A Message from the Chair

I think 2015 has been a good year, at least from the 30,000 foot level. The department has held its own in terms of grant funding. While some of us have struggled in renewing and obtaining extramural support, overall our total income has remained relatively stable. I am especially pleased and encouraged that our students have performed exceptionally well in competing for fellowship support. At the federal level we have acquired two F30 and two F31 grants. Furthermore, Adam Case acquired a K99/R00 award and Noah Marcus finished his F32. I believe our department has acquired more F grants than any other department in the institution. In addition, we have competed well for American Heart Fellowships and junior startup grants such as the Scientist Development Grant. These are great numbers that should make all faculty proud. I believe student and post-doc achievements are based, in part, on a long-standing culture within the department that all students actively seek out and apply for extramural support at the earliest time point. As long as the faculty support, encourage, and work with our students I am confident that this tradition will continue.

In my opinion the new interdisciplinary graduate program should mandate that each student be required to apply for funding as soon as enough data from the laboratory supports this endeavor (most likely towards the end of their second year). In this regard, the Integrative Physiology and Molecular Medicine (IPMM) graduate program represents a prime opportunity to create an outstanding educational experience. I am very excited that the IPMM program, under the leadership of Matt Zimmerman and the graduate committee, will design a high quality and unique program. Every department and program will, of course, have different philosophies concerning what graduate students should accomplish. I hope that our program will focus on broad skills that incorporate the fundamentals of physiology at both the cell and organ levels. While I am sure we will disband some experiences, I hope we keep in mind that the Ph.D. of the future may not follow the same course as their mentor, and should have some exposure to experiences that will help them shape their careers in science or an ancillary path. Finally, I believe that our students and post-docs are somewhat unique in their involvement in science outreach and national society activities.

What does 2016 have in store for us? I am optimistic that this will be a banner year for us. While I don’t have a crystal ball, there are signs on the horizon that I believe supports this positive outlook. Most of us are working extremely hard trying to obtain additional grant support. This hard work will pay off, I am sure! If you are not writing several grants a year you need to, until you hit pay dirt! Because our department has a relatively narrow focus I believe our department is looked upon very favorably at the national level. This helps us when...
our grants are renewed. Our involvement in study sections, editorial boards, and national societies also reflects well on our department. In the cardio-renal area people know who the Nebraska group is.

The federal funding level has gotten a little better. A year ago NIH/LI was funding at the 10th percentile for R01s and an incredible 1.5 for P01s! Now, the pay line has risen to between 13-14th percentile for R01s and 1.5 for P01s; still not great, but better. I also believe the political landscape will be changing. The most recent federal budget approved and signed by the President will increase funding for both NIH (approximately $1B) and NSF (~$3B/M). This hasn’t happened in a very long time. While there will be some federally-directed research as part of this increase, I believe this boost will push pay lines higher. The American Heart Association, at least the Midwest Affiliate, has also increased their support for research and training by about $2M over the short term.

There are more discussions taking place concerning building of groups, centers, and institutes at UNMC. More faculty are thinking and discussing translational initiatives, and formulating new and creative ideas. Finally, I see more of us collaborating with faculty in other departments, both basic and clinical. Therefore on the research side, 2016 should be a good year.

As everyone is aware a new medical curriculum will be implemented in 2017. Many of you have volunteered to be involved in the shaping of this curriculum. I appreciate your willingness to do so. I think it is especially important for us to be involved so that we have input to content and the way it will be presented. At the present time it looks like the curriculum will be quite different, most likely cutting back on didactic lectures. Merging basic science and clinical medicine across all four years sounds like a good thing but it will remain to be seen if the end product will be any different from the product we currently turn out. The history of curricular reform is that about every 20 years or so we make a change. But do things really change? I don’t know. I still believe that the discipline of physiology is the basis of medicine and we need to be engaged in order to impart the most important concepts and information to our students. While I may sound skeptical, the devil will indeed be in the details.

It is too early to know how 2016 will shape up administratively. There are many factors that can have an impact on our bottom line. Of course, the state budget will be a prime factor. We are still negotiating with the administration for additional indirect cost return to departments. Personally, I’m not terribly optimistic on this front. The strain of the new cancer center and the iExcel program will, I am afraid, suck up resources.

Maybe I’m naturally a “glass is half full” person but I believe 2016 the year of the monkey will be a good year. But we have to work hard. There are exciting new things to do in our labs and we can do it all, but it’s up to us. Thomas Edison once said, “Our greatest weakness lies in giving up. The most certain way to succeed is to try just one more time.” I really believe this.
GRADUATE STUDENTS KUDOS

Graduate Students of Distinction
Graduate Studies honors the outstanding accomplishments of UNMC graduate students who have received national or international recognition. CIP currently has five students listed (out of a total of 12) with awards:

Urmil Basu – 2014 Young Investigator Award, presented by the Society for Free Radical Biology & Medicine
Bryan Becker – NIH Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship (2015-2017); 2015 Young Investigator Award, presented by the Society for Experimental Biology and Medicine
Duy Ha – American Heart Association Predoctoral Fellowship (2015-2016); American Physicist Scientist Association Policy Committee

Alicia Schiller – 2015 APS Dale J. Benos Early Career Professional Service Award, Cummins Award, Praesto Award, 2015 Young Investigator Award, presented by the Society for Experimental Biology and Medicine

MEET OUR NEW GRADUATE STUDENTS

Anyun (May) Ma
I am a native of north China and want to the medical school of Shanghai Tongji University in 2009. My five years of medical training not only nurtured my interest in the application of medicine but also grew my love for research in basic science, especially in physiology. In my sophomore year, Dr. Xin Yan's guidance. Through all those technique and methods, I saw a real opportunity to enhance graduate education.

Alicia Schiller – 2015 APS Dale J. Benos Early Career Professional Service Award, Cummins Award, Praesto Award, 2015 Young Investigator Award, presented by the Society for Experimental Biology and Medicine

CONTINUING EDUCATION – PHYSIOLOGY FORUMS

CIP Forums are held in Room 1004 of the Durham Research Center Fridays at 11:30 a.m.

As the weekly formal research seminar program in CIP, the Physiology Forum provides cutting-edge scientific presentations on topics relevant to the scientific interests of the department. The program offers presentations by CIP faculty, faculty from other UNMC departments and centers, and speakers from other universities or biotech/industry. Virtually all speakers from outside of UNMC have lunch with graduate students after their seminar. This provides a valuable networking opportunity for CIP students. Among the participants are outside speakers who visit UNMC as visiting professors to participate in the 900-level didactic courses offered by CIP.

Upcoming Presentations in December are as follows:

December 11
Dr. Nikolao Frangogiannis
Albert Einstein College of Medicine
Fibroblasts and the Extracellular Matrix in the Remodeling Myocardium

December 18
Dr. R. Dusan Sarazan
Data Sciences International
Standing On The Shoulders Of Giants – A Brief History Of Physiological Measurement In Animals And Tribute To The Work Of Pioneering Biophysicist Dean Franklin

The Department of Cellular and Integrative Physiology teaches the fundamentals of physiology to students from medical, graduate, physician assistant (PA), physical therapy (PT), and radiation technology programs. There are 132 medical students taught by 23 different faculty. The Intermediate Physiology course normally has 50 PA and 50 PT students with an additional 2-6 graduate students. This course now includes PA/PT distance education students from Kearney. Seven faculty members teach this class. There are normally 20 radiation technology students located at UNMC, plus distance education sites at Kearney, Grand Island, and Columbus. Mainly CIP graduate students and postdoctoral trainees teach this class.

Our department was the first to use team based learning in some of its courses. It is now used throughout the 1st and 2nd year medical curriculum. The department also reintroduced the use of the audience response system in teaching medical students and the PA/PT students. This is now being used throughout the 1st year medical curriculum.

FROM THE VICE CHAIR OF EDUCATION

Visiting speakers enhance graduate education

For Course 922
Don Becker
University of Nebraska at Lincoln
Natura “small” antioxidants: Vitamin E & C, beta-carotene, flavonoids, ubiquinone, and amino acids

Rodrigo Franco Cruz
University of Nebraska at Lincoln
ROS in neurodegeneration

Nadine Hempel
SUNY, Albany, NY
The Multifaceted Role of Mitochondrial Superoxide Dismutase During Ovarian Cancer Metastasis

For Course 920
Nael McCarty
Emory University
Development of Novel Potentiators of CFTR for use in Cystic Fibrosis Patients

Paul Welling
University of Maryland
Treading Through Signals In Membrane Traffic To Unravel the Secrets of Potassium Balance

Susan Wall
Emory University
The Role of Pard65 in the Pheochromocytoma Response to Deoxoxamine
What is a Postdoctoral Position?
Postdoctoral positions provide scholars with an intense research experience under the direction of an experienced mentor in the field. The scholar is essentially apprenticed to this mentor, and together mentor and scholar agree upon a schedule of collaborative and independent research, and publication of findings. To qualify to become a postdoctoral scholar (commonly referred to as a postdoc), an individual must have completed the requirements for a doctoral degree (e.g., the Ph.D., M.D., D.D.S., Pharm.D., D.V.M., D.P.H., D.N.S.), or in some cases a terminal Master’s degree.

Pathway to Independence Award
Adam Case, Ph.D. won the UNMC Pathway to Independence Award. This honor is given annually to the medical center’s most promising postdoctoral scholar, as part of UNMC’s effort to facilitate postdocs’ timely transition to an independent career.

Faculty Kudos
Dr. Erika Boesen was named as one of the UNMC New Investigators for 2015.
Dr. Matthew C. Zimmerman was appointed to the AHA Midwest Affiliate—Board of Directors, as well as, awarded the Excellence in Mentoring Award from the Postdoctoral Education Office.
Dr. Paras K. Mishra was named as one of the UNMC New Investigators for 2015.
Dr. Harold Schultz received the Golden Heart Member of American Heart Association 2015.
Dr. Neeru Sharma received the Abstract Travel Award: AHA Council on Basic Cardiovascular Sciences.
Dr. Hanjun Wang and Irving Zucker were recognized at UneMed Innovation Week for their innovation thoughts and ideas which lead to a licensed technology.

Department Awards
Joseph P. Gilmore Outstanding Investigator Award
Melissa Tech-Fitzgerald, Ph.D., Assistant Professor in the Department of Biochemistry and Molecular Biology, was named the 2015 recipient of the Joseph P. Gilmore Distinguished New Investigator Award. This award was established in 1987 to honor Dr. Gilmore who was Professor and Chairman of the Department of Physiology and Biophysics from 1970 to 1987. Dr. Gilmore elevated the level of cardiovascular and renal research at UNMC to world-class levels, and obtained the first NIH training grant at UNMC. The award was established upon his retirement to recognize outstanding research contributions by young UNMC faculty members in basic or clinical sciences.

Alice Cummings Award
Alicia Schiller received the Alice L. Cummings Award in Physiology. The purpose of this award is to recognize and reward an outstanding (graduate or medical) student(s) in the area of Physiology. Alicia was granted this award for her exceptional performance over and above what is required for her degree.

Getting to Know You
Name: Eileen Marks
Job Title: Research Technologist
Hometown: Barbent, OH
(The “Pied Chicken Capital of America”)
Joined UNMC: January 2013
Describe your most interesting part of your job: I have a lot of fun when I get to develop new (to us) techniques in the laboratory. I like discovering why things are or are not working and optimizing protocols that are efficient, reliable, and usable by others. I also really enjoy training other lab members.
If I was not doing this: I am told I would make a great event planner!
The accomplishment I am most proud of: This is a tie. I received an undergraduate award for outstanding academic performance and was placed in the “Graduate Student Spotlight” because of my Master’s degree research project. In both cases only one student per academic year was chosen.
List three things few people know about you:
1) Most of my family lives in Northern Ireland
2) My undergraduate minor was Italian
3) I used to play the banjo
One day I would like to: Travel to all 7 continents!
A defining moment in my life was: I am named after my grandmother, and she asked me to “carry on her good name” when I visited her for the last time a few weeks before she died. That has certainly stuck with me and I remember her any time I am making something that I want her to think is good.
Hobbies: Traveling, Reading, Painting, Cooking, Baking, Watching Movies, Wood Burning, Camping.

1-Minute Strategies
Go ahead, skip lunch, but only if you want to be less creative, less productive and more stressed out on the job. An OfficeTeam study suggest taking a 30-40 minute lunch break away from your workspace can help you do better at work.

Five Reasons To Leave Your Workspace At Lunch
1. You will be more productive.
2. You will be more creative.
3. You will become a more mindful eater.
4. You need fresh air.
5. You can sit too much... and it could kill you.

1) Most of my family lives in Northern Ireland
2) My undergraduate minor was Italian
3) I used to play the banjo
One day I would like to: Travel to all 7 continents!
A defining moment in my life was: I am named after my grandmother, and she asked me to “carry on her good name” when I visited her for the last time a few weeks before she died. That has certainly stuck with me and I remember her any time I am making a tough life decision.
Hobbies: Traveling, Reading, Painting, Cooking, Baking, Watching Movies, Wood Burning, Camping.
Long-Term Employees Retire

This past year three long-term employees retired from the department. Between the three employees, they had over 100 years of service with the department.

Kurtis Cornish, Ph.D., was born and raised in Salt Lake City. After serving four years in the Army, he received the Bachelor’s degree and Master’s of Science degree in physiology from the Brigham Young University in Provo, Utah, and then went on to get his Ph.D. in cardiovascular physiology from Bowman Gray School of Medicine, Wake Forest University in Winston Salem, N.C. From there, he came to the University of Nebraska (1977) where he did a two-year postdoc and rose through the ranks to full professor in the Department of Cellular and Integrative Physiology. Dr. Cornish worked in the area of cardiovascular research, with a focus on the neural control of blood volume in conscious animals, especially primates and dogs. Dr. Cornish was the Core Director of the Animal Core on the Neuro-Circulatory Function in Chronic Heart Failure Program Project Grant (PPG). Dr. Cornish has taught at UNMC since 1979 and has taught cardiovascular physiology to first-year medical students since 1990. He organized and coordinated the June Term for third-year medical students and the basic science selective for fourth-year medical students. He served on several committees and was the chair of the College of Medicine Grievance Committee since 1991. Teaching is Dr. Cornish’s passion and he has won many teaching awards. Dr. Cornish received seven Golden Apple Awards that placed him in the Golden Apple Hall of Fame. In 2011, Dr. Cornish received the University of Nebraska’s Outstanding Teaching and Instructional Creativity Award (OTICA).

Richard Robinson, Veterinary Technician, worked at the University of Nebraska Medical Center for 44 years. Out of those 44 years, 42 were spent working in the department. Richard’s early years in the department were to assist with repair and fabrication of research equipment. In 2006, Richard was recruited to assist with the PPG, Animal Core. Richard provided the prooperative and postoperative care of the animals.

Phyllis Anding, Research Technologist, worked in Dr. Gilmore’s and Dr. Zucker’s lab during her 40-year tenure with the department. During the last 15 years, Phyllis worked in the PPG Molecular Biology, Biochemistry and Histology Core under the direction of Drs. Shyamal Roy and Irving Zucker.

CIP in the Community

The Department of Cellular and Integrative Physiology participates in physiology outreach programs. Our goal is to increase student interest in and understanding of physiology in their lives, and to introduce them to physiology as a possible career. CIP graduate students, postdoctoral fellows and faculty members are encouraged to visit their local school(s), explain what physiology is and what a physiologist does, and lead students in interactive learning activities. Several department members participated in these activities.

**Nebraska Tribal Council, South Sioux City, NE (March 2015)**

Provided demonstrations and information regarding incorporation of physiology-themed interactive activities into currently established curriculum. (Volunteers: Drs. Alicia Schiller and Erika Baeser)

**American Heart Association Heart Walk**

This year the department raised money for the Heart Walk team by participating in two fundraising events:

- Our first fundraiser coincided with our Wear RED Day, Friday, February 6. For a minimum donation of $5.00 a full breakfast was served.
- On April 27, Subway donated sandwiches, which we sold during the lunch hour.

**Third Cardiovascular Forum for Promoting Centers of Excellence and Young Investigators** was held September 10-12, 2015 in Omaha, Nebraska. Faculty members, postdoctoral fellows and students interested in cardiovascular research participated in this meeting. Dr. Zucker received the Lifetime Achievement Award from the International Academy of Cardiovascular Sciences. Drs. Noah Marcus won the Kern Wildenthal Young Faculty Orations in Cardiovascular Medicine and Surgery Award, and Dr. Neeru Sharma won The Eric Olson Young Faculty Orations in Cardiovascular Biomedical Sciences Award. Dr. Zucker co-chaired the meeting with Dr. Devendra K. Agrawal from Creighton University, and Drs. Pasia Mitra, Kaushik Patel, and Matthew Zimmerman were members of the local organizing committee.

**NE State Science Meet (April 2015)**

Organized and prepared nine interactive stations, a printed resource, and 22 volunteers from several universities to provide a day of outreach activities for approximately 340 students from NE/SD Native American Reservations. Support was provided by an NIH SEPA grant.

Winners from the State Science Meet were invited to engage in several interactive activities and interact with graduate students to learn more about potential scientific career paths. (Volunteers: Bryan Becker and Alicia Schiller)

**American Heart Association Heart Walk**

This year's event raised $4,545,096 in Contracts Association grants American Heart 15 NIH grants Program Project Grant 1 SPONSORED FUNDING

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<thead>
<tr>
<th>Program</th>
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NEW GRANTS AWARDED

**Bryan Becker**, graduate student in the lab of Irving Zucker, received a F31 Predoctoral Fellowship Award entitled, “Brain-derived neurotrophic factor and sympathetic activation in chronic heart failure.”

**Harold D. Schultz**, Ph.D., received a R56 grant entitled, “Carotid body in pathophysiology of heart failure: different effector mechanisms.”

**Kaushik P. Patel**, Ph.D., received a R56 grant entitled, “Role of HIF-1 alpha and renal afferents in activation of the PVN in heart failure,” and a R01 grant entitled, "Role of HIF1- alpha and renal afferents in activation of the PVN in heart failure.”

**Adam Case, Ph.D.** received a F32 Fellowship Award entitled, “Regulation of mitochondrial redox systems in T-lymphocytes during hyperternsion.”

See Appendix 1
CIP SNAPSHOT

**FACULTY**
- 2 Endowed Chairs
- 2 Emeritus Professors
- 7 Professors
- 1 Associate Professor
- 5 Assistant Professors
- 7 Courtesy Professors
- 3 Instructors
- 1 Volunteer Professor
- **TOTAL 29 FACULTY**

**STAFF**
- 14 Postdoctoral Research Associates
- 15 Graduate Students
- 12 Summer Students/Volunteers
- 14 Research Staff
- 4 Administrative Staff

**TEACHING**
- 13 Graduate courses
- 2 Medical courses
- 3 Allied Health courses

**EMPLOYEE LOYALTY**
The average number of years for faculty and staff in the department is 13.2 years. The following individuals celebrated milestone employment anniversaries this year.

- **35 years**
  - Cindy Norton

- **30 years**
  - Dr. George Rozanski

- **25 years**
  - Dr. Shyamal Roy
  - Dr. Harold Schultz
  - Kaye Talbitzer

- **15 years**
  - Mary Ann Zink

- **10 years**
  - Li Yu

**48 PUBLICATIONS**

Make a Gift to CIP

The generosity of individuals who recognize the importance of our department’s work is indispensable to our success.

Donate online at https://nufoundation.org/-/unmc-college-of-medicine-unmc-physiology-development-fund-01024800 and select fund 01024800
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Upcoming Events

December 18, 2015
Winter Commencement

April 2-6, 2016
Experimental Biology Meeting
San Diego, CA

Sept/Oct 2016
Cardiovascular Science at the Cutting Edge Meeting Omaha, NE

2016
Nebraska Physiological Society Meeting
Location to be announced