergic system as a determinant of breast cancer cell invasiveness”, 2010, co-PI with Dr. Carl Gruetter, $106,500 direct costs, not funded

2) Service
Medical School
Admissions Committee
Academic and Professionalism Standards Committee
Academy of Medical Educators
Faculty Council - Chair

University
Institutional Animal Care and Use Committee
Institutional Biosafety Committee
Phi Kappa Phi academic honorary - President

Veterans Administration
Institutional Animal Care and Use Committee

PhD Student Committees
Jennifer Cooke, Jacqueline Fannin, Nandini Manne, Aileen Marcelo, Benjamin Owen, Kristeena Ray, Justin Tomblin, Meagan Valentine, Stephanie Van Meter, Ryan Withers

3) Professional Development
Professional Organizations
American Association of Medical Colleges Group on Graduate Education and Training (GREAT)
American Association for the Advancement of Science
American Society for Cell Biology
American Society for Microbiology
International Association of Medical Science Educators
Sigma Xi
Society for Neuroscience
Team-Based Learning Cooperative

Conferences

4) Awards/Honors
Teaching Awards
2013: Enthusiasm in Teaching and AMSA Golden Apple Award - MUJCESOM Class of 2016
2012: Excellence in Teaching - MUJCESOM Class of 2015
Appendix II

Faculty Data Sheet
(Information for the period of this review)

Name: Lawrence M. Grover                   Rank: Professor

Status (Check one): Full-time _X_ Adjunct _____ Current MU Faculty: Yes _X_ No ___

Highest Degree Earned: Ph.D.            Date Degree Received: 1986

Professional Registration/Licensure: _______________________________________________

Field of Registration /Licensure: ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) 21

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-3/Fall</td>
<td>BMS 631</td>
<td>Neuroscience and Developmental Biology Literature Review (seminar)</td>
<td>5</td>
</tr>
<tr>
<td>2012-3/Spring</td>
<td>BMS 631</td>
<td>Neuroscience and Developmental Biology Literature Review (seminar)</td>
<td>4</td>
</tr>
<tr>
<td>2013-4/Fall</td>
<td>BMS 631</td>
<td>Neuroscience and Developmental Biology Literature Review (seminar)</td>
<td>3</td>
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<tr>
<td>2013-4/Spring</td>
<td>BMS 631</td>
<td>Neuroscience and Developmental Biology Literature Review (seminar)</td>
<td>8</td>
</tr>
<tr>
<td>2012-3/Spring</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research (team taught, approx 7%)</td>
<td>11</td>
</tr>
<tr>
<td>2013-4/Spring</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research (team taught, approx 7%)</td>
<td>5</td>
</tr>
<tr>
<td>2012-3/Fall-Spring</td>
<td>IDM 777</td>
<td>Neuroscience (team taught, approx 37%)</td>
<td>71</td>
</tr>
<tr>
<td>2013-3/Fall-Spring</td>
<td>PHS 628</td>
<td>Neurophysiology (team taught, approx 78%)</td>
<td>19</td>
</tr>
<tr>
<td>2013-3/Fall-Spring</td>
<td>PHS 628</td>
<td>Neurophysiology (team taught, approx 73%)</td>
<td>13</td>
</tr>
<tr>
<td>2013-4/Fall</td>
<td>MDC 711</td>
<td>Structure and Function I (team taught, approx 22%)</td>
<td>82</td>
</tr>
<tr>
<td>2013-4/Fall-Spring</td>
<td>MDC 712</td>
<td>Structure and Function II (team taught, approx 13%)</td>
<td>82</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Papers published

Grover, L.M., Kim, E., Cooke, J.D. and Holmes, W.R. LTP in hippocampal area CA1 is induced by burst stimulation over a broad frequency range centered around delta. Learning and Memory 20, 69-81, 2009.


Grants awarded

NASA WV Space Grant Consortium, Role of KV7 channels in controlling neuronal excitability, 2012-2013, $12,000 total direct costs (principal investigator).

Four additional grants submitted but not awarded.

National meeting presentations

Cooke, J.D., Grover, L.M. and Holmes, W.R. A role for GABAB autoreceptors in LTP induced by primed burst stimulation, but not repeated burst stimulation. 2009 Annual Meeting of the Society for Neuroscience, October 17-21, Chicago, IL.

Holmes, W.R. and Grover, L.M. Extracellular potassium accumulation may contribute to long-term potentiation induced with long 100 Hz stimulus trains. Nineteenth Annual Computational Neuroscience Meeting CNS*2010, July 24-30, San Antonio, TX.

Owen, B. and Grover, L.M. Short-Term Activity-Dependent Changes in Axonal Function in Hippocampal CA3 Pyramidal Neurons. 52nd Annual National Student Research Forum, April 21-22, 2011, Galveston, TX.

Owen, B. and Grover, L.M. Biphasic changes in Schaffer collateral fiber volleys during continuous high-frequency stimulation and burst stimulation: Calcium dependence of the early hyperexcitable phase. 2012 Annual Meeting of the Society for Neuroscience, October 13-17, New Orleans, LA.

Owen, B., Woode, F. and Grover, L.M. Increasing extracellular divalent cation concentration prolongs the activity-dependent hyper-excitability in Schaffer collaterals, but CaV or KCa channel blockers have no effect. 2013 Annual Meeting of the Society for Neuroscience, November 8-12, San Diego, CA.

**State/local meeting presentations**

Bertolotti, D., Cooke, J.D. and Grover, L.M. Role of GABAB receptors in long-term potentiation from theta burst stimulation. WV-INBRE 2009 Summer Research Symposium, Marshall University, Huntington, WV.

Lima, H.K., Cooke, J.D. and Grover, L.M. The effect of antidepressant medications on brain-derived neurotrophic factor signaling and synaptic plasticity. WV-INBRE 2010 Summer Research Symposium, West Virginia University, Morgantown, WV.


Cavender, H., Cooke, J.D. and Grover, L.M. Effects of antidepressant drugs on hippocampal long-term potentiation (LTP) and N-Methyl-D-Aspartate (NMDA) glutamate receptors. WV-INBRE 2011 Summer Research Symposium, Marshall University, Huntington, WV.

Woode, F., Owen, B. and Grover, L.M. Do Voltage-Gated Calcium Channels Cause Axon Hyper-Excitability During High-Frequency Activity? WV-INBRE 2012 Summer Research Symposium, West Virginia University, Morgantown, WV.

Reddy, R., Owen, B. and Grover, L.M. Are Kv7 channels responsible for difference in function between proximal and distal Schaffer collateral axons in rat hippocampus? WV-INBRE 2013 Summer Research Symposium, Marshall University, Huntington, WV.

**2) Service**

Grant reviews for National Science Foundation (2009), Alzheimer’s Association (2010, 2011).


**3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.**
Memberships

Society for Neuroscience (2009-2014)
American Physiological Society (2009-2014)

Meetings attended

Annual Meeting of Society for Neuroscience (2009-2013)
WV-INBRE Summer Research Conference (2009-2014)
Marshall University School of Medicine Annual Research Day (2009-2014)

4) Awards/honors (including invitations to speak in your area of expertise) or special

Invited presentations

Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Carl A. Gruetter  
Rank: Professor

Status (Check one):  Full-time  X  Adjunct  _____  Current MU Faculty:  Yes  X  No  ___

Highest Degree Earned:  Ph.D.  Date Degree Received:  1978

Conferring Institution:  Tulane University  
Area of Degree Specialization:  Pharmacology

Professional Registration/Licensure:  N/A  
Field of Registration/Licensure:  N/A

Agency:  N/A

Number of years at Marshall (can be in either teaching or administration)  34

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment.  
(Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/Fall</td>
<td>PMC 621</td>
<td>Medical Pharmacology (10%)</td>
<td>9</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>PHS 628</td>
<td>Neurophysiology (2%)</td>
<td>9</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>PMC 720</td>
<td>Medical Pharmacology (10%)</td>
<td>65</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>BMS 665</td>
<td>CODRC Colloquium (10%)</td>
<td>1</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>BMS 680</td>
<td>Seminar (5%)</td>
<td>12</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PMC 622</td>
<td>Medical Pharmacology (10%)</td>
<td>5</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PHS 629</td>
<td>Mammalian Physiology (3%)</td>
<td>9</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PMC 720</td>
<td>Medical Pharmacology (10%)</td>
<td>65</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PHAR 544</td>
<td>Principles of Disease &amp; Drug Action</td>
<td>78</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>BMS 665</td>
<td>CODRC Colloquium (10%)</td>
<td>1</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>BMS 680</td>
<td>Seminar (5%)</td>
<td>12</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>PMC 621</td>
<td>Medical Pharmacology (10%)</td>
<td>9</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>PHS 629</td>
<td>Neurophysiology (2%)</td>
<td>9</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC 711</td>
<td>Structure &amp; Function I Instructor (2%)</td>
<td>65</td>
</tr>
</tbody>
</table>
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research


2) Service

Marshall University Graduate Council
   Member, 2008-2012

   Credentialing Committee
   Member, 2008-2012
   Chairperson, 2010-2012

   Program Review & Assessment Committee
   Member, 2011-2012

Cardiovascular Science, Obesity & Diabetes Research Cluster
   Member, 2005-present

School of Medicine Curriculum Committee
   Member, 2008 – 2013
   Chairperson, 2010 -2013

   MS-2 Subcommittee
   Member, 2008-2014
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.


4) Awards/honors (including invitations to speak in your area of expertise) or special

None
Appendix II

Faculty Data Sheet
(Information for the period of this review)

Name: Wanda Elaine Hardman   Rank: Professor

Status (Check one): Full-time XX  Adjunct _____  Current MU Faculty: Yes X  No ___

Highest Degree Earned: PhD    Date Degree Received: 1993

Conferring Institution: University of Texas Health Science Center at San Antonio

Area of Degree Specialization: Cell Biology

Professional Registration/Licensure: ______________________________________________________

Field of Registration /Licensure: ________________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  9

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2013</td>
<td>MDC710</td>
<td>Elements of Medicine Course for MS I students</td>
<td>About 76</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>MDC710</td>
<td>Elements of Medicine Course for MS I students</td>
<td>About 80</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BMS 600</td>
<td>Biochemical, Cellular and Molecular Foundations of Biomedical Science 10 lecture hours</td>
<td>20</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>BMS 600</td>
<td>Biochemical, Cellular and Molecular Foundations of Biomedical Science 10 lecture hours</td>
<td>20</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BMS 651</td>
<td>Cancer Cell Biology – 4 lecture hours</td>
<td>About 10</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>FSC 624</td>
<td>Forensic Science, Biochemistry, 8 lecture hours</td>
<td>16</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>FSC 624</td>
<td>Forensic Science, Biochemistry, 8 lecture hours</td>
<td>16</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research, 2 lecture hours</td>
<td>About 10</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research, 2 lecture hours</td>
<td>About 10</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.
1) Scholarship/Research

**Funded grants**

Principal Investigator: W. Elaine Hardman  
Title: Pilot Trial: Feasibility and Safety of Nutritional Supplementation with Omega-3 Fatty Acids to Reduce Prostate Specific Antigen Rise in Men with Biochemical Failure after Prostatectomy or External-Beam Radiotherapy (clinical trial)  
Dates: Jan. 15, 2013 to Jan 14, 2015  
Total Budget: $25,000  
Agency: Marshall Health Translational Pilot grant  
Status: Funded

Principal Investigator: W. Elaine Hardman  
Title: Dietary Walnut to reduce risk factors for breast cancer  
Total Budget: $99,022  
Agency: Calif. Walnut Commission/AICR  
Status: Funded

Principal Investigator: W. Elaine Hardman  
Title: Omega 3 induced epigenetic change in CLL  
Total Budget: $10,000  
Agency: WV-INBRE  
Status: Funded, complete

Principal Investigator: Johannes Fahrmann/ W. Elaine Hardman, mentor  
Title: Pre-doctoral award for Johannes Fahrmann  
Total Budget: $12,000  
Agency: WV-NASA  
Status: Funded, complete

Principal Investigator: Johannes Fahrmann/ W. Elaine Hardman, mentor  
Title: Pre-doctoral award for Johannes Fahrmann  
Total Budget: $12,000  
Agency: WV-NASA  
Status: Funded, complete

Principal Investigator: Anne Silvis/ W. Elaine Hardman, mentor  
Title: Pre-doctoral award for Anne Silvis  
Dates: Sept 1, 2010 to Aug 31, 2011  
Total Budget: $12,000  
Agency: WV-NASA  
Status: Funded, complete
Principal Investigator: W. Elaine Hardman
Title: BC096996 - “Maternal Consumption of Omega 3 Fatty Acids to Reduce Breast Cancer Risk in Offspring”
Dates: July 1, 2010 to June 30, 2013
Total Budget: $781,000
Agency: Dept of Defense, Breast Cancer Research Program
Status: Funded, complete

Principal Investigator(s): Gary O. Rankin
Project Title: West Virginia IDeA Network of Biomedical Research Excellence (WV-INBRE)
3P20RR016477-09S4
Total Budget: $651,385
Role on project: collaborator, 1.2 calendar months
Status: Funded, complete

Principal Investigator: W. Elaine Hardman
Title: Inhibition of Nuclear Factor kappa B in Indolent B Cell Malignancies
Total Budget: $20,000
Agency: Institutional, Cell Differentiation and Development Center
Status: Complete

Principal Investigator: W. Elaine Hardman
Title: Administrative supplement to Omega-3 fat to reduce risk for breast cancer 1R01CA114018-01A2
Total Budget: $40,886/year, $122,658 total,
Agency: National Cancer Institute
Status: Funded, complete

Principal Investigator: W. Elaine Hardman
Title: Omega-3 fat to reduce risk for breast cancer 1R01CA114018-01A2
Total Budget: $266,000/year, $1,064,000 total,
Agency: National Cancer Institute
Status: Funded, complete

Principal Investigator: W. Elaine Hardman
Title: Walnut consumption for benefit against prostate and breast cancer
Dates: July 1, 2007 – June 30, 2011
Total Budget: $120,000
Agency: Am. Inst for Cancer Research / Calif Walnut Commission
Status: Funded, complete
Principal Investigator: W. Elaine Hardman
Title: Post-doctoral fellowship for Gabriela Ion
Attenuation of preadipocytes/breast cancer cells communication with role in cancer prevention
Dates: Jan 15, 2007 – Jan 14, 2010
Total Budget: $80,000
Agency: Cancer Research and Prevention Foundation
Status: complete

Peer reviewed publications


Akinsete, JA, Ion, G., Witte, TR and Hardman, WE. Consumption of omega 3 fatty acids slows progression of prostate cancer in C(3)1 TAg mice. Carcinogenesis, Nov. 2011


Hardman, WE. Ion, G, Akinsete, JA, Witte, TR. Dietary walnut suppressed mammary gland tumorigenesis in the C(3)1 TAg mouse. Nutrition and Cancer, online: 20 Jul 2011


Varney, ME, Hardman, WE and Sollars, VE. Omega 3 fatty acids reduce myeloid progenitor cell frequency in the bone marrow of mice and promote progenitor cell differentiation. Lipids in Health and Disease. 2009, 8:9.
Book Chapters


2) Service
   A. Committees (internal & external)

      Curriculum Committee
      Integration Sub- Committee of the Curriculum Committee
      MS I subcommittee of the Curriculum Committee
      Oncology Fellowship, coordinator for Research Seminars
      Oncology Fellowship Steering Committee
      Women in Medicine and Science Executive Council
      Biochemistry and Microbiology Promotion and Tenure committee
      Dean’s Accreditation Committee
      Chair, Committee to Recruit a Faculty Member to Dept of Biochemistry and Microbiology
      Scientific Advisory Committee to the California Walnut Commission

      I don’t keep exact track of these but I review 2 papers most months, from the following journals:
      International Journal of Cancer
      Cancer Epidemiology, Biomarkers and Prevention
      Cancer
      Nutrition and Cancer
      Clinical Cancer Research
      American Journal Clinical Nutrition
      British Journal of Nutrition
      Carcinogenesis

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

      Have participated in all ‘PIES’ sessions offered by Dr. Darshana Shah.
      Had professional evaluation of instruction by Teaching and Learning Center.
      Nutritional Sessions at the Experimental Biology meeting were very useful.

      Professional Organizations (outside MU)
      American Association for Cancer Research
      American Society for Nutrition

      Treasurer, International Federation for Cell Biology
      Ad hoc reviewer to Chemo-Dietary Prevention Study Section, NCI
Member study section ZCA1 RPRB-O J1 P, NCI Program Project

4) Awards/honors (including invitations to speak in your area of expertise) or special

‘Omega 3 fatty acids and cancer therapy’ at Korea-EU forum on Dietary Omega 3 Fatty Acids and Cancer, Chungnam National University, Daejeon, Korea, June 8, 2010

‘Omega 3 fatty acids and cancer therapy’ at Korea Cancer Prevention Society Symposium on Omega 3 Fatty Acids, Yonsei University, Seoul, Korea, June 10, 2010.

Concord University, West Virginia ‘Omega 3 fatty acids and cancer’.

Hardman, WE, Benefit of Walnut against cancer, Invited speaker to California Walnut Commission International Marketing Conference, Seoul, Korea, Oct, 2011

‘Omega 3 fatty acids and Cancer.’ Norwegian University of Science and Technology, June, 2012

Hardman, WE, Cancer risk: Does diet make a difference?, Invited speaker to California Walnut Commission Scientific Conference, Frankfort, Germany, Oct, 2012

Hardman, WE Whole foods or their bioactive components? Potential of walnuts in cancer prevention and treatment. Invited speaker to ‘What comes first: The food or the nutrient’ a Satellite session to Experimental Biology Annual Meeting, April, 2013, Boston, MA.

Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: ___Susan Jackman_______________________   Rank: ______Professor__________________

Status (Check one):  Full-time__X____  Adjunct _____  Current MU Faculty:  Yes ___    No ___

Highest Degree Earned: _____Ph.D.______________    Date Degree Received: __1984____________

Conferring Institution: _____Iowa State University__________________________________________

Area of Degree Specialization: _____Immunology__________________________________________

Professional Registration/Licensure:  _______________________________________________

Field of Registration /Licensure:  ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  ____24____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
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<tbody>
<tr>
<td>12-13 Fall</td>
<td>MCB 743</td>
<td>Immunology</td>
<td>68</td>
</tr>
<tr>
<td>12-13 Fall</td>
<td>MCB 643</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>12-13 Fall</td>
<td>PHAR 542</td>
<td>Immunology and Microbiology (School of Pharmacy); 66%</td>
<td>80</td>
</tr>
<tr>
<td>13-14 Fall</td>
<td>MDC 750</td>
<td>Principles of Disease; ~25%</td>
<td>64</td>
</tr>
<tr>
<td>13-14 Fall</td>
<td>MCB 643</td>
<td>Immunology</td>
<td>1</td>
</tr>
<tr>
<td>13-14 Fall</td>
<td>PHAR 542</td>
<td>Immunology and Microbiology (School of Pharmacy); 66%</td>
<td>80</td>
</tr>
<tr>
<td>13-14 Spring</td>
<td>MPAS 550</td>
<td>Mechanisms of Disease (University of Charleston, Physician Assistant Program) 8 hours</td>
<td>35</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.
1) Scholarship/Research

"Correlation Between Practice Questions and Exam Scores", in which we are assessing the relationship between student participation in practice questions and test success in Microbiology course grades and the NBME Microbiology subject exam score

2) Service

   Academic Standards Committee: Chairman, 12-13, 13-14
   Curriculum Committee, 12-13, 13-14
   MS2 subcommittee of the Curriculum Committee: Chairman, 12-13, 13-14
   LCME subcommittee, ED5a, 12-13
   Medical School Admissions Committee, 12-13, 13-14

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

   The American Association of Immunologists
   Sigma Xi
   International Association of Medical Science Educators
   The Team-Based Learning Collaborative

4) Awards/honors (including invitations to speak in your area of expertise) or special

   Received an Excellence in Teaching Award for Best Notes from the Class of 2015
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Jung Han Kim
Rank: Professor

Status (Check one): Full-time ___X___ Adjunct _____ Current MU Faculty: Yes ___X__ No ___

Highest Degree Earned: Ph.D. ___ Date Degree Received: August 1996

Conferring Institution: The University of Tennessee

Area of Degree Specialization: Nutritional Science

Professional Registration/Licensure: None

Field of Registration /Licensure: N.A.

Agency: N.A.

Number of years at Marshall (can be in either teaching or administration) 5.25 years

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
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<tr>
<td>2012/Fall</td>
<td>BMS 665 (1 hr)</td>
<td>Cardiovascular Disease, Obesity, Diabetes Research Colloquium</td>
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<td>2013/Spring</td>
<td>PHS 701/629 (11 hrs)</td>
<td>Mammalian Physiology</td>
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<td>BMS 664 (1 hr)</td>
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<td>BMS 665 (1 hr)</td>
<td>Cardiovascular Disease, Obesity, Diabetes Research Colloquium</td>
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<tr>
<td>2013/Fall</td>
<td>BMS 665 (1 hr)</td>
<td>Cardiovascular Disease, Obesity, Diabetes Research Colloquium</td>
<td></td>
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<tr>
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<td>PHS 701/629 (14 hrs)</td>
<td>Mammalian Physiology</td>
<td></td>
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<tr>
<td></td>
<td>BMS 644 (1 hr)</td>
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<td>BMS 665 (1 hr)</td>
<td>Cardiovascular Disease, Obesity, Diabetes Research Colloquium</td>
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<tr>
<td></td>
<td>BMS 666 (4.5 hrs)</td>
<td>Physiology of the Cell</td>
<td></td>
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</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Publications:

Grant:
1. R01DK077202 (PI) 07/01/08 - 06/30/13 (no cost extension through 06/30/15) National Institutes of Health/ National Institute of Diabetes and Digestive and Kidney Diseases
   “Genetics of diet-induced obesity in a new mouse model.”
2. AHA 0855300E, Grant-in-Aid (PI) 07/01/08 - 06/30/10 (no cost extension through 06/30/11) American Heart Association, the Greater Southeast Affiliate
   “Diet-Wnt signaling interactions in a novel congeneric mouse model of obesity.”

2) Service

**Institutional Service:**
2010 – present Faculty Senate – School of Medicine Representative
2012 – present Executive Council for Women in Medicine and Science, Member
2014 Search Committee for Genomics Core, Member
2013 Judge for posters at 25th Research Day Conference
2012 Search Committee for a Tenure-track Faculty, Member
2010 Judge for posters at 22nd Research Day Conference

**Grant Reviewing:**
2014 A member on study section (Lipids BSc2) for American Heart Association
2013 A member on study section (Lipids BSc2) for American Heart Association
2012 A member on study section (Lipids BSc2) for American Heart Association
2012 Ad-hoc reviewer for the Israel Science Foundation (ISF)
2012 Ad-hoc reviewer for Center for Agriculture, University of Massachusetts-Amherst
2011 Ad-hoc reviewer for Veni programme of The Netherlands Organisation for Health Research and Development (ZonMw)

**Journal Refereeing:**
2013 – present Associate Editor for BMC Genetics
2012 Critical Reviews In Biochemistry & Molecular Biology
Molecular Nutrition and Food Research
Molecular and Cellular Biochemistry
Lipids in Health and Disease
Obesity Epidemic
Journal of Nutritional Biochemistry

2011
Journal of Nutrition (2 times)
Obesity (2 times)
Obesity Review
Nutrition and Metabolism
Journal of Nutritional Biochemistry

2010
Obesity

2009
Journal of Nutritional Biochemistry

Mammalian Genome
Journal of Endocrinology

Professional Society Service:
2012-2015 Diversity Committee of The Obesity Society, Member

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Membership:
American Society for Nutrition
American Diabetes Association
The Obesity Society
Endocrine Society
American Heart Association

Conference Presentations:
July 2014, 13th Annual WV-INBRE summer research symposium, Morgantown, WV
“Evaluation of Interferon Activated Gene 202B (Ifi202b) and Dual Specificity Phosphatase 12 (Dusp12) as Potential Candidate Genes For The Obesity Susceptibility QTL on Mouse Chromosome 1.”
“Hepatic Gene Expression Analysis of Nuclear Receptor Subfamily 0, Group B, Member 2 (Nr0b2) in Type 2 Diabetic Mice, TALLYHO.”

June 2014, ICE/ENDO 2014, Chicago, IL
“The missense polymorphism R46S in cell death-inducing DNA fragmentation factor-alpha (DFFA)-like effector c (Cidec/Fsp27) may influence the obesity mediated by mouse locus tabw2a”

April 2014, Experimental Biology 2014, San Diego, CA
“Role of Wnt5b in fatty acid synthesis in primary cultured mouse hepatocytes”

May 2013, 20th European Congress on Obesity, Liverpool, UK
“Characterizations of the energy balance and circulating inflammation makers in a polygenic mouse model of obesity and type 2 diabetes.”

April 2013, Experimental Biology 2013, Boston, MA
“Genetic regulation of impaired fasting glucose in congenic mice.”

September 2012, Obesity 2012, San Antonio, TX
“Potential Susceptibility Variants for Obesity and Type 2 Diabetes in the TALLYHO Mouse.”

July 2012, 11th Annual WV-INBRE summer research symposium, Morgantown, WV
“Genetic evidence for an obesity locus using congenic mice.”

March 2012, MU JCESOM Research Day, Huntington, WV
“Sequence analysis of TALLYHO genome.”

March 2012, Keystone Symposia; Advances in Islet Biology, Monterey, CA
“Genetic and functional evidence for a diabetes locus using reciprocal congenic mice.”

October 2011, Obesity 2011, Orlando, FL
“Development of obesity in a new congenic mouse strain carrying an obesity QTL on chromosome 1.”
July 2011, 10th Annual WV-INBRE summer research symposium, Huntington, WV
"Type 2 Diabetes Mouse Model TALLYHO Carries An Obesity Gene on Chromosome 1."

May 2011, Appalachian Health Summit: Focus on Obesity UK CCTS 6th Annual Spring Conference, Lexington, KY
"Glucose intolerance is independent of obesity in a type 2 diabetes mouse model, TALLYHO."
"The Genetic Core Facility at Marshall University."

April 2011, Experimental Biology 2011, Washington, DC
"Characterization of the regulation of energy balance in congenic mice susceptible to diet-induced obesity."

July 2010, 9th Annual WV-INBRE summer research symposium, Morgantown, WV
"Role of Inflammation Factors in the Development of Type 2 Diabetes in TALLYHO Mice."

January 2009, Keystone Symposia; Type 2 diabetes and Insulin resistance, Banff, Canada
"Proteomic analysis of pancreas, liver, and adipose tissue in a polygenic mouse model of type 2 diabetes."

April 2009, Experimental Biology 2009, New Orleans, LA
"Proteomic analysis of pancreas in a polygenic mouse model of type 2 diabetes."
"Proteomic analysis of adipose tissue in a mouse congenic strain carrying an obesity QTL."

4) Awards/honors (including invitations to speak in your area of expertise) or special
Invited speaker:
2012  BMS recruiting, West Virginia Wesleyan College, Buckannon, WV
"Genetics of obesity and type 2 diabetes"

2009  West Virginia University Cancer Center Retreat, West Virginia University, Morgantown, WV
"Genetic basis for obesity and type 2 diabetes in a novel mouse model, TALLYHO"
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Emine Koc

Rank: Associate Professor

Status (Check one): Full-time _X__ Adjunct _____
Current MU Faculty: Yes _X__ No ___

Highest Degree Earned: __PhD________ Date Degree Received: ____08/97_____

Conferring Institution: __New Mexico State University__________________________

Area of Degree Specialization: ____Biochemistry_______________________________

Professional Registration/Licensure: ____________________________________________

Field of Registration /Licensure: ______________________________________________

Agency: _____________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) __3____

---

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
<th>Contact Hours</th>
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<tr>
<td>2012/Fall</td>
<td>BMS600</td>
<td>Biochemical, Cellular, and Molecular Foundations of Biomedical Science</td>
<td>20-25</td>
<td>12</td>
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<td>2013/Fall</td>
<td>BMS600</td>
<td>Biochemical, Cellular, and Molecular Foundations of Biomedical Science</td>
<td>20-25</td>
<td>12</td>
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<tr>
<td>2012/Fall</td>
<td>MDC710</td>
<td>Elements of Medicine</td>
<td>70-75</td>
<td>12</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC710</td>
<td>Molecular Basis of Medicine</td>
<td>70-75</td>
<td>11</td>
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<td>2012/Fall</td>
<td>BMS644</td>
<td>Responsible Conduct of Research (Course coordinator)</td>
<td>5-10</td>
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<tr>
<td>2013/Fall</td>
<td>BMS644</td>
<td>Responsible Conduct of Research (Course coordinator)</td>
<td>5-10</td>
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<td>2012/Spring</td>
<td>BMS652</td>
<td>Cancer Colloquium (Coordinator)</td>
<td>8</td>
<td>2</td>
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<tr>
<td>2013/Spring</td>
<td>BMS651</td>
<td>Cancer Biology</td>
<td>4</td>
<td>2</td>
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<tr>
<td>2014/Spring</td>
<td>PHS666</td>
<td>Physiology of the Cell</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

Scholarship/Research

**Publications (Since 2012)**


Service

**Marshall University (Since 2012):** Member of the MU Faculty Senate (Fall 2011 to date), Member of the MUSOM MD/PhD Admission Committee (Fall 2012 to date), and Member of the MU Radiation and Safety Committee (Fall 2013)

**Ad hoc grant reviewer (Since 2012):** National Science Foundation, Marshall University Internal Grants, Telethon Foundation (Italy), and The Scientific and Technological Research Council (Turkey)


Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Memberships**

American Association for the Advancement of Science
Meetings Attended and Abstract Presentations (Since 2012)


Awards/honors (including invitations to speak in your area of expertise) or special

Awards, Honors, Fellowships
AAMC Mid-Career Women Faculty Professional Development Seminar, Austin, TX, November 30-December 4, 2012

Invited Talks
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: ______Jiang Liu_____________________   Rank:_______Associate Professor__________
Status (Check one):  Full-time__X__   Adjunct _____  Current MU Faculty:  Yes _X_   No ___
Highest Degree Earned: _MD, PhD_________    Date Degree Received: ___1987/1994_______
Conferring Institution: _Beijing Medical University, Chinese Academy of Preventive Medicine____
Area of Degree Specialization: ___Cell biology and molecular biology____________________
Professional Registration/Licensure:  __NA___________________________________________
Field of Registration /Licensure:  __NA______________________________________________
Agency: ___NA___________________________________________________________________
Number of years at Marshall (can be in either teaching or administration)   2____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014, Spring</td>
<td>PHS666</td>
<td>Physiology of the Cell</td>
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</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Research paper:


Abstract:
1. Yan Y, Shapiro AP, Chaudhry M, Xie Z, Malhotra D, Abraham NG, Shapiro JI and Liu J. Ouabain-induced Protein Carbonylation of the Na/K-ATPase α1 Subunit is Reversible in LLC-PK1 cells. ASN meeting 2013.
2. Yan Y, Shapiro AP, Chaudhry M, Xie Z, Malhotra D, Abraham NG, Shapiro JI and Liu J. Ouabain-induced Protein Carbonylation of the Na/K-ATPase α1 Subunit is Reversible in LLC-PK1 cells. ASN meeting 2013.
5. Drummond CA, Liu J, Cooper CJ, Xie Z, Shapiro JI, and Tian J. Inhibition of Na/K-ATPase Signaling Regulates Cardiac Remodeling Induced by Partial Nephrectomy in Mice. EB meeting, 2014
2) **Service**
   Member of library committee

3) **Professional development activities**, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

   **Review committee:** AHA grant reviewer, local/National


   **Membership:** American Society for Biochemistry and Molecular Biology (ASBMB)
   - American Heart Association, member of
     - Council of High Blood Pressure Research,
     - Council on Kidney in Cardiovascular Disease,
     - Council of Clinical Cardiology
   - Associate level, Academy of medical Educators, JCE School of Medicine

4) **Awards/honors (including invitations to speak in your area of expertise) or special**

Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: __Elsa I. Mangiarua_____________________________   Rank: __Professor_________________

Status (Check one): Full-time __X__   Adjunct _____  Current MU Faculty: Yes __X__   No _____

Highest Degree Earned: __PhD_________________    Date Degree Received: ___1983_________

Conferring Institution: __Universidad de Buenos Aires________________________________________

Area of Degree Specialization: __Biochemistry____________________________________________

Professional Registration/Licensure: _______________________________________________

Field of Registration /Licensure: ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  ____27_____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
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<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
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<tr>
<td>2012/S</td>
<td>PHS 629</td>
<td>Mammalian Physiology</td>
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<tr>
<td>2012/F</td>
<td>-</td>
<td>-</td>
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<td>2013/S</td>
<td>PHS 629</td>
<td>Mammalian Physiology</td>
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<tr>
<td>2013/F</td>
<td>BMS 600</td>
<td>Foundations of Biomedical Sciences</td>
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</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research:
   Papers:
114,2012.
Mangiarua, EI, Delamere NA. Association of Chairs of Departments of Physiology 2013 Survey Results. The Physiologist 57:159-164,2014.

Grants:

2) Service:
School of Medicine Admissions Committee, 2007-2012, 2014 - Present
MS-1 Subcommittee, 2011 - Present
SOM Multicultural Advisory Committee, 2011 – Present
Search Committee, Chair of the Department of Biochemistry and Microbiology, 2013 – Present
Search Committee, Department of Pharmacology, Physiology and Toxicology, Administrative Assistant, 2014
Academic Coordinator of Marshall University Biomedical Sciences Summer Research Internship for Minority Students, 2008 – Present
BMS Program Mentoring Committee, 2004 – 2005 Member, 2005 - Present Chair
MU Faculty Senate, 2010-2011
National Heart, Lung, and Blood Institute, Grant Reviewer, 2009, 2010
National Science Foundation Graduate Research Fellowship Program, Grant Reviewer, 2006 – 2011, 2013
Department of Defense Science, Mathematics, And Research for Transformation (SMART) Scholarship for Service Program, Reviewer, 2014
Association of Chairs of Departments of Physiology Secretary – Treasurer, 2014 – Present
Annual Biomedical Research Conference for Minority Students Exhibitor, Judge; 2009 – 2011, 2013
Judge at Cabell/Lincoln HSTA Science Symposium, 2010, 2011

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
- 2013 Executive Development Seminar for Associate Deans and Department Chairs
- Inter-American Society of Hypertension
- American Physiological Society
- National IDeA Symposium of Biomedical Research, 2010, 2014
- NIH 2013 Training, Workforce Development, and Diversity Program Directors’ Meeting
- Fall Retreat Meeting Association of Chairs of Departments of Physiology, 2009, 2011, 2013
- Association of Chairs of Departments of Physiology Secretary – Treasurer, 2014 – Present

4) Awards/honors (including invitations to speak in your area of expertise) or special
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: William D. McCumbee  
Rank: Professor

Status (Check one): Full-time X  Adjunct _____  Current MU Faculty: Yes X  No ___

Highest Degree Earned: Ph.D.  Date Degree Received: 1977

Conferring Institution: University of Houston

Area of Degree Specialization: Biology (Area of Emphasis: Physiology)

Professional Registration/Licensure: ________________________________

Field of Registration /Licensure: ________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration): 33

List courses you taught during the final two years of this review. If you participated in a team-taught
course, indicate each of them and what percentage of the course you taught. For each course include
the year and semester taught (summer through spring), course number, course title and enrollment.
(Expand the table as necessary)

<table>
<thead>
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<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
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<tr>
<td>2012 - 2013</td>
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<tr>
<td>2012/Fall</td>
<td>IDM 725</td>
<td>Molecular Basis of Medicine (2.6%)</td>
<td>~80</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>BMS 600</td>
<td>Foundations in Biomedical Sciences (3.8%)</td>
<td>~20</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>FSC 624</td>
<td>Biochemistry (3.4%)</td>
<td>~20</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>BMS 655</td>
<td>CODRC Colloquium (10%)</td>
<td>3</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PHS 629/701</td>
<td>Mammalian Physiology (25%)</td>
<td>~95</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>BMS 655</td>
<td>CODRC Colloquium (10%)</td>
<td>3</td>
</tr>
<tr>
<td>2013 - 2014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC 710</td>
<td>Elements of Medicine (2.6%)</td>
<td>~80</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>BMS 600</td>
<td>Foundations in Biomedical Sciences (3.8%)</td>
<td>~20</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>FSC 624</td>
<td>Biochemistry (3.4%)</td>
<td>~20</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>BMS 655</td>
<td>CODRC Colloquium (10%)</td>
<td>3</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>PHS 666</td>
<td>Physiology of the Cell (26%)</td>
<td>3</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>PHS 629</td>
<td>Mammalian Physiology (25%)</td>
<td>~20</td>
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<tr>
<td>2014/Spring</td>
<td>MDC 713</td>
<td>Structure and Function III (6.0%)</td>
<td>~75</td>
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</table>
Note: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

2) Service

Institutional Committees
- Medical School Curriculum Committee, Member
  - MS-Subcommittee, Chair (2012 - 2014): In 2012 - 2013, I played a significant role in coordinating changes in MS-1 curriculum into an integrated systems block curriculum for the 2013-2014 academic year
  - MS-1 test Coordinator (2012 -2013)
  - Integration Committee, Member (2012 -2014)
  - 2012: member of ED-5A and ED-33 action team for proposing action steps to respond to LCME
- Institutional Biosafety Committee, Member (2012 -2014)
- Radiation Safety Committee, Chair (2012 – 2014)

Served on 2 PhD. Committees

Train safety Interns for Safety technology program

University Radiation Safety Officer – responsible for the radiation safety program at Marshall University and for ensuring that activities involving radioactive materials and radiation producing devices are in compliance with NRC and State regulations; review and approve applications for the use of radioactive materials; provide training in radiation safety for faculty, technicians and students and radiation safety seminars for summer students; oversee the procurement of radioactive materials; responsible for inventory control and ensuring the appropriate disposal of radioactive waste.

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.


Belong to the Endocrine Society

4) Awards/honors (including invitations to speak in your area of expertise) or special
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Richard M Niles
Rank: Professor and Chair

Status (Check one): Full-time X Adjunct Current MU Faculty: Yes No X

Highest Degree Earned: PhD Date Degree Received: 1972
Conferring Institution: University of Massachusetts - Amherst

Area of Degree Specialization:
Pathology

Professional Registration/Licensure:

Field of Registration/Licensure:

Agency:

Number of years at Marshall (can be in either teaching or administration) 22

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
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<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/Fall</td>
<td>BMS 600</td>
<td>Foundations of Biomedical Science – 5 hours</td>
<td>~20</td>
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<tr>
<td>13/Fall</td>
<td>MDC 710</td>
<td>Elements of Medicine – 9 hours</td>
<td>~75</td>
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<tr>
<td>13/Spring</td>
<td>BMS 651</td>
<td>Cancer Biology – 4 hours</td>
<td>~5</td>
</tr>
<tr>
<td>13/Spring</td>
<td>BMS 661</td>
<td>Communication Skills – 10 hours</td>
<td>~5</td>
</tr>
<tr>
<td>12/Fall</td>
<td>BMS 600</td>
<td>Foundations of Biomedical Science – 5 hours</td>
<td>~19</td>
</tr>
<tr>
<td>12/Fall</td>
<td>MDC 710</td>
<td>Elements of Medicine – 9 hours</td>
<td>~76</td>
</tr>
<tr>
<td>12/Spring</td>
<td>BMS 661</td>
<td>Communication Skills – 10 hours</td>
<td>~5</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

2) Service

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special

Scholarship/Research


Yeshi Yin, T. Ryan Withers, Richard M. Niles, Shannon Johnson, Hongwei D. Yu. Draft genome sequences of two alginate-overproducing variants of


Grants

Principal Investigator
Expansion of STEM Doctoral Education at Marshall University
WV Higher Education Policy Commission, Division of Science and Research
HEPC.dsr.09.014
$799,908 – 01/01/2009 – 12/31/2012

Co-Director

Principal Investigator
“WV Cancer Genomics Network” HEPCdsr 12.28
$1,350,000, 7/1/12 – 6/30/17

Principal Investigator
Expansion of STEM Doctoral Education at Marshall University
WV Higher Education Policy Commission, division of Science and Research
HEPC.dsr.13.27
$800,000 -01/-1/2013 – 12/31/17

Service

Ad hoc member of Oncology Fellowship study section for the NIH Oct. 2009

Member Training Grant Review Panel DOD Breast Cancer Research Program Jan.2010


Ad hoc member of ZAT HS-14 study section for the NIH, Oct. 2013
Ad Hoc member of Integration Panel to judge pre-proposals submitted for DoD Break-Through Awards for breast cancer research program, Nov. 2013

Ad hoc member of DoD breast cancer research program integration panel to decide funding of postdoctoral fellowships and break-through awards May 2014

Honors/Awards

HIF-1alpha and Melanoma
Biomedical Sciences Symposium
North Dakota State University
Fargo, ND
May 2010

Graduate Faculty Achievement Award 2009 from the Biomedical Sciences Graduate Student Organization in recognition of teaching and mentoring excellence
Faculty Data Sheet
(Information for the period of this review)

Name:_________Michael Norton___________________   Rank:______Professor____________

Status (Check one): Full-time____   Adjunct __X___   Current MU Faculty: Yes _X_   No ___

Highest Degree Earned: ___Ph.D.________________    Date Degree Received: ___1982_____  

Conferring Institution: ____Arizona State University____________________________________

Area of Degree Specialization: _____Solid State Chemistry_____________________________

Professional Registration/Licensure:  ______NA_________________________________________

Field of Registration /Licensure:  __________NA________________________________________

Agency: _____________________________NA________________________________________

Number of years at Marshall (can be in either teaching or administration) _22_(30 Yrs in Higher Ed)__

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/Spring</td>
<td>CHM 678  201</td>
<td>Applied Microscopy in Research</td>
<td>2</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>CHM 678  201</td>
<td>Applied Microscopy in Research</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Grant
Norton, M. L. (Supporting), "PUI Incubator Grant," Sponsored by HEPC, State, $6,000.00. (September 1, 2013 - Present).


Norton, M. L. (Supporting), "Near and FarField Interfaces to DNA Guided Nanostructures from RF to Lightwave: Exploiting the Spectrum," Sponsored by ARO, Federal, $900,000.00. (November 1, 2010 - Present).


Norton, M. L. (Principal), "HSAP ( ARO High School Apprentice Program)," Sponsored by ARO, Federal, $6,000.00. (June 1, 2011 - December 20, 2013).

Norton, M. L. (Principal), "joint investigation of noble metal based fluorophores," Sponsored by CINT, Federal, $0.00. (February 1, 2011 - January 2013).


Castellani, M. P. (Principal), Kolling, D. R.J. (Co-Principal), Sun, X. (Co-Principal), Fan, X. (Co-Principal), Norton, M. L. (Co-Principal), Santanum, N. (Co-Principal), "EPR Spectrometer Acquisition," Sponsored by National Science Foundation, Federal, $314,120.00. (July 1, 2011 - December 30, 2011).


**Research in Progress**

"Modifying a polymerase gene to purify a labeled protein." (On-Going)  
Working with Dr. Michael Norton on this project.

"Using SPR to monitor the Binding between IRP1 and IRE" (On-Going)
2) Service

**Department Service**

Committee Member, Graduate Affairs Committee. (January 1, 2009 - Present).

Faculty Mentor. (August 2007 - Present).

Committee Chair, Tenure and Promotion Committee (Chemistry). (September 20, 2006 - Present).

Committee Member, Undergraduate Affairs Committee. (January 1, 2000 - Present).


Letter writer, Letters of recommendation. (September 6, 2013).


**College Service**

Attendee, Meeting, NSF EPSCoR Advisory Committee. (May 15, 1993 - Present).

**University Service**

Program Coordinator, Summer Undergraduate Research Program. (January 1, 2011 - Present).

Director and Coordinator, Molecular and Biological Imaging Center. (October 25, 2006 - Present).

Committee Member, NASA EPSCoR Advisory Committee. (January 1, 1995 - Present).

**Professional Service**

Reviewer, Grant Proposal, ARO. (January 1, 2005 - Present).

Reviewer, Journal Article, IEEE. (January 1, 2005 - Present).

Reviewer, Journal Article, ACS. (January 1, 2000 - Present).

Reviewer, Grant Proposal, National Science Foundation, Arlington, DC. (January 1, 2000 - Present).

Reviewer, Journal Article, ACS. (May 18, 2013).

Public Service

Volunteer judge, LEGO Robotics competitions/demonstrations, Huntington, WV. (January 1, 2010 - Present).
Grant Proposal Reviewer, External, U of Nebraska, Lincoln, Nebraska. (December 13, 2013).
Volunteer judge, LEGO Robotics competitions/demonstrations, Huntington, WV. (November 16, 2013).
Guest Speaker, RCBI, Huntington, WV. (June 25, 2013).
Discussant, Fairland High School Science Fair, Proctorville, Ohio. (January 25, 2013).
Faculty mentor for High School Student, TREK Program Mentor, Huntington, WV. (July 1, 2012 - August 15, 2012).
Faculty mentor for High School Student, TREK Program Mentor, Huntington, WV. (July 1, 2011 - August 15, 2011).
Judge, Fairland High School Science Fair, Proctorville, Oh. (January 21, 2011).

Development Activities Attended


Awards and Honors

cover of "The Neuron", the science journal of the state of West Virginia, Scholarship/Research, State. (April 21, 2012).
Appendix II  
Faculty Data Sheet  
(Information for the period of this review)

Name: Donald A. Primerano  
Rank: Professor and Interim Chair

Status (Check one): Full-time  
Adjunct  
Current MU Faculty: Yes  
No

Highest Degree Earned: PhD  
Date Degree Received: 1982

Conferring Institution: Duke University, Durham, NC

Area of Degree Specialization: Microbiology

Professional Registration/Licensure: NA

Field of Registration/Licensure: NA

Agency: NA

Number of years at Marshall (can be in either teaching or administration)  
(Started at Marshall November 1988)  
26

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment.  
(Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Team Taught Percentage</th>
<th>Course Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/Fall</td>
<td>BMS600</td>
<td>5.6%</td>
<td>Foundations of Biomedical Sciences (3 hrs)</td>
<td>~25</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>MCB631</td>
<td>30%</td>
<td>Medical Microbiology I, course director (7 lecture hours + 5 review sessions)</td>
<td>4</td>
</tr>
<tr>
<td>2012/Fall 2013/Spring</td>
<td>MCB731</td>
<td>15%</td>
<td>Medical Microbiology (two semester course), course director</td>
<td>~68</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>MCB632</td>
<td>5%</td>
<td>Medical Microbiology II, course director</td>
<td>4</td>
</tr>
<tr>
<td>2013 Spring</td>
<td>BIC638</td>
<td>12%</td>
<td>Advanced Molecular Genetics, course director</td>
<td>5</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>BMS600</td>
<td>4.2%</td>
<td>Foundations of Biomedical Sciences (2 hrs)</td>
<td>~25</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>MDC753</td>
<td>3.5%</td>
<td>Medical Pathology (4 hours)</td>
<td>~68</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MCB631</td>
<td>30%</td>
<td>Medical Microbiology I, course director, (7 lecture hours + 5 review sessions)</td>
<td>6</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC750</td>
<td>6%</td>
<td>Principles of Disease (7 lecture hours)</td>
<td>~64</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MCB632</td>
<td>5%</td>
<td>Medical Microbiology II, course director</td>
<td>6</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MDC753</td>
<td>3.5%</td>
<td>Disease and Therapeutics IV (4 hours)</td>
<td>~64</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.


**Research Support (completed)**

- **Title:** West Virginia IDeA Networks of Biomedical Research Excellence Phase II
- **Subproject:** Appalachian Cardiovascular Research Network
- **Period:** 5/1/09 - 7/30/14
- **Agency:** NIH/NIGMS
- **Role:** Co-P.I. (G. Rankin, P.I.)

- **Title:** COBRE Administrative Supplement: WV Cancer Genetics Network
- **Period:** 10/1/09 - 08/31/2011
- **Agency:** NIH/NCRR
- **Role:** Co-P.I. (R. Niles, P.I.)

- **Title:** Translational Genomic Research Institute (Next Generation Sequencing)
- **Period:** 2010
- **Agency:** Health Resources and Services Administration
- **Role:** Next Gen Sequencing Facility Director.
- **Goal:** To develop next generation sequencing which will aid in the identification of cancer and cardiovascular susceptibility genes

- **Title:** WV-Idea Network of Biomedical Research Excellence I (WV-INBRE I)
- **Agency:** NIH/NCRR
- **Period:** 7/01/04 to 6/30/09 Amount: approx. $2.5 million/year
- **Role:** Co-P.I. and Director of Appalachian Cardiovascular Research Network

- **Title:** Transcription Factors in Cancer (COBRE)
- **Agency:** NIH/NCRR
- **Period:** 10/01/04 to 7/31/09 Amount: approx. $1.6 million/year
- **Role:** Co-I./Director of Genomics Core Facility (R. Niles, P.I.)

**Research Support (active)**

- **Title:** West Virginia IDeA Networks of Biomedical Research Excellence Phase II
- **Subproject:** Genomics and Bioinformatics Core
- **Period:** 5/1/14 - 4/30/19
- **Amount:** approx. $3.0M/year
- **Agency:** NIH/NIGMS
- **Role:** Co-P.I. (G. Rankin, P.I.)

- **Title:** WV Cancer Genomics Network
- **Agency:** WV Higher Education Policy Commission Research Challenge Grant
- **Period:** 07/01/2012 to 06/30/2017
- **Role:** Co-P.I. (Claudio, P., Niles, R., P.I.’s)
- **Goal:** To develop a repository of cancer tissues and study the genomic and epigenomic events that cause cancers relevant to West Virginians
Research Support (pending)

Title: Molecular profile of cancer-associated adipose in obese women with breast cancer
Period: 1/1/15 - 12/30/15
Amount: $50,000
Agency: WV-CTSI
Role: Collaborator (L. Vona-Davis, P.I.)

Publications (2014-2009)


ABSTRACTS/PRESENTATIONS:

8. Fahrmann, JF; Ballester, OF; Ballester, G; Witte, TR; Salazar, AJ; Ion, G; Primerano, DA; Boskovic, G; Denvir, J. Inhibition of nuclear factor kappa B activation in early stage chronic lymphocytic leukemia by omega 3 fatty acids. Presented at UK Research meeting. June 2012.
Mechanisms of Toxicity, August 7-12, 2011, Andover, NH.


3. “Applications of Next Generation Sequencing in Genomics and Transcriptomics The Expanding Capabilities of Next-Generation DNA Sequencing” at Zhejiang Academy of Agricultural Sciences and “Next Gen Sequencing for Detection and Analysis of Microbes and Microbiomes” at the Zhejiang University Department of Food Science, Hangzhou China. 2012.


5. “Research Funding Opportunities through the WV-INBRE Program. Given at the WV STaR Symposium April 21 2012.


2. SERVICE (active)

State Level Committees

WV Cancer Genomics Network Steering Committee 2010 to the present
WV-INBRE Steering Committee 2001 to the present

University Level Committees

Integration SOM subcommittee, 2012-present
SOM Student Appeals Subcommittee 2010-present
SOM Year Two Subcommittee 2007-present
Cardiovascular Research Cluster, 2006 – present
Radiation Safety Committee, 10/93 - present
Institutional Biosafety Committee 12/88- present, (Chair 1991-1995 and 1999-present)
Graduate Faculty Status 1990 - present

Graduate Student Advisory Committees (current)
Taha Ahmed
3. Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Organizations (Current)**

Association of Microbiology and Immunology Medical School Chairs (AMSMIC)
American Association for the Advancement of Science (AAAS)
Association of Biomolecular Resource Facilities (ABRF)

**Conferences Attended (2014-2009)**

NIGMS 5th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE) (June 2014). Bethesda MD.
NBME Workshop, Marshall University 2013
AAMC Workshop for Interim and Aspiring Leaders Washington DC May 2-4 2013.
Association of Microbiology and Immunology Medical School Chairs. January 2013.
NIGMS/NCRR 4th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE) (June 2012). Bethesda MD.

4. Awards/honors (including invitations to speak in your area of expertise) or special recognition

**Invited Talks (2014-2009)**

“Applications of Next Generation Sequencing in Genomics and Transcriptomics The Expanding Capabilities of Next-Generation DNA Sequencing” at Zhejiang Academy of Agricultural Sciences and “Next Gen Sequencing for Detection and Analysis of Microbes and Microbiomes” at the Zhejiang University Department of Food Science, Hangzhou China. 2012.
“MU Genomics Core: Next Generation Sequencing Service”. Given at the WVU Cancer Retreat on August 12 2010.

**Honors (2014-2009)**

2013-14 Academic Citizenship Excellence award (bronze)
2009 Certificate of Teaching Excellence awarded by JCESOM

**Panelist**

“Research Funding Opportunities through the WV-INBRE Program”. Given at the WV STaR Symposium April 21 2012.
Name: Gary O. Rankin   Rank: Professor and Chair

Status (Check one): Full-time _X__   Adjunct _____  Current MU Faculty: Yes _X__   No ___

Highest Degree Earned: PhD   Date Degree Received: 1976

Conferring Institution: University of Mississippi

Area of Degree Specialization: Major: Medicinal Chemistry Minor: Pharmacology

Professional Registration/Licensure: NA

Field of Registration /Licensure: NA

Agency: NA

Number of years at Marshall (can be in either teaching or administration)  36

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment.  
(Expand the table as necessary)

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<tbody>
<tr>
<td>2012/Spring</td>
<td>PMC655</td>
<td>Toxicology Reviews (team taught 4.5 hr)</td>
<td>7</td>
</tr>
<tr>
<td>2012/Spring</td>
<td>PMC622</td>
<td>Medical Pharmacology II (team taught 3 hr)</td>
<td>10</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>FSC680</td>
<td>Toxicology/Drug Analysis (team taught 4.5 hr)</td>
<td>15</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>PMC650</td>
<td>General Toxicology (team taught 12 hr)</td>
<td>12</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>PMC655</td>
<td>Toxicology Reviews (team taught 4.5 hr)</td>
<td>7</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>PMC621</td>
<td>Medical Pharmacology I (team taught 10 hr)</td>
<td>9</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PMC622</td>
<td>Medical Pharmacology II (team taught 3 hr)</td>
<td>5</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PMC655</td>
<td>Toxicology Reviews (team taught 1 hr)</td>
<td>10</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>FSC680</td>
<td>Toxicology/Drug Analysis (team taught 4.5 hr)</td>
<td>15</td>
</tr>
<tr>
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<td>PMC621</td>
<td>Medical Pharmacology I (team taught 10 hr)</td>
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</tr>
<tr>
<td>2014/Spring</td>
<td>PMC622</td>
<td>Medical Pharmacology II (team taught 1 hr)</td>
<td>9</td>
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</tr>
<tr>
<td>2014/Fall</td>
<td>PMC621</td>
<td>Medical Pharmacology I (team taught 10 hr)</td>
<td>9</td>
</tr>
</tbody>
</table>
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

a. Manuscripts Published


b. Book Chapters


P.J. Harvison and G.O. Rankin. 2013. Chapter 22. Diuretics, in Foye’s Principles of
Medicinal Chemistry, 7th ed; T. Lemke and D.A. Williams, eds. Lippincott, Williams & Wilkins, pp. 728-746.


c. Presentations/Published Abstracts
National/International


G.O. Rankin and M.A. Valentovic. 2012. Resveratrol reduces cisplatin nephrotoxicity in
HK-2 cells. Presented at BIT Life Sciences 5th World Cancer Congress; Beijing, China, May 18-20, 2012, p.361.


Regional/Local


d. Grant Support


2) Service

**Medical School Committees**
- Search Committee, Faculty, Department of Pharmacology, Physiology & Toxicology, 2008-2009
- Search Committee, Faculty, Department of Biochemistry and Microbiology, 2010-2011
- Search Committee, IT Consultant Senior, 2010
- Search Committee, IT Consultant Senior, 2010-2011
- Search Committee, Dean; Chair, 2011-2012
- Integration Committee, 2012–2013
  - Hematopoietic and Lymphoreticular Disease, Neoplasms, Environmental, Injury and Poisoning Subcommittee, Co-Chair, 2012-2013
- Graduation Speaker and Honorary Degree Committee, 2013-Present
- Search Committee, Chair, Department of Biochemistry and Microbiology, Chair, 2013-Present
- Search Committee, Chair, Department of Ophthalmology, Member, 2013-2014

**School of Pharmacy**
- Search Committee, Chair, Pharmaceutical Sciences and Research, 2011
- Search Committee, Faculty, Pharmacy Practice, 2011-2012
- Search Committee, Faculty, Pharmacy Administration, 2011-2012
- Search Committee, Faculty, Pharmacology and Toxicology, 2011-2012
- Search Committee, Faculty, Pharmaceutics, 2011-2012
- Search Committee, Faculty, Pharmaacoanalytics, 2011-2012
- Search Committee Faculty, Medicinal Chemistry, 2011-2012

**University Committees**
- Ad Hoc Review of Vice Presidents, 2010
- Ad Hoc Research Misconduct Panel, 2010

**State of West Virginia**
- West Virginia IDeA Research Council, 2008-Present
- Science and Research Advisory Council, 2009-2014
- STaR Symposium Planning Committee, 2010-2014

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Societies**
- American Association for the Advancement of Science, 1982-Present
- International Society for the Study of Xenobiotics, 1984-Present
- Society of Toxicology, 1984-Present
  - Ohio Valley Chapter, 1986-Present
- American Society for Pharmacology and Experimental Therapeutics, 1985-Present
  - Division of Drug Metabolism, 1985-Present
  - Division of Toxicology, 1992-Present
- West Virginia Academy of Science, 1985-Present (Life Member)
- Association for Medical School Pharmacology Chairs, 1985-Present
- Association of Chairs of Departments of Physiology, 2005-Present
- American Physiological Society, 2007-Present

**Conferences Attended**
- I regularly attend the annual meetings of the Society of Toxicology, American Society for Pharmacology and Experimental Therapeutics, Association of Medical School Pharmacology Chairs and American Physiological Society.
Professional Panels
Environmental Protection Agency - Panelist, Trichloroethylene Review Panel, 2010
National Institutes of Health
- PBKD Study Section, adhoc Reviewer, 2009 (Challenge Grants)
- Special Emphasis Panels, NIDDK, 2009; 2011; 2012
- NISBRE Steering Committee, Member 2009-2013
  Abstract Reviewer, 2014
- Special Emphasis Panel, CSR, Chair, 2009
- Program Committee, SE Region IDeA Meeting, 2009
- Co-Chair Biochemistry Section, SE Region IDeA Meeting, 2009
- Co-Chair Cancer I Session, SE Region IDeA Meeting, 2011
- Special Emphasis Panel, NIGMS, IDeA-CTR, February, 2013
- Special Emphasis Panel, NIMHD, RCMI, ZMD 1 MLS 01 1, November 22, 2013
- Special Emphasis Panel, NIGMS, IDeA-CTR, Chair, March, 2014
Pharmaceutical Research and Manufacturers of America Foundation
- Basic Pharmacology Advisory Committee, 2012- Present
Editorial Board, Toxicology, 1994-present
Editorial Board, Chemico-Biological Interactions, 2011-Present
Editorial Board, ISRN Toxicology, 2011-2014
Editorial Board, European Journal of Toxicological Sciences, 2012-Present
Editorial Board, Journal of Experimental and Integrative Medicine, 2013

4) Awards/honors (including invitations to speak in your area of expertise) or special

Awards/Honors
- PhRMA Award in Excellence in Pharmacology/Toxicology-Finalist, 2012, 2014
- 2012-2013 Joseph Sam Distinguished Alumnus Award (University of Mississippi, Department of Medicinal Chemistry), March, 2013
- Best Research Team Award (Departmental award), Joan C. Edwards School of Medicine, 2013

Invited Presentations
- East Carolina University, Department of Pharmacology, “Succinimide-induced Nephrotoxicity: Role of Biotransformation”, October, 2009.


Medical University of South Carolina, Department of Pharmaceutical Sciences, “Chloroaniline Nephrotoxicity: Metabolites and Mechanisms”, November, 2009.

University of Charleston, American Chemical Society Chapter, “Choosing a Career Path”, March 2010.


Kanawha County HSTA Symposium, “WV-INBRE: Research Opportunities for Undergraduate Students”, May 12, 2011.


Joan C. Edwards School of Medicine, Marshall University, P.I.E.S. “The Art of Leadership” June 7, 2011.

West Virginia IDeA Annual Meeting, “WV-INBRE Update”, October 20-21, 2011, Morgantown, WV.

Chi Beta Phi National Annual Meeting, “Evolution of a Scientist”, October 22, 2011, West Liberty University, WV.


West Virginia University, Focal Group participant on the WVSU STEM Program. September 13, 2012.
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Travis Salisbury_____________________  Rank: Assistant Professor_________________

Status (Check one):  Full-time__X___  Adjunct _____  Current MU Faculty:  Yes ___X___ No ___

Highest Degree Earned: Ph.D._____________  Date Degree Received: _2003_______________

Conferring Institution: Kent State University
..............................................................................................................................

Area of Degree Specialization: Physiology_______________________________________

Professional Registration/Licensure: _______________________________________________

Field of Registration /Licensure:  ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  ___5_____

List courses you taught during the final two years of this review. If you participated in a team-taught
course, indicate each of them and what percentage of the course you taught. For each course include
the year and semester taught (summer through spring), course number, course title and enrollment.
(Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2013</td>
<td>Team-taught (~5%)</td>
<td>Disease and Therapeutics I (Fall)</td>
<td>~70</td>
</tr>
<tr>
<td>2012-2013</td>
<td>Team-taught (~5%)</td>
<td>Disease and Therapeutics II (Fall)</td>
<td>~70</td>
</tr>
<tr>
<td>2012-2013</td>
<td>Team-taught (~5%)</td>
<td>Disease and Therapeutics III (Spring III)</td>
<td>~70</td>
</tr>
<tr>
<td>2012-2013</td>
<td>Team-taught (17%)</td>
<td>PMC620/621 Medical Pharmacology I/II (Fall/Spring)</td>
<td>~10</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Team-taught (~5%)</td>
<td>Disease and Therapeutics I (Fall)</td>
<td>~70</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Team-taught (~5%)</td>
<td>Disease and Therapeutics II (Fall)</td>
<td>~70</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Team-taught (~5%)</td>
<td>Disease and Therapeutics III (Spring)</td>
<td>~70</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Team-taught (17%)</td>
<td>PMC620/621 Medical Pharmacology I/II (Fall/Spring)</td>
<td>Seven</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Team-taught (20%)</td>
<td>PMC650 General Toxicology (Fall)</td>
<td>Four</td>
</tr>
</tbody>
</table>
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) **Scholarship/Research**

**PUBLICATIONS**


2) Justin Tomblin, **Travis B. Salisbury**. Insulin like growth factor 2 regulation of aryl hydrocarbon receptor in MCF-7 breast cancer cells. Biochem Biophys Res Commun. 2014 Jan 17;443(3):1092-6.


**PRESENTATIONS AT REGIONAL AND NATIONAL MEETINGS**


4) **Travis Salisbury**, Donald Primerano, Goran Boskovic, and Jim Denvir 2013. RNA sequencing Reveals New Aryl Hydrocarbon Receptor Regulatory Targets in Human


13) Salisbury, T. B. & Marcinkiewicz, J.L. 2010. The Effects Of In Utero And Lactational Exposure To 2,3,7,8 Tetrachlorodibenzo-p-Dioxin On Ovarian Aryl Hydrocarbon Receptor Levels, Aromatase Activity And Steroid Biosynthesis By
Explanted Ovarian Follicles. Presented at the Society of Toxicology meeting, Abstract # 384, Salt Lake City, UT


INVITED TALKS
1) Invited to present a seminar entitled “New roles for aryl hydrocarbon receptor in insulin like growth factor and tumor necrosis factor pathways in breast cancer cells” held at the Department of Biochemistry, University of Louisville School of Medicine, Louisville, KY, 2014

2) Invited to present a seminar entitled “Endogenous aryl hydrocarbon receptor promotes basal and inducible expression of tumor necrosis factor target genes in MCF7 breast cancer cells” as part of the West Virginia INBRE Steering Committee held at West Virginia University, Morgantown, 2014

3) Invited to present a seminar entitled “Aryl Hydrocarbon Receptor Ligands Inhibit Mitogenic Adipokines held at Department of Science and Mathematics at Glenville State College, West Virginia, Glenville, 2013

4) Invited to present a seminar entitled “New Roles For A Toxic Receptor” held at Marshall University INBRE Summer Program, Marshall University School of Medicine, Huntington, WV, 2012

5) Invited to present a seminar entitled “Adipocyte/Cancer Cell Interactions Are Connected to Aryl Hydrocarbon Receptor Signaling”, held at Department of Biology, West Virginia State University, Charleston, WV, 2012

6) Invited to present a seminar entitled “Defining the aryl hydrocarbon receptor cistrome to gain insights into adipocyte-breast cancer cell interactions” at the Next Generation Sequencing and Bioinformatics Form, Marshall University Cell Differentiation and Development Center, 2011

GRANTS
1) Research Starter Grant from the Pharmaceutical Manufacturers Association of America
PI on Grant
Duration of Grant: 2012-2013
Title: The aryl hydrocarbon receptor mediates adipose-breast cancer cell interactions
Budget: $60,000
2) WV-INBRE next generation sequencing challenge grant, Marshall University
PI on Grant
Duration of Grant: 2012
**Title:** Characterization of the Aryl Hydrocarbon Receptor Cistrome in adipokine-stimulated breast cancer cells,
Budget: $12,000

3) WV-INBRE next generation sequencing challenge grant, Marshall University
PI on Grant
Duration of Grant: 2011
**Title:** Characterization of the Aryl Hydrocarbon Receptor Cistrome
Budget: $12,000

4) Cell Differentiation and Development Center (CDDC) grant, Marshall University
PI on Grant
Duration of Grant: 2011-2012
**Title:** Epigenetic Endocrine Disruption
Budget: $20,000

5) Cell Differentiation and Development Center (CDDC) grant, Marshall University
(Additional Supplement Award)
PI on Grant
Duration of Grant: 2012
**Title:** Epigenetic Endocrine Disruption
Budget: $20,000

2) **Service**
   A. Marshall University, Faculty Senate 2011-present
   B. Marshall University, Research committee 2012-present
   C. Member, MS2 sub-committee, 2012
   D. **Medical School Committee:** Member, Academic & Professionalism Standards Committee, 2012-present

3) **Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.**

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

1) Society for the Study of Toxicology

4) **Awards/honors (including invitations to speak in your area of expertise) or special**

The Faculty Award, Marshall University, 2011
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: __Nalini Santanam______________________   Rank: ____Professor_________________

Status (Check one):  Full-time ___X___   Adjunct _____  Current MU Faculty:  Yes ___X__    No ___

Highest Degree Earned: ____PhD_______________    Date Degree Received: ___1992_________

Conferring Institution: ___Madras University, Tamil Nadu, India_____________________________

Area of Degree Specialization: ______Bio-Chemistry__________________________________

Professional Registration/Licensure:  ___N/A____________________________________________

Field of Registration /Licensure:  _______N/A____________________________________________

Agency: ____N/A__________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  ___7_____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Credit hours</th>
<th>Enrollment</th>
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<tbody>
<tr>
<td>2013/Fall</td>
<td>MDC750</td>
<td>Principals of Disease</td>
<td>11</td>
<td>75</td>
</tr>
<tr>
<td>2013/Fall</td>
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<td>Disease &amp; Therapeutics I</td>
<td>6</td>
<td>75</td>
</tr>
<tr>
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<td>BMS665</td>
<td>CODRC Colloquium (Course Director)</td>
<td>1</td>
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<tr>
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<td>MDC752</td>
<td>Disease &amp; Therapeutics II</td>
<td>7</td>
<td>75</td>
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<tr>
<td>2014/Spring</td>
<td>MDC754</td>
<td>Disease &amp; Therapeutics IV</td>
<td>9</td>
<td>75</td>
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<td>2014/Spring</td>
<td>BIC638</td>
<td>Advanced Molecular Genetics</td>
<td>6</td>
<td>6</td>
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<tr>
<td>2014/Spring</td>
<td>BMS665</td>
<td>CODRC Colloquium (Course Director)</td>
<td>2</td>
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<tr>
<td>2014/Spring</td>
<td>PHS666</td>
<td>Physiology of Cell</td>
<td>3</td>
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<td>2014/Spring</td>
<td>PMC655</td>
<td>Toxicology Reviews</td>
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<td>2014/Fall</td>
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<td>Principals of Disease</td>
<td>11</td>
<td>75</td>
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<tr>
<td>2014/Fall</td>
<td>MDC751</td>
<td>Disease &amp; Therapeutics I</td>
<td>6</td>
<td>75</td>
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<tr>
<td>2014/Fall</td>
<td>PMC650</td>
<td>General Toxicology</td>
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<td>4</td>
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<tr>
<td>2014/Fall</td>
<td>BMS665</td>
<td>CODRC Colloquium (Course Director)</td>
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<td>4</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special

I. SCHOLARSHIP AND RESEARCH

Peer-reviewed Manuscripts (Research papers, reviews and book chapters) (#undergraduate students, *graduate students, % postdoctoral fellow or clinical fellow) (2010-2014)

14. Fei J\textsuperscript{a}, Cook C, Gillespie M\textsuperscript{a}, Yu B\textsuperscript{a}, Fullen K\textsuperscript{b}, Santanam N. Atherogenic ω-6 lipids modulate PPAR-EGR-1 cross-talk in vascular cells. (2011) PPAR Res. 2011:753917


ABSTRACTS PRESENTED IN NATIONAL/INTERNATIONAL MEETINGS (selected abstracts, #undergraduate students, *graduate students):

1. N. Santanam, A. Yaqub, C. Cook, T. Gress. Longitudinal changes in CX3CL1 targeting microRNAs in patients with T2DM. ICE/ENDO 2014, June 21-24\textsuperscript{th} 2014, Chicago, IL, USA.

2. N. Santanam and C. Cook. Omega-3 and 6 fatty acids modulate microRNA profile in microgravity cultured adipocytes. ICE/ENDO 2014, June 21-24\textsuperscript{th} 2014, Chicago, IL, USA.

3. N. Santanam, M. Davis, J. Denvir, G. Bozkovic, D. Primerano, C. Cook, C. Adams\textsuperscript{a}. Expression profiling of miRNA and its targets in epicardial fat from patients with coronary artery disease. IDEA-NISBRE, June 16\textsuperscript{th}-18\textsuperscript{th} 2014, Washington, DC.

4. K. Ray\textsuperscript{\ast}, J. Fahrmann\textsuperscript{\ast}, C. Cook, C. Crain, B. Mitchell, N. Santanam. Novel mechanisms of nociception in animal and cell models of endometriosis. 12\textsuperscript{th} World Congress on Endometriosis, April 30\textsuperscript{th}–May 2\textsuperscript{nd} 2014, São Paolo, Brazil. (\textsuperscript{\ast}KR-recipient of Rodolphe Maheux Travel Grant)

5. N. Santanam, K. Ray\textsuperscript{\ast}, C. Cook, B. Mitchell. MicroRNA regulation of pain associated with endometriosis. 12\textsuperscript{th} World Congress on Endometriosis, April 30\textsuperscript{th}–May 2\textsuperscript{nd} 2014, São Paolo, Brazil.


7. Sarah Martin\textsuperscript{\ast}, Carla Cook and Nalini Santanam\textsuperscript{\ast}. RNA editing and miRNA dysregulation in age related adipose dysfunction. 2013 Alliance for Healthy Aging Symposium, Groningen, Netherlands, Nov-7-9\textsuperscript{th} 2013, (NS\textsuperscript{\ast} won the travel award to present at this symposium).

8. Christopher Adams\textsuperscript{\ast}, Carla Cook, Todd Gress, Nepal Chowdhury, Paulette Wehner, and Nalini Santanam. Perivascular fat relation to hypertension: WV-Appalachian Heart Study. 1\textsuperscript{st} Cardiovascular Form for promoting Centers of Excellence and Young Investigators, International Academy of Cardiovascular Sciences, Aug-15\textsuperscript{th}-17\textsuperscript{th}, 2013, Louisville, KY.

9. Noah Mitchell\textsuperscript{\ast}, Akhil Gudivada\textsuperscript{\ast}, Melissa Massie\textsuperscript{\ast}, Carla Cook, Kristy Dillon, Xia Mao, Jung-Han Kim and Nalini Santanam. Effects of antioxidant excess on obesity in mouse model. WV-INBRE annual symposium, July 29\textsuperscript{th} 2013, Huntington, WV.

10. Holly Tamski\textsuperscript{\ast}, Carla Cook, Nalini Santanam. Omega-6 fatty acid modulates miRNA profile in microgravity cultured adipocytes. ENDO 2013: 95\textsuperscript{th} Annual Meeting and Expo, San Francisco, June 14\textsuperscript{th}-18\textsuperscript{th} 2013.

11. Melissa Massie\textsuperscript{\ast}, Myriaha Selbe, Logan Efaw\textsuperscript{\ast}, Courtney Crain\textsuperscript{\ast}, Carla Cook, Holly Tamski, and Nalini Santanam. Omega-3 rich diet modulates leptin through lipid-sensing G-protein coupled receptors in catalase transgenic mice. ATVB 2013 Scientific Sessions, Orlando, FL, April 30\textsuperscript{th}-May 3\textsuperscript{rd} 2013.


13. Nalini Santanam (invited speaker). Nutraceuticals in Cardiometabolic diseases. International Conference on Bioactive Phytochemicals and Therapeutics (ICBPT 2013), Annamalai University, Chidambaram, Tamil Nadu, India, Apr-5-7\textsuperscript{th} 2013.

15. Nalini Santanam (Invited Speaker), Pain, Antioxidants and Endometriosis. Grand Rounds Presentation at Emory University School of Medicine, Atlanta, GA, March 4-6th 2013.


17. Nalini Santanam (Invited Speaker), Sex Differences in Epicardial Fat Biomarkers, American Heart Association Scientific Sessions, Los Angeles, Nov 3rd-7th 2012, Los Angeles, CA.


21. Myriaha Selbe, Melissa Massie, Carla Cook, and Nalini Santanam. Omega3-rich diet modulates leptin in an antioxidant over-expressing mice. WV-INBRE annual symposium, July 29th 2012, Morgantown, WV.


31. Rebecca Furby, Preeya Shah, Aileen Marcello, Carla Cook, Richard Egleton and Nalini Santanam. Circulating miRNA’s regulating insulin signaling in Type 1 diabetic Rat model. Annual Biomedical Research Conference for Minority Students (ABRCMS), Nov 9th -12th 2011. [*R.F.:
recipient of FASEB-MARC Travel Award for presenting at ABRCMS and recipient of ASBMB-FASEB summer research fellowship]


34. N. Santanam, C. Kocher#, C. Cook, B. Dawley. Pain Sensitive miRNAs in women with endometriosis. Accepted as a Plenary Presentation at the World Congress on Endometriosis, Montpellier, France, Sept 5-7th 2011.


Grants and Contracts:

Active Support:


c. Co-PI, JCESOM-Internal Medicine Pilot Translational Grant, “Role of adipokines in Post-menopausal Hypertension” (PI: Dr. Abid Yaqub), Total Costs: 10,000. 2012-2013.


Recently completed grants


c. PI, NIH-WV-INBRE-ACORN Pilot grant, “Circulating small RNAs in patients with coronary artery disease”. 2012-2013, Direct Costs: $25,000

d. PI, NIH-WV-INBRE-NGS Pilot grant, “Next generation sequencing to detect miRNA editing in adipose tissue”. Direct costs: 8,000. 2012-2013

e. PI, WV-NASA-EPSCoR, “Diet mediated epigenetic regulation of adipose tissue”. 2012-2013, Total Direct costs: $20,000

f. PI: NIH HL074239 “Oxidized Lipids in Cardiovascular Disease” (RO1), NIH HL074239. 2004-2012. Total Direct Costs: $ 1,250,000
g. PI, NIH-NCRR-P20RR016477-S2 WV-INBRE supplement Translational grant: “Obesity Related Biomarkers in Patients with Coronary Artery Disease in the Appalachian Region”, 2009-2012, $540,000

h. Co-I, WV-EPSCOR, Cerebrovascular dysfunction in Diabetes: role of circulating miRNA. 2011-2012, $ 50,000


Mentor for Undergraduate/Graduate Student Scholarships at Marshall University

1. Caitlin Kocher, WV-INBRE fellowship 2009-2011
2. Christopher Ennis, WV-INBRE Intern, 2010
5. Holly King, NASA space grant scholarship, 2009-2011
6. Erica Rice, CAPSTONE student, 2009
7. Logan Efaw, WV-INBRE fellowship 2011
8. Sumaiya Chowdhury, SURE grant scholarship, 2011
9. Rebecca Furby, SRIMS fellow, ASBMB-FASEB summer internship, 2011 (Minority Student)
11. Sarah Martin, CAPSTONE student, 2012
12. Kelyn Pittman, SRIMS fellow, ASBMB-FASEB summer internship, 2012 (Minority Student)
13. Mardochee Isme, WV-INBRE Intern, 2012 (Minority Student), ABRCMS Travel Award winner (2012)
18. Janae Jackson, WV-INBRE HSTA fellow, 2014-present (Minority Student)

Undergraduate Student Mentor (CAPSTONE, SURE, INBRE, SRIMS):

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Program/ Internship</th>
<th>Institution</th>
<th>Year</th>
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<tbody>
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<td>1.</td>
<td>Erica Rice</td>
<td>CAPSTONE</td>
<td>MU</td>
<td>2009</td>
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<tr>
<td>2.</td>
<td>Holly King</td>
<td>CAPSTONE</td>
<td>MU</td>
<td>2009</td>
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<td>3.</td>
<td>Caitlin Kocher</td>
<td>CAPSTONE/INBRE</td>
<td>MU</td>
<td>2011</td>
</tr>
<tr>
<td>4.</td>
<td>Courtney Crain</td>
<td>CAPSTONE/INBRE</td>
<td>MU</td>
<td>2012</td>
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<td>5.</td>
<td>Chris Ennis</td>
<td>INBRE</td>
<td>Bluefield State</td>
<td>2010</td>
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<td>6.</td>
<td>Rebecca Furby</td>
<td>SRIMS</td>
<td>Shepherd U</td>
<td>2011</td>
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<tr>
<td>7.</td>
<td>Preeya Shah</td>
<td>Independent project</td>
<td>Oberlin College</td>
<td>2011</td>
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<td>8.</td>
<td>Sumaiya Chowdhury</td>
<td>SURE grant scholarship</td>
<td>MU</td>
<td>2011</td>
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<td>9.</td>
<td>Logan Efaw</td>
<td>INBRE</td>
<td>MU</td>
<td>2011</td>
</tr>
<tr>
<td>10.</td>
<td>Sarah Martin</td>
<td>CAPSTONE</td>
<td>MU</td>
<td>2012</td>
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<tr>
<td>11.</td>
<td>Mardochee Isme</td>
<td>INBRE</td>
<td>Bluefield State</td>
<td>2012</td>
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<td>12.</td>
<td>Kelyn Pittman</td>
<td>INBRE</td>
<td>Univ Georgia</td>
<td>2012</td>
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<td>13.</td>
<td>Alexis Hofstad</td>
<td>CAPSTONE</td>
<td>MU</td>
<td>2013</td>
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<td>14.</td>
<td>Melissa Massie</td>
<td>INBRE</td>
<td>MU</td>
<td>2012</td>
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<td>15.</td>
<td>Noah Mitchell</td>
<td>INBRE</td>
<td>Bluefield State</td>
<td>2013</td>
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<td>16.</td>
<td>Akhil Gudivada</td>
<td>NASA/Sigma Xi</td>
<td>MU</td>
<td>2013</td>
</tr>
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<td>17.</td>
<td>Samantha Idris</td>
<td>CAPSTONE</td>
<td>MU</td>
<td>2014</td>
</tr>
<tr>
<td>18.</td>
<td>Bethany Thomas</td>
<td>CAPSTONE</td>
<td>MU</td>
<td>2014</td>
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</table>
II. SERVICE

Marshall University & Marshall SOM

1. **Doctoral Member**, BMS graduate program, Graduate School, Marshall University, Huntington, WV, 2007-present.
2. **Member**, MS-II SOM Curriculum Committee, 2014-present
3. **Member**, MD-PhD student interview committee, MUSOM, 2012-present
4. **Chair/Coordinator**, Cardiovascular, Obesity, Diabetes Research Cluster (CODRC), Bio Medical Sciences Graduate Program, Marshall University, Huntington, WV, 2008-present
5. **Member**, Graduate Studies Committee, Bio Medical Sciences graduate Program, Marshall University, Huntington, WV, 2008-present
6. **Member**, Bio-Safety Committee, Marshall University, Huntington, WV, 2008-present
7. **Senate Member**, Marshall University Faculty Senate, 2010-2012

Graduate School Committee:
1. Coordinator, CODRC Cluster committee, Marshall University, 2008-present
2. Member, Graduate Studies Committee, BMS Program, Marshall University, 2008-present
3. Member, Toxicology cluster committee, Marshall University, 2007-present
4. Member, Graduate Advisory committee, BMS Program, Marshall University, 2007-present

Graduate (MS/PhD) advisory committee for BMS students:
1. Rabaa al Hassan (graduated, PhD 2010)
2. Sunil Kakarla (graduated, PhD 2011)
3. Anjaiah Katta (graduated, PhD 2011)
4. Juliana Akinsete (graduated, PhD 2011)
5. Anne Olshanski (graduated, PhD 2012)
6. Michael Brown (graduated, PhD 2012)
7. Madhukar Kolli (graduated, PhD 2012)
8. Johannes Fahrman (graduated PhD 2013)
9. Jackie Decker (graduated PhD 2014)
10. Caroline Hunter (PhD committee) (2014-present)
11. Kristeena Ray (PhD Advisor) (2012-present)
12. Debbie Amos (PhD Advisor) (2014-present)
13. Laura Kutz (PhD Advisor) (2014-present)

**NIH IDEA PROGRAMS- INBRE/COBRE Grant Mentoring committee:**
1. INBRE faculty mentor, Marshall University, 2006-present.
2. COBRE faculty mentor, Marshall University, 2008-present.
3. INBRE- Evaluation coordinator, Marshall University, 2008-present
4. COBRE Internal Advisory Committee, Marshall University, 2011-present

**GRANT REVIEW COMMITTEE:**

**National Institutes of Health (NIH)**
- NIH-IPOD Ad hoc member, Integrative Physiology of Obesity and Diabetes
- NIH-AICS, Atherosclerosis and Inflammation in Cardiovascular Sciences, Ad hoc member
- NIH-NIA, National Institute of Aging, Special emphasis Panel
- NIH-EMNR, Endocrinology, Metabolism, Nutrition and Reproductive Sciences IRG Special Emphasis Panel

**American Heart Association (AHA)**
- American Heart Association, Committee 2B
- Member, American Heart Association (Great Rivers Affiliate) Research Committee, 2013-2015.
EXTERNAL PHD THESIS REVIEWER:
1. IIT Karagpur, Kargapur, India
2. Bharathiyar University, Coimbatore, TN, India
3. Madras University, Chennai, TN, India

III. PROFESSIONAL DEVELOPMENT ACTIVITIES

Membership in Professional Organizations
1. Member and Fellow, American Heart Association, USA
2. Member, American Society of for Biochemistry and Molecular Biology
3. Member, Society For Free Radical in Biology and Medicine, USA
4. Member, Federation for American Societies for Experimental Biology, USA
5. Member, American Association for the Advancement of Science, USA
6. Member, American Society for Reproductive Medicine, USA
7. Member, South Asian Public Health Association, USA
8. Member, American Association for Cancer Research, USA
9. Member, South Asian Society for Atherosclerosis and Thrombosis, USA

Professional Society Committees
1. Member, American Heart Association (Great Rivers Affiliate) Research Committee, 2013-2015.
2. Member, American Heart Association, Scientific Classification Taskforce, 2012
4. Co-Chair, Mentoring Program, Society for Free Radical Biology and Medicine, 2007-2012

Journal Reviewer:
1. American Journal of Nutrition
2. Annals of the New York Academy of Sciences
3. Atherosclerosis
4. Atherosclerosis, Thrombosis, Vascular Biology
5. Experimental Biology and Medicine
6. Free Radical Biology & Medicine
7. Journal of Biomedicine and Biotechnology
8. Journal of Lipid Research
9. Journal of Nutrition
10. Springer, Book review
11. Life Sciences
12. Brain Research
13. PLOS One
14. Cardiology Research & Practice
15. Bioorganic and Medicinal Chemistry Letters
16. Lipids
17. Human Biology Journal
18. The Scientific World Journal
19. Neuroscience
20. Antioxidant & Redox Signaling
21. Journal of Biological Chemistry

IV. AWARDS AND HONORS:
• Member, American Heart Association (Great Rivers Affiliate) Research Committee, 2013-2015.
• Recipient of Travel Award, Alliance for Healthy Aging Symposium, Groningen, Netherlands, 2013.
SEMINARS AND INVITED PRESENTATIONS: (National/International/Regional Meetings or Conferences)

2. Invited Speaker, The International Conference on Advances in Free Radicals Research, Natural Products, Antioxidants and Radioprotectors in Health & Ninth Annual Meeting of the Society for Free Radical Research, Hyderabad, India, Jan 2010.
5. Invited Speaker, Grand Rounds Presentation at Emory University School of Medicine, Atlanta, GA, May 31st –June 1st 2011.
10. Invited Speaker, Grand Rounds Presentation at Emory University School of Medicine, Atlanta, GA, March 4-6th 2013.
11. Chair and Invited Speaker, International Conference on Bioactive Phytochemicals and Therapeutics (ICBPT 2013), Annamalai University, Chidambaram, Tamil Nadu, India, Apr-5-7th 2013.

Conference Chair or Judge:

1. Chair, International Conference on Bioactive Phytochemicals and Therapeutics (ICBPT 2013), Annamalai University, Chidambaram, Tamil Nadu, India, Apr-5-7th 2013.
6. American Heart Association, Abstract Reviewer, 2008-present
Appendix II

Faculty Data Sheet

(Information for the period of this review)

Name: Maria Serrat  Rank: Assistant Professor

Status (Check one):  Full-time X  Adjunct  Current MU Faculty: Yes X No

Highest Degree Earned: PhD Date Degree Received: August 2007

Conferring Institution: Kent State University

Area of Degree Specialization: Biomedical Sciences / Biological Anthropology

Professional Registration/Licensure: None

Field of Registration /Licensure: N/A

Agency: N/A

Number of years at Marshall (can be in either teaching or administration): 5

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary) **ESTIMATED enrollments**

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<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 Fall</td>
<td>ACB 720</td>
<td>Gross Anatomy and Embryology Team Taught (approximately 18% of lectures; approximately 70% of labs)</td>
<td>75</td>
</tr>
<tr>
<td>2013 Spring</td>
<td></td>
<td></td>
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<tr>
<td>2013 Fall</td>
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<td></td>
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<tr>
<td>2013 Fall</td>
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<td></td>
</tr>
<tr>
<td>2014 Spring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013 Fall</td>
<td>ACB 813</td>
<td>Surgical Anatomy Team Taught (approximately 15%)</td>
<td>10</td>
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<tr>
<td>2014 Spring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013 Summer</td>
<td>ACB 725</td>
<td>Structural Basis for Medical Practice Team Taught (approximately 15%)</td>
<td>10</td>
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<tr>
<td>2014 Summer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014 Spring</td>
<td>PHS 629</td>
<td>Physiology Team Taught (approximately 6.25% -- 1 lecture out of 16 weeks)</td>
<td>5</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>BSC 580</td>
<td>Biomechanics Journal Club Team Taught (approximately 6.25% -- 1 lecture out of 16 weeks)</td>
<td>15</td>
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<tr>
<td>2013 Spring</td>
<td>BMS 680</td>
<td>Graduate Student Seminar Series Team Taught (approximately 6.25% -- 1 lecture out of 16 weeks)</td>
<td>25</td>
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<td>2013 Spring</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research Team Taught (approximately 6.25% -- 1 lecture out of 16 weeks)</td>
<td>25</td>
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<tr>
<td>2014 Spring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012 Fall</td>
<td>BMS 631</td>
<td>Neuroscience and Dev. Biology Seminar Team Taught (approximately 6.25% -- 1 lecture out of 16 weeks)</td>
<td>5</td>
</tr>
</tbody>
</table>
1) Scholarship/Research

**Publications**

*Indicates student author


2. **Serrat MA, Williams RM, Farnum CE.** Exercise mitigates the stunting effect of cold temperature on limb elongation in mice by increasing solute delivery to the growth plate. *Journal of Applied Physiology.* 109: 1869-1879. PMID: 20930127. PMCID: 3006398. 2010


5. **Invited Authoritative Review** (includes new data)


**Funding**

*Indicates internal Award

1. **Major Research Instrumentation MRI-R2 0959012 (PI: M. Norton) 12/15/09-11/30/12**

   **National Science Foundation**

   **ACQUISITION OF A CONFOCAL/MULTIPHOTON MICROSCOPE TO ADVANCE CELLULAR AND PHYSIOLOGICAL RESEARCH AT MARSHALL UNIVERSITY.**

   This project provides support for a combined confocal/multiphoton system for high resolution microscopy and in vivo imaging at Marshall University’s core imaging facility

   $930,058

   Role: Contributor – Major User and Oversight Committee Member

   Status: Awarded

2. **Undergraduate Research Fellowship 08/01/10-07/31/11**

   **NASA West Virginia Space Grant Consortium**

   **EFFECTS OF TEMPERATURE AND EXERCISE ON KNEE GROWTH PLATES.**
This project provided a research stipend to Morgan Efaw, a Marshall University undergraduate, to test the hypothesis that warm housing temperature and exercise increase the size of cartilage growth plates in the tibia and femur.

$5,000
Role: PI Mentor
Status: Awarded

3. Undergraduate Research Fellowship 08/01/10-07/31/11
NASA West Virginia Space Grant Consortium
THE ROLES OF TEMPERATURE AND EXERCISE IN FACILITATING WRIST BONE GROWTH IN MICE.
This project provided a research stipend to Laura Mader, a Marshall University undergraduate, to test the hypothesis that warm housing temperature and exercise increase the size of cartilage growth plates in the radius and ulna.

$5,000
Role: PI Mentor
Status: Awarded

4. Faculty Research Fellowship 08/01/10-07/31/12
MU-ADVANCE, Marshall University
IMAGING SKELETAL GROWTH PLATES USING IN VIVO MULTIPHOTON MICROSCOPY.
This project establishes a platform for live animal imaging using multiphoton microscopy to support bone elongation research; collaboration with Dr. R. Williams, a senior faculty mentor from Cornell University with biophysics and imaging expertise.

$40,000 over 2 years
Role: PI
*Status: Awarded for two years after competitive renewal

5. Mini-Grant 03/2010
MU-ADVANCE, Marshall University
MULTIPHOTON IMAGING OFFERS NEW INSIGHTS INTO GROWTH PLATE REGULATION.
Funds to present research at Gordon Conference on Cartilage Biology and Pathology, Ventura, CA

$1,000
Role: PI
*Status: Awarded

6. Research Equipment Funding 06/2010
Cell Differentiation and Development Center, Marshall University
DETERMINING HOW TEMPERATURE AND MECHANICAL LOADING ALTER BONE GROWTH AND GENE EXPRESSION IN A BONE CULTURE MODEL.
$9,000 in kind purchase of incubators to support tissue culture research.
Role: PI
*Status: Awarded

7. Mini-Grant 07/2010
MU-ADVANCE, Marshall University
WHEEL RUNNING ACTIVITY REVERSES THE COLD LIMB PHENOTYPE IN MICE.
Funds to present research at International Congress of Vertebrate Morphology, Punta del Este, Uruguay. Supported a podium presentation at prestigious international conference.

$1,000
8. Research Equipment Funding 03/2011
Marshall University
IMAGING SKELETAL GROWTH PLATES USING IN VIVO MULTIPHOTON MICROSCOPY.
Obtained cost-share funds from five Marshall University departments (Biomedical Sciences, MU-ADVANCE, Anatomy, Pharmacology/Physiology, and College of Science) to purchase a fluorescence stereomicroscope for Marshall’s imaging facility. Supported subsequent successful research awards.
$17,359 in kind purchase of fluorescence stereomicroscope for bone imaging research
Role: PI
*Status: Awarded

9. Faculty Research Initiation Grant 08/01/11-08/31/12
NASA West Virginia Space Grant Consortium
IMAGING SKELETAL GROWTH PLATES USING IN VIVO MULTIPHOTON MICROSCOPY.
This project establishes a platform for live animal imaging using multiphoton microscopy to support bone elongation research at Marshall University. This project enabled the successful submission and funding of subsequent internal and extramural awards.
$20,000
Role: PI
Status: Awarded

10. Mentor Participation Funding 05/30/11-07/31/11
WV-INBRE Summer Research Program, Marshall University
EFFECTS OF OMEGA-3 FATTY ACIDS ON BONE DEVELOPMENT.
This project tested the hypothesis that perinatal exposure to omega-3 fats alters bone length, density, and osteoclast expression in adult mice. Mentored research project of Rebekah Sine, Alderson-Broaddus College, Philippi, WV. Supported by NIH Grant 5P20RR016477 to the West Virginia IDeA Network for Biomedical Research Excellence (PI: Gary Rankin). Funding was contingent upon successful matching of student and mentor based on submitted project. Submission of a summer project did not guarantee a match.
Role: PI Mentor
$2,200
*Status: Awarded for participation as mentor in INBRE program

11. Mini-Grant 12/2011
MU-ADVANCE, Marshall University
COLLABORATIVE RESEARCH AND TEACHING AT CORNELL UNIVERSITY.
Funds to travel to Cornell University for a collaborative research and gross anatomy teaching visit, Ithaca, NY. Supported two subsequent research and teaching publications.
$1,000
Role: PI
*Status: Awarded

12. NSF 7225066 Preliminary Proposal 01/2012
National Science Foundation
MECHANISMS OF TEMPERATURE ENHANCED BONE ELONGATION IN GROWTH PLATES OF HOMEOTHERMS.
This project uses in vivo multiphoton imaging and high-resolution CT scanning to determine how temperature alters blood flow and molecular transport at cartilage-vascular interfaces of murine tibial growth plates. Proposal was subject to a full, rigorous first-stage panel review.
Role: PI
Status: Invited to submit full proposal

13. CCTS Pilot Grant Program Letter of Intent
University of Kentucky Center for Clinical and Translational Science
TEMPERATURE ENHANCED BONE ELONGATION IN GROWTH PLATES.
This project uses in vivo multiphoton imaging to determine how temperature alters blood flow and molecular transport at cartilage-vascular interfaces of murine tibial growth plates.
Role: PI
Status: Invited to submit full proposal

14. Undergraduate Research Fellowship
NASA West Virginia Space Grant Consortium
UNILATERAL HEATING: A NOVEL MODEL TO INDUCE DIFFERENTIAL EXTREMITY GROWTH IN MICE
This project provided a research stipend to Jenna Vance, a Marshall University undergraduate, to test the hypothesis that routine application of heat on one side of growing mice will unilaterally increase limb length on the heated side.
$5,000
Role: PI Mentor
Status: Awarded

15. CCTS Pilot Grant Program Full Invited Proposal
University of Kentucky Center for Clinical and Translational Science
(Supported by NIH UL1TR000117)
TEMPERATURE ENHANCED BONE ELONGATION IN GROWTH PLATES.
This pilot project uses in vivo multiphoton imaging and unilateral limb heating to study blood flow and molecular transport at cartilage-vascular interfaces of murine tibial growth plates. This project provided support to conduct pilot testing for subsequent successful proposals.
$25,000
Role: PI
Status: Awarded

16. CCTS Pilot Grant Program Letter of Intent
University of Kentucky Center for Clinical and Translational Science
HEAT ENHANCED MOLECULAR DELIVERY TO GROWTH PLATES FOR TARGETED BONE LENGTHENING.
This application was for a renewal of CCTS funding to continue preliminary data collection for a planned NIH R15 proposal.
Role: PI
Status: WITHDRAWN by PI due to receipt of other funding

17. Path Forward Travel Award
MU-ADVANCE, Marshall University
UNILATERAL HEAT ACCELERATES BONE ELONGATION AND LENGTHENS EXTREMITIES OF GROWING MICE.
Funds to present accepted podium presentation at Orthopaedic Research Society Annual Meeting, New Orleans LA.
18. Young Faculty Participation Award  04/2014
American Association of Anatomists
HINDLIMB HEATING INCREASES VASCULAR ACCESS OF LARGE MOLECULES TO MURINE TIBIAL GROWTH PLATES MEASURED BY IN VIVO MULTIPHOTON IMAGING.
Travel funding award, selected by competitive abstract submission, to present podium presentation at American Association of Anatomists annual meeting at Experimental Biology in San Diego, CA.
$1,000
Role: PI
Status: Awarded

19. Grants in Aid Program  5/31/14-10/31/15
American Society for Bone and Mineral Research
HEAT ENHANCED MOLECULAR DELIVERY TO GROWTH PLATES FOR TARGETED BONE LENGTHENING
This multidisciplinary project is based on a scored, but unfunded NSF proposal submitted August 2012. This pilot award provides funding to conduct preliminary experiments for the currently-funded R15 project. The hypothesis that heat localizes delivery of systemic molecules into cartilage plates to promote bone lengthening is tested using in vivo multiphoton imaging and western blotting to assess transport and activation of IGF-I in heat-treated murine tibiae. Includes 15% salary.
$50,000
Role: PI
Status: Awarded

20. Symposium Travel Funding  07/14/14-4/01/15
American Association of Anatomists
VASCULAR AND CONNECTIVE TISSUE IMAGING IN SITU: RETURNING BONE TO THE SKELETON
Travel award to defray expenses for invited speakers to participate in the session. Selected to chair and organize session by competitive application.
$4,000
Role: Chair and Organizer
Status: Awarded

21. Undergraduate Research Fellowship  08/01/14-07/31/15
NASA West Virginia Space Grant Consortium
TEMPERATURE EFFECTS ON LIMB GROWTH AND IGF-I DELIVERY TO MOUSE BONES
This project provides a research stipend to Miles Gray, a Marshall University undergraduate, to test the hypothesis that localized heat treatment will increase the delivery of growth-essential nutrients to the limbs of developing mice, using fluorescent protein labeling and thin layer chromatography validation techniques.
$5,000
Role: PI Mentor
Status: Awarded

22. Graduate Research Fellowship  08/01/14-07/31/15
NASA West Virginia Space Grant Consortium

UNILATERAL HEATING TO INCREASE IGF-I UPTAKE AND BONE LENGTH IN MICE.
This project provides a research stipend to Holly Tamski, a Marshall University graduate student, to test the hypothesis that unilateral heating can be used to increase local delivery of IGF-I to the growth plate to enhance length of the extremities.
$12,000
Role: PI Mentor
Status: Awarded

23. 1 R15 AR067451-01  09/19/14-8/31/2017
NIH/NIAMS
HEAT ENHANCED MOLECULAR DELIVERY TO GROWTH PLATES FOR TARGETED BONE LENGTHENING
The objective of this project is to determine whether heat augments bone-lengthening effects of systemic growth regulators. The hypothesis that heat localizes delivery of systemic IGF-I into growth plates to promote additive bone lengthening is tested using in vivo multiphoton imaging and unilateral limb heating. Includes 25% salary.
$383,064
Role: PI
Status: Awarded
<table>
<thead>
<tr>
<th>Committee or Activity</th>
<th>Level of Service</th>
<th>Dates of Service</th>
<th>Activities Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Multiphoton Microscope Oversight Committee – Imaging Core</td>
<td>Marshall University</td>
<td>12/2009 – present</td>
<td>Integral member of advisory committee for the purchase and management of NSF-funded microscope. Help ensure that equipment is properly maintained and serviced.</td>
</tr>
<tr>
<td>2. Faculty Senate</td>
<td>Marshall University</td>
<td>9/2010 – 5/2012</td>
<td>Representative on the faculty legislative body, which makes decisions on all matters relating to academic policies of the university, such as instruction, research, and continuing education.</td>
</tr>
<tr>
<td>3. LCME Medical Students Subcommittee</td>
<td>School of Medicine</td>
<td>10/2009 – 3/2011</td>
<td>Self-study task force responsible for helping draft the final report for LCME site visit in March 2011. Researched databases, website, and contributed to summaries, tables, and examples for LCME report. Attended meeting with LCME site visitors as junior faculty representative from Anatomy.</td>
</tr>
<tr>
<td>4. LCME Citation Action Team ED5a – ED33</td>
<td>School of Medicine</td>
<td>10/2011 – 6/2013</td>
<td>Responsible for helping develop, facilitate, and track implementation of action plans to address citations ED5a and ED33. Contributed to summaries, tables, and examples for LCME briefing book. Attended curriculum committee meetings to monitor action plan progress, met with Dean, action team members, other faculty, and LCME site visitors.</td>
</tr>
<tr>
<td>5. Academic Standards</td>
<td>School of Medicine</td>
<td>6/2011 – present</td>
<td>Responsible for reviewing medical student performance and helping make decisions and recommendations related to academic and/or professional deficiencies.</td>
</tr>
<tr>
<td>6. Evaluation Committee</td>
<td>School of Medicine</td>
<td>10/2011 – 9/2012</td>
<td>Responsible for reviewing course and faculty evaluations each semester in order monitor and to make appropriate curricular changes.</td>
</tr>
<tr>
<td>7. Curriculum Block Integration Team Member</td>
<td>School of Medicine</td>
<td>8/2012 – present</td>
<td>Participated in the organization and coordination of Structure and Function Blocks II and V to help create and coordinate delivery of an integrated curriculum. Reviewed block content for gaps and redundancies.</td>
</tr>
<tr>
<td>Committee or Activity</td>
<td>Level of Service</td>
<td>Dates of Service</td>
<td>Activities Performed</td>
</tr>
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</tr>
<tr>
<td>8. Search Committee – Chair of Family Medicine and Community Health</td>
<td>School of Medicine</td>
<td>12/2013 – 1/2014</td>
<td>Selection committee to select new Chair of the Department of Family Medicine and Community Health. Participated in meetings, candidate file screening, and on-site interview.</td>
</tr>
<tr>
<td>9. Curriculum Committee</td>
<td>School of Medicine</td>
<td>7/2014 – present</td>
<td>Newly appointed representative for the Department of Anatomy and Pathology. Attend biweekly meetings, evaluate documents and proposals to facilitate, monitor, and evaluate curricular development.</td>
</tr>
<tr>
<td>10. Other Internal Activities</td>
<td>School of Medicine and Marshall University</td>
<td>10/2009 – present</td>
<td>This category includes events such as BMS open house and recruiting events; PhD candidate interviews, Research Day poster judge, internal grant reviewer; MU-ADVANCE program review meetings; Dean candidate meetings, Research Skill panelist, and other student advising as detailed in CV.</td>
</tr>
<tr>
<td>11. Outreach Committee</td>
<td>Department of Anatomy and Pathology</td>
<td>10/2009 – 9/2012</td>
<td>Worked with another faculty member to develop and implement a formal policy for anatomy outreach events. Helped coordinate and direct 4 different outreach visits as detailed on CV.</td>
</tr>
<tr>
<td>12. Human Gift Registry Memorial Service Planning Committee</td>
<td>Department of Anatomy and Pathology</td>
<td>11/2009 – 1/2013</td>
<td>Responsible for design, coordination and printing of invitations, program, and photo display board. Served as a student liaison and helped recruit students to participate and attend service. Communicated with family members about photos and comments for the display board. Numerous other tasks related to the successful organization of the yearly service.</td>
</tr>
<tr>
<td>13. Histology Oversight Committee and Consultant</td>
<td>Department of Anatomy and Pathology</td>
<td>11/2009 – present</td>
<td>Secured histology processing equipment for department, perform maintenance, troubleshooting and user training.</td>
</tr>
<tr>
<td>15. Anatomical Model Inventory and Instrument Acquisition</td>
<td>Department of Anatomy and Pathology</td>
<td>1/2012 – present</td>
<td>Created an exhaustive inventory of teaching model collection for gross anatomy; maintain inventory with new model purchases; researched and helped acquire instruments to aid faculty in performing specialized dissections in the gross anatomy laboratory to enhance student learning of delicate anatomical regions.</td>
</tr>
<tr>
<td>16. Faculty Search Committee – Neuroanatomist</td>
<td>Department of Anatomy and Pathology</td>
<td>9/2012 – present</td>
<td>Selection committee to hire a senior level neuroanatomist. Participated in meetings, candidate file screening, telephone and on-site interviews.</td>
</tr>
<tr>
<td>Committee or Activity</td>
<td>Level of Service</td>
<td>Dates of Service</td>
<td>Activities Performed</td>
</tr>
<tr>
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</tr>
<tr>
<td>17. Anatomical Specimen Research Usage Liaison</td>
<td>Department of Anatomy and Pathology</td>
<td>9/2012 – present</td>
<td>Researched cadaver protocols at other institutions, consulted with appropriate IRB offices, and created standardized form for cadaver usage requests at Marshall. Continue to serve as liaison between Departments of Anatomy and Orthopaedics to facilitate cadaver research projects.</td>
</tr>
</tbody>
</table>
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

<table>
<thead>
<tr>
<th>Committee or Activity</th>
<th>Level of Service</th>
<th>Dates of Service</th>
<th>Activities Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. External Advisory Panels</td>
<td>National</td>
<td>9/2009 – present</td>
<td>This category consists of grant and manuscript review panels, as well as poster judging and research consults, as detailed in CV. I fulfill approximately 6-8 such requests per year.</td>
</tr>
<tr>
<td>2. Focus Group Panelist</td>
<td>National</td>
<td>4/2013 – 4/2013</td>
<td>Served as content expert to evaluate new Grant’s Anatomy Dissector for Lippincott Williams and Wilkins Publisher at Experimental Biology Meeting in Boston, MA</td>
</tr>
<tr>
<td>3. Symposium Chair and Organizer</td>
<td>National</td>
<td>7/2014 – present</td>
<td>Selected by competitive application process to chair and organize a session titled: “Vascular and connective imaging in situ: returning bone to the skeleton”</td>
</tr>
</tbody>
</table>

**Professional Memberships (current)**

- 2013-present American Society for Bone and Mineral Research
- 2012-present Orthopaedic Research Society
- 2009-present American Physiological Society
- 2007-present American Association of Anatomists
- 1999-present Sigma Xi

**Annual Meetings Attended**

- International Congress of Vertebrate Morphology (2010)
- Orthopaedic Research Society (2013, 2014)
- American Society for Bone and Mineral Research (2014)
- Undergraduate Research Day at the WV Capitol (2011, 2014)
- Appalachian Regional Cell Conference (2013)

**Other Professional Development Activities (selected notable activities since 2009)**

- 2014 Career Advancement Seminars for Junior Faculty, hosted by American Association of Anatomists at Experimental Biology 2014 (26 April)
- 2014 International Association of Medical Science Educators (IAMSE) Spring Webinar
Series. Attended two webinars for teaching enhancement (9 Jan, 16 Jan)

2013
Team Based Learning Workshop at Marshall University School of Medicine
Training session by Dr. Brian Dzwonek, Associate Dean for Medical Student Education (13 December)

2013
Orthopaedic Research Society Professional Development Webinar: Women Should Ask. Seminar focused on enhancing success of female faculty. (20 November)

2013
International Association of Medical Science Educators (IAMSE) Fall Webinar Series. Attended three webinars for teaching enhancement (9 Sept, 3 Oct, 10 Oct)

2012
United States Bone and Joint Initiative Young Investigator Initiative (2-4 November)
Attended second of two workshops in formal grant mentoring program.

2012
International Association of Medical Science Educators (IAMSE) Fall Webinar Series. Attended three webinars for teaching enhancement (6 Sept, 20 Sept, 10 Sept)

2012
Building Small Group Facilitation, seminar at Marshall University School of Medicine
Training session by Dr. Elza Mylona for enhancing small group teaching (27 July)

2011-12
Anatomy Education Formal Mentoring by Faculty at University of Virginia, McMaster, and Cornell University to aid in creation of active learning modules at Marshall.

2011
Budgeting Basics Workshop, Marshall University Research Corporation (13 October)
Grant Development workshop focused on creating budgets for extramural applications

2011
Association of American Medical Colleges Early Career Women Faculty Professional Development Seminar (9-12 July)

2011
Approaches to Interactive Engagement, seminar at Marshall Univ. School of Medicine
Training session by Dr. David Maloney to help faculty make lectures interactive (8 July)

2010
United States Bone and Joint Decade Young Investigator Initiative (29-31 October)
Grant mentoring program to help junior faculty successfully obtain external funding

2010-12
Professional Institutional Enhancement Seminars, Marshall Univ. School of Medicine
Regular seminars geared at helping faculty improve research and teaching skills

2010
Writing Workshop: Publish and Flourish, Marshall University (28 June)
Strategies to become a more prolific writer and scholar

2010
Teaching Workshops, Marshall University (13 May and 3 June)
For the development of effective teaching strategies in medical education

2010
Grant Development, Marshall University (16 April)
Policies and procedures for grant submission and tips for successful applications

2010
NSF Regional Grants Workshop, Cleveland OH (22-23 March)
Information on current NSF policies, procedures and funding opportunities

2010
Copyright Compliance Workshop, Marshall University (31 March)
Current copyright laws as they pertain to higher education

2010-11
Scientific Integrity Seminar, Marshall University (8 March 2010 and 28 March 2011)
Training in the responsible conduct of research

2009
Department Retreat, Anatomy and Pathology, Marshall University (6 November)
Faculty development workshop for medical educators, issues of professionalism
4) Awards/honors (including invitations to speak in your area of expertise) or special achievements

Awards/honors

2014  Academic Citizenship Excellence Award, Marshall University School of Medicine
2014  Young Faculty Participation Award, American Association of Anatomists
2012  Excellence in Teaching Award, Marshall University School of Medicine Class of 2015
2011  Association of American Medical Colleges, Early Career Women Seminar Participant
2010  United States Bone and Joint Decade Young Investigator Initiative Participant

Invited presentations

2014  University of Kentucky CTSA External Advisory Board Retreat. Invited poster presentation of CCTS pilot project: Temperature enhanced bone elongation in growth plates (13 October).

2013  Brock University, Biological Sciences, St. Catharines, ON (Host: Glenn Tattersall) Allen’s Rule and the temperature-limb phenotype: Insights into processes of bone elongation (6 December).

2013  Kopchick Lab, Edison Biotechnology Institute, Ohio University Temperature enhanced bone elongation in cartilage growth plates (22 January).

2012  Biomedical Sciences Research Retreat, Marshall University School of Medicine Temperature enhanced bone elongation in cartilage growth plates (24 August).

2011  WV-INBRE Summer Research Program, Marshall University Building a research career as a new assistant professor (5 July).

2011  MU-ADVANCE Pat Logan Symposium of Scholars, Marshall University Building a professional career at Marshall with support from MU-ADVANCE (3 March).
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Joseph Shapiro

Rank: Dean, School of Medicine

Status (Check one): Full-time X Adjunct _____ Current MU Faculty: Yes X No ___

Highest Degree Earned: M.D. Date Degree Received: 1980

Conferring Institution: UMDNJ-New Jersey Medical School

Area of Degree Specialization: Medicine

Professional Registration/Licensure: Medicine - Ohio and West Virginia

Field of Registration /Licensure: Internal Medicine, Nephrology

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) 2

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/Spring</td>
<td>PHS 629</td>
<td>Mammalian Physiology (2%)</td>
<td>20</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>PHS 701</td>
<td>Mammalian Physiology (2%)</td>
<td>72</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MDC 713</td>
<td>Structure and Function III (1%)</td>
<td>75</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>PHS 629</td>
<td>Mammalian Physiology (1%)</td>
<td>9</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Grants
Youbo Pharmaceuticals. 2012-present. $250,000 Total Costs. JI Shapiro and Z Xie Co-PIs. Active components of Shuxutong.
New Chapter, Inc. 2012-present. $25,000 Total Costs. JI Shapiro and J Liu Co-PIs. Dermal production of collagen in response to cardiotonic steroids.
N.I.H. RO1 (HL109015, 2011-2015) $450,000-500,000/year Direct Costs. JI Shapiro and Z Xie Co-PIs. Receptor Na/K-ATPase Antagonists As Novel Therapeutics
For Renal/Cardiac Diseases.
N.I.H. RO1 (2004-2012) Cardiovascular outcomes in renal atherosclerotic lesions (CORAL). PI Christopher Cooper, M.D., HL071556, National enrollment committee chairman and site co-PI, JI Shapiro, M.D. (approximately $2.7M per year).

Publications


2) Service
MU Senior Leadership - Oversee direction of Marshall University
UP&S Board of Directors (Chairman) - Oversee direction of physician practice plan
JCESOM LCME Preparation Committee - Prepare for LCME visit as well as review accreditation standards
GME Committee - Oversee graduate medical education
JCESOM Executive Committee - Oversee functions of medical school
JCE Cancer Center - Oversee functions of cancer center
JCESOM Strategic Planning (Chairman) - Develop and implement strategic planning
Marshall University Research Corporation - Oversee research at Marshall University

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Society Memberships
Society of Magnetic Resonance in Medicine
International Society of Nephrology
American Society of Nephrology
Colorado Society of Nephrology
American Association for the Advancement of Science
American College of Physicians
Western Society for Clinical Investigation
Central Society for Clinical Investigation
American Heart Association – Kidney in Cardiovascular Disease Council
American Heart Association – High Blood Pressure Research
American Society of Nephrology – Chronic Kidney Disease Advisory Group (2010-present)
Association of Professors of Medicine
Association of Program Directors in Internal Medicine

Board Memberships
American Heart Association of Toledo: Board of Directors Member (2007-2012), President (2011-2012).
Regional Growth Partnership of NW Ohio: Scientific Advisory Board Member (2007-present).
ADS-Biotechnology: Board of Managers Chairman (2008-present).
Accelerated Healing: Board of Managers Chairman (2008-present).
Alliance for Paired Donation Board of Directors Member (2008-present).
Promedica Health Systems Academic Health Center Board of Managers (2010-present).

**Editorial Boards**
Frontiers in Bioscience 2002-present.
Biological Research in Nursing 2002-present.
American Journal of Medicine 2005-present.
American Society for Artificial Internal Organs 2005-present.
Arterial’naya Gipertenziiya – The Arterial Hypertension 2006-present.
International Journal of Hypertension 2009-present
Journal of Signal Transduction 2010 - present
Hypertension 2010 – 2012
Recent Patents on Biomedical Engineering 2010-present
Chinese Journal of Clinicians 2010 – present
World Journal of Hypertension 2011-present
Journal of the American Heart Association 2011-present (Associate Editor)
World Journal of Clinical Urology 2011-present
Physiology Journal 2012-present
West Virginia Journal 2012-present (Associate Editor)
Journal of Hypertension Open Access 2012-present (Editor in Chief)
Cureus (2012-present)
International Journal of Medical and Clinical Research 2013-present (Associate Editor)

4) Awards/honors (including invitations to speak in your area of expertise) or special
America’s Top Doctors (2009-present).
America’s Best Doctors (2009-present).
Castle Connolly Top Doctors (2012-present).
Phi Kappa Phi Honor Society (2013-present).
American Physiological Society Cardiovascular Fellow (2013-present)
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Vincent Sollars ____________________________ Rank: Associate ________________________

Status (Check one): Full-time ___X__ Adjunct _____ Current MU Faculty: Yes ___X__ No ___

Highest Degree Earned: ___Ph.D._________________ Date Degree Received: ___May 2000________

Conferring Institution: ___University of Kansas____________________________________________

Area of Degree Specialization: __Molecular Genetics________________________________________

Professional Registration/Licensure: ___n/a____________________________________________

Field of Registration/Licensure: _____n/a______________________________________________

Agency: ____n/a__________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) 10________

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
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<td>2012,2013/Fall</td>
<td>MDC 710</td>
<td>Elements of Medicine (5% of course)</td>
<td>80</td>
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<td>2012,2013/Fall</td>
<td>MED 750</td>
<td>Principles of Disease (1% of course)</td>
<td>80</td>
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<tr>
<td>2013/Fall</td>
<td>BIC638</td>
<td>Advanced Molecular Genetics (50% of course)</td>
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<tr>
<td>2013,2014/Spring</td>
<td>BMS 644</td>
<td>Responsible Conduct of Research (10% of course)</td>
<td>20</td>
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<tr>
<td>2012,2013/Fall</td>
<td>BMS 600</td>
<td>Cellular and Molecular Biology (10% of course)</td>
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<tr>
<td>2013/Spring</td>
<td>BMS 651</td>
<td>Cancer Cell Biology (10% of course)</td>
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</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Presentations
“Phenotypic plasticity in the EML culture system as a result of HSP90 inhibition”, Jennifer Napper and Vincent E. Sollars. Poster presentation at the AACR conference Epigenetics and Chromatin in Cancer in June 2013.


Book Chapters


Editorial Works


Service

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Meetings

AACR conference Epigenetics and Chromatin in Cancer in June 2013.

Chemical Systems Biology: Assembling and Interrogating Computational Models of the Cancer Cell by chemical Perturbations by AACR, June 2012.

Associations

International Association of Medical Science Educators (IAMSE) (member since 2008)

Reuters Insight, a research consultancy (member since 2007)

American Association for Cancer Research (member since 2005)

The American Society of Hematology (member since 2005)

Marshall University, Joan C. Edwards School of Medicine Alumni Association (member since 2004)

American Association for the Advancement of Science (member since 1996)

Genetics Society of America (member since 1996)

University of Kansas Alumni Association (member since 1995)

4) Awards/honors (including invitations to speak in your area of expertise) or special

Grant Review Panels

Pennsylvania Final Performance Review of the CURE program administered by the Oak Ridge Associated Universities, April 2014
• West Virginia IDeA Network of Biomedical Research Excellence pilot grant program, Spring 2014
• National Science Foundation Graduate Research Fellowship Program, January 2014 (Genetics, Genomics & Proteomics)
• James and Esther King Biomedical Research Program managed by the Florida Department of Health, August 2013
• Pennsylvania Final Performance Review of the CURE program administered by the Oak Ridge Associated Universities, April 2012
• West Virginia IDeA Network of Biomedical Research Excellence pilot grant program, Spring 2012
• Bankhead-Coley Cancer Research Program managed by the Florida Department of Health, Spring 2012
• James and Esther King Biomedical Research Program managed by the Florida Department of Health, Spring 2012
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Uma Sundaram  
Rank: Vice Dean & Chair, Clinical & Translational Sciences

Status (Check one): Full-time X  Adjunct _____  Current MU Faculty: Yes X  No ____

Highest Degree Earned: M.D.  
Date Degree Received: 1983

Conferring Institution: Medical College of Ohio

Area of Degree Specialization: Medicine

Professional Registration/Licensure: Medicine - Maryland and West Virginia

Field of Registration/Licensure: Gastroenterology

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) 1

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
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</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Grants

Regulation of Intestinal Na Absorption

PI: Uma Sundaram, MD

Type: RO1, DK 67420

Effort: 20%

Period: 07/01/09 – 06/30/14

Agency: NIH/NIDDK

Total funding: $1,110,707.00
Regulation of Na-Nutrient co-Transport
PI: Uma Sundaram, MD
Type: RO1, DK 58034
Effort: 25%
Period: 07/01/06 – 6/30/14
Agency: NIH/NIDDK
Total funding: $1,642,500.00

University of Kentucky Clinical and Translational Sciences Award
Marshall PI: Uma Sundaram, MD/UK PI Phil Kern, MD
Type: UL1TR00011719
Effort: 10%
Period: 02/01/14 – 6/30/14
Agency: NIH/NCATS
Total funding: $20,000,000.00

West Virginia Clinical Translational Research Award
PI: Uma Sundaram, MD
Type: 1 U54 RR033567-01
Effort: 70%
Period: 06/01/2012 – 06/1/2013
Agency: NIH/NIGMS
Total funding: $19,600,000.00

ARRA for Regulation of Na-Nutrient co-Transport
PI: Uma Sundaram, MD
Agency: NIH/NIDDK
Type: RO1, DK 58034 – 10S1
Period: 02/05/10 – 09/30/11
Total funding: $100, 000.00

Publications


Kekuda, R, Manoharan, P, Baseler, W and U Sundaram, Monocarboxylate 4 (Slc16a3) rather than 1 (Slc16a1) is the primary butyrate transporter in the rat intestinal epithelial cell line IEC18, Digestive Diseases and Sciences. 58: 660-667, 2013.

Palanikumar M, Coon S, Sundaram S, Kekuda R and U Sundaram. “Prostaglandins, not the leukotrienes, regulate Cl⁻/HCO₃⁻ exchange (DRA, SLC26A3) in villus cells in the


2) Service
2014 – Present Chair, JCSOM/MH/CHH Clinical Informatics Advisory Board
2014 – Present Chair, Research Day, Joan C Edwards School of Medicine
2014 – Present Academic Medical Center Advisory Board, Joan C Edwards School of Medicine/Cabell Huntington Hospital
2013 – Present Dean’s Cabinet, Joan C. Edwards School of Medicine
2013 – Present Medical School Admissions Committee, Marshall University
2013 – Present Executive Committee on Admissions, Joan C. Edwards School of Medicine
2013 Huntington VAMC, ACOS for Research Selection Committee

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
American Medical Informatics Association
Society for Clinical and Translational Science
West Virginia State Medical Association
Federation of American Society of Experimental Biology
American Physiological Society
American College of Gastroenterology
Gastroenterology Research Group
American Gastroenterological Association

4) Awards/honors (including invitations to speak in your area of expertise) or special Invited Lectures

2014 Director, First Annual Marshall University Health Sciences Biomedical Research Retreat
2013 West Virginia University Health Science Center Townhall, “WVCTSI -- What it means for you.”
2013 West Virginia School of Osteopathic Medicine Mid Winter Conference, “Clinical Translational Research.”
2013 Department of Health and Human Services, State of West Virginia, “IDeA CTR for the State.”
2013 Charleston Area Medical Center/WVU Charleston, “WVCTSI, Opportunities for Partnership with CAMC”
2013 Marshall University School of Medicine, Department of Medicine Grand Rounds, “Advances in Celiac Disease”
2012 University of Illinois, Champaign-Urbana, “Immune Regulation of Electrolyte Transport”
2012 St. Vincent’s and Mercy Medical Center, Toledo, “Radiofrequency ablation of Barrett’s esophagus.”
2012 Mercy Visiting Professor University of Toledo Health Science Center Medical Grand Rounds, “Direct Visualization Cholangioscopy.”
2012 NIH, NIGMS, IDDea Symposium, “Clinical Translational Research Award”
2012 West Virginia University Neuroscience Symposium, “West Virginia Clinical and Translational Science Institute and WV IDDea CTR”
2012 Student Health Service Symposium, West Virginia University, “Advances in celiac sprue.”
2012 National Advisory Committee, West Virginia University Health Science Center, “WVCTSI and IDDea CTR award.”
2011 West Virginia University School of Medicine Grand Rounds, “Advances in the diagnosis and treatment of Hepatitis C’
2011 37th Annual Hal Wanger Family Medicine Conference, “Diagnosis and treatment of acute pancreatitis”
2011 University of Medicine and Dentistry of New Jersey seminar “Inflammatory Bowel Disease”
2010 West Virginia University, Provost’s Dean’s Council “Update on WV CTSA.”
2010 36th Annual Hal Wanger Family Medicine Conference, Medicine Grand Rounds “Celiac Sprue”
2010 Division of Gastroenterology and Nutrition, University of Illinois at Chicago, “Unique regulation of Na-nutrient co-transport”
2010 West Virginia University School of Medicine Retreat, “Update on WVU SOM Research.”

Honors and Awards
2014 NIH, NIAID, ZAI1 LG-M Study Section Member
2013 NIH, CTSA Study Section Member
2013 External Advisory Committee, Research Centers in Minority Institutions
   Translational Research Network
2013 NIH, ZTR1 CG-1 01 Study Section Member
2013 NIH, NIGMS IDeA CTR U54 Study Section Member
2012 Mercy Health Partners Visiting Professor, University of Toledo Medical Center
2011 ZRG1 DKUS-C Study Section Member
2011 Chairman, AGA Translational Symposium, Advances in the treatment of chronic diarrhea.
2011 NIH ZDK1 GRB-N (O5) Study Section Member
2010 NIH ZDK1 GRB-6 (J1) Study Section Member
2010 Visiting Professor, University of Illinois at Chicago

Editorial Assignments in Professional Journals
Editorial Board, Cureus
Associate and Series Editor, Practical Gastroenterology
Managing Editor, Frontiers in Bioscience
Peer Reviewer for American Journal of Physiology: Cell
Peer Reviewer for Journal of Clinical Investigation
Peer Reviewer for Gastroenterology
Peer Reviewer for American Journal of Physiology: Gastrointestinal and Liver
Peer Reviewer for Journal of Clinical Gastroenterology

National/International Advisory and Research Review Committees
2013 - present External Advisory Committee, RCMI Translational Research Network
2003 - present AGA, In-service Exam Committee
2009 - 2012 Board of Governors, Blanchette Rockefeller Neurosciences Center
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: __Monica Valentovic______________   Rank: _____Professor______________
Status (Check one):  Full-time  __x___  Adjunct _____  Current MU Faculty:  Yes __x_  No ___
Highest Degree Earned: _PhD__________________    Date Degree Received: ___1983___________
Conferring Institution: University of Kentucky
Area of Degree Specialization: _Pharmaceutical sciences, Pharmacology and Toxicology______
Professional Registration/Licensure:   ___________________________________________________________________________
Field of Registration /Licensure:  ________________________________________________________________________________
Agency: __________________________________________________________________________________________
Number of years at Marshall (can be in either teaching or administration)  _30_______

List courses you taught during the final two years of this review. If you participated in a team-taught
course, indicate each of them and what percentage of the course you taught. For each course include
the year and semester taught (summer through spring), course number, course title and enrollment.
(Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
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<td>Fall 2012</td>
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<td>Toxicology (team taught; 8 hours)</td>
<td>15</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>FSC 608</td>
<td>Toxicology (team taught; 8 hours)</td>
<td>15</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>FSC 608</td>
<td>Toxicology (team taught; 8 hours)</td>
<td>15</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>PMC 650</td>
<td>Toxicology (team taught; 20 hours)</td>
<td>12</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>PMC 650</td>
<td>Toxicology (team taught; 20 hours)</td>
<td>5</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>PMC 621</td>
<td>Pharmacology (team taught; 6 hours)</td>
<td>9</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>PMC 621</td>
<td>Pharmacology (team taught; 6 hours)</td>
<td>9</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>PMC 621</td>
<td>Pharmacology (team taught; 6 hours)</td>
<td>9</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>PMC 622</td>
<td>Pharmacology II (team taught; 12 hours)</td>
<td>10</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>PMC 622</td>
<td>Pharmacology II (team taught; 12 hours)</td>
<td>5</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>PMC 622</td>
<td>Pharmacology II (team taught; 12 hours)</td>
<td>9</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>PMC 655</td>
<td>Toxicology Reviews (Team taught; 4 hours course director)</td>
<td>7</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>PMC 655</td>
<td>Toxicology Reviews (Team taught; 4 hours course director)</td>
<td>7</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>PMC 655</td>
<td>Toxicology Reviews (team taught 4 hours)</td>
<td>10</td>
</tr>
</tbody>
</table>
### Spring 2014
- **PMC 655**
- Toxicology Reviews (Team taught; 4 hours course director)

### Fall 2013
- **MDC 750**
- Principles of Disease (Team taught; 4 hours)

### Fall 2014
- **MDC 750**
- Principles of Disease (Team taught; 4 hours)

### Fall 2014
- **MDC 751**
- Disease & Therapeutics I (Team taught; 2 hours)

### Spring 2014
- **MDC 753**
- Disease & Therapeutics III (Team taught; 3 hours)

### Spring 2014
- **MDC 754**
- Disease & Therapeutics IV (Team taught; 9 hours)

**NOTE:** Part-time adjunct faculty do not need to fill in the remainder of this document.

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For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) **Scholarship/Research**

**FUNDED GRANTS**

- **Role of Polyamines in SAMe attenuation of Acetaminophen Overdose**
  - Funding Source: WV NASA Space Consortium
  - Total cost $12,000
  - Project Period: 07/15/2009 – 07/14/2010
  - Role: Principal Investigator

- **1R21CA133701-01A2 Valentovic (Co-PI) January 1, 2010-December 31, 2011**
  - Alcohol and Iron Derived Oxidant Stress Impact Epigenetic Regulation
  - Funding Source: NIH
  - Amount: $228,250
  - 3P20RR016477-09S4 Rankin (PI) September 24, 2009- Sept 24, 2012
  - West Virginia IDeA Network of Biomedical Research Excellence (WV-INBRE)
  - PROJECT TITLE for SUPPLEMENT: Mechanism of Resveratrol reduction of Cisplatin Renal Toxicity ROLE: Project Director Amount: $654,198

- **MUSOM Rural Health Care Research Pilot Grant Nov 1, 2012-Oct 31, 2013**
  - Project Title: **Urban and Rural Differences in Prenatal Exposure to Metals and Polycyclic Aromatic Hydrocarbons**
  - Role Co-Principal Investigator with Dr. Brenda Dawley and Dr Jesse Cottrell
  - Total Cost:$15,000

- **Young Clinical Scientist Award Program from Flight Attendant Medical Research Institute**
  - Duration of Grant: 2009-2014
  - Title: **Nicotine/Acetylcholine Signaling in Lung Cancer**
  - Budget: $100,000/year for a total Direct Cost: $300,000. ROLE CO-Investigator

- **NIH, R15 Capsaicin and Small Cell Lung Cancer Therapy. July 1, 2012-June 30, 2015**
  - ROLE: Co-Investigator BUDGET $300,000 total cost $425,000

**Funding Source: WV Rural Health Care Grant Valentovic**

**PROJECT TITLE:** Urban and Rural Differences in Prenatal Exposure to Metals and Polycyclic Aromatic Hydrocarbons

**Project Period:** January 1, 2013-Dec 31, 2013
Responsibility: Principal Investigator                Amount: $15,000

**Marshall Health Translational Grant Program**  
**PROJECT TITLE:** Prenatal Exposure to Heavy Metals and Polycyclic Aromatic Hydrocarbons alter Umbilical Cord Blood Levels of thyroid Hormone and Vitamin D  
**Project Period:** Jan 1, 2013-Dec 31, 2014  
Responsibility: Principal Investigator  
Amount $50,000

**WV Rural Health Care Grant Valentovic**  
**PROJECT TITLE:** Urban and Rural Differences in Prenatal Exposure to Metals and Polycyclic Aromatic Hydrocarbons potential influence on Thyroid Hormone Levels and Vitamin D Status  
**Project Period:** January 1, 2013-Dec 31, 2013  
Responsibility: Principal Investigator  
Amount: $25,000

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**GRANTS SUBMITTED BUT NOT FUNDED**

**PI: Monica Valentovic**  
**Funding Source:** California Table Grape Commission Health Research Grants  
**Submission Date:** Jan 31, 2014  
**Project Title:** Grape Powder Protects the Kidney from the Deleterious Effects of Cisplatin Chemotherapy on Cytotoxicity, Renal Antioxidant and Mitochondrial Function  
**Role:** Principal Investigator  
**Project Period:** July 1, 2014-June 30, 2015  
Direct cost: $25,000 Total cost: $30,000

**PI: Monica Valentovic**  
**Funding Source:** NIH R15  
**Submission Date:** November 18, 2013  
**Project Title:** Cisplatin Acute Kidney Injury: Protection by Resveratrol  
**Project Period:** July 1, 2014-June 30, 2017  
Role: PI  
Total cost: $435,300

**PI: Monica Valentovic**  
**Funding Source:** NIH R15  
**Submission Date:** June 24, 2014.  
**Project Title:** Cellular Mechanisms of Resveratrol Attenuation of Cisplatin Renal Cytotoxicity.  
**Project Period:** April 1, 2015- March 31, 2018.  
Direct cost: $300,000 Total Cost $435,300

**PI: John Wilkinson Co Investigator M Valentovic (10% effort).**  
**NIH R15 Submission Date:** June 24, 2014.  
**Project Title:** Transsulfuration and oxidants impact mammary methionine cycle and epigenetics.  
**Project Period:** April 1, 2015- March 31, 2018.  
Direct cost: $300,000 Total Cost $435,300

**Funding Source:** NASA WV Consortium  
**Title:** Examination of renal damage by hydrogen peroxide and protection by Resveratrol  
**PI:** M Valentovic, PhD for Stephanie Van Meter  
**Effective Dates:** July 1, 2013-June 30, 2013  
**Description:** Fellowship for Doctoral stipend for Stephanie Van Meter

**Funding Source:** AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS (ASPET) SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP (SURF) APPLICATION  
**Principal Investigator:** Monica Valentovic  
**Amount:** $5000  
**June 1, 2013-August 1, 2013**

**Funding Source:** Pharmaceutical Research Manufacturer’s Association (PhRMA) Foundation  
**Predoctoral Fellowship**  
**Submission Date:** August 31, 2012  
**Project title:** Examination of the Mechanisms for Resveratrol Attenuation of Cisplatin Renal Toxicity  
**Project Period:** July 1, 2013- June 30, 2015  
**Total costs:** $40,000  
**Description:** Fellowship for Doctoral stipend for Stephanie Van Meter

**Funding Source:** NIH R01  
**Submission Date:** June 5, 2013  
**Project Title:** Transsulfuration and Oxidants Impact Mammary Methionine Cycle and Epigenetics  
**Wilkinson PI.**  
**Project Period:** April 1, 2013- March 30, 2016  
**Role Co-investigator (10%)**
Funding Source: NIH R15  Submission Date: June 25, 2012
Project Title: Acetaminophen liver damage protection by S-adenosylmethione and N-acetylcysteine  Project Period: April 1, 2013- March 30, 2016
Responsibility: Principal Investigator  Direct costs: $300,000  Total costs: $426,000

Funding Source: NIH R15 Submission Date: October 25, 2012  Project Title: Cisplatin Acute Kidney Injury: Protection by Resveratrol  Project Period: July 1, 2013-June 30, 2016  Role: PI  Total cost:: $435,300

Funding Source: NIH R01  Dasgupta (PI)  Project Title: Alpha7-Nicotinic Receptor and Small cell lung Cancer  Project period: July 1, 2013-June 30, 2017  ROLE: MAV Co-Investigator 10%  Direct cost: $800,000  Total Cost: $1,160,800

PENDING GRANT SUBMISSIONS
Funding Source: NIH R15  Submission Date June 25, 2014 Project Title:

Cellular Mechanisms of Resveratrol Attenuation of Cisplatin Renal Cytotoxicity.
ROLE: PI  Project Period: April 1, 2015- March 31, 2018
Direct cost: $300,000 Total cost: $435,000

Funding Source: NIH R15  Submission Date June 25, 2014 Project Title: Transulfuration and Oxidants Impact Mammary Methionine Cycle and Epigenetics  Wilkinson PI.
Project Period: April 1, 2015- March 31, 2018
Role Co-investigator (10%) Direct cost:$300,000 Total costs: 435,000

PUBLICATIONS


Andrea D. Belalcázar, John G. Ball, Leslie M. Frost, Monica A. Valentovic, and


Jesse A Thornton; Vincent E Sollars; Monica A Valentovic; David L Porter; Emine C Koc; Kristen R McKee; James T Buchannan Jr.; John G Ball; Hayden M Hedrick; Trevor B Stone; John Wilkinson IV, Ph.D. Ethanol liquid diets with normal methyl donor levels generate mild pathology and dietary iron-dependent patterns of hepatic protein acetylation in C57BL/6 J mice". Plos One Submitted (February 2014).


BOOK CHAPTERS


INVITED TALKS
April 29, 2010 University of Southern Maine Graduate Program in Environmental Toxicology entitled Acetaminophen Associated Liver Damage: Attenuation by the Nutraceutical - SAMe (S-Adenosylmethionine)

July, 6, 2010 Marshall University School of Medicine INBRE Summer Students entitled New Interventions to Reduce Cancer Chemotherapy Adverse Effects

December 12, 2013 Monica Valentovic, Design of Toxicology Studies. Forensic Sciences Department, Marshall University.


PRESENTATIONS OF RESEARCH AT PROFESSIONAL MEETINGS


2) Service
   Committees (internal & external)
   Institutional Animal Care and Use Committee Member as Scientist
   Chair, Institutional Animal Care and Use Committee
Block 10 MSII Curriculum Sub-Committee

Endocrinology Integration Sub-Committee

Graduate Studies Committee

Toxicology Research Cluster Coordinator

Advisory and Chair of Doctoral Dissertation Committee
- J. Mike Brown defended July 31, 2012
- Stephanie Van Meter
- Rachel Murphy

Member of Doctoral Dissertation Committee
- Taha Ahmad
- Mindy Asbury
- Johannes Fahrmann
- Madhukar Kolli Defended August 2012
- Nandini Manne
- Chris Racine
- Ted Witte

Professional Organizations
Secretary/Treasurer of the Division of Toxicology in the American Society of Pharmacology and Experimental Therapeutics beginning June 1, 2012-September 2013

Chair Division of Toxicology Judges for Best Graduate Student Presentation at EB April 2013

Chair Division of Toxicology Judges for Best Postdoctoral Fellow Presentation at EB April 2013

Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
American Society of Pharmacology and Experimental Therapeutics (ASPET)
American Society of Nephrology (ASN)
Society of Toxicology (SOT)

Professional Activities
ASPET
Communication Officer ASPET Division of Toxicology

National Institutes of Health, NIH Study Section (Valentovic)
NIH NIDDK ZRG1 DKUS-E (10) B March 2010
Chair of NIH Study Section
NIH NIDDK ZRG1 DKUS-E (10) B March 13-14, 2011 (Co-Chair)
NIH NIDDK ZRG1 DKUS-E (10) B July 19-20, 2011 (Chair)

Editorial Boards
Assistant Editor for Toxicology and Environmental Health

Manuscript Review
Toxicology
Biochemical Pharmacology
Toxicology and Applied Pharmacology
Toxicological Sciences
American Journal of Nephrology
Renal Failure
Toxicology Letters
over 20 manuscripts per year

4) Awards/honors (including invitations to speak in your area of expertise) or special Honors
Valentovic
Marshall University School of Medicine Dean’s Award for Excellence in Basic Science Research 2014
Michigan Technological University, Presidential Council of Alumni 2002-present
Alpha Omega Alpha Beta Chapter at Marshall University April 2012
Outstanding Research Team MUSOM 2013
Marshall University Distinguished Artist and Scholar in Science and Technology April 2013
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: John Wilkinson IV Rank: Assistant Professor

Status (Check one): Full-time__X___ Adjunct _____ Current MU Faculty: Yes _X__ No ___

Highest Degree Earned: ___Ph.D.___________ Date Degree Received: _1996_____________

Conferring Institution: __Boston University School of Medicine________________________

Area of Degree Specialization: __Microbiology_________________________

Professional Registration/Licensure: _____NA________________________________________

Field of Registration /Licensure: _______NA____________________________________________

Agency: ___NA___________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) __7_____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
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</thead>
</table>
| Spring 2014 & 2013  | ACB724           | **Course:** Microanatomy and Ultrastructure (ACB724)  
Twenty Lab Sections (2 hours each)  
Blood and Lymphatics, Lymphoid Organs, Respiratory Group, Renal Group,  
GI 1 Oral Cavity and Salivary Glands, GI 2 Esophagus and Stomach,  
GI 3 Intestines and Digestive Organs, Endocrine Organs,  
Male Reproductive Organs, Female Reproductive Organs | ½ First Year Medical Class |
| Fall 2013           | ACB724           | **Course:** Microanatomy and Ultrastructure (ACB724)  
16 Lab Sections (2 hours each)  
Epithelia, Connective Tissue, Blood, Neurohistology, Muscle, Cartilage and Bone, Integument, Senses (Eye-Ear-Nasal-Taste) | ½ First Year Medical Class |
<table>
<thead>
<tr>
<th>Year</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Lectures</th>
<th>Consultations</th>
<th>Notes</th>
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<td>IDM 720</td>
<td>Course: Elements of Medicine (IDM 720)</td>
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<td></td>
<td>First Year Medical Class</td>
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<td></td>
<td>Ten Lectures: Transcription and RNA Processing 1 &amp; 2, (2hrs)</td>
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<tr>
<td></td>
<td></td>
<td>Protein Synthesis 1 &amp; 2, (2hrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secretory Pathway 1: ER, Transmembrane Proteins and Golgi (1hr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP2: Vesicular Trafficking (1hr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP3: Secretion, Endosomes and Lysosomes (1hr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mitochondria and Peroxisomes (1hr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electron Transport and Oxidative Phosphorylation 1, 2 (2hrs).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2013- Spring 2014</td>
<td>BMS 680</td>
<td>Graduate Seminar Course</td>
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<td></td>
<td>All BMS students (approx. 44)</td>
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<tr>
<td>Fall 2012, 2013</td>
<td>BMS 600</td>
<td>Course: Foundations of Biomedical Sciences</td>
<td>9</td>
<td></td>
<td>First year BMS Students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nine Lectures: Protein Synthesis 1 &amp; 2, (2hrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secretory Pathway 1, 2, &amp;3 (3hrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mitochondria and Peroxisomes (1hr)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cytoskeleton I, 2, &amp; 3 (3 hrs).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>One Discussion Session (active learning group exercise, 2hrs)</td>
<td></td>
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<tr>
<td>Spring 2013</td>
<td>BMS 651</td>
<td>Course: Cancer Biology</td>
<td></td>
<td></td>
<td>Approx. 6</td>
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<tr>
<td></td>
<td></td>
<td>One Lecture: Chemical Carcinogens and Cellular Defenses (2hrs)</td>
<td></td>
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<tr>
<td>Spring 2013</td>
<td>BIC 638</td>
<td>Molecular Genetics</td>
<td></td>
<td></td>
<td>Approx. 6</td>
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<tr>
<td></td>
<td></td>
<td>One Lecture: Transgenic Models and Research (2hrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>One Discussion Session: Induced Pluripotent Stem Cells Treat Sickle Cell Anemia (2hrs)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

ARTICLES


PRESENTATIONS AND ABSTRACTS


EXTRAMURAL AND INTRAMURAL GRANT SUPPORT

ACTIVE SUPPORT

“Phenotypic plasticity associated with inhibition of HSP90”

1R15CA CA186017-01 (Sollars) 6/01/2014 to 5/31/2017 5%
effort

NIH/NCI PAR 12-144 $145,100 first year, $432,269 total

The goal of this project is to determine the role of HSP90 inhibition and canalization in leukemic models. My role is with diet design, transgenic colony management, and animal experiments.

PENDING AWARDS/ RECENT SUBMISSIONS
“Transsulfuration and Oxidants Impact Mammary Methionine Cycle and Epigenetics”

**R15 (Wilkinson)** 4/01/2015 to 3/31/2018 25% effort
NIH/NCI PAR 13-313 $145,100 yearly, $435,300 total

The goal of this project is to determine if oxidants will affect methyl donor pools and DNA methylation via the newly discovered transsulfuration pathway in human mammary epithelial cells. Additionally, the downstream impact on DNA hydroxymethylation and epigenetic ties to gene expression are determined.

**Submitted but No Longer Pending and Not Awarded**

<table>
<thead>
<tr>
<th>Project Description</th>
<th>PI(s)</th>
<th>Agency</th>
<th>Funding</th>
<th>% Effort</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>COBRE, Development of C3(1)TAG for Ethanol Studies, as junior investigator within the grant</td>
<td>E. Hardman, M. Valentovic.</td>
<td>NCI/ P20</td>
<td>$841,635</td>
<td>50% J-I</td>
<td>2009</td>
</tr>
<tr>
<td>COBRE, Role of red meat and iron in mammary tumorigenesis, as junior investigator within the grant</td>
<td>E. Hardman, M. Valentovic.</td>
<td>NCI/ P20</td>
<td>$840,000*</td>
<td>50% J-I</td>
<td>2011</td>
</tr>
<tr>
<td>Dietary Fatty Acids as a Preventative Strategy in Acute Myelogenous Leukemia</td>
<td>V. Sollars (PI)</td>
<td>NCI / R01</td>
<td>$1,775,000</td>
<td>10% Co-I</td>
<td>2011</td>
</tr>
<tr>
<td>Folate, transsulfuration, and epigenetics and mammary tissue susceptibility to ethanol</td>
<td>E. Hardman, V. Sollars, M. Valentovic</td>
<td>NCI / R01</td>
<td>$1,775,000*</td>
<td>50% Co-I</td>
<td>2012</td>
</tr>
<tr>
<td>Transsulfuration and Oxidants Impact Methionine Cycle and Epigenetics</td>
<td>V. Sollars, M. Valentovic</td>
<td>NCI / R03</td>
<td>$145,100</td>
<td>25% PI</td>
<td>2013</td>
</tr>
</tbody>
</table>

**Completed Awards**

“Alcohol and Iron Derived Oxidant Stress Impact Epigenetic Regulation”

**1R21CA133701-01A2 (Wilkinson, Sollars)** 1/01/2010 to 12/31/2011* 30% effort
NIH/NCI PAR 06-270 $176,168 yearly, $323,493 total

The goal of this project is to determine if iron and ethanol impact epigenetic regulation via the transsulfuration pathway in the liver.

*This project was extended without additional funding until 12/31/2012

2) Service

**Institutional Offices and Committees**

2010 **Member**, Marshall University **Faculty Senate**, 2010-present.

2010 **Reviewer**, Family Practice Program Curricula, Marshall University School of Medicine.


**Thesis and Examination Committees**


**PRESENTATION REVIEW**

2012 **Judge** (poster presentations), Sigma Xi Event, 2012, Marshall University School of Medicine.

2012 **Judge** (Research Poster Presentations), Research Day 2012, Marshall University School of Medicine.

2010 **Judge** (Clinical Science, oral presentations), Research Day 2010, Marshall University School of Medicine.

2009 **Judge** (Clinical Science, oral presentations), Research Day 2009, Marshall University School of Medicine.

**OTHER ACTIVITIES**

Assistant Editor, Unitarian Fellowship of Huntington Newsletter, 2009-2011

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**PROFESSIONAL SERVICE**

**GRANT REVIEW**

*Ad Hoc Reviewer* Bankhead-Coley Cancer Research Program, Lytmos Group

Division of Molecular & Cellular Biosciences, National Science Foundation
Cell Differentiation and Development Center, Marshall University School of Medicine

MANUSCRIPT REVIEW

Ad Hoc Reviewer Toxicology In Vitro

Metabolism

PlosOne

Acta Biochimica et Biophysica Sinica

HONORS, AWARDS, & PROFESSIONAL MEMBERSHIPS:

2005  Active Member of the American Association for Cancer Research, 2005-present.
2001  Member, East Coast Iron Club, 2001-present. (now East-West Iron Club)

RECENT MEETINGS ATTENDED


Second Annual West Virginia Biosciences Summit, Charleston, WV, January 25, 2012

National Meeting of the American Association for Cancer Research, Orlando, FL, April 2011

4)  Awards/honors (including invitations to speak in your area of expertise) or special
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: _____Hongwei Yu___________ Rank: ______Professor________

Status (Check one):   Full-time__X__   Adjunct _____ Current MU Faculty: Yes _X__    No ___

Highest Degree Earned: ___Ph.D.________________ Date Degree Received: ____1994_____

Conferring Institution: ________University of Calgary_______________

Area of Degree Specialization: ______Molecular Pathogenicity____________

Professional Registration/Licensure:  _______N/A__________________________

Field of Registration /Licensure:  ________N/A___________________________

Agency: ___________________N/A_______________________________________

Number of years at Marshall (can be in either teaching or administration)  __15 years__

List courses you taught during the final two years of this review.  If you participated in a team-taught course, indicate each of them and what percentage of the course you taught.  For each course include the year and semester taught (summer through spring), course number, course title and enrollment.  (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Team Taught Percentage</th>
<th>Course Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/Fall</td>
<td>MCB631</td>
<td>30%</td>
<td>Medical Microbiology I (8 lecture hours)</td>
<td>4</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>MCB731</td>
<td>30%</td>
<td>Medical Microbiology (two semester course, 9 lecture hours)</td>
<td>~68</td>
</tr>
<tr>
<td>2013 Spring</td>
<td>MCB622</td>
<td>100%</td>
<td>Current Topics in Molecular Biology</td>
<td>~2</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>MCB632</td>
<td>30%</td>
<td>Medical Microbiology II (9 lecture hours)</td>
<td>4</td>
</tr>
<tr>
<td>2013 Spring</td>
<td>BIC638</td>
<td>9%</td>
<td>Advanced Molecular Genetics</td>
<td>5</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MCB631</td>
<td>30%</td>
<td>Medical Microbiology I</td>
<td>6</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC750</td>
<td>6%</td>
<td>Principles of Disease (8 lecture hours)</td>
<td>~64</td>
</tr>
<tr>
<td>2014 Spring</td>
<td>MCB622</td>
<td>100%</td>
<td>Current Topics in Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MCB632</td>
<td>30%</td>
<td>Medical Microbiology II</td>
<td>6</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MDC753</td>
<td>3 %</td>
<td>Disease and Therapeutics IV (2 hours)</td>
<td>~64</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.
For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

Publications (2009-2014):


Patents & Inventions


Research Grants (2009-2014)

Current:

1. Marshall Health Translational Pilot Award, Investigate the distribution of segmented filamentous bacteria (SFB) in American children and the presence of SFB with children diseases, 02/01/13-1/31/15, $50,000 Direct Costs, (PI).

2. UK- MU collaborative award (CCTS), Investigation of Cystic Fibrosis mixed biofilms through deep sequencing, 08/15/14-02/15/16, $25,000 Direct Costs, (PI)

Completed:

1. Cystic Fibrosis Foundation (YU11G0), Control of Mucoid P. aeruginosa Biofilms in CF, 04/01/11-3/31/13, $180,000 Direct Cost, (PI).
2. NASA WV Space Grant Consortium, Developing of a Novel System for the Detection of Low Molecular Weight Proteins in *Pseudomonas aeruginosa*, 07/01/11-06/30/12, $12,000 Direct Cost, (Co-PI).

3. NASA WV Space Grant Consortium, Evaluating Virulence of *Pseudomonas aeruginosa* under Extreme Starvation Condition, 07/01/11-06/30/12, $10,000 Direct Cost, (Co-PI).


6. NASA NNX06AH20H (Mentor), Genetic Analysis of Radiation Effect on DNA Repair Mechanisms in *P. aeruginosa* (Stipend for Heath Damron), 09/01/06-10/31/09, $72,000 Direct Cost, (Yu, PI).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Abstracts presented at meetings (2009-2014)**

1. **Ashlea Hendrickson**, Summer Research Intern for Minority Students (SRIMS), Department of Biological Sciences, Oakwood University, Huntsville, AL 35896, Yeshi Yin, Yoram Elitsur, **T. Ryan Withers**, and Hongwei D. Yu. Analysis of Prevalence and Distribution of Segmented Filamentous Bacteria in Healthy American Children, Poster presentation for the 12th Annual West Virginia WV- INBRE Summer Research Symposium, July 29, 2013, Huntington, WV.


10. **Megan A. Smith**, INBRE Summer Research Intern, Alderson-Broaddus University, WV, **T. Ryan Withers, Marie R. Southerland** and Hongwei D. Yu. Activation of alginate production in *Pseudomonas aeruginosa* with wild-type MucA. Poster presentation for the 10th Annual WV-INBRE Summer Research Symposium, July 28, 2011, Marshall University, Huntington, WV.


12. **Marie R. Southerland**, SRIMS Participant, Ashland University, OH, **T. Ryan Withers** and Hongwei D. Yu. Analysis of the bacteriophage E79tv-2 with current antibiotics to treat *Pseudomonas aeruginosa*. Poster presentation for the 9th Annual WV-INBRE Summer Research Symposium, July 29, 2010, West Virginia University, Morgantown, WV.


List any panels on which you chaired or participated.  List any offices you hold in professional organizations.

2013-14 NASA Space Microbiology Program Grant Review Panel, NASA Research and Education Support Services (NRESS)

2011 Ad hoc Study Section Member, ZDK1 GRB-7 (J1), Cystic Fibrosis Research and Translation Core Centers, NIDDK/NIH.

2011-17 Editorial Board of *Frontiers in Cellular and Infection Microbiology*

2008-16 Editorial Board of *Infection and Immunity*, American Society for Microbiology (ASM).

2010 Ad hoc Study Section Member, ZDK1 GRB-W M2 1, Cystic Fibrosis Research and Translation Core Centers, NIDDK/NIH.

2010- Visiting Professor, Institute of Microbiology, Chinese Academy of Sciences, China
2009-17 Visiting Professor, Zhejiang Academy of Agricultural Sciences, Zhejiang, China

2005- Member of Graduate Studies Committee (GSC), MU School of Medicine
2002- Member, Institutional Biosafety Committee, Marshall University
2014-- Member, Curriculum Committee, MU School of Medicine
2001-04, 11-13 Member, Personnel Advisory Committee (PAC), MU School of Medicine

4) Awards/honors (including invitations to speak in your area of expertise) or special

Extramural Invited Lectures (2009-2014)

4. “Production of alginate using genetically engineered Pseudomonas”, Yellow Sea Fisheries Research Institute, Qingdao, China, September 17, 2013.
5. “Alginate overproduction induced by type IV pili in P. aeruginosa”, Zhejiang University, Hangzhou, China, December 7, 2012.
6. “How to train your dragon: turning bacteria into a cell factory!” Zhejiang Industry and Commerce University, Hangzhou, China, December 4, 2012;
8. “Pseudomonas Signal Transduction” Ocean University of China, Qingdao, China April 6, 2011
9. “Advances on Molecular Mechanism in Bacterial Pathogenesis” Second Xiangya Hospital, Central South University, Changsha, August 13, 2009
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name:________Wei-ping Zeng__________   Rank:____Associate Professor______________________

Status (Check one):  Full-time___x__  Adjunct _____  Current MU Faculty:  Yes _x__  No ___

Highest Degree Earned:   _Ph.D._____  Date Degree Received: __05/30/1995_______________

Conferring Institution: __SUNY/Buffalo______________________________________________

Area of Degree Specialization: __Immunobiology/pathology____________________________

Professional Registration/Licensure: ________________________________________________

Field of Registration /Licensure:  __________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  ___5_____

List courses you taught during the final two years of this review. If you participated in a team-taught
course, indicate each of them and what percentage of the course you taught. For each course include
the year and semester taught (summer through spring), course number, course title and enrollment.
(Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td></td>
<td>Medical Microbiology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BMS 651</td>
<td>Cancer Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Molecular Genetics</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td>Medical Microbiology</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most
recent activities.

1) Scholarship/Research

Zeng WP. 2014. Interleukin-1 in Th17 differentiation and inflammatory tissue damage. Austin

Zeng W-p (corresponding and senior author), McFarland MM. 2014. Rapid and unambiguous

2) Service

Medical school admissions committee

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

American Association of Immunologists

4) Awards/honors (including invitations to speak in your area of expertise) or special
Appendix II

Faculty Data Sheet

(Information for the period of this review)

Name: Guo-Zhang Zhu
Rank: Professor

Status (Check one): Full-time _X_  Adjunct _____  Current MU Faculty: Yes _X_  No ___

Highest Degree Earned: __Ph.D._____________  Date Degree Received: _1997_________

Conferring Institution: Shanghai Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences

Area of Degree Specialization: ___Molecular Biology_____________________

Professional Registration/Licensure: _______________________________________________

Field of Registration/Licensure: ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  _11 years__

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/Fall</td>
<td>BSC301; BSC480</td>
<td>Vertebrate Embryology; Biology of Human Disorders</td>
<td>26; 12</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>BSC301</td>
<td>Vertebrate Embryology</td>
<td>25</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>BSC105; BSC480</td>
<td>Introduction to Biology; Biology of Human Disorders</td>
<td>95; 18</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>BSC301</td>
<td>Vertebrate Embryology</td>
<td>24</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

1. External grants awarded

   (1) Research project title: PTIP as an epigenetic regulator in male meiosis. Funding agency: National Institutes of Health, NIH 1R03HD071116-01A1. Amount funded: $148,800. Effective dates: 06/05/2013 to 05/31/2015. Role: Principal Investigator

2. Peer-reviewed articles (% graduate student, # undergraduate)


2) Service

**University Committees (Marshall University):**

Grants Committee, College of Science, 2003-Present
Graduate Program Committee, Department of Biology, 2003-Present
Faculty Development Committee, Marshall University, 2005-2013
Budget and Academic Policy Committee, Marshall University, 2013-Present

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

• Pituitary homeobox 2 (PITX2) promotes thyroid carcinogenesis by activation of cyclin D2. 101st Annual Meeting of American Association for Cancer Research, 17-21 Apr. 2010, Washington, DC.

4) Awards/honors (including invitations to speak in your area of expertise) or special
Appendix II
Faculty Data Sheet
(Information for the period of this review)

Name: Sasha Zill
Rank: Professor

Status (Check one): Full-time X  Adjunct _____  Current MU Faculty: Yes X  No ___

Highest Degree Earned: Ph.D.  Date Degree Received: 1979

Conferring Institution: University of Colorado Medical School

Area of Degree Specialization: Anatomy

Professional Registration/Licensure: _______________________________________________

Field of Registration/Licensure: ___________________________________________________

Agency: ______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) ________

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/Spring</td>
<td>MDC 713</td>
<td>Structure and Function III</td>
<td>75</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>MDC 712</td>
<td>Structure and Function II</td>
<td>75</td>
</tr>
<tr>
<td>2014/Spring</td>
<td>ACB 813</td>
<td>Surgical Anatomy</td>
<td>20</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>MDC 711</td>
<td>Structure and Function I</td>
<td>75</td>
</tr>
<tr>
<td>2013/Fall</td>
<td>ACB 813</td>
<td>Surgical Anatomy</td>
<td>20</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>ACB 720</td>
<td>Gross Anatomy and Embryology</td>
<td>70</td>
</tr>
<tr>
<td>2013/Spring</td>
<td>ACB 813</td>
<td>Surgical Anatomy</td>
<td>20</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>IDM 777</td>
<td>Neuroscience</td>
<td>70</td>
</tr>
<tr>
<td>2012/Fall</td>
<td>ACB 813</td>
<td>Surgical Anatomy</td>
<td>20</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.
1) Scholarship/Research

2) Service

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special

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1) Publications

Zill SN, Chaudhry S, Büschges A, Schmitz J. Directional specificity and encoding of muscle forces and loads by stick insect tibial campaniform sensilla, including receptors with round cuticular caps. Arthropod Struct Dev. 2013 Nov;42(6):455-67.


---

Grants

DFG Visiting Professorships, 2010-2014, University of Bielefeld and University of Koeln, Germany

2) School of Medicine Curriculum Committee

Executive Committee of Curriculum Committee
Chair, First Year Subcommittee of Curriculum Committee
School of Medicine Committee to Evaluate Promotion and Tenure
Ad hoc committee for Selection of Dean's Award for Excellence in Teaching

3) Professional Organizations

Society for Neuroscience
American Association of Anatomists
International Society for Neuroethology
Journal Editorial Reviews
Journal of Neurophysiology
Arthropod Structure and Development
Journal of Comparative Neurology
Journal of Comparative Physiology

Meetings Attended
(National)
Zill SN, Chaudhry S (2014) Force sensing and muscle synergies: integration of active substrate adherence in control of posture and walking in insects. Society for Neuroscience Abstracts 40, program no. 734.05


(Regional)

Sigma Xi Research Day Marshall University - Oral Presentation - Sumaiya Chaudhry, Ansgar Büschges, Josef Schmitz and Sasha Zill. Positive force feedback in development of substrate grip. (Awarded First Prize for Best Oral Presentation)

Sigma Xi Research Day Marshall University - Poster Presentation - Sumaiya Chaudhry and Sasha Zill. Assessing the effects of pilocarpine on behavior and nervous system function.

International Presentations
University of Bielefeld, Germany - 2011, 2012, 2014
University of Cologne, Germany - 2011, 2012
Case Western University - 2010, 2012

4) Instructor of the Semester/Year - School of Medicine, 2010-2014
Golden Apple Teaching Award - AMSA, 2011-2013
Appendix III
Students’ Entrance Abilities for Past Five Years of Graduates: MS in Biomedical Science

Note: There are three charts:
A. Chart A – M.S. Medical Sciences’ Area of Emphasis
B. Chart B – M.S. Research Areas of Emphasis
C. Chart C – M.S. All Areas of Emphasis

Chart A – M.S. Medical Sciences’ Area of Emphasis

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Mean Undergraduate GPA</th>
<th>Mean GRE Verbal</th>
<th>Mean GRE Quantitative</th>
<th>Mean GRE Analytical Writing</th>
<th>Mean MCAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2010</td>
<td>18</td>
<td>3.47 (n = 18)</td>
<td>440 (n = 3)</td>
<td>693 (n = 3)</td>
<td>4.17 (n = 3)</td>
<td>24 (n = 16)</td>
</tr>
<tr>
<td>2010-2011</td>
<td>15</td>
<td>3.42 (n = 15)</td>
<td>516 (n = 9)</td>
<td>632 (n = 9)</td>
<td>4.22 (n = 9)</td>
<td>24 (n = 10)</td>
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<tr>
<td>2011-2012</td>
<td>13</td>
<td>3.27 (n = 13)</td>
<td>508 (n = 4)</td>
<td>680 (n = 4)</td>
<td>3.63 (n = 4)</td>
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<tr>
<td>2012-2013</td>
<td>15</td>
<td>3.41 (n = 15)</td>
<td>154 (n = 6)</td>
<td>153 (n = 6)</td>
<td>4.08 (n = 6)</td>
<td>25 (n = 8)</td>
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<tr>
<td>2013-2014</td>
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<td>3.38 (n = 10)</td>
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Chart B – M.S. Research Areas of Emphasis

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<th>Mean GRE Quantitative</th>
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Chart C – M.S. All Areas of Emphasis

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<td>4.0 (n = 4)</td>
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Appendix IV
Exit Abilities for Past Five Years of Graduates: MS in Biomedical Science

Note: There are three charts:
A. Chart A – M.S. Medical Sciences’ Area of Emphasis
B. Chart B – M.S. Research Areas of Emphasis
C. Chart C – M.S. All Areas of Emphasis

Chart A – M.S. Medical Sciences’ Area of Emphasis

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Mean GPA</th>
<th>Licensure Exam Results</th>
<th>Certification Test Results</th>
<th>Other Standardized Exam Results</th>
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Chart B – M.S. Research Areas of Emphasis

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<td>2012-2013</td>
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<td>2013-2014</td>
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<td>N/A</td>
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<td>Year</td>
<td>N</td>
<td>Mean GPA</td>
<td>Licensure Exam Results</td>
<td>Certification Test Results</td>
<td>Other Standardized Exam Results</td>
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<td>2010-2011</td>
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</table>
## Appendix V: Assessment Summary

### Assessment Summary

**Component Area/Program/Discipline: MS in Biomedical Science (Plan prior to academic year 2013-14)**

<table>
<thead>
<tr>
<th>Program's Student Learning Outcomes</th>
<th>Assessment Measures (Tools)</th>
<th>Standards/Benchmark</th>
<th>Results/Analysis</th>
<th>Action Taken to improve the program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery of communicating research results to a professional audience</td>
<td>Faculty and student evaluations</td>
<td>Satisfactory</td>
<td>All Research MS students mastered communication at the capstone level. All Medical Sciences students mastered communication at the Advanced level.</td>
<td>Students not meeting the benchmark were remediated.</td>
</tr>
<tr>
<td>Mastery of evaluating and analyzing the current research literature</td>
<td>Faculty Evaluations</td>
<td>Satisfactory</td>
<td>All first year Research MS students mastered analyzing research literature at the capstone level. We will have to find an assessment at the advanced level.</td>
<td>Students not meeting the benchmark were remediated.</td>
</tr>
<tr>
<td>Mastery of comprehensive knowledge of biomedical sciences</td>
<td>(A) Written exams (B) Written and Oral Exams (C) Multiple-Choice Exams</td>
<td>(A) 3.0 GPA (B) Pass (C) 70%</td>
<td>Most MS students mastered knowledge. Those that did not were remediated or dismissed from the program.</td>
<td>Students not meeting the benchmark were remediated. If they continue to not meet the benchmark, they were either dismissed from the program or chose to leave.</td>
</tr>
</tbody>
</table>
### Component Area/Program/Discipline: MS in Biomedical Sciences (Plan from academic year 2013-2014)

<table>
<thead>
<tr>
<th>Program's Student Learning Outcomes</th>
<th>Assessment Measures (Tools)</th>
<th>Standards/Benchmark</th>
<th>Results/Analysis</th>
<th>Action Taken to improve the program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will communicate scientific knowledge to specific audiences.</td>
<td><strong>Assessment Point 1</strong> BMS 660/661: Written feedback from course director</td>
<td>Capstone</td>
<td>All first year (100%) MS students mastered communication at the capstone level.</td>
<td>Students not meeting the benchmark will be remediated.</td>
</tr>
<tr>
<td></td>
<td><strong>Assessment Point 2</strong> BMS 680: Written feedback from course director, faculty, and students</td>
<td>Advanced</td>
<td>At the second assessment point, all MS students performed at the advanced level.</td>
<td></td>
</tr>
<tr>
<td>Students will analyze research literature.</td>
<td><strong>Assessment Point 1</strong> BMS 660: Quizzes on research papers.</td>
<td>Capstone</td>
<td>All (100%) MS students performed at the capstone level at the first assessment point.</td>
<td>Students not meeting the benchmark will be remediated.</td>
</tr>
<tr>
<td></td>
<td><strong>Assessment Point 2</strong> BMS 665: Written feedback from faculty and students</td>
<td>Advanced</td>
<td>At the second assessment point, all MS students performed at the advanced level.</td>
<td></td>
</tr>
<tr>
<td>Students will demonstrate mastery of knowledge of biomedical sciences and biostatistics.</td>
<td><strong>Assessment Point 1</strong> BMS 600/617/641/651; PHS 666; PMC 621/622/650: Exams, written review papers</td>
<td>Capstone</td>
<td>93% of MS students performed at the capstone level at the first assessment point.</td>
<td>Students not meeting the benchmark were remediated. If they continue to not meet the benchmark, they will be dismissed from the program.</td>
</tr>
<tr>
<td></td>
<td><strong>Assessment Point 2</strong> Qualifying Exam</td>
<td>Advanced</td>
<td>83% of MS students performed at the advanced level at the second assessment point.</td>
<td></td>
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</table>
**Program Assessment Rubrics: MS in Biomedical Sciences**

**Program Learning Outcome 1:** Students will communicate scientific and medical knowledge to specific audiences.

<table>
<thead>
<tr>
<th>Traits</th>
<th>Introductory</th>
<th>Milestone</th>
<th>Capstone</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context/Audience</td>
<td>N/A</td>
<td>N/A</td>
<td>Organizes communication style for audience and setting</td>
<td>Creates scientific communication using lecture, meeting poster, and lay talk</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>N/A</td>
<td>N/A</td>
<td>Chooses correct words and scientific terminology for short presentation</td>
<td>Uses correct scientific terminology and explains meaning of research to variety of audiences</td>
</tr>
<tr>
<td>Communication Style</td>
<td>N/A</td>
<td>N/A</td>
<td>Uses well-made and correct visual aids in short presentation</td>
<td>Creates informative presentations in different settings by combining graphics and text</td>
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</table>

**Program Learning Outcome 2:** Students will analyze research literature.

<table>
<thead>
<tr>
<th>Traits</th>
<th>Introductory</th>
<th>Milestone</th>
<th>Capstone</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Analysis and Conclusions</td>
<td>N/A</td>
<td>N/A</td>
<td>Examines data in research literature to determine how and why experiments are done</td>
<td>Analyzes data in research literature to determine if correct experiments were done and if correct conclusions were reached</td>
</tr>
<tr>
<td>Research of Existing Knowledge</td>
<td>N/A</td>
<td>N/A</td>
<td>Uses databases to search research literature</td>
<td>Uses different methods to find relevant sources of knowledge when analyzing the research literature</td>
</tr>
</tbody>
</table>

Graduate students are expected to have met the introductory and milestone levels before matriculation into the program.
Program Learning Outcome 3: Students will demonstrate mastery of knowledge of biomedical sciences.

<table>
<thead>
<tr>
<th>Traits</th>
<th>Introductory</th>
<th>Milestone</th>
<th>Capstone</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections among Disciplines</td>
<td>N/A</td>
<td>N/A</td>
<td>Analyzes facts and theories from more than one discipline</td>
<td>Draws conclusions and answers problems by combining facts and theories from more than one discipline</td>
</tr>
<tr>
<td>Relevance of Information</td>
<td>N/A</td>
<td>N/A</td>
<td>Knows where to find relevant information from reliable sources</td>
<td>Integrates relevant information from reliable sources</td>
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<tr>
<td>Problem Solving</td>
<td>N/A</td>
<td>N/A</td>
<td>Applies biomedical science knowledge to a problem in a specific field of knowledge</td>
<td>Integrates biomedical science knowledge from different fields to solve a problem</td>
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Graduate students are expected to have met the introductory and milestone levels before matriculation into the program.
## Appendix VI
### Program Course Enrollment: MS in Biomedical Science

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## Appendix VII
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Figure 1. Trend Line for Total Enrollment and Program Graduates: Master of Science in Biomedical Science
## Appendix VIII

Job and Graduate School Placement Rates: Biomedical Science – MS

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</tr>
</tbody>
</table>
Appendix VIII A
Medical School Matriculation: Biomedical Science – MS (Medical Sciences)

The table on the previous page shows the placement rate of graduates. In the Medical Sciences Program, students may be accepted into medical school during their first year in the program. These students do not graduate but are considered successfully placed. The table below shows the number of Medical Sciences students who apply to medical school and how many of those matriculate into medical school.

<table>
<thead>
<tr>
<th>Year</th>
<th># of students applying to medical school</th>
<th># of students entering medical school</th>
<th>Percentage of students who apply who enter medical school</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2010</td>
<td>15</td>
<td>14</td>
<td>93.3</td>
</tr>
<tr>
<td>2010-2011</td>
<td>12</td>
<td>12</td>
<td>100.0</td>
</tr>
<tr>
<td>2011-2012</td>
<td>9</td>
<td>8</td>
<td>88.9</td>
</tr>
<tr>
<td>2012-2013</td>
<td>13</td>
<td>11</td>
<td>84.6</td>
</tr>
<tr>
<td>2013-2014*</td>
<td>6</td>
<td>3</td>
<td>50.0</td>
</tr>
<tr>
<td>Five –Year Total</td>
<td>55</td>
<td>48</td>
<td>87.2</td>
</tr>
</tbody>
</table>

* Students who entered the program this year are still being interviewed for medical school classes that begin in the fall of 2015.
Appendix IX: Assessment Letters: Biomedical Science – MS

Dr. Todd Green, Program Assessment Coordinator
Biomedical Sciences
Marshall University Joan C. Edwards School of Medicine

Dear Todd:

The Graduate Council reviewers and I have completed our evaluations of the MS/PhD in Biomedical Science assessment of student learning for academic year 2011 – 2012. This letter will provide general comments and suggestions for improvement. Please refer to the attached assessment rubric for additional comments from reviewers.

Your program’s learning outcomes are appropriate to your discipline and emphasize higher levels of thinking/learning. Your assessment measures and appropriate. However, I’d like to talk with you early in the fall semester about identifying a minimum of two assessment points per outcome. This will allow you to note growth in student learning over time. Additionally, it would be helpful if you could develop a rubric for your third outcome (mastery of comprehensive knowledge) that breaks the knowledge down into "traits" or essential components of that knowledge. Then, evaluating knowledge using these elements will allow you to identify relative strengths and weaknesses in this knowledge base. Using students’ grades as a measure is not recommended. Also, the MS and PhD programs are separate degree programs and, as such, should be assessed separately.

During the academic year 2013 – 2014, programs will continue to report assessment results and plan actions using the online reporting form used last year. These reports will be due at the end of the academic year. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds, Associate Vice President
Assessment and Quality Initiatives

C: Dr. Joseph Shapiro, Dean, J. C. Edwards SOM
Office of Assessment & Program Review

June 26, 2012

Dr. Todd Green, Chair
Biomedical Sciences
Joan C. Edwards School of Medicine

Dear Todd:

The Graduate Council and I have completed our evaluation of the MA and PhD Programs in Biomedical Sciences' assessment of student learning. This letter will provide general comments and suggestions for improvement. I have included the scoring rubric we used to evaluate your assessment report in a separate document.

As is appropriate for graduate level degrees, your programs' learning outcomes emphasize higher levels of cognitive ability. However, it would be helpful to write the knowledge outcomes in measurable terms. What will students do to show you they have mastered comprehensive knowledge? Also, it is appropriate for you to have assessment plans for each of your degree programs, one for the MS and another for the PhD. Your assessment measures are appropriate. One suggestion for improvement here would be to have at least two assessment points per outcome. I also appreciate the scoring rubrics you have developed. At the present time, they take the form of rating scale rubrics. I'd be happy to work with you to develop them into analytic rubrics. Then, reporting results for each rubric trait would give you a better idea of relative strengths and weaknesses in student learning than merely reporting overall student performance.

Although your program is not participating in the University's Open Pathways Demonstration Project, it will be helpful if it becomes familiar with the rationale behind this project. The project's steering committee will be happy to provide more feedback to the program regarding this. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds
Director of Academic Assessment

C: Dr. Joseph Shapiro, Dean, ICESOM
Dr. Todd Green, Director of the Graduate Program
Biomedical Sciences
SOM

Dear Todd:

The Graduate Council and I have completed our evaluation of the PhD/MS in Biomedical Science’s assessment of student learning. This letter will provide general comments and suggestions for improvement. Although the scoring rubric we used to evaluate assessment reports was sent to you in April, I will not include numerical ratings in this letter. The reason for this is that the rubric is still relatively new and is continuing to be revised. At this time, I ask that you use it for formative purposes to help improve your assessment plan. We also would appreciate your comments concerning this rubric.

Although I marked you at level 3 for learning outcomes (because your outcomes obviously target higher levels of thinking), you do not write all of your outcomes in measurable terms (level 2). Also, some outcomes focus on the process rather than on the product, e.g. “Students will make oral presentations of scientific material.” The oral presentation is the assessment measure, not the outcome. Why do you want students to make these presentations? Do you want them to be able to evaluate research in the discipline, test scientific hypotheses, analyze the implications of research findings, or communicate research results to professional audiences? Regarding your assessment measures, they are too holistic to adequately identify strengths and weaknesses regarding student learning.

Please refer to the rubric you received in April for additional comments from Graduate Council reviewers. During the academic year 2011 – 2012, I plan to meet with all programs to assist with further development of assessment plans and look forward to meeting with you. I will be in touch at the end of the summer about scheduling. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds
Mary E. Reynolds
Director of Academic Assessment

C. Dr. Charles McKown, Dean, Joan C. Edwards School of Medicine