2011 Medical Student Summer Research Orientation
160 Meiling
June 2, 2011, 12:30-1:30pm

AGENDA

Welcome, Introduction, & Medical Student Research Goals
Ginny L. Bumgardner, MD, PhD
Associate Dean, Research Education

Office of Research Education
Kelly Dillon MA
COM Research Education Assistant

Lab Safety
Heather Link
Physical Facilities
College of Medicine

Successful Research Experiences Panel
Robert Baiocchi, MD, PhD, Assistant Professor
Benjamin Wendt, Landacre President

Scholarship Requirements
Kelly Dillon MA
Program Coordinator

Questions?

MATERIALS

Medical Student Research Contact Information
Medical Student Research Requirements
Medical Student Research Productivity Report
Medical Student Research Experience Evaluation Form
Research Advisor Evaluation Form

At the conclusion of this orientation you should understand:
• the role of research education and training in physician training and career;
• COM expectations for the summer research experience for both the student and the mentor;
• the student's responsibility for understanding and following lab safety procedures and university resources for training and questions;
• who (and when) to contact for any problems arising relevant to the research experience;
• practical strategies for a successful research experience
Medical Student Research Scholarship
Contact Information

General Information: Medical Student Research Website:
http://medicine.osu.edu/go/mdsr

General E-Mail for Research Education:
research.education@osumc.edu

Ginny L. Bumgardner MD PhD
Associate Dean for Research Education
Phone – Admin Asst: Rebecca Cantrell, (614) 293-6177
Email: ginny.bumgardner@osumc.edu

Samuel Matheny
Associate Director, Financial Aid
B043 Graves Hall
Phone: (614) 688-4955
Email: matheny.23@osu.edu

Kelly Dillon MA
Research Education Assistant
1170 Graves Hall
Phone: (614) 292-2683
Email: kelly.dillon@osumc.edu
The following requirements of the 2011 Medical Student Research Scholarship were outlined in the application submitted for funding. If you, or your mentor, have any questions or concerns with any of these requirements, please contact research.education@osumc.edu or 614.292.2683.

1. **Attendance at 2011 Medical Student Research Orientation**
   a. Only preapproved absences with a note from mentor will be rescheduled
   b. Completed evaluation form and electronic registration will be your proof of attendance

2. **IRB/ILACUC Protocols**
   a. Cover letter of IRB approval of amendment to add student to existing protocol(s).
   b. Due to the Medical Student Research Program Office by June 15, 2011.

3. **Final Research Report:** A report of research activity are due August 29, 2011 for all short-term projects. A short-term project is any project that a student is not taking a year leave of absence. The format is to follow a research report in a peer-reviewed journal. Not all research produces the anticipated outcome. If your research gave unexpected results, report the outcome and suggest how the research might be restructured in the future to produce meaningful results. All recipients of research funding are required to submit a report regardless of the outcome of the studies.
   a. **Abstract:** A brief description of background, methods, results and conclusions (no more than 250 words)
   b. **Introduction:** Brief history of topic area with importance of the research project selected. State the hypothesis tested. Important references should be cited.
   c. **Methods:** Brief description of the methods including statistical methods
   d. **Discussion and Conclusions:** Fully discuss the results and their implications. Compare and contrast your findings with the literature. Suggest the next series of studies.
   e. **References:** Full citations are required including all authors, title, journal, volume, and year.

4. **Presentation of Poster at 11th Annual OSUMC Trainee Research Day**
   a. Students that receive funding are required to present a poster at OSUMC Research Day, in April 2012. The information in your research report can serve as the source material for your poster.
   b. Remember to acknowledge the specific scholarship received (e.g., Barnes, Bennett, Roessler).
   c. Call for abstracts is typically in early January.
   d. The date for the 11th Annual OSUMC Trainee Research Day has not been set as of orientation. The MDSR Program Office will notify you of the date once it has been determined. Make note of that date and do NOT plan to be out of town or busy for your required poster presentation.

5. **Evaluation of Research Experience:** Both you and your mentor will separately be requested to evaluate the research experience. From this evaluation, the COM and MDSR Office want to learn more about the benefits and challenges for medical students conducting summer research projects. We also welcome your ideas and suggestions to maximize the value of the experience.

6. **Research Productivity Report:** Upon submission of your final report, this productivity report is necessary to capture all collaboration, publications, presentations, and future plans regarding the proposed and funded research.
2011 Medical Student Research Productivity Report

Please complete and return this form to:
Medical Student Research Program Office
333 West 10th Avenue, 1170 Graves Hall, Columbus, OH 43210
F: 614.292.6226 Email: research.education@osumc.edu
This form is also available online at:
http://medicine.osu.edu/research_ed/medical_students/currentscholars/productivityreport/pages/index.aspx

Medical Student Name: 

Mentor: 

List all student research presentations related to the project (include any Research Day Presentations):

List all student publications (published, in press or submitted) related to the project (authors, title, journal, vol, year, pages)

Medical Student Plans to continue research project or pursue new research opportunities if applicable. (1 paragraph)

Are you interested in continuing your research project by taking a funded leave of absence (LOA) to continue this work?

Yes ____ Yes, Please contact me about funding options ____ No ____
MEDICAL STUDENT RESEARCH EXPERIENCE EVALUATION FORM – STUDENT OF MENTOR

STUDENT:

MENTOR:

Please rate the following experiences during your period of research using a scale of 1 (outstanding) to 5 (needs improvement). All ratings and comments will be completely anonymous in all data analysis.

1. Fulfillment of research experience expectations
   1  2  3  4  5
   Please describe the expectations of your research experience. How did your mentor meet them?

2. Research mentoring experience
   1  2  3  4  5
   Please describe your mentor’s best practices, areas for possible improvement.

3. Exposure to diverse research personnel
   1  2  3  4  5
   Who else did you work under or with during your research experience? How did this exposure enhance your experience?

4. Research education lab environment
   1  2  3  4  5
   How has this research experienced contributed to your medical education training?

5. Research productivity
   1  2  3  4  5
   Please comment on your productivity or opportunities to be productive? Do you plan to continue?

6. Opportunity to analyze and present research results
   1  2  3  4  5
   Please comment on what opportunities you were given to actively participate, present, and analyze results.

7. Stimulation of critical thinking
   1  2  3  4  5
   Please comment if you developed better critical thinking skills you will use during your medical education.

Please comment (use next page if necessary) on your experience in the lab, with your mentor, and subject area:
MEDICAL STUDENT RESEARCH EXPERIENCE EVALUATION FORM – MENTOR OF STUDENT

Please rate the following experiences during your period of research using a scale of 1 (outstanding) to 5 (needs improvement). All ratings and comments will be completely anonymous in all data analysis.

1. Fulfillment of research experience expectations
   1  2  3  4  5

2. Research advisee work ethic
   Please describe your advisee’s best practices, areas for possible improvement.
   1  2  3  4  5

3. Responsiveness of research advisee to advisor/supervisor direction
   Please comment (or have lab supervisor comment) on advisee’s best practices or areas for improvement.
   1  2  3  4  5

4. Research advisee participation and contribution to laboratory team effort.
   1  2  3  4  5

5. Please comment on the advantages/challenges of advising a medical student in your lab.

6. Advisee research experimental skills and productivity
   Please comment how your advisee met, exceeded, or fell short of your expectations.
   1  2  3  4  5

7. Advisee skills in analyzing data.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
   1  2  3  4  5

8. Advisee skills in presenting data verbally.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
   1  2  3  4  5

9. Advisee skills in presenting data in written form.
   Please comment how your advisee met, exceeded, or fell short of your expectations.
   1  2  3  4  5

10. Advisee mastery of critical thinking skills.
    Please comment how your advisee met, exceeded, or fell short of your expectations.
    1  2  3  4  5

11. Advisee passion for research.
    Please comment how your advisee met, exceeded, or fell short of your expectations.
    1  2  3  4  5

Please comment (use next page if necessary) on your experience mentoring a medical student, how the Medical Student Research Program Office could have better supported you or your advisee, and any next steps you have planned with your advisee.
Medical Student Research Scholarship Common Issues and Answers

1. **Building & Lab Access**: Check with your mentor or lab manager regarding access to secure buildings and labs. You may need to provide your badge or BUCK-ID numbers.

2. **Specific lab safety protocol training**: Each lab has very specific protocols, data sheets, and trainings necessary for the chemicals, equipment, animals, or biological agents and materials you may need to use or come in contact with. Please check with your mentor and his/her lab personnel to orient and train you in all matters relating to lab safety.

3. **Computer/database access**: Ask your mentor or lab manager the appropriate access. You may need to provide your employee ID number, or OSUMC log-in. Remember, data collected or analyzed as part of your project is under the ownership of your mentor and his/her lab. Be clear on proper protocols, both system (e.g., HIPAA) and lab specific, on using, accessing, storing, and discarding electronic and paper data.

4. **IRB/IACUC questions, updates**: All Roessler, Barnes, and Bennett Scholarship projects are required to have on file proof of the recipient being added officially to any and all IRB or IACUC protocols. If your research has been determined to be exempt, the MDSR Office needs documentation of the exempt status.

5. **Final Report**:  
   a. Final reports are due August 29, 2011 for all short-term projects. Unless you are taking a year leave of absence, your project is considered short-term.  
   b. Reports can be sent electronically to research.education@osumc.edu, faxed ATTN: Kelly Dillon to 614.292.6226, or dropped off to 1170 Graves Hall.  
   c. Please follow the guidelines outlined in your original scholarship application or in the handout 2011 Medical Student research Scholarship Requirements. Guidelines can also be found on the MDSR Current Scholars Webpage at http://medicine.osu.edu/go/mdsr.

6. **Evaluation Forms**:  
   a. Evaluation forms are to be completed by both mentor and advisee at the conclusion of the research project.  
   b. All identifying information (e.g., student and mentor names) are removed for data analysis.  
   c. Evaluation forms are located in your orientation packet or can be found on the MDSR Current Scholars Webpage at http://medicine.osu.edu/go/mdsr.

7. **Research Day Abstract**:  
   a. Each Roessler, Barnes, and Bennett Scholarship recipient is required to submit an abstract and poster for presentation at the 11th Annual OSUMC Trainee Research Day.  
   b. It is the scholarship recipient’s responsibility to submit an abstract. The MDSR Office **WILL NOT** submit abstracts from final reports.

8. **Transfer of Funds/Financial Aid questions**: Please direct all transfer of funds and financial aid questions to Sam Matheny of Financial Aid in B043 Graves Hall, 614.688.4955, matheny.23@osu.edu.
“What if” questions from advisees

- What if I am not done with my project by August 29th?
- What if I don’t want to continue the research into the school year?
- What if I am having trouble communicating with my mentor/advisee?
- What if I don’t have good results?
- What if I can’t present at Research Day?
- What if the people in the lab don’t like me/want to work with me?
- What if my mentor is not around as much as I had hoped?
- What if I can’t handle the statistics or analysis?
- What if I need supplies for or access to the lab?

“What if” questions from mentors

- What if my advisee is not meeting the expectations of our project?
- What if my advisee does not show up/follow through with the project?
- What if my advisee is not a good fit for my lab?
- What if my advisee needs more hand-holding than I can provide?
- What if my advisee doesn’t get enough results for a final paper?
- What if my advisee’s project doesn’t finish this summer?
- What if my advisee does not want to continue the project into the new school year?
Orientation Objectives

- Introduce you to Research Education Team members
- Provide goals, expectations and context for the summer research experience
- Education about future career development awards for physician scientist training
- Prepare you for success in seeking future extramural opportunities
Medical Student Research Goals

Set individualized learning objectives

- Background & Significance
- Hypothesis that is being tested
- Research design & alternative strategies
- How will the results be analyzed and why
- Become an active participant in the lab’s research team
- What is the future direction of this research?
- What clinical problem will this research benefit in the near or long-term?
How does research experience benefit physician training?

- Understanding of how science has contributed to what is currently known about disease prevention, diagnosis, prognosis or therapy.
- Awareness of current scientific approaches, animal models of disease etc and how they can be applied to make new discoveries.
- Develop critical thinking skills which can be applied to the research project and to future clinical encounters.
- Increase your competitiveness for future Career Development and an academic career which integrates research with clinical activities.
What is the national perspective on physician scientist contribution to biomedical research?

- Critical clinical perspective to identify the important questions and how to address them
- Critical to future scientific collaborations and team science and research progress
- Strategic Plan: create funding opportunities to recruit, train and retain talent
Physicians-in-Training

Med 1

Med 2

Med 3

Med 4

Fellowship

Residency

FACULTY

Medical Center
What career opportunities are available to physicians interested in research?

NIH Career Development Awards for clinical fellows

**T32** institutional training grant

CCTS

Thematic areas of research

Individual postdoctoral fellowship **F32**

Individual early faculty development award

**K08**-Mentored Clinical Scientist Research Career Development Award

**K23**-Mentored Patient Oriented Research Career Development Award

K22-Research Scholar Development Award (research or clinical doctorate)--Transition to independence

K02-Independent Scientist Award

K24-Mid Career Investigator Award for POR
How are Career Awards Reviewed?

- Candidate’s Research Experience
- Candidate’s Research Productivity
  - Qualifications of the Mentor (Selection of a mentor who can help you achieve your specific research goals)
  - Research Project & Strategy
  - Career Development Plan
  - Environment/Institutional support
  - These are highly competitive!
How Your Research Advisor Can Help

• Clarify learning objectives, your role, meeting frequency, timeline for completion, realistic outcomes
• Expectations for co-authorship
• Provide resources
• Identify important research seminars you can attend
• Guide your awareness of other research projects
• Identify future extramural opportunities
• Get to know you as a person, research team member, research potential and interests
• Identify potential medical students who are promising candidates for a more extended research experience
Office of Research Education

- Kelly Dillon, Program Coordinator  
  research.education@osumc.edu  
  614.292.2683  
  http://medicine.osu.edu/go/mdsr

- Ginny L Bumgardner, MD, PhD  
  Associate Dean  
  ginny.bumgardner@osumc.edu  
  614.293.6177
Scholarship Requirements

- Orientation
- IRB/IACUC Protocols
  - Due June 15th
  - Email notification or fax is fine from mentor.
- Final Research Report
  - Due August 29th
  - If you need an extension, complete an extension request form found online under “Current Scholars” at http://medicine.osu.edu/go/mdsr
  - Science and mentor should dictate your report.
  - No statistical or editing help from MDSR Office
Scholarship Requirements (cont’d)

- Research Day Poster
  - Watch for calls for abstract
  - **STUDENT** is responsible to submit abstract.
  - MDSR Office will **NOT** submit late abstracts
  - **STUDENT** must present at Research Day
  - Exceptions only made with Dr. Bumgardner approval.

- Evaluation (green)
  - All info anonymous
  - Student & Mentor
Scholarship Requirements (cont’d)

- Productivity Report (purple)
  - Online under “Current Scholars” at http://medicine.osu.edu/go/mdsr

- Please complete with subsequent publications, ongoing support, new scholarship/fellowship support (e.g., HHMI, Pelotonia), or presentations.
After the Research Project

- Stay in contact with mentor (future collaborations, letters of reference)
- Change role in future projects with increased course load of Med II year
- Recommend mentor to future MD students
- Be certain to work together for Research Day poster, publications
- Share kudos and news with MDSR office
- Membership to Landacre Honor Society
Research Safety

Heather Link, Assistant Director of Research
Variety of Hazards

- Physical
  - Flames
  - Needles/Sharps
  - Electrical
  - Slips, trips and falls

- Chemical
  - Acids/bases
  - Carcinogens

- Radiological

- Biohazards
  - Blood Borne Pathogens
  - Toxins
Basic Risk Assessment

- Best protection is to know your environment
  - Procedures
  - Personnel
  - Hazards within the workspace
  - Equipment and protection available
    - PPE
    - Biosafety cabinets
    - Fume hoods
  - General location
    - Engineering controls in place
Sources of Info that is valuable and relevant

- Review and understand
  - Infectivity
  - Toxicity
  - Routes of exposure
  - Routes of infection

- Chemical Hygiene Plans
  - MSDS
Institutional Research Risk Committees

- All research at the university is ran through an approval process
- These committees review risk, exposure and ensure that protocols that are in place allow for employees to work in safe environments that are engineered to mitigate and minimize risk
  - Institutional Biosafety Committee (IBC)
    - Occupational Health Registry
  - Institutional Animal Care and Use Committee (IACUC)
  - Institutional Review Board (IRB)
  - Western IRB (clinical trials)
Office of Responsible Research Practices

- Includes:
  - IRB
  - IACUC
  - IBC
Where to go for more info:

- Office of Responsible Research Practices
  - orrp.osu.edu
    - IRB
    - IACUC
    - IBC

- Environmental Health and Safety
  - ehs.ohio-state.edu

- Office of Research Compliance
  - orc.osu.edu
Ask questions

- As a researcher you have the right to review all protocols that are active within your workspace.
- You have the right to know – ask your PI.
  - Even if you do not work on a particular protocol, understanding the risks within your environment is invaluable information.
- Ask collaborators.
- Ask personnel within the lab.
Thank you

What questions do you have?