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Introduction

Research, publication, presentations, and performances are among the many ways that scholars bring their work to their peers and contribute to the common good of the academy. We must not only educate our students, but each other as well. We must will a future that allows us, in whatever ways we can, to build a community of scholars who strive to contribute to the advancement of knowledge-nationally and internationally. Leadership in research will not be easy. We are not a university with vast resources and a multi-billion dollar endowment. But we are a university that is capable of building a culture of scholarship, one that allows faculty to fully realize our call to be among the leading Catholic universities in America. We can be a place where commitment to students, commitment to service, and commitment to the Catholic tradition joins a commitment to scholarship at the highest levels.

From – 2008 President’s Convocation, John P. Schlegel, S.J.

Universities are in the knowledge business – the generation of knowledge, the dissemination of knowledge, and the preservation of knowledge. The generation of knowledge involves all scholarly work, creation, and discovery. We learn to see new things or to see old things in a new way or to understand better how the world works. This Faculty Bibliography is a partial reflection of the activity of the Creighton faculty in this component of our core business.

This is the eighteenth Faculty Bibliography produced annually by Creighton University’s Graduate School. The bibliography documents the scholarly accomplishments of the University community for the 2008-2009 academic year. The bibliography includes reports from various units on campus (departments, centers, or offices) that highlight the broad range of research and scholarly activity across the campus. These reports are followed by a listing of the scholarly accomplishments of Creighton faculty, including peer-reviewed articles, book chapters, and books; funded grants; and student dissertations and theses. The bibliography does not include papers in press or abstracts of professional presentations at local, regional, national or international meetings.

The contributions in this bibliography demonstrate the rich diversity and broad application of scholarship across the Creighton campus from the traditional scholarship of discovery to scholarly work of application, integration, engagement, and teaching and learning. There is strong evidence that Creighton faculty are committed teacher-scholars and true stewards of their disciplines. As stewards, Creighton faculty has a sense of purpose beyond themselves, focusing on who students become and what they will do in building a better world with “the least and with all.”

Special thanks go to Richard Jizba and his staff at the Health Sciences Library, LuAnn Schwery, Assistant Dean, Graduate School and Pat Kindelan who helped to gather and compile the information that makes up this Bibliography.

Robert P. Heaney, M.D.
Vice President for Research
John A. Creighton University Professor

Gail M. Jensen, Ph.D.
Associate Vice President for Faculty Development
and Graduate School Dean
A Sampling of Creighton University’s Research Endeavors

Center for Health Policy and Ethics

Established in 1984, the Center for Health Policy and Ethics is a multidisciplinary group of scholars dedicated to the study and teaching of ethical dimensions of health care and health policy. Scholarship at the Center for Health Policy and Ethics responds to the challenge of ethical issues raised by a complex and fractured health care system, inequities in health and health care delivery, increasingly ill patients, and public health problems. The multidisciplinary nature of the Center for Health Policy and Ethics encourages a variety of perspectives informed by disciplinary insights. Thus, the topics of scholarly inquiry, conceptual analysis, moral discernment, and discussion cover a wide range of issues under the overarching umbrella of health policy and ethics. Furthermore, the process of scholarly inquiry is one of inclusion and support for the development of ideas and projects. One example of a long-standing mechanism to encourage the development of ideas and questions into scholarly projects and publications is the Roundtable Series that is held at least monthly at the Center for Health Policy and Ethics. During an hour-long session, topics are presented ranging from the earliest stages of development to finished products but always allowing for input from a diverse audience. The research and scholarly endeavors of Center for Health Policy and Ethics faculty are deeply influenced by and contribute to Creighton University’s quest for academic excellence, social justice, and better ways to partner with students, faculty, staff and members of the community to realize the richness of diverse gifts and contributions to fuller understanding. The following notable examples of scholarly work reflect sustained interest in clinical ethical issues, professional education and development, and broader social justice issues.


Issues of health policy and ethics will continue to demand scholarly inquiry and public attention. Critical concerns about ethics education and the inauguration of the Master of Science program in Health Care Ethics that the Center for Health Policy and Ethics is offering will require closer examination of student learning and outcomes, especially those obtained in an online environment. The health care system will continue to develop, and changes within and without acute care delivery will inevitably lead to new moral considerations. Faculty at the Center will continue to make important contributions in these challenging areas and direct attention to issues and concerns that align with the Center’s mission as they have done significantly in the past.

For additional information about the Center for Health Policy and Ethics, visit the Center’s webpage at: [http://chpe.creighton.edu](http://chpe.creighton.edu).
Department of Atmospheric Sciences

The Atmospheric Sciences department has a broad range of research and outreach involving students at both the graduate and undergraduate levels. Individual faculty contributions are outlined below.

Dr. Jon Schrage is interested in the causes and consequences of variability in the West African monsoon on a variety of time scales. In collaboration with researchers at the Institute for Geophysics and Meteorology at the University of Cologne in Cologne, Germany, he and his students at Creighton are currently examining the role global sea surface temperature distributions play in influencing regional precipitation in sub-Saharan West Africa. Inter-annual and inter-decadal changes in the sea surface temperatures are being shown to influence not only the strength of the monsoon but also how precipitation regimes in West Africa interact with other climate parameters, such as amount of tropical cyclone activity in the Atlantic. His lab is developing new statistical techniques and tests to quantify these evolving, dynamic relationships that modulate the regional climate of that part of the world.

Dr. Joseph A. Zehnder is focusing on observations and modeling of thunderstorms and the dynamics of the urban boundary layer. The thunderstorm observations center on data collected as part of a multi-institutional field experiment for which he was a co-principal investigator, funded by the National Science Foundation. A novel feature of this work is the automatic image processing and stereo analysis techniques developed as part of the project. An understanding of the mechanisms that control convection is essential for improving the accuracy of computer forecast models used to predict short-term weather and provide longer term predictions of climate change. Work on the urban boundary layer uses the Weather Research and Forecasting (WRF) model. Changes to the surface energy scheme in the model allow for a better representation of the daily temperature cycle and resulting circulations. This model is being used to assess the contributions of urban development to heat waves and modifications to rainfall in urban areas.

Department of Chemistry

The Chemistry department has a broad range of research projects, all of which involve undergraduate students. Please see the descriptions below of individual faculty members’ research interests.

Dr. James Fletcher’s research is based on developing new organic and organometallic molecules constructed from aromatic rings that have interesting and useful physical properties. Currently active projects include (1) the use of ‘Click Chemistry’ to create new organic ligands and organometallic complexes for applications in light-harvesting, sensing, bioimaging and catalysis, (2) establishing new classes of ionic liquids, and (3) the design, synthesis and analysis of oligoarenes that display permanent and prescribed three-dimensional peptidomimetic shapes.

Dr. Mark Freitag’s research focuses on theoretical and applied quantum chemistry. Theoretical quantum chemistry is the development of new methods of quantum chemical evaluation. In this area, we have developed a method to quickly calculate the nuclear magnetic resonance (NMR) chemical shifts of nuclei in the presence of a discrete solvent potential. Basically, we try to predict chemical shifts in solution. We model the interactions of the solvent using the Effective Fragment Potential method. These theoretical methods have recently been incorporated into the quantum chemistry package GAMESS.

Dr. Erin Gross’ research interests involve the combination of electrochemical and spectroscopic analytical techniques to study chemiluminescent reactions. She ultimately would like to perform chemical analysis on a microchip. This would involve the separation, identification and quantitation of an analyte mixture via capillary electrophoresis with chemiluminescent detection on a microchip. The first analytes her lab is studying are a class of antibiotics called fluoroquinolones which are used to treat infections in both humans and animals.
Dr. Stephen Gross’ research focuses on three different areas of polymer chemistry: 1) The development of ionic liquid containing composites for use in advanced energy conversion applications (lithium polymer batteries, solar cells); 2) In collaboration with Dr. Latta and Dr. Shaddy at the Creighton School of Dentistry, his lab looks at the adhesion of resin modified glass ionomer cements to dentin. He is also currently engaged in the development of new composites with dental applications; 3) In collaboration with Dr. Singh in the School of Pharmacy and Health Professions, he is synthesizing polymers that can be used for subcutaneous drug delivery.

Dr. Eric Haas’ research aims to design better inhibitors of Galectins. Human Galectin-3 is implicated in the inflammatory response as well as targeting of tumor cells in metastases. Dr. Haas’ group has established a protocol to quantitatively model interactions of small molecules with Galectins using available computer docking programs. They will soon begin synthesis in an attempt to generate compounds that exhibit tight, specific binding to various Galectins. Actual binding properties of newly synthesized compounds will be tested in the lab. Crystallization and structure determination will also be used to better characterize structural response of the protein to modifications of ligand binding partners.

Dr. Marty Hulce’s laboratory specializes in synthetic organic chemistry, investigating new methods to prepare carbon-carbon bonds and the creation of novel structural motifs. Exploiting the power techniques of modern metalloorganic chemistry, students in his laboratory currently are exploring:

- The synthesis and reactions of mixed hybridization state, conjugated systems with unique topologies that interfere with tumor cell growth;
- The synthesis of modified amino acids to build bioactive peptides with increased bioactivity relative to the unmodified peptides;
- Preparations of hepatoprotective glycine betaine analogues;
- The synthesis and $^{17}$O NMR characterization of endoperoxides;
- Greener approaches to insect repellents, and
- Beneficial chemical modifications of the outermost layer of the skin.

Dr. Bruce Mattson is currently interested in gas phase reactions taking place over a palladium-coated ceramic catalyst. The “Gas Reaction Catalyst Tube” has been developed in his lab and is now commercially available through Educational Innovations, a company that sells primarily to teachers and scholars. Among the interesting reactions being studied are (1) deuterium exchange in methane to produce all five isotopomers, $\text{CH}_4\text{D}_n\text{H}_{4-n}$, $n = 0 – 4$; (2) deuterium exchange and hydrogenation at 0 °C for ethane with deuterium. In this work, he has learned that deuterium exchange is faster than deuteration so that the deuteroethanes produced have between 1 and 4 deuterium atoms. The D/H exchange is statistical for mole ratios smaller than 2 H: 1 D; (3) ethyne undergoes D/H exchange at 0 °C but, unlike ethene, does not add across the triple bond, perhaps due to the sp-hybridization; and (4) dihydrogen ($\text{H}_2$) and dideuterium ($\text{D}_2$) undergo D/H statistical exchange in the presence of the catalyst at temperatures as low as –78 °C. His research group uses high-field nuclear magnetic resonance and mass spectroscopy to study these reactions.

Dr. Julie Soukup’s laboratory has an interest in nucleic acid structure and function. The lab is investigating riboswitches and RNA-protein interactions. Utilizing Nucleotide Analog Interference Mapping (NAIM) and Nucleotide Analog Interference Suppression (NAIS), she is investigating the important functional groups within RNA that are needed for the activity of these molecules. The recently discovered RNA elements termed riboswitches control the metabolic state of microorganisms (such as Bacillus anthrax, a pertinent bioterror threat) by directly binding metabolites and regulating gene
expression of essential metabolic pathways. A novel catalytic riboswitch has been identified and it undergoes self-cleavage in the presence of the metabolite glucosamine-6-phosphate. Her laboratory has elucidated some of the mechanistic details of metabolite binding and self-cleavage of the RNA. In addition she has designed a technique to study interactions between the catalytic riboswitch and its metabolite in the hopes of being able to design non-natural metabolites as potential antibiotics. Finally, the lab is beginning X-ray crystallography studies on two different classes of riboswitches.

Department of Exercise Science

The Department of Exercise Science at Creighton University has ongoing research/scholarly projects. Many projects involve undergraduate students. Faculty interests and accomplishments in 2008-2009 are presented below.

Dr. Thomas Baechle’s previous experience as an Olympic-style weightlifter, power lifter, and strength and conditioning coach, combined with his involvement as a co-founder of the National Strength and Conditioning Association laid the foundation for his interest, expertise and research in strength training. The 15 books that he has authored or served on as editor were written for the express purpose of educating individuals on how to design safe and effective strength training programs for college students, athletes, and older adults. He has made over one hundred professional presentations, including more than 40 in other countries, and his books have been translated into 10 languages.

Dr. Anthony Bull has two primary research interests that he focuses on at Creighton. With a personal history of morbid obesity in his childhood, Dr. Bull’s interest in battling physical inactivity and obesity is very strong. Collaborating with the College of Nursing at the University of Nebraska Medical Center, Dr. Bull has been examining physical activity in mostly Latino elementary school children. In other projects, Dr. Bull continues his research on the measurement and modeling of high intensity performance, and often collaborates with others in the department using high intensity models to study nutritional supplementation or gastrointestinal physiology. In this period of 2008 and 2009, Dr. Bull co-authored three peer-reviewed manuscripts with colleagues at Creighton and the University of Nebraska-Lincoln. In addition, Dr. Bull worked with others in the department to mentor five undergraduate students who conducted a research project entitled, “The effect of two different creatine formulations on strength and power in resistance trained men.” One of the students later presented the results at the national meeting of the National Strength and Conditioning Association.

Dr. Joan Eckerson’s research interests include examining the validity of different techniques for estimating body composition, including multi-component models, and the effects of dietary supplements on exercise performance, body composition, and muscle fatigue. She strongly believes in collaboration and works closely with her colleagues in Exercise Science, including Geri Moore and Jennifer Yee, as well as faculty in several departments across campus. In addition to publishing two papers in 2008-2009, Dr. Eckerson was also honored as the first woman to receive the William J. Kraemer Outstanding Sport Scientist Award from the National Strength and Conditioning Association in recognition of over 10 years of contributions to the field of applied exercise and sport science.

Dr. G. Patrick Lambert conducts research on gastrointestinal (GI) physiology and body fluid balance as it relates to exercise in humans. Specifically, he studies GI barrier dysfunction, gastric emptying, and intestinal absorption. Dr. Lambert was the principal investigator on a grant received in 2008 totaling $42,938 from the Gatorade Sports Science Institute. In 2008-2009, he also published one research article in the International Journal of Sports Medicine, one review article in the Journal of Animal Science, and one chapter in a book titled Thermoregulation and Human Performance. In addition, he presented research results at the 2008 and 2009 Experimental Biology meetings in San Diego and New Orleans, respectively. Dr. Lambert’s interest in GI physiology has resulted in collaboration with Dr. Stephen Lanspa at the Creighton University School of Medicine.
Department of Philosophy

Members of the Creighton University philosophy faculty are actively engaged in scholarship in many areas of the discipline.

Dr. Jerold J. Abrams works on pragmatism, epistemology, bioethics, and aesthetics. In particular, he focuses on the logic of abduction (guesswork) as foundational for detective analysis, Kant’s theory of the schematism and its relation to pure reason, and the concept of transhumanism in bioethics. He writes annually for the academic series on the philosophy of film put out by Blackwell Publishing and the University Press of Kentucky.

Dr. John W. Carlson’s current research focuses on what has been called the “perennial tradition” of philosophy, with a special focus on the school of St. Thomas Aquinas (1225-1274). His contributions lie primarily in the articulation of this tradition for contemporary students of philosophy. Dr. Carlson's first textbook, Understanding Our Being (Catholic University of America Press, 2008), focuses on topics in speculative philosophy (philosophy of natural being, metaphysics, philosophy of the human person, and philosophy of God); in preparation is a companion textbook, Achieving the Good, which focuses on topics in ethics, both theoretical and practical. Additionally, he has prepared a philosophical dictionary, which gives accounts of some 1,150 distinct terms and which is under contract with University of Notre Dame Press. Finally, Dr. Carlson has been working for nearly a decade with Anthony O. Simon, son of Thomist philosopher Yves R. Simon (1903-1961), on an anthology of the latter’s writings tentatively titled, The Philosopher’s Calling: An Yves R. Simon Reader.

Dr. Elizabeth Cooke writes on the pragmatist philosophy of Charles S. Peirce (1839-1914) and current debates in neopragmatist philosophy. Her work focuses on the logical and affective dimensions of scientific inquiry, especially fallibilism, hope, and the logic of discovery, as well as the logical conditions and phenomenology of surprise and error recognition. Dr. Cooke also writes on the philosophy of mathematics and has two articles and a book chapter forthcoming in this area.

Dr. Randolph Feezell currently works primarily in the fields of ethics, philosophy of religion, and philosophy of sport. He is completing a book project entitled Sport and Big Questions: Meaning, Good Lives, and Ethical Guidance. He has also made substantial progress on a book in philosophy of religion that investigates how and whether the existence of the theistic God and belief in such a God matters for persons. Dr. Feezell also plans to expand and prepare for publication a dialogical introduction to philosophy of sport that he has written.

Dr. Kevin Graham’s scholarship lies within the fields of philosophy of race and social and political philosophy. His recent work in social and political philosophy examines the limitations of philosophical theories of social justice that understand social justice purely as a matter of fairly distributing social resources. This work culminates in a book entitled Beyond Redistribution: White Supremacy and Racial Justice, which will be published by Lexington Books in 2010. Dr. Graham’s next research project in the philosophy of race examines the concept of race in light of how American understandings of race and racial identity have shifted from 1600 to the present day.

Dr. Patrick Murray is working to complete two books and plans to return soon to working on a third book project. Dr. Murray and philosophy colleague Dr. Jeanne Schuler are finishing a book manuscript entitled False Moves: Basic Problems with Philosophy, a collection of essays on diverse topics modeled on Thomas Nagel’s book Mortal Questions (1979), but drawing its philosophical inspiration from G. W. F. Hegel (1770-1831), Karl Marx (1818-1883), Martin Heidegger (1889-1976), and Donald Davidson (1917-2003). The second book, The Mismeasure of Wealth: Essays on Marx and Social Form, is a collection of essays on Marx that Dr. Murray has written over the twenty years of his participation in the research group, the International Symposium on Marxian Theory. The third book, The Commercial Imagination of the British Empiricists: Philosophy and Political Economy in Locke, Berkeley, and Hume, is a research project into the conjunctures of modern philosophy and political economy.
Dr. Anne Ozar’s research interests are in the areas of moral psychology, metaethics, phenomenology, and applied ethics, with a particular interest in issues of intersubjective communication. Dr. Ozar is currently working on a book project entitled *The Moral Significance of Sincerity in Everyday Life*. The aim of the book is threefold: (1) to clarify the unique character of our everyday experience of what it is to act sincerely (both as agent and patient of such actions); (2) to identify the particular ways in which these experiences are informed by our shared cultural awareness of sincerity’s status as a moral concept; and (3) to articulate the distinct kinds of trust for which sincerity is a basis. Most recently, Dr. Ozar’s interests have been directed toward the experience of moral development. She is working to explain the various ways first-person experience of the emotions contributes to the development of moral character.

Dr. Jeanne Schuler is working with philosophy colleague Dr. Patrick Murray to complete a manuscript entitled *False Moves: Basic Problems with Philosophy*, a collection of a dozen or so essays on diverse topics modeled on Thomas Nagel’s book *Mortal Questions* (1979), but drawing its philosophical inspiration from G. W. F. Hegel (1770-1831), Karl Marx (1818-1883), Martin Heidegger (1889-1976), and Donald Davidson (1917-2003). The project got underway over twenty years ago with a review essay that Dr. Schuler wrote on Nagel’s book *The View from Nowhere* (1986). Dr. Schuler’s essay on Hegel’s critique of pure immediacy, recently published in the *History of Philosophy Quarterly*, is the first installment in a series of a half dozen or so essays intended to make Hegel’s most original and fundamental contributions to philosophy more widely accessible to Anglo-American philosophers. Once this series is completed, Dr. Schuler hopes to collect the essays in a book.

Dr. Amy E. Wendling will lecture on the main program of the 2009 Eastern Division Meeting of the American Philosophical Association on the topic “Labor is Said in Many Ways.” At the same meeting, there will also be an author-meets-readers session on her recent book, *Karl Marx on Technology and Alienation* (Palgrave Macmillan, 2009), under the auspices of the Society for the Philosophical Study of Marxism. Dr. Wendling is also in the process of writing two invited essays. The first, entitled “Second nature: Gender in Marx’s Grundrisse,” will appear as a chapter in a book coming out of London in 2010. The second, entitled “The paradox of value,” is about the history of the concept of value in Adam Smith (1723-1790), a foundational figure in the discipline of political economy. The essay will appear as a chapter in a book coming out as the work of the interdisciplinary caQtus collaborative, which includes scholars from diverse fields in business and the humanities.

Dr. Richard White is currently working on the philosophy of spiritual life. His current book project, *The Heart of Wisdom: Philosophy and the Spiritual Life*, is a philosophical exploration of spirituality. It uses traditional religious works, contemporary classics of inner discovery, and texts from different world philosophical traditions to examine the essential aspects of spirituality from a philosophical point of view. Guiding questions include the meaning of spirituality, the relationship between spirituality and religion, and the nature of the spiritual life. Dr. White focuses on spiritual themes, including suffering and compassion, generosity, forgiveness, and gratitude.

Dr. Jinmei Yuan’s current research focuses on comparative logic, Chinese philosophy, and philosophy of Asian literature. Two book projects are ongoing. One is *Transcendence in Chinese Philosophy*, co-edited with Andrew Colvin, which collects many papers discussing the lack of transcendence in Chinese philosophy from different perspectives. The other is *Alternative Logics, Alternative Ethics: Thinking Through the Chinese Vision of a Moral Life*, which is the culmination of Dr. Yuan’s long-time research in the field of comparative logic. Besides these books, Dr. Yuan is writing a novel about conflicts between individuals and the collective culture in China. Dr. Yuan will present the results of her Philosophy for Children (P4C) program in a lecture to the 2010 Central Division Meeting of the American Philosophical Association entitled “The role of wonder in seeking for certainty through uncertainty in Dewey’s experiential education.” P4C is a program led by Dr. Yuan that involves Creighton University philosophy majors as philosophy teachers in Omaha-area primary and secondary schools.
Research in the Department of Physics covers a wide spectrum from the theoretical discussion of the physical meaning of quantum mechanics to experiments in high energy nuclear physics. The high energy project involves several faculty in collaboration with Brookhaven National Laboratory in New York, Lawrence Berkeley Laboratory in California, and the European Center for Particle Physics Research (CERN) in Switzerland. Analysis efforts focus on the production of particles from intense fields occurring in ultra-peripheral heavy ion interactions at the STAR experiment and the production of electrons in jets of particles originating from heavy quark production in nucleus-nucleus collisions at the ALICE experiment. Specialized support is provided in experiment monitoring and control systems as well as simulations of ultra-peripheral collisions. An outreach program for regional high schools helps coordinate data collection for a large baseline cosmic ray observatory project (CROP).

Faculty: Michael Cherney, Thomas McShane, Janet Seger, and two post-docs.

Another area of research involves the production of discrete characteristic x-rays from atomic inner-shell electron ionization. Two methods are being used in this work to bombard atoms in a sample to produce the inner-shell ionization: high-speed positive ions from a particle accelerator and an x-ray beam from either a radioisotope or an x-ray tube. The excited characteristic x-rays are measured with high-resolution Si(Li) detectors. The purpose of the research is two-fold. One interest is the basic atomic physics of the collision process and the resultant electron transitions in the affected target atom. The other interest is the application of methods towards non-destructive quantitative analysis of materials.

Faculty: Sam Cipolla.

Several topics in the field of astro-particle physics are being investigated. One of the greatest mysteries of our time is dark matter. Evidence shows that the universe is dominated by a form of matter which does not interact electromagnetically and which is not composed of the familiar protons, neutrons, and electrons. Using theoretical models which propose particle physics candidates for the dark matter, detection rates in current and future detectors are calculated through extensive computer simulations. Such calculations can shed light on the distribution of dark matter and rule out classes of theories which are not yet testable directly at accelerators. In addition to research on dark matter, the composition of extremely energetic cosmic rays is also being studied to determine realistic backgrounds at neutrino telescopes which are opening new windows on the universe. In particular, the energy and angular dependence of prompt muons, those created in the decay of charmed particles, is being simulated numerically.

Faculty: Gintaras Duda.

An active research program in observational astrophysics is also being carried out in the department. Current investigations explore the fundamental nature of quasars and their effect on their cosmic environments. Quasars are the most energetic continuously emitting objects in the universe, and are powered by matter falling into supermassive black holes that lie in the centers of distant galaxies. Observations show that some quasars are driving high velocity winds from their central regions. Detailed analyses of high-resolution ultraviolet and optical spectra from the Hubble Space Telescope are used to determine the driving mechanism and source of these outflows, and assess their contribution to the overall energetics of quasars. In addition, near – mid infrared spectra from NASA’s Spitzer Space Telescope are being used to determine if quasars that exhibit these high energy outflows are fundamentally different from normal quasars and to understand the evolutionary sequence of quasars. Also, spectra from a sample of distant, very luminous quasars observed with the Sloan Digital Sky Survey are being studied. These targets contain the best diagnostics for determining the energy in quasar outflows. These studies have implications for understanding the mechanisms underlying quasar evolution and the growth of black holes, the potential impact that quasars have on galaxy formation, and the role they play in the cosmic distribution of chemically processed matter.

Faculty: Jack Gabel.

Research in the field of biophysics is currently focused on the development and application of innovative optical techniques to study cellular and tissue environments. So far, the department has developed a fully configurable three-channel laser-scanning confocal microscope that works in both reflectance and
fluorescence modes. In addition, there is an all-solid-state Titanium-Sapphire laser that produces 1 W tunable output in the infrared from 730-900 nm. These two instruments are currently being used together to study the wavelength dependence of cellular response to intense (currently up to $10^{11}$ W/cm$^2$, CW) near-infrared radiation, and it is anticipated that it will be possible to conduct multiphoton microscopy in the near future. Finally, in collaboration with the Department of Biomedical Sciences, an optical stretcher facility has been recently built for biomechanical studies of outer hair cells, osteocytes, and cancer cells.

**Faculty:** Michael Nichols.

Research in computational molecular biophysics aims at understanding the principles that underlie protein self-organization in the living cell by using biomolecular modeling techniques. Specifically, faculty study the folding and aggregation mechanisms of small peptides of biomedical interest. They also study the dynamics of ordered aggregates (protofilaments and fibers). These suprastructures are the end product in the aggregation chain but the role they play in relation to the associated disease is still under debate. Examining the structural features and mechanical properties of these peptide based protofilaments through computational modeling provides insight into the biological function they play and will place conceptual basis to be further exploited in the design of peptide based nanomaterials.

**Faculty:** Patricia Soto.

Research is currently active in the area of liquid-to-glass and liquid-to-gel transitions, one of the major unresolved problems in condensed matter physics. In the research, dynamic light scattering is used to measure structural relaxation of liquids, gels, and epoxies on approach to the transition point. Another area of research is the rapidly growing field of “solid-state ionics.” It involves experimental and theoretical components aimed at tracing elementary steps of ion motion and understanding how the structural environment affects the dynamics of the mobile ions. The chief experimental technique is dielectric (or conductivity) spectroscopy which measures the dielectric response of mobile ions to an applied electric field.

**Faculty:** David Sidebottom.

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**College of Business**

The University’s Strategic Plan calls for, “…scholarly investigation of such a scope and character as to inform our teaching and address problems of our community and the larger society” (Strategic Planning Retreat of 1/12/10).

Collectively, does the body of research published by College of Business faculty during the 2008-2009 year accomplish this? I think so. Publications related to social responsibility, ethical business practices, and ethical human behavior are most heavily represented in the College’s research repertoire. These all can be said to address “problems of our community and larger society.” These publications included the work of Beverly Kracher, who continued her research stream in the arena of online business conduct. A topic of research for both Nalini Govindarajulu and Matt Seevers was organizational citizenship, although each looked at a different dimension. Ronald Flinn examined the lessons still to be gleaned from the Enron collapse and wrote about accounting and reporting issues in corporate governance. Vasant Raval’s work involved security issues in accounting IT systems. Lee Dunham’s research in the area of socially responsible investment was summarized in *CFA Digest*. The focus of John Deskins’ research stream, almost in its entirety, is the design of better public policy in the areas of expenditure and taxation. His research on small business activity and state growth was designed to help answer the question of how much small business matters to a state and whether or not, then, policy (and financial support) should encourage small business development.

Does the work published by College of Business faculty inform their teaching? Without a doubt. In addition to Dunham’s work on socially responsible investing, his research on price trends and another on hedge funds added to the store of insights he is able to share with undergraduate finance students as well as graduate students in the Master of Security Analysis and Portfolio Management program. Kenneth Washer, also in finance, published pieces on regional banks’ repurchasing behavior and on
Chinese stock exchanges. Globalization, in particular, must be addressed by every business discipline. Washer’s research undoubtedly contributes to the authority with which he can address international practices in the world’s stock markets.

The finance faculty is not alone in conducting research that has direct classroom relevance. Again, in economics, John Deskins uses data sets from his own research and results of analyses conducted for published papers in the teaching of econometrics to students. Employing modern econometric models in his own research assures that he can effectively present these complex models to students in a way that is both clear and relevant.

Last year I wrote, “Faculty in the College of Business displayed great versatility in their research endeavors.” And this year it is again true. The venues in which their work appeared ranged from practitioner-oriented monthly columns to excellent academic journals and from a middle school reading book (an age appropriate piece on the importance of saving money) to electronic journals and monographs. Faculty members in the College of Business conducted research and wrote with former graduate students and published extensively with colleagues across the country in producing multiple-authored publications.

In summary, faculty from every discipline represented among the College’s four departments had publications appear in print in 2008-2009. The research of faculty members at every level of experience, from assistant professor to full professor, was published in a wide range of journals and other venues. Many more faculty presented papers at conferences that subsequently appeared in refereed proceedings. There are also many forthcoming works in various stages of completion, as well as finished projects that have been accepted for publication that will appear next year during 2009-2010.

School of Dentistry

Research in the School of Dentistry has enjoyed significant expansion over the last decade with growing extra-mural funding support from the National Institutes of Health (NIH), the Agency for Health Care Research and Quality (AHRQ) and numerous foundations and multinational corporations. The School has active programs in basic biological and material science, health services research and in translational and clinical trials. The general focus of research includes:

- Basic molecular studies evaluating the role of small ribonucleic acid (miRNA) and cell cycle control molecules in cell differentiation, proliferation and function. These investigations are targeted primarily at systems in the cranio-facial complex.

- Studies evaluating lysophosphatidic acid (LPA) and cytokine regulation of G proteins especially in wound healing. These investigations are learning about these processes and their relationship to periodontal disease and diabetes.

- Basic research into self-healing dental materials using microencapsulation to provide the materials with a controlled release of bioavailable remineralizing agents. These investigations could lead to dental restorative materials of greater longevity and with caries prevention properties.

- Translational and clinical research of new dental materials including investigations in dental adhesives and composite resins, dental cements, fatigue life of new materials and the clinical effectiveness of new dental therapies and devices.

- Health services research evaluating certain clinical indices as prognostic indicators for the new therapies and clinical approaches to periodontal disease.
The diversity of faculty research interests and scholarly pursuits, including a listing of publications and other endeavors, is summarized in the individual faculty research bibliographies that appear below. References are made to their most recent publishing ventures. For historical bibliographies and citation to prior works, please visit the faculty page on the Law School’s website.

Terry Anderson is the co-author, with T.J. Gardner, of two widely adopted texts on criminal law and criminal evidence, which are in their 10th and 7th editions, respectively. In 2010, he will address a conference of over 500 criminal justice faculty and staff as an expert in these areas of law.

Kay Andrus, director of the Law School’s Klutznick Law Library, is an expert in legal research and a recognized authority on Nebraska legal research. He recently collaborated with the other research librarians (George Butterfield, Troy Johnson, and Anne Kitchel) in the publication of Research Guide to Nebraska Law (LexisNexis, Newark, NJ 2008).

Bruce Aronson continues to work in the areas of comparative corporate governance and the legal profession. His current work is a case study of what is arguably the only activist institutional investor in Asia—Japan’s Pension Fund Association—in order to find clues as to how and in what form shareholder activism may emerge in different operating environments. His essay, Changes in the role of lawyers and corporate governance in Japan—How do we measure whether legal reform leads to real change?, was published in a symposium issue of the Washington University Global Studies Law Review, vol. 8, pp. 223-240 (2009).

Patrick Borchers is an internationally recognized expert in the area of conflicts of law. The current focus of his research is in the area of private international law. In 2008, he published The coming collision: Romer and the state defense of Marriage Acts in the Brigham Young University Law Review, pp. 1635-1649, and The conflict of laws and Boumediene v. Bush in the Creighton Law Review, pp. 1-27. A new edition of his co-authored casebook on the conflict of laws was published in the summer of 2009 and a revision of his co-authored treatise on the same topic is expected in the summer of 2010.

Eric Chiappinelli is author of a casebook entitled Cases and Materials on Business Entities (Aspen 2006) and accompanying supplements. He is an authority on the law of corporations and focuses his research primarily in this area— including reviews of current cases and regular contributions to web blogs on related topics.

Marianne Culhane focuses primarily on empirical research in consumer bankruptcy law. With Michaela White, she served as a consultant to the Rand Corporation on two empirical studies of the 2005 amendments to the Bankruptcy Code. Culhane and White were co-authors, along with several Rand employees, of The effects of using IRS expense standards in calculating a debtor’s disposable income (2007). Culhane and White constructed a database on which two Rand studies were based. Professor Culhane is currently working on an empirical study of retention of homes and cars in consumer bankruptcy cases in view of the 2005 revisions of the Bankruptcy Code’s collateral retention rules. She recently published Chapter 13 Projected disposable income for above-median debtors: Formula or forward looking? And for how long? in vol. 3, 17th Annual NACBA Convention Proceedings, pp. 165-171 (National Association of Consumer Bankruptcy Attorneys, Washington, DC, 2009).

Craig Dallon conducts research in the areas of copyright and trademark law. He is working on an article discussing the constitutionality of the “Anti-bootlegging provisions” of the Copyright Act. These provisions deal with unauthorized recordings of live musical performances. The article addresses the international obligations of the United States under the Uruguay Round Agreements and limitations on the power of Congress imposed by the Copyright Clause of the Constitution.

Michael Fenner’s primary research interests are evidence law, Nebraska civil trial law (particularly Nebraska pattern jury instructions for use in civil cases), and American constitutional law. He is the author of a treatise on evidence law with respect to the hearsay rule, and he recently published the second
Michael J. Kelly researches in the area of international law with a specific focus on international criminal law and use of force theory. In 2008 he completed his book on Saddam Hussein and the genocide of the Iraqi Kurds entitled *Ghosts of Halabja: Saddam Hussein and the Kurdish Genocide*. He continues his research into the Kurdish situation, having traveled to Kurdistan in 2009 to interview genocide survivors and consult with the Kurdish parliament on the final status of their draft constitution. His most recent article in the peer-reviewed Journal of National Security Law & Policy outlines a strategy for the Obama Administration to re-engage public international law, and his forthcoming articles concern the development of the Kurdish constitution and a co-authored study with Sean Watts assessing the architecture of collective security in North East Asia. Professor Kelly also serves as contributing editor to the online legal newspaper, JURIST.

Raneta Mack is the author of a new casebook, *Comparative Criminal Procedure: History, Processes and Case Studies*. As an expert in this growing field of study, she will attend an international conference on comparative criminal procedure in Parma, Italy in the summer of 2010. She is also doing research that will identify restrictions on employment of ex-offenders in Nebraska, analyze the practical implications of such policies, and make recommendations to the legislature for changes.

Collin Mangrum continues his annual updates of evidence treatises for Nebraska and Utah, and will collaborate with Ralph Whitten on issues of federalism and evidence in diversity cases. Professor Mangrum contributed a chapter entitled “Religion, the Family and the Public School during Non-School Hours: Good News v. Milford” in *Religion and the family* (Creighton University Press, 2008). He is also researching the Erie Doctrine and evidentiary issues in diversity cases; a jurisprudential article on the role of religion in Israeli legal argumentation; accounting standards and issues of work product and privilege; a legal/historical research concerning Mormon land issues in Winter Quarters; and Council Bluffs during the years 1846-52.

Ken Melilli’s research focuses on evidence law and trial practice. His recent publications include *What nearly a quarter century of experience has taught us about Leon and “Good Faith,”* in the Utah Law Review and *Controlling the non-responsive witness on cross-examination* in the American Journal of Trial Advocacy.

Edward Morse focuses his research on taxation, economic development, and law and technology. He presented to the ABA Section of Business Law meeting in Vancouver, BC, on barriers to financing internet gambling under the Unlawful Internet Gambling Enforcement Act (UIGEA). He also continues research with Dr. Vasant Raval in the Creighton University College of Business regarding the relationship of data security standards and fiduciary obligations of corporate officers and directors. His recent article on *Whistleblowers and tax enforcement: Using inside information to close the “Tax Gap”* appeared in vol. 24 of the Akron Tax Journal, pp. 1-36 (2009).

Arthur Pearlstein, as director of the Law School’s Werner Institute for Negotiation and Dispute Resolution, is an internationally recognized expert in the field of mediation. He makes numerous presentations throughout the year to a diverse array of audiences. His most recent article, *ADRx for the healthcare consumer: Learning from painful personal experience*, appears in vol. 8 of ACResolution, pp. 4-7 (2008).

Eric Pearson published the 3rd edition of casebook with LexisNexis, *Environmental and Natural Resources Law*, in 2008. He continues to focus his research on the relationship of the constitutional law of takings to substantive due process; and the National Environmental Policy Act. He also researches the public trust doctrine and other subjects related to environmental protection, natural resource use and conservation.
Stephen C. Sieberson recently published a book on the constitutional development of the European Union, entitled *Dividing Lines between the European Union and Its Member States -- Will They Hold under the Lisbon Treaty?* He continues his research on the European Union's "democratic deficit," with the intention of comparing EU issues with their counterpart circumstances in the United States. He also is researching the topic of use of majority voting, as opposed to unanimous decision-making, in the European Union.

Palma Strand conducts research on the interdisciplinary theory of the kind of civic relationships and networks that underlie and support a civic concept of law and that are consistent with voice and resonance. She also researches substantive and structural issues related to democracy and the ways in which current jurisprudence fails to adequately account for them. Among these are the lack of a fundamental right to vote, faction-related issues with initiatives and referenda, the difficulty of analyzing political gerrymandering under Equal Protection criteria, and the need for a new way to address actions to promote racial and other types of diversity. Her recent article *Law as story: A civic concept of law (With constitutional illustrations)* appeared in vol. 18 of the Southern California Interdisciplinary Law Journal, pp. 603-650 (2009).

Larry Teply is coauthor with Ralph Whitten of both a casebook and treatise on civil procedure which are in their 4th and 2nd editions, respectively. He also is the author of numerous widely-adopted books on legal writing citation, legal negotiations, and law school competitions. As such, Professor Teply is regarded as an authority on legal education and learning models, and often contributes to panels at conferences on these topics.

Ronald R. Volkmer continues his research in the fields of estate planning and real property law. He contributes a bi-monthly column for *Estate Planning* magazine. His current research projects include study of the Uniform Durable Power of Attorney Act; compiling supplement for two chapters of a treatise on real property law; and a paper for a Jesuit Justice project. He contributed chapter 82 “2008 Cumulative Supplement to Transfers by Deed” and chapter 83 “Donative Transfers” to vol. 9 *Thompson on Real Property* (D.A. Thomas, ed., 2nd ed., LexisNexis, Charlottesville, VA 1999).

Sean Watts’ primary research interests focus on the regulation of armed conflict. His recent publication, *Reciprocity and the law of war*, vol. 50 Harvard International Law Journal, pp. 365-434 (2009), examines the role of reciprocity in the law of war as codified in the Geneva Conventions. His newest article, forthcoming in 2010 in the Virginia Journal of International Law, examines how the existing law of war operates in emerging and dynamic forms of warfare such as count-insurgency operations and computer network operations.

David Weber’s research interests are in the areas of commercial law and immigration law. He is currently researching hidden perfected priority interests and their effect on the secured transaction marketplace. He also is researching the private deportation by U.S. hospitals of undocumented individuals who have been hospitalized but who have no health insurance or other way to pay hospital bills through private medevac operations without the involvement of the Department of Homeland Security. His most recent article, *Halting the deportation of business: A pragmatic paradigm for dealing with success*, appears in vol. 29, Georgetown Immigration Law Journal (2009).

Ralph Whitten is an authority on the conflicts of law, federal courts, and civil procedure. He is coauthor, with Larry Teply, of both a casebook and treatise on civil procedure. He is also the author of a separate casebook on conflicts of law. He is currently working with Collin Mangrum on the Erie Doctrine and the Federal Rules of Evidence.
School of Medicine

Department of Biomedical Sciences

Research Overview

Some examples of the wide variety of research specialties of the faculty are: design and chemical synthesis of analogs of regulatory peptides; the role of peptides in the regulation of gastrointestinal and cardiovascular functions and of bone growth and development; the molecular evolution of peptide hormones; the role of proteolytic enzymes in the biosynthesis of peptide hormones; nucleic acid catalysis and molecular engineering; the molecular biology of collagen synthesis; the regulation of gene expression and molecular diagnostics; the cellular and genetic basis for differentiation of the brain, inner ear, and cardiovascular system; comparative neuroanatomy; cellular mechanics; intracellular electrophysiology; and respiratory mechanics and control. The research is supported by facilities, including cores for bioimaging, structural bioinformatics, proteomics, genomics, and molecular diagnostics. The department encourages collaborative research interaction with faculty in the Departments of Pharmacology, Medical Microbiology and Immunology, Medicine, and Surgery; the Osteoporosis Research Center; the Boys Town National Research Hospital; the University of Nebraska Medical Center; and the Veterans Administration Hospital.

Immunobiology of Allergy and Asthma

This research is focused on the pathophysiology of allergic asthma and the use of various immunomodulators in the prevention and reversal of airway hyperresponsiveness and allergic airway inflammation. Experiments are conducted in human blood cells from normal volunteers and patients with allergic rhinitis and bronchial asthma and in mouse and guinea pig models of allergic asthma sensitized and challenged with ovalbumin, house dust mite and cockroach antigens. The role of subtypes of lung dendritic cells and T-regulatory cells is investigated in the immune response versus tolerance to allergen. This research is supported by grants from the National Institutes of Health and the State of Nebraska-Nebraska Cancer and Smoking-related Diseases Program.

Faculty: Devendra K. Agrawal, PhD

Immunobiology of Occlusive Vascular Diseases

This research is focused to determine cellular and molecular mechanisms underlying plaque instability in human carotid stenosis, in-stent restenosis, and vein-graft disease. Human tissues and blood cells and swine model of atherosclerosis and in-stent restenosis are used to answer specific questions. Gene therapy approach to treat occlusive vascular diseases in the swine model is being pursued in collaboration with an interventional cardiologist, vascular pathologist, and cardio-thoracic and vascular surgeon. This research is supported by grants from the National Institutes of Health, State of Nebraska-Tobacco Settlement Funds to Creighton University.

Faculty: Devendra K. Agrawal, PhD

Pokemon Gene in Breast and Prostate Cancer

The POK family of proteins plays an important role, not only in embryonic development, but also in oncogenesis. Leukemia/lymphoma-related factor (LRF), a member of the POK family, has a vital function in cellular transformation. LRF is also termed POK erythroid myeloid ontogenic factor (POKEMON). Apart from its role in lymphomas, very little is known about its expression in most common solid tumors. We are investigating the pathophysiological role of Pokemon and the underlying cellular and molecular mechanisms in the malignancy and proliferation of breast and prostate cancers.

Faculty: Devendra K. Agrawal, PhD, Richard F. Murphy, PhD, and William J. Hunter III, MD
**Skin Cancer**

The largest organ in the body, the skin, functions as a major sensory organ and protects the body from exogenous insults. This research is examining the role of a family of receptor tyrosine kinases in the skin during development and in skin carcinogenesis in response to solar radiation. Members of this receptor tyrosine kinase family include the epidermal growth factor receptor and erbB2/neu, which regulate cell survival, migration, and proliferation. Researchers are investigating the mechanisms of non-melanoma skin cancer development by focusing on the role of erbB2 and the epidermal growth factor receptor in this process. Since non-melanoma skin cancer is the most common form of cancer in the United States, with more than one million new cases diagnosed per year nationwide, this research may have important implications for human health.

*Faculty: Laura Hansen, PhD.*

**Comparative Ion Transport**

Research on the ion transport mechanisms that underlie the adaptation of organisms to their environment focuses on the role and regulation of the sodium/hydrogen exchange proteins in yellow fever mosquitoes and the sodium/potassium ATPase in Antarctic fish. Both projects are aimed at identifying the mechanisms of ion transport responsible for the adaptation, including physiological, biochemical, and anatomical measurements; regulation of the ion transport mechanisms by primary and secondary messengers, including analysis of intracellular cAMP, calcium, and pH; and molecular basis for the regulation of the ion transporter of interest, including cloning and sequencing of cDNA, mRNA, and protein expression studies.

*Faculty: David Petzel, PhD.*

**Airway Hyperresponsiveness**

Research on mechanisms of airway hyperirritability is focused on whether C-fiber endings in reactive airways become hyperirritable, using single nerve fiber monitoring of sensory receptors in airway and parenchyma of small animals. The involvement of neuropeptides in the response of the hyperirritable airway is examined using whole animal nerve recording *in vivo* and tracheal smooth muscle strips. The pulmonary research also includes pharmacological evaluation of possible therapeutic agents for asthma using whole-body plethysmograph, isolated airway smooth muscle preparations to measure the protection and reversal of airway mediator induced contraction. Changes in reflex control of ventilation and pulmonary sensory receptors of the airway and lung parenchyma during the progression of disease of the lung are also studied.

*Faculty: Dale Bergren, PhD.*

**Cardiac Development**

Congenital heart defects are the most common life-threatening birth defect, and are many times accompanied by craniofacial anomalies. Investigators are studying the role of cell-cell and cell-extracellular matrix interactions during normal craniofacial and cardiac development, particularly with regard to neural crest morphogenesis and migration (cells pivotal in the development of both the face and heart). Studies using *in situ* hybridization, immunocytochemistry, gene misexpression, tissue culture, enzyme assays, and time-lapse imaging show growth factors, proteases, and protease inhibitors are important overseers of neural crest cell formation and migration. Investigation into the effects of elevated homocysteine on neural crest morphogenesis and mechanisms responsible for folic acid's protective effect during cardiovascular and craniofacial development is also ongoing. In order to develop preventative strategies for congenital defects, researchers must understand the mechanisms driving neural crest and cardiac morphogenesis and how nutritional elements may be involved. These studies also enhance understanding of adult diseases because many diseases may have embryological origins.

*Faculty: Philip Brauer, PhD.*
Developmental Neuroscience: Ontogeny and Phylogeny

Molecular cues control the proliferation, migration, and specification of neuronal groups. To understand the dynamics that control the development of the brain, researchers are examining the interactions of a variety of early-onset genes in the formation of the rhombic lip and pallium of normal and mutant mice. The evolution of these brain domains forms a second focus of our research. Comparative studies of gene and peptide expression patterns in developing chicken and mice provide another perspective of the genetic controls of neural domains.

Faculty: Laura L. Bruce, PhD; David H. Nichols, PhD.

Ear Development

The inner ear contains two important sensory systems: the vestibular system for orientation in space, and the auditory system for hearing. Progress in recent years has been dramatic regarding the molecular governance of ear development, in particular of the pathways of innervation in this organ, and the genetics of hearing-related disorders. Research focuses on mouse mutations that cause developmental ear defects and those that affect either the formation or the maintenance of sensory neurons in the hearing or vestibular systems. This research will lead to understanding the molecular machinery that makes and breaks ear formation, especially the innervation. In a parallel avenue, the faculty is investigating the activity-dependent connectional dynamics. For this study, they make use of micro- and hypergravity exposure as well as several neurotrophin mutant mice with altered connections. This research is conducted in collaboration with Boys Town National Research Hospital, Millennium, Regeneron, and various universities. It is funded by the National Aeronautical and Space Administration and the National Institute on Deafness and Other Communication Disorders.

One of the central questions in developmental neurobiology of the sensory systems is how the receptor cells develop and whether their development is regulated by innervation. Research in the laboratory focuses on the development of cochlear hair cells. Specifically, the researchers want to determine when somatic motility, membrane conductances, and ACh receptor of outer hair cells develop. Recordings are made from solitary hair cells isolated from developing animals. Tissue culture technique has also been used to address the question of whether the maturation of hair cells is regulated by innervation. The research is funded by the National Institute on Deafness and Other Communication Disorders. Faculty: Kirk Beisel, PhD; Laura Bruce, PhD; M.-D. Crapon de Caprona, PhD; Bernd Fritzsch, PhD; David He, PhD; and David Nichols, PhD.

Molecular Biology of the Inner Ear and Hereditary Deafness

The mouse inner ear offers an excellent paradigm to characterize and analyze the functional genomics of unique and rare cell types in the inner ear. These include inner hairs cells, outer hair cells, inner phalangeal, border cells of the inner sulcus, pillar, Deiters’, Hensen’s and Claudius’ cells. Gene discovery and differential expression will focus on global expression analysis using microarray analyses in combination with null and spontaneous mutant mice. Quality assessment of these cDNAs will be accomplished by using in silico microarray analyses to detect expression of ion channel genes, rare to common housekeeping genes, developmentally expressed genes, cell-specific genes of the OC, and genes expressed in only non-sensory/non-neuronal cells. Using bioinformatics approaches candidate genes for hereditary deafness will also be identified. One component of the research program will also focus on the development and testing of genetically engineered mouse mutant lines to determine and molecularly dissect the structure functional relationship of the altered genes in normal and dysfunctional auditory responses. This research is conducted in collaboration with Boys Town National Research Hospital, RIKEN, the National Institutes of Health, the University of Iowa, and various other universities. It is funded by the National Institute on Deafness and Other Communication Disorders. 

Faculty: Kirk Beisel, PhD.
**Hearing Loss**

Hair cells are the essential first step in hearing, and damage to hair cells is the cause of age-related and traumatic hearing loss. In work funded by the National Institutes of Health and the Richard J. Bellucci, MD, Medical Research Fund, the basic science of hair cells and the mechanisms underlying their loss are being studied, with a view to finding rescue and repair methods. This work is being pursued in collaboration with investigators at Boys Town National Research Hospital, Harvard University, Baylor College of Medicine, St. Jude's Hospital in Memphis, University of Colorado at Boulder, University of Texas at Austin, University of Texas Health Science Center at San Antonio, University of Maryland, Oregon Health Sciences University, Case Western Reserve University, and Northwestern University. **Faculty:** Kirk Beisel, PhD; Bernd Fritzsch, PhD; Richard Hallworth, PhD; David He, PhD; and David Nichols, PhD.

**Biophysics of Cochlear Hair Cells**

The outer hair cell (OHC) is one of two kinds of receptor cells in the inner ear, and plays a critical role in mammalian hearing. OHCs enhance basilar membrane motion through a local mechanical feedback process within the cochlea, termed the “cochlear amplifier.” It is generally believed that the basis of cochlear amplification is a voltage-dependent somatic length change of OHCs. In this scheme, receptor potentials produced by transducer current in response to acoustic stimulation provide the input to the cell’s motor activity. Consequently, the OHC is thought to perform two transducer functions, a conventional mechanoelectrical or forward transduction in the stereocilia and a specialized electromechanical or reverse transduction in the basolateral membrane. Funded by the National Institute on Deafness and Other Communication Disorders, research in the laboratory focuses on the two transduction processes in OHCs. Recordings are made from isolated hair cells, cultured hair cell preparations, and hemicochlea, in conjunction with molecular, morphological, and other novel techniques to investigate properties of these cells and their roles in cochlear function in mammals. The research is conducted in collaboration with Northwestern University, Harvard University, the National Institute on Deafness and Other Communication Disorders, and St. Jude Children’s Research Hospital. **Faculty:** Richard Hallworth, PhD; and David He, PhD.

**Control of Gene Expression**

This research is centered on the developmental regulation of hemoglobin gene expressions with correlative gene therapy approaches. The mechanism by which transcriptional regulatory proteins are involved in switching the various hemoglobin genes on and off at different stages of development is being studied. The results from these investigations will contribute to knowledge of red cell maturation and disease states which result from gene defects. New gene therapy vectors which are erythrocyte specific and use endogenous retrotransposons, which are expressed in red blood cells, are being developed. This is a novel gene therapy approach to genes in target cells, which have long-term expression capabilities as well as tissue specificity. **Faculty:** Joseph Knezetic, PhD.

**Molecular Genetics of Hereditary Cancers**

This research is focused on finding mutations at the DNA sequencing level for various hereditary cancer patients’ families. Studies so far have shown that each family has unique mutations causing the cancers. The laboratory facilities used for the work have been developed into a Molecular Diagnostic Laboratory which is fully accredited by the Clinical Laboratory Improvement Amendments (CLIA) and certified by the College of American Pathologists (CAP). This laboratory examines patient DNA samples for known mutations in each family and provides reports for subsequent genetic counseling. WAVE-DHPLC technology and CHIP instrumentation are being used to assay for new mutations in families where the original causative mutation has yet to be determined. **Faculty:** Joseph Knezetic, PhD.
**Engineering RNA Catalysts**

This research is focused on development of controllable RNA catalysts as genetic regulatory switches and cellular biosensors. These catalysts, termed allosteric ribozymes, require the binding of specific effector molecules to elicit activity and are generated using rational design and *in vitro* evolution strategies. The ability of allosterically self-cleaving ribozymes and self-splicing introns to regulate gene expression is of particular interest. Toward this goal, model systems for yeast and mammalian cells are presently being developed. Moreover, such catalysts afford a unique opportunity to investigate the structural dynamics of RNA folding and ligand interaction.

*Faculty: Garrett Soukup, PhD.*

**Osteoporosis**

Collaboration between Creighton faculty in the Departments of Biomedical Sciences and Internal Medicine focuses on osteoporosis and the cellular basis of how skeletal mass is achieved and maintained: bone mass changes in response to varying loads—disuse reduced and heavy use increased bone density; how loads placed on the skeleton are detected and converted into biological signals that affect the balance between bone formation and resorption is not understood. Studies currently underway use bromodeoxyuridine to characterize the proliferation and differentiation of osteoprogenitor cells in response to biomechanical loading in adult rats. The role of prostaglandin E (PGE) as a local mediator of load induced bone formation is also being evaluated. Another project is designed to elucidate how smoking tobacco reduces bone mass and increases the risk for osteoporosis. This project combines an assessment of bone structure, strength, and cell function using *in vivo* and *in vitro* models.

*Faculty: John Yee, PhD.*

**Cell Mechanics**

It has long been known, but not widely appreciated, that light exerts force on living tissue. Intense laser light can be harnessed to produce a novel method, called the optical stretcher, for the measurement of the mechanical properties of single cells. In a joint project of the Department of Biomedical Sciences, the Osteoporosis Research Center, and the Creighton University Physics Department, an optical stretcher facility has been constructed in the Department of Biomedical Sciences. Initial studies will address the mechanics of hair cells of the inner ear, the mechanism by which bone density is regulated by osteocytes, and the mechanisms underlying photodynamic therapies. This work is being pursued in collaboration with the University of Texas at Austin and the University of Leipzig, Germany.

*Faculty: Richard Hallworth, PhD.*

**Control of Appetite and Digestion**

Current research focuses on the question: How does the gastrointestinal tract communicate with the brain to control food intake and energy reserves (adiposity; body weight)? Meal initiation is typically preceded by sensations of hunger and followed by sensations of fullness and satiety, which affect the timing of meals and amount of food consumed. Various gastrointestinal hormones and nerves are postulated to play important roles in conveying information to the brain about the quantity and quality of food consumed. Less is known about the brain substrates that receive this information, produce hunger and satiety sensations, and regulate adiposity. Research specifically focuses on the role of various gastrointestinal peptides (cholecystokinin, amylin, peptide YY(3-36), glucagon-like peptide-1, ghrelin) and nerves (vagus) in control of food intake, gastric emptying, and body weight. Most of the studies use the rat as an experimental model. Rats are prepared with chronic indwelling cannulas in specific areas of the gastrointestinal tract, vascular system, and/or brain for computer controlled delivery of test substances and withdrawal of blood. Food intake and meal patterns are determined from continuous computer recordings of changes in food bowl weight. Many of the peptides and peptide antagonists are synthesized either locally in the Veterans Administration Peptide Core Facility or by Dr. Martin Hulce in the Department of Chemistry at Creighton University. This research is supported by the Medical Research
Service of the Department of Veterans Affairs, the National Institutes of Health, and the National Science Foundation.

Faculty: Roger Reidelberger, PhD.

Regulatory Peptides

Structure-activity relationships of selected regulatory peptides are examined using synthetic peptide chemistry, physical, chemical and computerized theoretical analysis of conformation and biological characterization of activity.

- "Studies on the interactions of antimicrobial peptides with the chaperone protein DnAK, using MD simulations, revealed the interaction site on the protein and a possible basis for antimicrobial action and design of new peptide-based antibiotics.  
  Faculty: Sándor Lovas, PhD.

- "Studies of gastrin and gastrin gene-products are focused on their significance in colonic cancer and on a novel receptor for carboxymethyl gastrin which mediates promotion of growth of the cancer cells.  
  Faculty: Sándor Lovas, PhD; and Richard F. Murphy, PhD.

- "Studies of variants and derivatives of gonadotrophin releasing hormone variant, GnRH III, have led to development of a conjugate of the peptide with a synthetic polymer. This suppresses growth of cancers, including breast and colonic, which have receptors for the hormone. The technology is being optimized for therapeutic application.  
  Faculty: Sándor Lovas, PhD; and Richard F. Murphy, PhD.

- "Studies of the vasodilatory neuropeptide, calcitonin gene-related peptide (CGRP), have led to the development of the most potent, peptide-based CGRP antagonists reported to date. These will be useful for determining the physiological role of CGRP and the design of therapeutics for treatment of hypertension and migraine.  
  Faculty: D. David Smith, PhD.

Structural Bioinformatics and Proteomics

Eighteen Alpha cpu-based and 80 Athlon cpu-based clusters are used to study the conformational properties of peptide proteins and the effect of weakly polar interactions on peptide and protein structures by Molecular Dynamics simulations, bioinformatics, and high level quantum chemical calculations.  
Faculty: Sándor Lovas, PhD; and Richard F. Murphy, PhD.

Protein Processing

Communication between cells of the nervous, endocrine and immune systems is frequently conducted through biologically active peptides. Many of these peptides are initially synthesized as larger, inactive propeptides which are subsequently cleaved by extremely specific endoproteases.

The structural basis for this specificity is unknown. Researchers are presently examining the processing of proinsulin and proglucagon by the converting enzymes PC1 and PC2 in an attempt to uncover clues to the specificity of substrate recognition. The ultimate goal of this work is to describe, at the molecular level those interactions for the differential processing of peptide hormones.  
Faculty: Robert Mackin, PhD.

Bioimaging

The Nebraska Center for Cell Biology in the Department of Biomedical Sciences in 2004 obtained a Zeiss multi-photon confocal microscope. Investigators in the department and other departments of the Medical School, the Departments of Physics and Biology, Creighton University, Boys Town National Research
Hospital, the University of Nebraska Medical Center, and outside centers such as the University of South Dakota, St. Jude Children’s Research Hospital (Memphis, TN), and the Virginia Military Institute (Lexington, VA) are using the instrument to extend their knowledge of the inner workings of cells.

Faculty: Bernd Fritzsch, PhD; and Richard Hallworth, PhD.

For more information about the Department of Biomedical Sciences’ current research activities, visit the department’s webpage at: http://biomedsci.creighton.edu

Department of Medical Microbiology and Immunology

The Department of Medical Microbiology and Immunology consists of 12 PhDs and one MD with primary appointments, and eight PhDs, 10 MDs and one PharmD with secondary appointments. The research programs of the department are multi-disciplinary, with expertise in a variety of areas broadly related to medical microbiology and immunology. In addition, collaboration with faculty of other departments within Creighton University School of Medicine, the Veterans Administration Hospital, the University of Nebraska at Lincoln, and the University of Nebraska Medical Center provides an opportunity for innovative research opportunities and supports an integrated graduate program. These collaborative efforts include research in the general areas of antimicrobial agents and chemotherapy, molecular biology, genetics, immunology, microbial toxins, virology, bacterial pathogenesis, diagnostic and clinical microbiology, adult infectious diseases, epidemiology, microbial physiology, and nosocomial infections. The range of research interests extends from clinical trials to test the efficacy of antimicrobial agents to the basic aspects of cellular and subcellular microbiology. The diversity of faculty research interests and scientific pursuits, including a listing of publications and research grants in progress, is summarized in the individual faculty bibliographies.

Cancer Research

The major interest of Dr. Zhao-Yi (Charlie) Wang’s research program is to elucidate the molecular mechanisms underlying breast cancer progression. His current research project is focused on the function and regulation of non-genomic estrogen-signaling in mammary tumorigenesis. In early 2004, his lab identified and cloned a novel membrane based estrogen receptor (ER-36) that functions different from the original ER-66 (ER-66). His recent work has encouraging results that will accelerate the progress of breast cancer research.

Faculty: Zhao-Yi Wang, Ph.D.

Flow Cytometry Core Facility

The Creighton University Flow Cytometry Core Facility is located in and administered by the Department of Medical Microbiology and Immunology. The facility was established in 2001 to serve research investigators of any department at Creighton University and Boys Town National Research Hospital, as well as researchers outside of the Creighton system, such as University of Nebraska Medical Center or Children’s Hospital. Within Creighton University, the facility routinely provides service to investigators in a number of departments, including Medical Microbiology and Immunology, Biomedical Sciences, Allergy and Immunology, Cardiology, and the Cancer Center.

The centerpiece of the facility is a state-of-the-art, 3-laser, 12-parameter, high-speed sorting FACSArray flow cytometer from Becton Dickinson. When installed, this instrument was the first FACSArray in the world to have UV capabilities. This instrument is capable of routinely performing 10-color analysis (plus 2 scatter parameters). The presence of the UV laser allows the instrument to be used with UV compatible dyes for DNA analysis or hematopoietic side population sorting experiments. In addition to its analysis capabilities, the strength of this instrument is its ability to sort to purity any cell populations defined by any combination of its 12 parameters. Up to four populations can be sorted simultaneously. Sort purities of >99.5% are common, even at sort rates of over 30,000 cells/second. Sorted cells can be collected in bulk, or any number of cells can be put directly into microtiter plates (any number of wells), PCR plates, or
directly onto microscope slides or Petri dishes. The instrument also allows the investigator to control the temperature of both the input sample and the sorted cell populations.

In addition to the FACSARia, the facility houses a Becton Dickinson FACSCalibur dual laser, 4-color flow cytometer. This instrument is used for the bulk of the routine cell analysis in the facility. It is equipped with both sorting capabilities and a Multitwell Autosampler. A separate computer workstation is available in the facility for off-line data analysis using any of several advanced data analysis packages.

In addition to the FACSCalibur, the facility houses a Beckman Coulter Z1 particle counter, a Nikon E-400 microscope and an IEC Centra-GP8R refrigerated centrifuge. The cell enrichment capabilities of the facility have also been enhanced through the purchase of two magnetic separation units (a VarioMACS and a QuadroMACS) from Miltenyi Biotec. Using magnetic particle techniques, these units allow the enrichment/purification of specific cell populations for further analysis or culture. All of these additional items are available for use by any investigator.

Faculty: Patrick C. Swanson, PhD; Technical Director: Greg A. Perry, PhD.

Prion Research

Prion diseases are a group of fatal neurodegenerative diseases that affect humans (e.g. Creutzfeldt-Jacob disease) and animals (e.g. chronic wasting disease). Prion diseases have long subclinical incubation periods of months to decades with a short clinical phase that is characterized by the onset of behavioral, cognitive or motor deficits. Deposition of the abnormal isoform of the prion protein, PrPSc is pathognomonic for prion diseases and its deposition in the central nervous system (CNS) results in neuronal loss and onset of clinical symptoms. PrPSc is an amyloid protein that is resistant to proteolytic degradation and is posttranslationally derived from the protease sensitive non-amyloid host encoded prior protein, PrPC. Outside of the CNS, PrPSc deposition occurs in the peripheral nervous system and secondary lymphoreticular system (LRS) tissues such as spleen and lymph nodes. All prion diseases of animals and a majority of prion diseases in humans are due to prion exposure by a peripheral route (e.g. ingestion). Details of the mechanism(s) of prion transport to the CNS are poorly understood. To better define prion transport to the CNS, researchers are investigating three areas of prion pathogenesis. First, they are exploring alternative routes of prion entry into the host in an attempt to better define the possible routes that prions can gain access to the CNS. Second, they are investigating the role of the innate immune system in processing and transport of prions to secondary LRS tissues. Finally, the researchers are interested in factors that influence susceptibility of neurons to prion infection and/or replication. The understanding of routes and mechanisms of prion transport will enhance the future development of therapeutic interventions to prevent prion spread to the CNS.

Faculty: Jason Bartz, PhD, and Anthony Kincaid, PhD.

Immunodeficiency Research

Dr. Michael Belshan’s fundamental research interest is virus-host cell interaction, specifically related to the replication and pathogenesis of the lentivirus subfamily of retroviruses. Members of this subfamily include the human and simian immunodeficiency viruses (HIV and SIV, respectively). The focus of his work is to understand the interaction of viral components and the host cell environment by using a cell biology approach to obtain results that provide insights not only into mechanisms of virus replication and pathogenesis, but also the biology of cellular pathways. All the members of the diverse family of retroviruses have a common genomic structure and life cycle, yet they have evolved to infect a broad range of cell types in diverse species and elicit various pathologies. Dr. Belshan’s current research focuses on characterizing early events in HIV infection. A hallmark and critical feature of the pathology of lentiviruses is the ability to infect non-dividing cells. Productive infection of non-dividing cells by HIV requires active nuclear transport of the viral DNA to and across the host cell nuclear membrane leading to viral dsDNA integration into the host genome. This process is mediated by a large nucleoprotein complex called the viral pre-integration complex (PIC). Researchers are currently investigating the composition, assembly, and transport of both the HIV and SIV PICs. This area remains one of the least defined aspects of HIV replication and thus a novel and exciting area to study. The characterization of the
pathway of PIC transport to the nucleum is a first step in the development of a new class of antiviral therapeutics.

Faculty: Michael Belshan, PhD.

**Multiple Sclerosis Research**

Multiple sclerosis (MS) is the most common demyelinating disease of the central nervous system (CNS) in humans. Patients with MS normally experience a chronic progressive loss of motor and/or sensory functions. The origin of MS is unknown, although some investigators have postulated that an environmental agent (i.e. a virus or bacteria) may trigger the disease. Dr. Kristen Drescher's laboratory utilizes a mouse model of virus-induced demyelination (Theiler's murine encephalomyelitis virus) to study immune factors involved in the development of pathology and clinical disease.

Faculty: Kristen Drescher, PhD.

**Center for Research in Anti-Infectives and Biotechnology (CRAB)**

The Center for Research in Anti-Infectives and Biotechnology (CRAB) is an association of researchers within the Department of Medical Microbiology and Immunology, Creighton University School of Medicine. The research interests of the Center are on many aspects of antimicrobial chemotherapy ranging from drug discovery to studying the molecular mechanisms of antibacterial resistance among bacteria, solving problems of detecting antibacterial resistance in the clinical laboratory, and evaluation of new drugs and novel drug combinations to effectively treat resistant bacteria. For over eleven years, CRAB researchers have been studying the super-bug strains that are resistant to antibiotics. The members of the Center include specialists in clinical microbiology, molecular biology, and pharmacodynamics. In addition to research endeavors, members of CRAB are active in teaching many courses within the Schools of Medicine, Dentistry, and Pharmacy and Health Professions. Courses taught include medical microbiology and immunology, and antimicrobial agents and chemotherapy. The Center associates also teach a summer “minicourse” in antimicrobial agents and chemotherapy to pharmaceutical and industry professionals.

Faculty: Nancy Hanson, PhD, Philip Lister, PhD, and Kenneth Thomson, PhD.

**Molecular Epidemiology of Bacterial Pathogens**

Multiply-drug resistant bacterial pathogens are a problem of emerging world-wide interest. Chief among these is methicillin-resistant *Staphylococcus aureus* (MRSA) which Dr. Richard Goering's laboratory has been studying for over 30 years. This work has been foundational in defining and refining molecular applications for the epidemiological analysis, typing, and characterization of antimicrobial resistance in this organism. This laboratory was the first to champion the use of pulsed field gel electrophoresis (PFGE) as a means of molecularly tracking the spread of clinically important pathogens. This research has resulted in numerous publications outlining and establishing the current internationally accepted guidelines for the interpretation of PFGE strain typing data. Recent research has centered on developing more rapid, sequence-based approaches to the epidemiological analysis of problem pathogens such as *S. aureus*. Dr. Goering is especially interested in sequence-based approaches to the epidemiological analysis of MRSA isolates which appear to be highly clonal and thus indistinguishable from one another despite different geographic origins. He is also interested in the means by which antibiotic resistance genes are maintained and transferred, especially within staphylococcal populations. He is presently working with the U.S. Centers for Disease Control, the Scottish MRSA Reference Laboratory in Glasgow, the Statens Serum Institute in Copenhagen, Denmark, and the National MRSA Reference Laboratory in Dublin, Ireland on specific molecular approaches to address these issues.

Faculty: Richard V. Goering, PhD.
Department of Medicine: Division of Allergy/Immunology

Cigarette smoking is responsible for 80 – 90% of chronic obstructive pulmonary disease (COPD), emphysema and chronic bronchitis, deaths and can cause asthma exacerbations via direct (smoking by patients) and indirect (second-hand) tobacco smoke exposure, especially in children. Symptoms and key pathogenic features involved in asthma and COPD overlap, especially the putative effects of cigarette smoke. Researchers have been engaged in active collaborative research with other investigators at Creighton to examine if cigarette smoke leads to airway cilia dysfunction via effects on Ca channels, thereby causing decreased mucus clearance manifesting as sputum production and obstructed airways, common to COPD and asthma. They are also investigating whether cigarette smoke decreases expression of RGS2 (regulators of G-protein signaling) proteins which inhibit G-protein coupled receptors important in smooth muscle tone. It is postulated that cigarette smoke directly affects airway smooth muscle causing a hypercontractile state by decreasing RGS2 proteins, affecting Ca channels and increasing expression of Rho pathway molecules that promote continued airway contraction. These effects would subsequently lead to airway obstruction and hyperresponsiveness and consequently, symptoms. Using human, cellular and mouse models, researchers are investigating the effects of cigarette smoke on airway cilia and airway smooth muscle function. A murine model is used to examine the effects of in utero and post-natal exposure to cigarette smoke and nicotine for the development of airway cilia and smooth muscle dysfunction, and the mechanisms involved. Using lung slices from these mice, airway cilia motion and smooth muscle contractile responses are being examined. Cultured human bronchial smooth muscle cells are being studied in vitro to ascertain acute and prolonged exposure effects of cigarette smoke extract on contractile elements. Human samples from smokers and non-smokers will be analyzed in the future to confirm and corroborate data from both the in vitro and murine models. It is anticipated that the results of these studies will lead to new information about the pathogenesis of cigarette smoke-induced airway diseases, which will translate into the possibility of new therapeutic interventions. Researchers are also engaged in a number of clinical research studies to define new therapies for the treatment of allergic respiratory diseases, especially asthma and allergic rhinitis. A number of these studies are examining immunomodulators and involve first in man clinical trials.

Department of Medicine: Division of Cardiology

The Division of Cardiology, under the direction of Dennis Esterbrooks, MD, continues to build upon its commitment to provide superior clinical services, participate in sponsored clinical research and take part in community-focused intervention programs. The Cardiac Center provides referring physicians, healthcare professionals, patients and their families with the opportunity to utilize the area’s first freestanding facility dedicated to cardiovascular research and education, risk modification, diagnosis and treatment.

Services at The Cardiac Center include: patient evaluation, treatment and management; electrocardiography; x-ray; exercise testing; cardiovascular sonography services; Implantable Cardiac Defibrillator (ICD) and pacemaker management; pharmacologic interventions (including the availability of compassionate drugs); laboratory services; risk reduction education and smoking cessation services.

This year The Cardiac Center welcomed three new physicians to the team: Drs. Kelly J. Airey, Hussam S. Abuissa, and Traci Jurrens.

Research

The Division of Cardiology builds upon its clinical services by participating in sponsored clinical research, supporting faculty- and fellow-initiated investigations, and offering community focused intervention programs under the direction of Michael Del Core MD, and Aryan Mooss, MD, Medical Directors of Research, and Stephanie Maciejewski, PharmD, Administrative Director. The Cardiac Center initiated
many new research studies during the past year, primarily phase III and IV pharmaceutical and device trials and registries, as well as investigator-initiated research.

Several of the clinical trials are focused on Acute Coronary Syndrome (ACS). The goal of these studies is to better define the best possible standard of care in the treatment of patients with unstable angina, Non-ST elevation myocardial infarction (MI), and ST elevation MI. During 2008-2009, the Cardiac Center participated in two large global trials, CURRENT and PLATO. The CURRENT trial compared high dose clopidogrel, (600mg loading dose, 150mg daily for the first week, then 75mg daily) to the standard dose of clopidogrel (300mg loading dose followed by 75mg daily) in patients with an early invasive strategy. The results of this study showed that the higher dose regimen was more efficacious than the standard regimen when taken with aspirin. No specific dose of daily aspirin was endorsed as being more beneficial. The PLATO study results recently affirmed that ticagrelor, a new oral ADP inhibitor, had stronger antiplatelet efficacy than clopidogrel in ACS patients, without excess bleeding.

The Cardiac Center also participated in three registries: ARRIVE-2, TIMI-38, and SAPPHIRE. The ARRIVE-2 registry followed patients over two years for major cardiovascular endpoints after receiving the TAXUS Express paclitaxel-eluting stent. The TIMI-38 registry was initiated to follow patients who had completed the TRITON (TIMI-38) clinical trial, which compared an investigational antiplatelet drug, prasugrel, with standard clopidogrel in ACS patients undergoing percutaneous intervention. Clinical research has continued to have high enrollment in the SAPPHIRE registry, a carotid stent study which allows the use of a stent and distal protective device. This device is designed to capture emboli that may be dislodged during implantation thereby reducing the risk of embolization/stroke.

The Cardiac Center also began participation in an acute ST elevation MI study called PROTECTION AMI. This is a study of a novel class of drug known as a protein C kinase inhibitor, which has been shown in previous trials to decrease infarction size by up to 70% compared with placebo. Another study, ELITE, is a long-term evaluation of the safety and efficacy of an FDA approved and an investigational coronary stent.

Multiple global outcome studies are in progress to improve efforts toward secondary prevention post ACS. One of these studies is the TRA2P-TIMI 50 study, which evaluates an investigational thrombin receptor antagonist as a means of decreasing recurrence of atherosclerotic events in patients with a history of myocardial infarction, stroke or peripheral vascular disease. The TRILOGY study was initiated to compare the safety and efficacy of clopidogrel, and a newer antiplatelet drug, prasugrel, in the treatment of medically managed ACS patients. Enrollment continues in the IMPROVE-IT study, which evaluates Zocor® versus Vytorin® in recent ACS patients to see if very aggressive lipid-lowering therapy will translate into fewer events in the long-term. The Dal- OUTCOMES study seeks to determine whether raising the HDL with an investigational CETP inhibitor post ACS, will translate into fewer cardiovascular outcomes when compared with placebo.

Addressing the challenge of anticoagulation in patients with chronic atrial fibrillation, Clinical Research at the Cardiac Center followed multiple patients in the RE-LY study. These patients were assigned to one of two doses of dabigatran, an investigational anti-thrombin agent, or standard therapy with warfarin. Patients who were randomized to dabigatran were allowed to continue therapy in the long-term follow-up study RELY-ABLE. Recently released results of RE-LY revealed that the high dose of dabigatran significantly reduced stroke compared to warfarin, with similar risk of major bleeding. The lower dose of dabigatran had a similar rate of stroke as warfarin with significantly reduced major bleeding. Another alternative to warfarin is being explored through the ROCKET AF study, comparing warfarin to rivaroxaban, an investigational factor Xa inhibitor, in high risk patients with atrial fibrillation.

In the area of electrophysiology, the Cardiac Center also participated in the REPLACE registry, designed to evaluate complication rates for patients who undergo an implantable cardioverter defibrillator (ICD) or pacemaker generator replacement. Participation in the SMART-AV study also began during this time period. This study seeks to evaluate the best method of programming cardiac resynchronization therapy defibrillators (CRT-D), in those patients who require an implant procedure as part of their medical care.
Clinical trials have also been initiated in the area of heart failure, particularly with aldosterone antagonists. TOPCAT, a NIH study, is evaluating the effectiveness of spironolactone compared with placebo in the treatment of patients with preserved systolic function. EMPHASIS-HF is a study which seeks to determine the safety and efficacy of eplerenone versus placebo in the treatment of systolic heart failure.

The Clinical Research Area continues to promote a team approach to research, uniting investigators and staff with their particular areas of interest. Teams that focus on the areas of prevention, intervention, anticoagulation and non-invasive/electrophysiology/heart failure continue to seek out and conduct investigator initiated and clinical research trials that will shed more light on the prevention and treatment of cardiac disease.

**Education**

**Funded Programs in Minority Cardiovascular Risk Prevention**

The Cardiac Center recognized a need to provide educational and preventive programs to the local community and responded with multiple initiatives. These programs enhance Creighton’s visibility in the Omaha community and establish the university as a partner willing to share its resources to improve health care in the minority community.

**Creighton Community Health Center**

The Cardiac Center of Creighton University Medical Center and Creighton University established the Creighton Community Health Center (CCHC) in an effort to enhance educational opportunities for Creighton students, improve health care services to local underserved populations and advance the science directed toward reducing, eliminating, or preventing health disparities in minority and underserved populations.

CCHC provides outpatient basic medical care encompassing curative and preventative medicine, health promotion and maintenance, education, nutrition and continuing care evaluation and management of adults.

Our continued goals for the Community Health Center include:

- Accelerate the discovery of new interventions and expand the utilization/adaptation of existing evidenced-based interventions for preventing, reducing or eliminating health disparities;
- Increase the number of researchers and professionals from minority and medically underserved populations trained in biomedical and behavioral research;
- Increase the quality of the training provided to biomedical and behavioral researchers and professionals conducting research on health disparities;
- Increase public trust and the dissemination and utilization of scientific and health information relevant to health disparity populations.

The clinic continues to focus on prevention and care of patients with chronic conditions, and has, once again, experienced tremendous growth during fiscal year 2008/2009. Expanding provider hours has resulted in tremendous increase in patient clinic visits. This increase has also encouraged greater patient numbers for several outreach activities such as blood pressure, cholesterol, and glucose screenings, lunch ‘n’ learn presentations, cooking schools, shopping tours, an on-going exercise program, HIV and STD testing. CCHC continues to explore ways to assist other Creighton clinics while serving the community.
In March 2009, Creighton Community Health Center and Charles Drew Health Center began a collaboration in hopes of better serving the community by providing the best practices from both entities under one roof. The partnership with Charles Drew would expand some of our current programs and allow for the development of new programs to better serve the community. It is our belief that a partnership with Charles Drew also will accomplish the goals of the Community Health Center by improving access to health care with primary care physicians providing care for pediatric, adult, geriatric, and obstetric care. This would greatly increase the patient population and expand the scope of the Creighton Community Health Center which currently only provides care to the adult population. This collaboration initiated a name change of Benson Community Health Center to better describe the community in which it sits and provide a neutral identity for the center.

Black Education and Treatment of Hypertension (BEAT HTN)

Hypertension is a key contributor to cardiovascular, renal, and all-cause morbidity and mortality, with an incidence that is disproportionately high in African Americans, contributing to 30 percent of all African American deaths. Black Education and Treatment of Hypertension (BEAT HTN) study was designed to increase the proportion of hypertensive African Americans meeting the Seventh Joint National Commission on the Control of Hypertension (JNC VII) guidelines for hypertension in an effort to eliminate this disparity and increase quality and years of life. Participants are provided FDA approved antihypertensive medication free of charge. Subjects work with a nurse practitioner/physician team, health educator, dietitian, pharmacist, social worker, and Cardiac Center-trained lay health educators to encourage medication compliance and lifestyle modification. Our hypothesis is that the patients receiving consistent lifestyle intervention with medical care will have better blood pressure control than those receiving only standard of care. Currently, 91 individuals (26 male, 65 female) are enrolled in the study. The inclusion criteria is African Americans 25-80 years of age with uncontrolled hypertension (>140/90, or >130/80 for diabetics and those with kidney disease).

Communities of Excellence in Tobacco Control

The Communities of Excellence Tobacco grants are part of local efforts to prevent tobacco use within Douglas and Sarpy counties. This project is supported by grant dollars from Tobacco Free Nebraska, a division within Nebraska Health and Human Services System. The goals of the grants were to reduce exposure to secondhand smoke in the workplace, home, and house of worship, and to prevent youth initiation of tobacco use through education. The health educator addressed tobacco prevention education which includes health risks, tobacco companies’ media placement, and other topics to students in Douglas and Sarpy schools. The health educator represented Creighton University at community/business events such as a Kids Explore, Rosenblatt Family Day, Cinco de Mayo, Sarpy County Fair and various health fairs in the Douglas and Sarpy area to distribute tobacco prevention information and maintaining smoke-free homes and business.

Creighton is an active member of the Metro Omaha Tobacco Action Coalition (MOTAC) and Tobacco Free Sarpy (TFS) media committee and has participated in the planning for the area media campaigns. Creighton is also the lead on the minority media outreach component of the campaign. Through this component, the health educator has coordinated the following activities and/or placement: two new cigarette tarps for a giant cigarette supporting clean indoor air with the campaign taglines in English and Spanish; ads in the North Omaha Area Health publication (NOAH); radio sponsorship of KCOR Sunday morning gospel (with a signal covering over half the state of Nebraska and reaches into 5 other states that include: Iowa, South Dakota, Minnesota, Kansas and Missouri); Omaha Royals; radio spots on 106.9 FM and 97.7 FM; TV spots on Cox; ads in the SONA newsletter; and ads in the Business, Real Estate and Community Magazine.

The health educator also participated in the Hispanic Chamber of Commerce breakfast in collaboration with UNMC to work with business owners to adopt smoke-free policies in their businesses. She has worked with Parents Resource on Information for Drug Education (PRIDE) to recognize Omaha businesses/organizations that have a tobacco-free/smoke-free campus policy, such as: Gallup, Henry
Doorly Zoo, Weatherization Trust Inc, Creighton University, Nebraska Furniture Mart and Arbor Apartments.

**Tobacco-Free Creighton**

On July 1, 2008, Creighton University became the first Jesuit-Catholic campus to be tobacco-free. Father John P. Schlegel, S.J., President, appointed Dr. Syed Mohiuddin, Richard W. Booth, M.D., Endowed Professor of Cardiology and Chair of the Department of Medicine, to chair a workgroup to address the issues associated with the implementation of a tobacco-free policy at Creighton University. Dr. Mohiuddin oversaw the implementation of a successful tobacco-free pilot at the Cardiac Center. The Cardiac Center’s Tobacco Programs Coordinator serves as a member of the executive committee and technical advisor to the seven working groups. The committee’s goals for 2009/2010 are focused primarily on enforcement of the policy. Decisions made by the committee in conjunction with student organizations include the distribution of business-sized cards explaining the policy and standard disciplinary actions for repeat offenders.

**Corporate Tobacco Cessation Program**

Commit to Quit, Creighton’s premier tobacco cessation program, was developed in 1999 and is responsible for helping hundreds of tobacco users end their addiction to nicotine for good. Commit to Quit is available to corporations, on-site, during the workday to offer businesses a chance to assist employees in leading healthier lives.

The Cardiac Center is contracted to provide tobacco treatment services to employees at thirty-four worksite locations in the Omaha metropolitan area. The Commit To Quit program boasts a 40 percent successful quit rate at six-month follow-up. This past year, eight new worksites introduced Commit To Quit as a benefit to employees. Commit to Quit has served 404 participants to date in the worksite-based program.

Commit To Quit staff members have also provided training in tobacco cessation methods to several groups in 2009. These trainings included: PharmASSIST, a workshop for licensed Nebraska pharmacists to fulfill the Nebraska Medicaid requirement for tobacco cessation training, and Tobacco Free Educator Training, a seminar for health educators in the State of Nebraska public health network.

**Grants**

Within the research section, we assisted in the development and technical assistance of 18 grants, ten of which have been funded for the period July 1, 2008 to June 30, 2009. A complete list of grants can be found in a later section of this document.

**Department of Pharmacology**

Departmental faculty are engaged in a range of approaches and techniques in research aimed at understanding the mechanisms of drug action. The activities of Department of Pharmacology faculty reflect the complex scope of modern pharmacological research as they apply methods of systems and cell physiology, neuroscience, biochemistry, and cellular and molecular biology to better understand drug action. Departmental faculty are engaged in diverse areas of research including G protein-coupled receptor signal transduction, regulators of G-protein signaling, regulation of receptor gene expression, control of neurotransmitter release, ion channel modulation, molecular pharmacology of excitatory neurotransmission, and cardiovascular and CNS drug discovery. These studies provide insight into the mechanisms of drug action and the means by which drug action is translated into responses in the cardiovascular system, the nervous system, exocrine glands and cancer cells. Extramural funding for departmental research projects is derived from grants awarded by the National Institutes of Health, American Cancer Society, Department of Defense, American Heart Association and the pharmaceutical industry. Department of Pharmacology faculty and their respective research emphasis are as follows:
Peter W. Abel’s research program is focused on understanding the actions of G protein-coupled receptors including adrenergic receptors and neuropeptide receptors. Current projects focus on \( \alpha_1 \) and \( \alpha_2 \) adrenergic receptor subtypes and the calcitonin gene related peptide receptor family. Dr. Abel’s interest is in identifying and characterizing receptor subtypes and determining the efficacy of their signaling pathways. Regulation of these receptors by regulators of G-protein signaling proteins and other factors is currently being investigated. It is hoped that these studies will lead to a better understanding of cardiovascular diseases involving G protein-coupled receptor dysfunction and aid in the development of receptor subtype selective agonist and antagonist drugs.

Charles S. Bockman’s research program focuses on \( \alpha 1 \)-adrenergic receptors, which interact with norepinephrine to mediate the actions of the sympathetic nervous system in regulating salivary gland secretion and activation of mitogen-activated protein kinase pathways. The functional significance of subtype-specific activation of various signaling pathways in salivary glands is unknown but is currently being explored in this laboratory. These studies will identify and characterize novel drug targets that may provide a rational basis for the design of drugs specific for treating salivary gland hypofunction. Additionally, enriched environments, characterized by the presence of social cohorts and novel objects, can blunt the addictive potential of nicotine. A new area of this program addresses the molecular basis for the protective effect of enriched environments on susceptibility to nicotine addiction.

Frank J. Dowd’s research program is focused on the pharmacology of salivary gland secretion. Research projects include exploring the link between muscarinic receptors and the MAP kinase pathway and interaction of muscarinic pathways with adrenergic signaling pathways in salivary glands. Investigation of these aspects of secretion is aimed at an understanding of salivary function, and the beneficial as well as detrimental effects of drugs on salivary gland dynamics.

Shashank M. Dravid’s research program focuses on the function and modulation of ionotropic glutamate receptors in the central nervous system. This research concerns the basic physiology of NMDA receptors and their modulation by potential drugs for neurodegenerative diseases and mental disorders. This laboratory utilizes a range of electrophysiological, biochemistry, molecular biology and behavioral techniques to investigate these processes.

Dr. Gelineau-van Waes’ primary focus of the research laboratory is the study of birth defects. Molecular biology, proteomics, and metabolomics approaches are used to identify the underlying mechanisms that lead to placental abnormalities and embryonic/fetal malformations following gestational exposure to pharmaceuticals (anticonvulsant drugs, immunosuppressant drugs) or environmental teratogens (arsenic, mycotoxins). Another component of her research program focuses on gene-nutrient-environment interactions during pregnancy, and the role of maternal folate supplementation in the prevention of specific types of birth defects (ie. neural tube defects, craniofacial malformations, and congenital heart defects).

Margaret A. Scofield’s research program is focused on the molecular pharmacology of G protein-coupled receptors including adrenergic, adrenomedullin and calcitonin gene-related peptide receptors. The adrenomedullin and calcitonin gene-related peptide receptors are being characterized in various tissues. The pharmacological properties of these receptors are determined by various accessory proteins termed receptor activity-modifying proteins. This research has discovered and cloned splice variants for the receptor activity-modifying proteins and is using signal transduction assays and immunofluorescence to investigate the influence of spliced transcripts on the pharmacology of these receptors.

Dr. Kristina Simeone’s laboratory studies circadian neurobiology and epilepsy. Epilepsy is a common neurological disorder affecting more than 60 million people worldwide. A detrimental co-morbidity associated with epilepsy is sleep disorders. Sleep dysfunction can negatively influence cognition, stress, productivity and temper. Thus, it is critical to understand how seizures disrupt normal circadian neurobiology and how biological rhythms influence seizure occurrence in order to elucidate novel therapeutic targets. Normal sleep behavior is regulated by brain regions including nuclei in the hypothalamus. Dr. Simeone is interested in discerning how seizures influence hypothalamic
pathology and function. To achieve this aim, a multi-disciplinary approach including techniques that examine molecular neurobiology, cell-signaling, electrophysiology and behavior is employed.

Dr. Timothy Simeone’s laboratory examines hippocampal function during normal and pathologic conditions in young and adult animals. Currently, a mouse model of chronic epilepsy is used to study two related but distinct areas: 1) discerning the role of natural neuronal population rhythms in the development and expression of epileptiform activity; and 2) investigating the role of ion channels of the mitochondrial inner membrane in pathological processes and in potential neuroprotective strategies. The techniques used in the laboratory include electrophysiology (multi-electrode array, whole-cell patch clamp, single channel patch-clamp), immunohistochemistry and behavioral studies.

Yaping Tu’s research program focuses on G-protein coupled receptor (GPCR) signaling and its modulation by intracellular regulator of G-protein signaling (RGS) proteins. The goal of his research is to characterize the dysregulation of these signaling cascades during various human diseases, especially cancers. There are three major projects currently undergoing in his lab. Project 1 is focusing on the role of downregulation of RGS2 in the acquisition of androgen independence of prostate cancer, the key problem of prostate cancer progression. Project 2 is studying the importance and mechanisms of upregulated P-Rex1, a down-stream effector of GPCRs, in prostate cancer metastasis, the chief cause of cancer mortality. Project 3 is investigating molecular mechanisms underlying breast cancer metastasis. Dr. Tu’s lab found that RGS4 suppresses breast cancer metastasis, and that the rapid degradation of RGS4 by proteasomes in metastatic breast cancer cells facilitates the ability of these cells to migrate and invade. Further characterization of these processes will hopefully lead to the development of drugs that, for example, selectively preserve the function of RGS2 or RGS4 or inhibit P-Rex1. Stifling the progression and metastasis of prostate and breast cancer will extend the window of usefulness for other treatment options and prolong life. In addition, most recent preliminary work by the lab found that the loss of RGS2 can contribute to airway hyper reactivity, which is the hallmark of asthma. Thus, characterizing the role of RGS2 in the pathogenesis of asthma is an emerging area of research in Dr. Tu’s lab.

Thomas F. Murray’s research program is focused on neuroreceptor-operated processes in the general context of understanding the control excitatory neurotransmission and the neurobiology of drugs of abuse. The analysis of receptor mediated cellular actions requires a multidisciplinary approach, which is accomplished through the use of a variety of neurochemical and molecular methods, as well as key collaborations with medicinal and natural product chemists. Current research is directed towards understanding the mechanisms responsible for marine neurotoxin-induced stimulation of neuronal development. These toxins are used to explore interactions between voltage-gated sodium channels and the NMDA subtype of glutamate receptor. In the area of drug abuse research, this group is characterizing novel opioid peptides synthesized by a peptide chemist collaborator. The goal of this research is to develop novel agonist, antagonist and inverse agonist ligands for kappa opioid receptors.

School of Nursing

School of Nursing faculty members participate in areas of research that address various topics of interest in healthcare and in the scholarship of teaching and assessment. They also assist students in mastering competencies for evidence-based practice in both the graduate and undergraduate programs. Faculty members’ research is supported by National Institutes of Health funding from the National Cancer Institute and the National Institute of Nursing Research, Health Futures Foundation, Gamma Pi and Iota Tau chapters of Sigma Theta Tau Nursing Honor Society, and the March of Dimes. Two faculty members completed their doctoral dissertations this year: Amy Abbott studied symptom clusters in post CABG patients and Anne Schoening developed a grounded theory study of the transition from nurse clinician to nurse educator.

Studies in progress demonstrate a range of faculty interests. These broad interests include: health promotion in pediatric and adult populations, disease prevention and treatment, health disparities, patient decision making and illness experiences, mental health, spiritual care, simulations for clinical practice situations, evidence-based practice for nonverbal assessment of pain, and health care policy and ethics.
issues. Faculty members published 25 articles and book chapters and presented 80 scientific papers and posters at regional, national and international conferences over the past academic year.

Joan Lappe holds the Criss-Beirne Endowed Chair in Nursing and is Director of Clinical and Pediatric studies in the Osteoporosis Research Center (ORC). She recently completed a federal study of stress fracture reduction in Navy recruits using supplementation with vitamin D and calcium. She is currently the Principal Investigator on three federally funded grants. Ann Laughlin served as a Co Investigator for her study of adolescent weight management and dairy nutrients and Dianne Travers-Gustafson serves as her co-investigator on a study of Vitamin D3 and cancer prevention in postmenopausal, rural women.

Additional clinically-focused research studies are ongoing. Ann Laughlin and Misty Schwartz are conducting pilot studies of school screenings and health report cards in combination with student-led health education to reduce the prevalence of child obesity in two inner city schools. A qualitative study of the nature of spiritual care, described in nurses’ stories, is in the process of narrative analysis by Sue Tinley, Nancy Shirley and Maribeth Hercinger. Cindy Costanzo is completing a three year study of motivational interviewing to increase self-efficacy and support for physical activity by older women.

Recent scholarship of teaching projects were reported by the following faculty: Mary Parsons, Maribeth Hercinger, Martha Todd and Kim Hawkins have established a program of research in teaching and assessment using simulated clinical activities. They have published three articles on methods of teaching using simulations that replicate patient conditions and call for nursing judgments and behaviors. They have also developed a student assessment tool, the Creighton Simulation Evaluation Inventory (C-SEI), copyrighted it and tested it in preparation for development of a website to train, support and evaluate its use by other schools of nursing. Book chapter topics published this year by faculty addressed topics of: child development (Ann Harms), osteoporosis (Joan Lappe), fluids and electrolytes (Bernadette White), policy implementation (Marlene Wilken), agenda setting (Beth Furlong) and hospice (Helen Chapple).

School of Pharmacy and Health Professions

The faculty of the School of Pharmacy and Health Professions guide the development of excellence in the clinical professions of occupational therapy, pharmacy, and physical therapy. The School also offers courses of study that lead to a certificate in Health Services Administration and grants a degree in Emergency Medical Services. The School consists of four academic departments: Occupational Therapy, Pharmacy Practice, Pharmacy Sciences, and Physical Therapy. These departments work collaboratively and collectively to achieve excellence in these professional program offerings. The scope of research is broad – with active research programs and projects in the biomedical sciences, health services research, clinical research, and educational research areas of emphasis. Interdisciplinary and interprofessional approaches characterize the school's research models and culture throughout the scope of research. The faculty is composed of both basic scientists and clinician scientists who provide a framework for basic, translational and applied research opportunities. Faculty engage in national, regional, state-wide and local research initiatives – with several holding appointments on federal grant review panels and providing consultation and service for agencies within the United States Department of Health and Human Services National Institutes of Health (NIH), Health Resources Services Administration (HRSA), Agency for Healthcare Research and Quality (AHRQ), Indian Health Service (IHS), as well as the National Science Foundation (NSF) and the Department of Defense (DoD).

Office of Research

The School’s Office of Research was established in mid-2004 to provide faculty support and services to assist faculty with quality and productivity in research efforts. The office provides faculty, staff, and students opportunities for the utilization of up-to-date technologies in its computer laboratory and conference areas. These technologies allow researchers to come together to share ideas and more rapidly produce proposals. The office continues efforts to facilitate team building interprofessional collaborations with faculty in the School of Medicine who are active in the COBRE program and strategic
efforts have been made to engage the Nebraska-Western Iowa Veterans Affairs Medical Center in research opportunities with Creighton faculty. A focused effort has been made with Department of Physical Therapy faculty to develop the Rehabilitation Science Research Laboratory as a certified site for the VA and the contractual agreement to finalize the certification has been submitted. Individualized efforts have also been made with newer faculty members who have expressed great interest and promise in pursuing research. The Office of Research provides core leadership to the development of the SPAHP Center for Health Services Research and Patient Safety (CHRP), and the SPAHP Research Student Program.

**Faculty and Student Development**

During the 2008-09 academic year, the SPAHP Office of Research held a Research Methodologies/Research Case Presentation Series in conjunction with the SPAHP Office of Faculty Development. The series focused on presenting a spectrum of research methods, design, and analytic approaches. Sessions included Qualitative, Quantitative and Mixed Methods Approaches, Community Based Participatory Research and Action Research, Education Research, Survey Research Techniques, Research Project Management Workshop, and Data Analysis and Statistical Software Workshop. Overall a total of 58 people attended the 2008-2009 sessions. The average score for how well objectives were met for the 2008-2009 series was 4.38 (scale of 1 [poor] and 5 [excellent]). The series was well attended by members across Creighton University including: Creighton University Administration, College of Arts and Sciences, Health Sciences Library, School of Law, School of Medicine, School of Nursing and School of Pharmacy and Health Professions. The 2008-2009 series offered presentations by incorporating the methodologic approaches with research conducted by twelve (12) SPAHP faculty and staff members.

**Research Funding and Cross Campus Collaborations**

Both internal and external funding has been received by the faculty in the broad research categories of biomedical sciences, health services research, clinical research, and educational research. In the July 2008 through June 2009 period, 18 externally funded research and training grant awards and four internal grant awards through the Creighton University Health Futures Foundation were attained by faculty as primary investigators. The total award amount for this period was $1,144,802. There were four funded projects where SPAHP faculty served as principal investigators and worked with co-investigators from other schools or collaborated with principal investigators external to Creighton University.

**SPAHP Faculty Research Grant Development Program**

Beginning in January, 2005, the School has provided internal seed money through a grant program supported by the Health Futures Foundation entitled the SPAHP Faculty Research Grant Development Program to facilitate faculty research efforts for high impact, high value and potentially externally fundable works. This program was conceptualized as a quality building effort using the peer and administrative review process to enhance faculty competitiveness and productivity in research. This program was phased out during the 2008-2009 academic year with carry-over funding being made available to researchers who requested an extension of originally awarded funding support to complete on-going projects. No new funding was made available during this academic year. Since the first award cycle in 2005 through FY 2007-08, 24 faculty members received $289,000 in internal funding. The SPAHP Office of Research provided the complimentary education and project management expertise to launch this program and monitor its ongoing progress in concert with Creighton University Grants Administration. This program has demonstrated success in the development of faculty members as scholars and researchers. Since the program launch, over 150 publications and presentations have been completed by participating faculty and the result of the scholarly work and dissemination of research findings from award recipients has been positive. Projects resulting from investigator's funded awards included: linkage on research projects with VAMC and Rutgers University Biomedical Engineering department; development of a website focusing on occupational therapy practice in rural Nebraska; faculty collaboration with the Nebraska AgraAbility project; and numerous radio and television interviews, and newspaper articles.
Student Research

- Graduate Student Research. The school has both undergraduate and graduate students actively engaged and mentored by faculty in research. At present 8 students are enrolled in the Masters of Science Program in Pharmaceutical Sciences. A research thesis is required for the partial fulfillment of the requirements of the program. The research areas include pharmaceutics, medicinal chemistry, immunology, pharmacology, anatomy, toxicology and pharmacokinetics. The specific areas of interest include drug delivery systems, medicinal chemistry, regulation of T helper cells, pharmacology of the eye and TCDD toxicity. To date, 19 students have graduated from the program.

- Clinical Doctorate Student Research. Research project completion is a required activity within the Doctor of Occupational Therapy and Doctor of Physical Therapy programs, and encouraged in the Doctor of Pharmacy Program. The faculty provides mentorship and guidance in skills development for all forms of research, with common areas of emphasis being service-learning, reflective practice, and applied outcomes research.

- Student Research Program. Students enrolled in the Occupational Therapy, Pharmacy and Physical Therapy professional degree programs were given the opportunity to competitively apply for either a summer or academic year faculty-mentored research experience. This experience was planned with a faculty member who gave oversight and guidance to the students’ research skills development by engaging the student in components of active, on-going research projects. In 2008-2009, 16 students were each awarded $3,000 stipends to participate in either the summer or academic year programs. Students from the summer and academic year research program, along with students from Occupational Therapy, Pharmacy Science and SPAHP graduate students participated in the university-wide St. Albert’s Day student research forum which provided them the opportunity to present their research findings to a campus-wide audience. Fifteen posters were presented and five students participated in podium presentations.

Creighton Center for Health Services Research and Patient Safety (CHRP)

The Center for Health Services Research and Patient Safety (CHRP) was formed in 2004 to promote and sustain patient safety and quality through the conduct and translation of health services research to education and practice. The CHRP was officially designated a federal Patient Safety Organization by the Agency for Healthcare Research and Quality at the beginning of this year. The program brings together researchers and scholars for interprofessional collaboration, and faculty and student development university-wide. Specific areas within the safety and quality core include new and emerging technological influences on safety, the effects of health care financing, relationship of costs of pharmaceuticals and treatments, social and behavioral influences on care, access and disparities issues, and models of care delivery in an interdisciplinary context.

The program was launched within the School of Pharmacy and Health Professions (SPAHP) and is funded through external grants, contracts, and partial competitive support through the Creighton Health Futures Foundation. It has grown over five years to include university-wide representation. Year one focused on establishing key technology infrastructure and interdisciplinary education and development. Year two focused on establishing and expanding external community, private and government relationships. Subsequent years focused on an intensive research development process for faculty through both training and the conduct of research, provision of education to students, practitioners and the community, and local, state and federal service related to the areas of patient safety and health care quality. Scholarly productivity has been significant, with over 111 publications, 187 presentations, and 11 media releases.

Funding Highlights

In FY 2008 - 2009, CHRP continued to support its interdisciplinary collaboration through the submission of 9 grant proposals ($3,688,778) resulting in the funding of 5 grants totaling $251,610. These funding
successes were built on previous funding support of the Building Research Infrastructure Capacity (BRIC) Proposal ($500,000) awarded through the Agency for Healthcare Research and Quality (RFA H5-05-010) – one of only five in the country. This award provided funds for the continuation and expansion of the existing program, as well as provided opportunities for new research initiatives. The success in receiving this award is attributed to the clear plan for advancement based upon gap analysis of resource requirements to achieve sustainability, and the university’s commitment toward sustainability. CHRP has been successful in developing interdisciplinary research teams and expanding partnerships in Nebraska and surrounding states. Collaborative networks with the Schools of Nursing, Dentistry, Medicine, Arts and Sciences, Business Administration and Law have been developed as the program has matured. This growth is attributed to aggressive networking with individuals who have the expertise and interests consistent with the health services research mission of this program and who expect to have mutually beneficial success from involvement in this initiative.

Infrastructure Support and Development

CHRP was formed to provide the infrastructure and resources necessary to identify external funding sources, prepare and submit grant applications, and to maintain project management through staff and technology support to achieve future growth. CHRP maintains the data entry and analysis center with four workstations and installed software applications for statistical and qualitative data analysis. The repository of database and research tools is continually updated and expanded. (See www.chrp.creighton.edu for a complete listing). The CHRP computer lab is equipped with a variety of analytic software programs to assist end users in data management. These programs include: Microsoft Office, SPSS, SPSS Text Analysis, SAS, ArcGIS, Atlas.ti, and MPlus. Additional programs are evaluated and installed based on special needs projects. The computer lab is available and accessible to all students, faculty and staff in the school. Assistance is available on request.

Office of Interprofessional Scholarship, Service and Education (OISSE)

The Office of Interprofessional Scholarship, Service and Education (OISSE) was formed in 2001 and is responsible for planning, organizing, and implementing educational, service, and scholarly projects related to interprofessional community engagement in the School of Pharmacy and Health Professions.

The Office of Interprofessional Scholarship, Service and Education (OISSE) maintains a long-standing partnership with the Omaha and Winnebago Tribes addressing health disparities and providing students from across the health sciences with rural, cross-cultural, interprofessional learning experiences. Through the partnership with the Winnebago Tribe of Nebraska, a five-year clinical contract (2005-2010) was awarded to the School by the U.S. Department of Health and Human Services Indian Health Service. This provides $182,084 annually to sustain physical and occupational therapy services at the Indian Health Service facility in Winnebago, Nebraska.

Since 2005, OISSE’s community engagement model has expanded to include local opportunities in the Omaha metropolitan area, as well as international initiatives in the Dominican Republic, Ukraine and China. The OISSE infrastructure recognizes Faculty Associates and Affiliates across the health science programs and various community leaders who are interested in interprofessional community engagement. Thirty-nine Creighton faculty members from physical therapy, occupational therapy, pharmacy, nursing, medicine, dentistry and the Health Sciences Library, in partnerships with community members, collaborate on global health promotion and prevention initiatives across the lifespan to meet authentic community needs, provide student learning opportunities, and disseminate initiatives via scholarly presentations and publications, and grant acquisition.

OISSE has a demonstrated history of scholarly collaboration and maintains relationships with strong community partners. In 2009, 20 OISSE faculty associates collaborated across health professions to submit seven (7) grant proposals (approx $1.2 M), with on-going funded projects ($35,400), publish three (3) textbooks and 16 chapters or peer-reviewed manuscripts, and deliver over 28 professional presentations at professional meetings or to the local community.
Department of Occupational Therapy

The Department of Occupational Therapy consists of two administrative assistants, approximately 100 on-campus and 70 distance students, and 16 faculty, including 15 faculty with doctoral degrees and 1 clinical faculty holding a master’s degree. Faculty engage in a variety of teaching, service and scholarly activities each year. Faculty are engaged in the following areas of scholarship productivity:

- **Scholarship of Practice**: Increasing occupational therapy services in rural areas, interprofessional geriatric care, error reporting and client safety, etc.
- **Scholarship of Teaching and Learning**: Outcomes of service learning activities at both national and international levels; and
- **Scholarship of Engagement**: Health disparities, at risk youth, migrant workers, occupational patterns and disability, interprofessional care of the Native Americans through participation in OISSE grants and contracts, occupational therapy service delivery to address health disparities. Extramural funding sources for current research projects include National Patient Safety Foundation, Harvard Immigration Project, Nebraska Crime Commission, Association for Prevention and Teaching, Substance Abuse and Mental Health Administration and the Midwest Consortium for Service Learning in Higher Education. Intramural funding was provided through faculty grants from the Creighton’s Cardoner Program, Office of Academic Excellence and Assessment and SPAHP Faculty Research Development grant.

Publication productivity consists of: 10 peer reviewed journal articles, four non-peer reviewed articles, eight book chapters, four books edited and authored by faculty, and three position papers for professional bodies. Publications currently in press include two books edited and authored by faculty and two peer-reviewed articles.

Annual professional development plans for each faculty member include at least one goal targeted at scholarship development and productivity. Faculty continue to garner support from institutional infrastructures such as CHRP and OISSE.

Department of Physical Therapy

The Department of Physical Therapy is composed of 30 faculty, two residents, 172 students (158 entry level program; 14 transitional program) and two staff. Fourteen faculty are —core as defined by the American Physical Therapy Association program accreditation standards. Eight core faculty have Teaching- Research classification appointments. One of the faculty is Dean of the Graduate School. Six core faculty have Clinician-Educator classification appointments. The remaining faculty have Contributed - Service faculty appointments.

The core identified four areas of emphasis for scholarship include:

- **Community Engagement**
- **Health Services Research**
- **Rehabilitation Sciences with an emphasis on movement disorders**
- **Teaching/Learning**

The Community Engagement area is supported by the Office of Interprofessional Scholarship, Service and Education. Work in this area has included Native American health and student immersion in domestic and international underserved environments. Faculty research has addressed childhood obesity in south Omaha, a diverse, urban community. The Health Services research area is supported by the Creighton
Health Services Research Program and has focused on patient safety, building a health services research infrastructure and professional discipline/malpractice. The Teaching/Learning research area is supported by the Office of Faculty Development and Assessment and is focused on the scholarship of teaching. The Rehabilitation Science Research Laboratory is a department initiative with a focus on investigating the effects of therapeutic interventions on movement dysfunction with a primary focus on the adult population. Active areas of study include the biomechanical impairments, functional limitations and therapeutic strategies associated with neurologic disorders (such as those secondary to Parkinson's Disease, diabetes and peripheral vascular disease) and the role of peripheral sensory systems in the rehabilitation of walking for people with amputations. Dr. Xia has achieved R-15 NIH funding for rigidity in Parkinson's Disease research in this laboratory. Dr. Kincaid has achieved five year R-01 funding as a principal investigator for his prion disease research in collaboration with the School of Medicine. During 2008, Department faculty produced 39 presentations, published 4 papers and 1 book.

**Department of Pharmacy Practice**

The Department of Pharmacy Practice is primarily responsible for the clinical education of students enrolled in the Doctor of Pharmacy program. The large majority of the 43 faculty are clinician scientists whose research efforts are integrated within their clinical practice sites. Faculty maintain practices at CUMC, hospitals in the Alegent system, Children’s Hospital, Methodist Hospital, Omaha and Lincoln VAMCs, and Bryan LGH in Lincoln. Our clinical faculty established collaborative relationships with faculty in the Department of Medicine for a number of general and specialty clinics, the Department of Family Practice, and the Department Psychiatry. The Department has established and maintained 8 residency positions in pharmacy practice that complete their training throughout the CUMC, Bergan Mercy Medical Center, and Immanuel Medical Center. One fellow in the area of cardiology completed training within the department. From July 2008 to June 2009, the faculty produced 109 peer-reviewed publications as primary or co-author. This is a 31% increase from last year.

The Center for Drug Information & Evidence-Based Practice (CDI-EBP) supports three distinct Drug Information services, including practices at the Health Sciences Library, Immanuel Medical Center and Creighton University Medical Center. Each of these sites provides institutional support, as well as serving as a training location for rotation students. Four full-time Drug Information Specialist faculties are responsible for supporting the CDI-EBP. Additionally, collaborative efforts to provide evidence-based medicine education to medical residents at CUMC are underway. The CDI-EBP has recently entered into a contract with an industry publishing partner for medicine, nursing, pharmacy and allied health fields, to provide content for a new information product being developed.

Research and scholarship emphases are in educational assessment and outcomes research, clinical outcomes research, nanoparticles containing 3 antiretroviral agents, infectious diseases, clinical research in chronic disease management of areas such as diabetes, dyslipidemia, and public health research related to immunizations and disease prevention. Very recent progress in the area of nanoparticle formation and production has been made that holds promise for the delivery of HIV drugs. This work is possible through collaborations between scientists in pharmacy practice and Department of Biology at Creighton University and funding from a NIH Academic Research Enhancement Award (AREA). Clinical outcomes research in the areas of aspirin resistance in women, clopidogrel resistance in coronary patients, and clinical management of diabetics by pharmacists are examples of some active research for the clinical scientists in the department.

**Department of Pharmacy Sciences**

The Department of Pharmacy Sciences has 23 faculty who are Pharm.D, Ph.D. or hold both degrees trained with backgrounds in pharmaceutics, pharmacology, toxicology, medicinal chemistry, health services research and administration, educational, behavioral and social and administrative sciences in pharmacy. The department is home to the M.S. in Pharmaceutical Sciences.
Faculty in the basic sciences have engaged in cross collaborations within Creighton University and at other universities. Drug and dosage pre-formulation, characterization of the solid-state properties of drugs and delivery systems, drug delivery system design using nanotechnology, pharmaceutical analysis, and nutraceuticals are funded research areas within the department. Controlled deliveries of therapeutic protein and peptides in their conformational stability and biological activity from using smart polymer based delivery system is an active area of work. Another area is transdermal drug delivery using chemical enhancers as well as physical enhancers like iontophoresis, electrooration, sonophoresis while preserving skin reversibility, as well as percutaneous absorption of chemicals (toxicants, pollutants) and associated dermatotoxicity and skin irritation. Formulation and pre-clinical drug development and testing are also being conducted for the pulmonary delivery of active pharmaceutical ingredients and imaging agents for the identification, characterization, and treatment of both lung and systemic conditions.

Research related to diseases and conditions under study include cancers, asthma, glaucoma, infectious disease, addictions such as cigarette smoking, and molecular mechanism of normal embryo and fetal development. Research focuses on the role of TH-1/TH-2 cytokine imbalance to the etiology of asthma and allergic disease. These investigations will provide further information about treatment approaches that may be effective in the disease. Faculty are investigating the effect of cigarette smoke extract (CSE) on the conformational stability and biological activity of a model protein lysozyme, so that they may understand the mechanism of genesis of the diseases caused by smoking. Ocular diseases may have new treatment opportunities through the research of faculty who are studying the role of isoprostanes on neurotransmitters in ocular tissues (NIH funded research area). Research is active in the synthesis, in vitro and in vivo biological evaluation of bicyclic octahydroisoquinolines as β2 selective adrenoceptor agonists and of the synthesis and biological evaluation of bicyclic hexahydroaporphines as an intraocular pressure lowering and neuroprotective agent. Another research focus is utilizing computational methodology to identify lead biologically active compounds and employing both solid and solution phase chemistry for synthesizing them. Other research focuses on the control and regulation of gene expression during embryonic development. The role of Hox genes in the development of the craniofacial region of the embryo is researched to better understand how various embryonic structures develop, how the coordination of gene activities in both time and space is critical, and how disruption of these events can lead to birth defects. These and other accomplishments have been achieved through collaboration and work with the state EPSCoR (Experimental Program to Stimulate Competitive Research) program, the University of Nebraska and various departments (Chemistry, Biomedical Sciences, and others) within Creighton University.

Faculty with emphases in the behavioral, and social and administrative sciences conduct much of their work through the support and collaborative infrastructure of the Creighton Health Services Research Program (CHRP). Active, funded research is occurring with a core group of faculty in the study of pharmacy benefits management policies and practices, pharmacy practice models – such as mail order services and therapeutic drug monitoring services, and drug therapy adherence and compliance. Other funded research is focused on organizational theory, workforce and culture issues, and teamwork skills related to patient safety. One project is focused on a longitudinal effort in educational research related to pharmacy and professionalism development. Work is also being conducted in the area of educational technologies and student learning.
Publications

College of Arts and Sciences


Malina, B. J. (2009). Every rich person is a thief or the heir of a thief. In D. F. Weaver (Ed.), *God and Mammon: Selected Papers From The 2007 Annual Conference Of The Villanova University Theology Institute* (pp. 15-36). Villanova, PA.: Theological Institute at Villanova University.


Shuler, S. (2009). I feel like I won't be a good mom if I don't at least try: The breast feeding debate. In E. L. Kirby, & M. C. McBride (Eds.), Gender Actualized: Cases in Communicatively Constructing Realities (pp. 115-120). Dubuque, IA: Kendall Hunt.


**College of Business**


School of Dentistry


### School of Law


Mayer, B., & Olson, Kelly B. (Guest Eds.). (2009). Special issue on mediation and conferencing in child protection disputes. *Family Court Review, 47*(1)


Volkmer, R. R. (2008, November). Update by Louisiana Supreme Court on case involving Newcomb College; Ohio Supreme Court re-affirms privity rule; Validity of clause in trust addressed; Durable powers of attorney and agent/third party liability; 'Substituted judgment' doctrine and collateral estoppel analyzed; Survivorship and the spendthrift clause. Estate Planning, 35(11), 43-47.

Volkmer, R. R. (2008, September). Trustee's statutory power to adjust between principal and income; Breach of fiduciary duties by charitable trustees; Exhumation of decedent's remains to prove paternity; Premature trust termination under Texas Trust Code; Attestation issues relating to will execution; Breach of ethical rules as creating private right of action. Estate Planning, 35(9), 40-45.


Volkmer, R. R. (2009, March). Recent litigation over revocable trusts addresses a variety of questions; Updates on previously reported cases; Intestacy issues confronted by courts. Estate Planning, 36(3), 42-47.

Volkmer, R. R. (2009, May). Binding trust beneficiaries regarding trustee's accounts in the absence of court decree; Standing issues relating to trust administration; Administration of charitable trust analyzed; Effect of merger of charitable corporations; Parent's transfer to child: Gift, loan or resulting trust?; Requirements to accomplish revocation of will; Ponzi scheme and constructive trust relief. Estate Planning, 36(5), 42-46.


School of Medicine


Aldrich, J. V., Kumar, V., Murray, T. F., Guang, W., & Wang, J. B. (2009). Dual labeled peptides as tools to study receptors: Nanomolar affinity derivatives of TIPP (Tyr-Tic-Phe-Phe) containing an affinity label and biotin as probes of delta opioid receptors. *Bioconjugate Chemistry, 20*(2), 201-204.


Sattar, S. P., Sundy, T., Inamder, S., & Din, A. U. (2007). Differences in the self-reported reasons for adolescent drug use reported at admission vs. reported at discharge. South Dakota Medicine, 60(6), 225, 227-229.


**School of Pharmacy and Health Professions**


**Other Units**

**Vice President for Health Sciences**


Grants

College of Arts and Sciences

Brockhouse, C. [Investigator]. Proteomic studies of a highly adsorptive natural polymer: Black fly silk. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $5,000 – [1 January 2009-31 December 2009].

Bucher, G. [Investigator]. The good, the bad, the altered: Towards a method of identifying recut and typologically impure roman imperial portraits. Nebraska Humanities Council – $1,050 – [1 April 2009-30 April 2009].


Gabel, J. [Investigator]. NASA Nebraska Space Grant fellowship for Sandra Behncke. University of Nebraska at Omaha/National Aeronautics and Space Administration – $2,500 – [1 January 2009-31 December 2009].


McShane, T. S. [Investigator]. Extended air showers with the crop project. University of Nebraska at Omaha/National Aeronautics and Space Administration – $12,500 – [1 January 2009-31 December 2009].


Schalles, J. F. [Investigator]. AISA hyperspectral imagery for change detection in coastal Mississippi wetlands impacted by Hurricane Katrina. University of Nebraska at Omaha/National Aeronautics and Space Administration – $3,800 – [1 January 2009-31 December 2009].


Schrage, J. M. [Investigator]. Technology and high-impact weather events in Nebraska and South Dakota: A weather break special series. University of Nebraska at Omaha/National Aeronautics and Space Administration – $1,994 – [1 January 2009-31 August 2009].


Spencer, B. [Investigator]. Distinguished Artist Award. Nebraska Arts Council – $5,000 – [2009].


College of Business


School of Dentistry


Latta, M. A. [Investigator]. Clinical evaluation of a new dental adhesive for class V restorations. GC America, Inc. – $5,000 – [15 April 2006].


Latta, M. A. [Investigator]. Laboratory evaluation of the shear bond strength of composite resin to dentin and enamel using two self-etching adhesive systems. SDS Kerr Corporation – $6,600 – [1 October 2008].


Latta, M. A. [Investigator]. Laboratory evaluation of the shear bond strength of self-adhesive flowable restoratives to dentin and enamel compared to two self-etching adhesive systems and their associated conventional flowable restoratives. SDS Kerr Corporation – $4,800 – [1 December 2008].


McVaney, T. [Investigator]. Student summer research fellowship. Nebraska Society of Periodontology – $2,000 – [1 July 2001].


Rocha-Sanchez, S. [Investigator]. Role of supporting cells in cochlear hair cells regeneration. NIH-National Institutes of Health – $144,500 – [1 April 2009-31 March 2012].

School of Law

Culhane, M. [Principal Investigator]. Home Loss in Bankruptcy. The University of Iowa's Obermann Research Institute – $2,250 – [7 January 2009-20 November 2009].


School of Medicine


Akhter, M. P. [Investigator]. Four phenotype from four diabetics and obesity mouse crosses. Merck & Company – $1,019,561 – [1 August 2008].


Armas, L. [Investigator]. 3% dihydroxyacetone (DHA or sunless tanning agent inhibits vitamin D production in the skin in response to ultraviolet light. UV Foundation, Inc. – $8,000 – [1 November 2008-].


Arouni, A. [Investigator]. Prospective, randomized, double-blind, double-dummy, parallel-group, multi-center, event-driven, non-inferiority study comparing the efficacy and safety of once-daily oral Rivaroxaban (BAY59-7939) with adjusted-dose oral warfarin for the prevention of stroke and non-central


Bauerly, C. [Investigator]. Phase II, randomized, single-dose, double-blind, placebo-controlled study to investigate the efficacy, safety and pharmacokinetic profile of the bupivacaine implant in patients after gastrointestinal surgery. Innocoll Technologies – $12,185 – [1 June 2008].


Bertoni, J. M. [Investigator]. 3 week, double-blind, placebo-controlled trial of Pramipexole given 0.5 mg and 0.75 mg bid over a 12-week treatment phase in early Parkinson's Disease patients (Prambid). University of Rochester/Boehringer Ingelheim Pharmaceuticals, Inc. – $29,051 – [1 September 2006-31 December 2008].

Bewtra, A. K. [Investigator]. Randomized double-blind 3-arm placebo-controlled trial to evaluate human pasteurized C1 esterase inhibitor concentrate (CE1145) in subjects with congenital C1-INH deficiency and acute abdominal or facial HAE attacks. ZLB Behring – $30,000 – [1 September 2005].

Bhatia, S. K. [Investigator]. 8-week, double-blind, placebo-controlled, phase 3 trial of Pregabalin (150-600 mg/day) in the adjunctive treatment of patients with generalized anxiety disorder (GAD) who have not optimally responded to existing therapies. Pfizer Inc. – $733 – [5 February 2007].


Bhatia, S. K. [Investigator]. Phase 3 randomized 6-month double-blind trial in subjects with bipolar 1 disorder to evaluate the continued safety and maintenance of effect of Ziprasidone plus a mood stabilizer (vs placebo plus mood stabilizer) following a minimum of 4 months of response to open-label treatment with both agents. Pfizer Inc. – $7,595 – [1 March 2006-1 August 2008].


Casale, T. B. [Investigator]. 26-week treatment randomized double-blind double-dummy parallel-group study to assess the safety of Indacaterol (300 and 600 UG o.d.) in patients with moderate to severe persistent asthma using Salmeterol (50 UG B.D.) as an active control. Novartis Pharmaceuticals Corporation – $40,480 – [1 October 2007].

Casale, T. B. [Investigator]. Efficacy and safety tolerability of ragweed MATA MPL, a randomized placebo-controlled double blind study. Allied Research International Inc. – $10,480 – [1 May 2007].

Casale, T. B. [Investigator]. Parallel, randomized, double-blind, placebo-controlled trial in adults for the sublingual-oral immunotherapy (SLIT) of allergic rhinoconjunctivitis with or without asthma caused by ragweed pollen. Greer Laboratories, Inc. – $53,270 – [1 February 2008].

Casale, T. B. [Investigator]. Phase 1B randomized, placebo-controlled clinical trial to study the safety and bronchodilatory effect of MK-0476 in patients with chronic asthma. Merck & Company, Inc. – $61,582 – [1 July 2008].

Casale, T. B. [Investigator]. Randomized double-blind double-dummy placebo-controlled four-way crossover study to determine the effects of AN H3 receptor antagonist (PF-03654746) on congestion following a nasal allergen challenge in subjects with seasonal allergic rhinitis. Pfizer Inc. – $262,664 – [1 October 2007].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, dose-response, cross-over study to evaluate the effect of nasal carbon dioxide on nasal congestion via acoustic rhinometry in subjects with perennial allergic rhinitis. Capnia, Inc. – $43,644 – [1 January 2008].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, phase III study of the efficacy and safety of 300 in sublingual immunotherapy (SLIT) administered as allergen-based tablets once daily to adult patients suffering from grass pollen. Stallergenes, S.A. – $42,393 – [1 October 2008].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, multiple dose phase 2 study to determine the safety and efficacy of AMG 317 in subjects with moderate to severe asthma. Amgen, Inc.– $22,921 – [10 April 2007].


Casale, T. B. [Investigator]. Single-blind, pilot study, with an observational control group, to evaluate the pharmacodynamics, safety and preliminary efficacy of specific immunotherapy in combination with lenalidomide (Revlimid) in seasonal allergic rhinitis. Celgene Corporation – $10,375 – [10 April 2007].


Casale, T. B. [Investigator]. A multi-center, randomized study starting with a 4-week, 2-way crossover double-blind treatment phase comparing the efficacy and safety of combivent cfc mdi to Albuterol hfa mdi followed by a 4-week open label combivent respimat treatment phase when all study drugs are used for symptom relief as needed in patients with moderate to severe asthma (Gina 2008 severity classification 3-5). Boehringer, Ingelheim Pharmaceuticals, Inc. Inc. – $40,024 – [15 December 2008].


Casale, T. B. [Investigator]. The pre-clinical efficacy of BFPT-2603 mimetics in reducing percentage of blood basophils and their expression of FcRI receptors in a non-human primate model of allergic asthma. Barofold, Inc.– $60,497 – [1 January 2009].


Casale, T. B. [Investigator]. Randomized, double-blinded, placebo-controlled, parallel-group, study to assess safety, tolerability, pharmacokinetics, pharmacodynamics and efficacy of intravenous doses of QAX576 in moderate persistent asthma. Novartis Pharmaceuticals Corporation – $9,117 – [1 October 2007-1 October 2008].


Casale, T. B. [Investigator]. Research testing agreement. Barofold, Inc.– $60,497 – [31 March 2008].

Cavalieri, S. J. [Investigator]. National surveillance program for examining antimicrobial resistance to respiratory tract pathogens. Surveillance Data, Inc. – $1,000 – [1 November 2008-30 April 2009].


Chatterjee, A. [Investigator]. Comparative immunogenicity of deferent multivalent component pertussis vaccine formulations based on a 5-component acellular pertussis vaccine in infants and toddlers. Aventis Pasteur, Inc. – $89,919 – [15 November 2005].

Chatterjee, A. [Investigator]. Follow up to study: Safety and immunogenicity of Adacel (TDAP vaccine) compared to Daptacel (DTAP vaccine) as fifth dose booster in children 4 to 6 years of age. Sanofi Pasteur, Inc. – $29,973 – [17 July 2008].

Chatterjee, A. [Investigator]. Phase 1/2A, randomized, double-blind, placebo-controlled, dose-escalation study to evaluate the safety, tolerability, immunogenicity, and vaccine-like viral shedding of MEDI-534, a live, attenuated intranasal vaccine against respiratory syncytial virus (RSV) and parainfluenza virus type 3 (PIVA) in healthy children 6 to 24 month old children and in 2 month old infants. Medimmune, Inc. – $22,589 – [1 September 2008].


Chatterjee, A. [Investigator]. Phase III double-blind randomized controlled study to evaluate the safety immunogenicity and efficacy of GlaxoSmithKline Biologicals’ HPV-16/18 L1/AS04 vaccine administered intramuscularly according to a three dose schedule (0, 1, 6 month) in healthy adult female subjects aged 26 years and above. GlaxoSmithKline Company – $7,070 – [1 March 2006].

Chatterjee, A. [Investigator]. Phase 3, double-blind, randomized, controlled, study to evaluate the efficacy of GlaxoSmithKline Biologicals’ HPV-16, 18 VLP/AS04 vaccine compared to Hepatitis A vaccine as control in prevention of persistent HPV-16 or HPV-18 cervical infection and cervical neoplasia, administered intramuscularly according to a 0, 1, 6 month schedule in healthy females 15-25 years of age. GlaxoSmithKline Company – $26,184 – [7 June 2004].

Chatterjee, A. [Investigator]. Phase IIIB observer-blind randomized multi-center study with two parallel groups to compare the immunogenicity of GlaxoSmithKline Biologicals’ HPV-16/18 L1/AS04 vaccine versus Merck’s Gardasil vaccine when administered intramuscularly according to a 3-dose schedule in healthy adult females 18-45 years of age. GlaxoSmithKline Company – $3,230 – [29 January 2007].

Chatterjee, A. [Investigator]. Randomized, international, double-blind (with in-house blinding), controlled with Gardasil, dose-ranging, tolerability immunogenicity, and efficacy study of a multivalent human papillomavirus (HPV) L1 virus-like particle (VLP) vaccine administered to 16 to 26 year old women. Merck & Company, Inc. – $34,259 – [1 September 2007].


Chatterjee, A. [Investigator]. Phase 3, open-label, randomized, study to evaluate the safety and immunogenicity of ProQuad vaccine when administered concomitantly with Novartis meningococcal ACY conjugate vaccine to healthy toddlers. Novartis Pharmaceuticals Corporation – $15,554 – [1 November 2007].

Chatterjee, A. [Investigator]. Phase IIIB open-label, multi-centre immunization study to evaluate the safety of GlaxoSmithKline (GSK) biologicals' HPV-16/18 L1 VLP AS04 vaccine administered intramuscularly according to A 0, 1, 6-month schedule in healthy female American and Canadian subjects who received active control hepatitis A vaccine in the 580299/008 study. GlaxoSmithKline Company – $3,191 – [20 February 2009].


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Chatterjee, A. [Investigator]. Safety and immunogenicity of Adacel (TDAP vaccine) compared to Daptacel (DTAP vaccine) as fifth dose booster in children 4 to 6 years of age. Sanofi Pasteur, Inc.– $14,022 – [11 April 2007].


Chatterjee, A. [Investigator]. Study to evaluate the efficacy of quadrivalent HPV (Types 6, 11, 16, and 18) L1 virus-like particle (VLP) in reducing the incidence of HPV-6-, 11-, 16-, and 18 related anogenital warts and the incidence of HPV-6-, 11-, 16-, and 18-related genital infection in 16 to 23 year old men. Merck & Company, Inc.– $734 – [15 September 2004].


Cullen, D. M. [Investigator]. Analysis of PQCT data collected at the naval station Great Lakes. L-3 Services, Inc./Department of Defense – $14,122 – [1 January 2009-31 December 2009].


Del Core, M. [Investigator]. Comparison of prasugrel and clopidogrel in acute coronary syndrome (ACS) subjects with unstable angina/non-ST-elevation myocardial infarction (UA/NSTEMI) who are medically managed - The Trilogy ACS study. Eli Lilly and Company – $9,925 – [1 June 2008].


Del Core, M. [Investigator]. Intracoronary treatment with integrilin to improve angiographic outcomes. Brigham and Women’s Hospital – $5,000 – [1 September 2007-30 June 2009].


Del Core, M. [Investigator]. Multi-center registry for the evaluation of drug eluting stents and ischemic events (event registry). Millennium Pharmaceuticals/ Mellenniom Pharmaceuticals, Inc.– $1,200 – [20 June 2004].

Del Core, M. [Investigator]. Multi-center, randomized, double-blind, placebo-controlled study to evaluate the safety and efficacy of SCH 530348 in addition to standard of care in subjects with a history of atherosclerotic disease thrombin receptor antagonist for secondary prevention of atherothrombotic ischemic events (Tra 2*P-TIMI) Schering-Plough Research Institute – $22,000 – [1 September 2007].

Del Core, M. [Investigator]. Prospective, single blind, randomized, multi-center, study comparing the cypher elite to the cypher BX velocity sirolimus-eluting stent systems (elite). Cordis Corporation – $4,015 – [1 May 2008-31 December 2013].

Del Core, M. [Investigator]. Phase 3 randomized, double-blind, parallel group efficacy and safety study of AZD6140 compared with clopidogrel for prevention of vascular events in patients with non-st or st elevation acute coronary syndrome (ACS) - (Plato - a study of platelet inhibition and patients outcomes). AstraZeneca – $9,610 – [1 April 2007].


Del Core, M. [Investigator]. Inhibition of B-protein kinase C for the reduction of infarct size in acute myocardial infarction (Protection AMI). Biogen – $5,625 – [31 December 2008].

Del Core, M. [Investigator]. Phase 3, double-blind, randomized, placebo-controlled study to evaluate the effects of RO4607381 on cardiovascular (CV) risk in stable CHD patients, with a documented recent acute coronary syndrome (ACS). Hoffman-LaRoche, Inc.– $13,786 – [1 May 2008].

Del Core, M. [Investigator]. Xience B everolimus eluting coronary stent system (EECSS) exceed: evaluation of Xience V for catherization lab endpoints and excellence in deliverability. Abbott Cardiovascular System, Inc. – $7,800 – [1 February 2009].


Dravid, S. [Investigator]. Partial agonism at the NMDA receptor NR1 subunit. Epilepsy Foundation – $50,000 – [1 January 2009-31 December 2009].


Gallagher, J. C. [Investigator]. 12-month open label multi-center study to evaluate the safety of a 1.3 G oral dose of a new modified-release tranexamic acid formulation administered three times daily as needed for up to 5 days during the menstrual cycle in women with heavy menstrual bleeding associated with menorrhagia. Xanodyne Pharmaceuticals, Inc. – $18,303 – [1 January 2005].


Goering, R. V. [Investigator]. HFF SOM research development: Start-up support for Chair of Medical Microbiology and Immunology. Health Future Foundation – $198,931 – [13 April 2006-30 June 2009].


Hanson, N. D. [Investigator]. AAC training course (Criollo, Trajanovic). Bayer Corporation – $600 – [1 February 2008-31 December 2008].

Hanson, N. D. [Investigator]. B-lactamase detection/identification. Spectrum Health – $250 – [1 November 2008]

Hanson, N. D. [Investigator]. Clinical impact of pseudomonas aeruginosa possessing KPC-2 carbapenemases in addition to chromosomal mechanisms associated with carbapenem resistance. AstraZeneca – $109,931 – [1 January 2008].

Hanson, N. D. [Investigator]. DNA control strains. Trac Microbiology – $500 – [1 July 2008-31 December 2008].

Hanson, N. D. [Investigator]. DNA control strains. BD Diagnostic Systems – $5,000 – [1 September 2008].


Hanson, N. D. [Investigator]. DNA control strains for AMPC. Princess Margaret Hospital – $250 – [1 October 2008].


Hanson, N. D. [Investigator]. Molecular characterization of AMPC resistance. Anacor Pharmaceuticals, Inc. – $8,625 – [1 December 2008].

Hanson, N. D. [Investigator]. Molecular characterization of AMPC resistance. Virginia Mason Medical Center – $250 – [1 October 2008].


Heaney, R. P. [Investigator]. ConAgra Foods educational project. ConAgra, Inc. – $25,000 – [14 March 2007].


Heaney, R. P. [Investigator]. International Dairy Foods Association educational project. International Dairy Foods Association – $9,000 – [1 August 2006].


Holmberg, J. [Investigator]. Randomized, double-blind, double dummy, parallel group, phase 3 efficacy and safety study of CGT 2168 compared with Clopidogrel to reduce the incidence of upper gastrointestinal events including bleeding and symptomatic ulcer disease. Cogentus Pharmaceuticals, Inc. – $9,179 – [1 July 2008-31 December 2010].


Huggett, K. [Investigator]. A review of literature on teaching awards. Society of Directors of Research in Medical Education – $2,000.


Hunter, C. B. [Investigator]. Randomized double-blind double-dummy parallel group factorial design trail to assess the efficacy and safety of up to six weeks treatment with 20mg, 4mg, or 80mg QD doses of Carvedilol controlled release formulation (COREG CR) GlaxoSmithKline Company – $7,169 – [1 February 2007].


Jung, L. K. [Investigator]. Multi-center randomized double-blind placebo-controlled study to test the safety and efficacy of Lipitor (atorvastatin) in reducing the progression of carotid IMT in early childhood (SLE) (apple study). Duke University/National Institutes of Health – $5,250.


Lund, R. J. [Investigator]. Dose-blinded, long-term safety extension study of fixed doses of Darusentan in subjects with resistant systolic hypertension receiving combination therapy with three or more antihypertensive drugs, including diuretic (Dorado-ex). Gilead Sciences, Inc. – $3,000 – [1 May 2008].


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Lund, R. J. [Investigator]. 12-week, open label, multi-center, titration study, with a 9 month maintenance treatment extension, to demonstrate efficacy of SBR759 compared to Sevelamer HCL in lowering serum phosphate levels in chronic kidney disease patients on hemodialysis. State of NE-DHHS – $1,100 – [1 January 2009-31 December 2009].


Lund, R. J. [Investigator]. Randomized, double-blind active-controlled clinical trial to evaluate the safety and tolerability of 24 weeks treatment with Vildagliptin (50 mg QD or 100 mg QD) versus Sitagliptin (25 mg QD) in patients with type 2 diabetes and severe renal insufficiency. Novartis Pharmaceuticals Corporation – $20,002 – [10 August 2007].

Lund, R. J. [Investigator]. Outcome trail evaluating the efficacy and safety of norditropin in adult patients on chronic hemodialysis: a randomized, double-blind, parallel group, placebo controlled, trial. Novo Nordisk Pharmaceuticals Inc. – $2,500 – [1 September 2008].


McQuillan, R. J. [Investigator]. AAPFM/Pfizer visiting professor in pain medicine. Pfizer inc.– $7,500 – [1 December 2008-12 February 2009].


Morrow, L. E. [Investigator]. Linezolid in the treatment of subjects with nosocomial pneumonia proven to be due to methicillin-resistant staphylococcus aureus. Pfizer, Inc. – $33,069 – [1 November 2005].


Morrow, L. E. [Investigator]. Phase 2, open-label, non-comparative study of Doripenem in the treatment of nosocomial and ventilator-associated pneumonia in hospitals where pseudomonas aeruginosa may be a prevalent pathogen. Ortho-McNeil – $6,950 – [9 April 2007].


Morrow, L. E. [Investigator]. Unrestricted educational grant. CSL Behring – $1,000 – [5 January 2009].


Recker, R. R. [Investigator]. Effects of Teriparatide on bone microarchitecture as determined by high resolution magnetic resonance imaging and digital topological analysis. Eli Lilly and Company – $5,000 – [1 October 2008].


Recker, R. R. [Investigator]. Open label parallel group multi-center study of two IV Ibandronate dose regimens (2 mg every 2 months and 3 mg every 3 months) in women with postmenopausal osteoporosis who completed trial BM 16550. Hoffmann-LaRoche, Inc. – $5,270 – [1 November 2004].

Recker, R. R. [Investigator]. Open label parallel group multi-center study of two IV Ibandronate dose regimens (2mg Q 2 mo, 3mg Q 3mo) in women with postmenopausal osteoporosis who completed trial BM16550 which is part of the Roche RO 200-5450 (Ibandronate) clinical development project. $34,480 – [1 July 2007].


Recker, R. R. [Investigator]. Randomized study evaluating the effect on renal function of Ibandronate administered as an IV bolus injection compared to an IV infusion and Alendronate oral administered once weekly in postmenopausal women with osteoporosis at high risk for renal disease. Hoffmann-LaRoche, Inc. – $23,617 – [1 June 2007].


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Rendell, M. S. [Investigator]. 28 week extension to a 24 week, randomized, double-blind active-controlled clinical trial to evaluate the safety and tolerability of 24 weeks treatment with Vildagliptin (50 mg qd or 100 mg qd) versus Sitagliptin (25 mg qd) in patients with type 2 diabetes and severe renal insufficiency. Novartis Pharmaceuticals Corporation – $6,702 – [1 October 2008].


Rendell, M. S. [Investigator]. Effect of insulin Glulisine compared to insulin Aspart and insulin Lispro when administered by continuous subcutaneous insulin infusion (CSII) on specific pump parameters in patient with type 1 diabetes mellitus. Sanofi-Aventis U.S. Inc. – $27,500 – [1 December 2007].


Rendell, M. S. [Investigator]. Effects of RO0728804 on renal function in patients with type 2 diabetes, as compared to Actos. Hoffman-LaRoche, Inc. – $3,278 – [1 April 2007].


Rendell, M. S. [Investigator]. Multi-center randomized double-blind placebo-controlled phase 3 trial to evaluate the efficacy and safety of Saxagliptin (BMS-477118) as monotherapy in subjects with type 2 diabetes who have inadequate glycemic control with diet and exercise. Bristol-Myers Squibb – $4,481 – [1 July 2005].

Rendell, M. S. [Investigator]. Multi-center randomized double-blind placebo-controlled phase 3 trial to evaluate the efficacy and safety of Saxagliptin (BMS-477118) in combination with Metformin in subjects with type 2 diabetes who have inadequate glycemic control on Metformin alone. Bristol-Myers Squibb – $2,540 – [1 July 2005].


Rendell, M. S. [Investigator]. Multi-center, open-label extension study to evaluate the long-term safety, tolerability and efficacy of E2007 (Perampanel) in patients with painful diabetic neuropathy (PDN) or post-herpetic neuralgia (PHN). Eisai Medical Research, Inc. – $52,182 – [1 February 2008].
Rendell, M. S. [Investigator]. Multi-center, randomized, double-blind clinical trial to evaluate the safety and tolerability of 24 weeks of treatment with Vildagliptin (50 mg qid or 100 mg qid) versus placebo in patients with type 2 diabetes and moderate renal insufficiency. Novartis Pharmaceuticals Corporation – $7,412 – [10 October 2007].

Rendell, M. S. [Investigator]. Multi-center, randomized, double-blind, placebo-controlled, parallel study comparing the analgesic efficacy and the safety of ABT-894 (1 mg, 2 mg, and 4 mg), Duloxetine (60 mg) and placebo in approximately 275 subjects with diabetic neuropathic pain. Abbott Laboratories – $35,242 – [1 March 2008].


Rendell, M. S. [Investigator]. Phase 2/3 randomized double-blind multi-center multinational 4-arm controlled dose-ranging study to evaluate efficacy and safety of MGA031 a humanized FCR non-binding anti-CD3 monoclonal antibody in children and adults with recent-onset type 1 diabetes mellitus. MacroGenics, Inc. – $129,483 – [1 October 2006].


Rendell, M. S. [Investigator]. Phase 3B randomized open-label parallel group multi-center trial assessing the efficacy of Exubera vs. Lispro introduced into a Lantus based regimen in suboptimally controlled patients with type 2 diabetes mellitus. Pfizer Inc. – $9,814 – [1 June 2006].

Rendell, M. S. [Investigator]. Phase III randomized, active-comparator (Mettomin) controlled, clinical trial to study the efficacy and safety of MK-0431A in patients with type 2 diabetes mellitus. Merck & Company, Inc. – $4,541 – [1 September 2007].


Rendell, M. S. [Investigator]. Pivotal open-label parallel study to evaluate the safety and efficacy of human insulin inhalation powder (HIIP) compared to injectable insulin in patients with diabetes and COPD or asthma. Eli Lilly and Company – $3,310 – [1 March 2007].

Rendell, M. S. [Investigator]. Prospective open-label randomized controlled study comparing the efficacy and safety in subjects with Type 1 diabetes receiving subcutaneous basal insulin and prandial inhalation of technosphere/insulin versus subcutaneous basal and prandial insulin over a 52 week treatment period and a 4 week follow up. Mannkind Corporation – $17,191 – [1 July 2006].

Rendell, M. S. [Investigator]. Prospective, open-label, randomized, controlled clinical study comparing the efficacy and safety in subjects with type 2 diabetes receiving subcutaneous Basal Insulin and Prandial inhalation of Technosphere Insulin versus subcutaneous insulin over a 52 week treatment period and a 4 week follow up. Mannkind Corporation – $8,158 – [1 March 2007].

Rendell, M. S. [Investigator]. Randomized, double-blind, placebo-controlled parallel group efficacy and safety study of BI 1356 (5 mg administered orally once daily) over 24 weeks in type 2 diabetic patients with insufficient glycemic control despite Metformin therapy. Boehringer Ingelheim Pharmaceuticals, Inc. – $48,103 – [1 February 2008].

Rendell, M. S. [Investigator]. Randomized-withdrawal phase III study evaluating the safety and efficacy of CG5503 extended release (ER) in subjects with painful diabetic peripheral neuropathy (DPN). Johnson & Johnson – $8,180 – [1 April 2007].

Rendell, M. S. [Investigator]. Six month, open-label, randomized parallel group trial assessing the impact of dry powder inhaled insulin (Exubera) on glycemic control compared to insulin glargine (Lantus) in patients with type 2 diabetes mellitus who are poorly controlled on a combination of two or more oral agents. Pfizer Inc. – $13,939 – [1 April 2007].


Rendell, M. S. [Investigator]. 8-week, multi-center, randomized, double-blind, four-arm, parallel-group study comparing the safety and efficacy of ABT-143 to Simvastatin in subjects with hypercholesterolemia. Abbott Laboratories – $9,446 – [1 December 2008].


Rendell, M. S. [Investigator]. Double-blind, active-controlled, long-term safety extension study of optimized doses of Darusentan in subjects with resistant hypertension despite receiving combination therapy with three or more anti-hypertensive drugs, including a diuretic, as compared to Guanfacine. Gilead Sciences, Inc. – $2,000 – [1 January 2009].

Rendell, M. S. [Investigator]. , randomized, double-blind active-controlled clinical trial to evaluate the safety and tolerability of 24 weeks treatment with Vildagliptin (50 mg qd or 100 mg qd) versus Sitagliptin (25 mg qd) in patients with type 2 diabetes and severe renal insufficiency. Novartis Pharmaceuticals Corporation – $1,950 – [1 October 2007].

Rendell, M. S. [Investigator]. , randomized, double-blind, placebo-controlled, parallel group, phase 3 trial to evaluate the safety and efficacy of dapagliflozin in combination with thiazolidinedione therapy in subjects with type 2 diabetes who have inadequate glycemic control on thiazolidinedione therapy alone. Bristol-Myers Squibb – $3,125 – [1 October 2008].


Rendell, M. S. [Investigator]. Phase 3 randomized, double-blind, placebo- and active-controlled, parallel group study to evaluate the safety and efficacy of Darusentan in subjects with resistant hypertension receiving combination therapy with three or more anti-hypertensive drugs, including a diuretic, as compared to Guanfacine or placebo. Gilead Sciences, Inc. – $9,500 – [1 January 2009].

Rendell, M. S. [Investigator]. Randomized, double-blind, active-controlled parallel group efficacy and safety study of BI 1356 (5.0mg, administered orally once daily) compared to Glimepride (1 to 4 mg once
daily) over two years, in type 2 diabetic patients with insufficient glycaemic control despite metformin therapy. Boehringer Ingelheim Pharmaceuticals, Inc. – $111,128 – [1 February 2008].

Rendell, M. S. [Investigator]. Randomized, double-blind, placebo and active-controlled, parallel-group, multi-center study to determine the efficacy and safety of Albiglutide when used in combination with Metformin compared with Metformin plus Sitagliptin, Metformin plus Glimepiride and Metformin plus placebo in subjects with type 2 diabetes mellitus. GlaxoSmithKline Company – $12,482 – [1 January 2009].

Rendell, M. S. [Investigator]. Randomized, double-blind, placebo and active-controlled, parallel-group, multi-center study to determine the efficacy and safety of two dose levels of Albiglutide administered in combination with Metformin and Glimepiride compared with Metformin. GlaxoSmithKline Company – $1,000 – [1 January 2009].


Rendell, M. S. [Investigator]. Randomized, double-blind, placebo-controlled, parallel-group, multi-center study to determine the efficacy and safety of Albiglutide when used in combination with Pioglitazone with or without Metformin in subjects with type 2 diabetes mellitus. GlaxoSmithKline Company – $1,461 – [1 January 2009].

Rendell, M. S. [Investigator]. Randomized, double-blind, placebo-controlled, parallel-group, multi-center study to determine the efficacy and safety of two dose levels of Albiglutide compared with placebo in subjects with type 2 diabetes Mellitus. GlaxoSmithKline Company – $6,632 – [1 January 2009].

Rendell, M. S. [Investigator]. Randomized, open-label, parallel-group, multi-center study to determine the efficacy and long term safety of Albiglutide compared with insulin in subjects with type 2 diabetes Mellitus. GlaxoSmithKline Company – $5,491 – [1 January 2009].


Schuller, D. [Investigator]. 26-week treatment multi-center randomized double-blind double dummy placebo-controlled adaptive seamless parallel-group study to assess the efficacy, safety and tolerability of two doses of Indacaterol (selected from 75, 150, 300, 600 mg o.d.) in patients. Novartis Pharmaceuticals Corporation – $1,634 – [15 March 2007].

Schuller, D. [Investigator]. Multicentre 3 year longitudinal prospective study to identify novel endpoints and compare these with forced expiratory volume in 1 second (FEV-1) for their ability to measure and


Schuller, D. [Investigator]. Phase 3, randomized, double-blind, efficacy and safety study of monotherapy Sitaxsentan sodium versus combination therapy with Sitaxsentan sodium and Sildenafil citrate in subjects with pulmonary arterial hypertension who have completed study B1321001. Pfizer Inc. – $6,125 – [24 September 2008].


Silberstein, P. T. [Investigator]. Observational study of Avastin (Bevacizumab) in combination with chemotherapy for treatment of metastatic or locally advanced and unresectable colorectal cancer, locally advanced or metastatic non-small cell lung (excluding predominant squamous cell histology), or locally recurrent or metastatic breast cancer. Genentech, Inc. – $8,000 – [9 February 2007].

Silberstein, P. T. [Investigator]. Once per cycle treatment of anemia with darbepoetin alfa with iron in subjects with non-myeloid malignancies. Amgen, Inc. – $16,000 – [8 January 2007].


Silberstein, P. T. [Investigator]. Randomized open-label comparative study of Epoetin Alfa (Procrit) 80,000 units or 120,000 units Q3W verses Darbepoetin Alfa (Aranesp) 500 mcg Q3W in anemic cancer subjects receiving chemotherapy. Ortho Biotech, Inc. – $21,375 – [20 December 2006].


Silberstein, P. T. [Investigator]. Phase I, multi-center, open-label dose escalation study evaluating the safety and tolerability of multiple AF37702 injections in subjects with refractory non-small cell lung cancer, breast cancer, or prostate cancer who are anemic and receiving cytotoxic chemotherapy. Takeda America, Inc. – $3,875 – [1 June 2008].


Silberstein, P. T. [Investigator]. Risk and outcomes of mucositis in subjects being treated for breast, colorectal, head and neck, non-small cell lung or ovarian cancers. Amgen, Inc. – $1,875 – [19 April 2006].

Simeone, T. [Investigator]. School of Medicine research development - Pharmacology faculty start-up - Timothy Simeone. Health Future Foundation – $394,663 – [1 February 2009-30 June 2009].


Thomson, K. S. [Investigator]. Gram-negative bacteria with Levofloxacin susceptibilities. Penn State Hershey Medical Center – $2,050 – [1 December 2007].


Townley, R. G. [Investigator]. A 26-week treatment, multi-center, randomized, double-blind, double dummy, placebo-controlled, adaptive, seamless, parallel-group study to assess the efficacy, safety and tolerability of two doses of Indacaterol (selected from 75, 150, 300, & 600 UG O.D) in patients with chronic obstructive pulmonary disease using blinded formoterol (12 ug bid) and open label tiotropium (18 ug od) active controls. Novartis Pharmaceuticals Corporation – $11,770 – [1 April 2007].

Townley, R. G. [Investigator]. Effect of Xolair on inhibiting leukotriene and cytokine (IL-4 and IL-13) release from blood basrophils. Novartis Pharmaceuticals Corporation – $9,000 – [1 June 2006].


Townley, R. G. [Investigator]. Randomized, double-blind, placebo-controlled, parallel group, multi-center, two-year study to evaluate the ocular safety of once-daily, fluticasone furoate nasal spray 110 mcg in adults and adolescents 12 years of age and older with perennial allergic rhinitis. GlaxoSmithKline Company – $29,154 – [1 October 2008].


Varman, M. [Investigator]. Phase II randomized, observer blind, multi-center study of GlaxoSmithKline biologicals combined measles-mumps-rubella-varicella vaccine (MMRV) versus proquad, according to a one dose schedule, both administered subcutaneously at 12-14 months of age concomitantly with hepatitis A vaccine (HAV) and pneumococcal conjugate vaccine (PCV) but at separate sites. GlaxoSmithKline Company – $42,137 – [1 March 2008].

Varman, M. [Investigator]. Phase III randomized multinational study double-blinded for the immunogenicity and consistency evaluation of 3 Hib-Mency-TT vaccine lots and single-blinded and controlled for the evaluation of safety and immunogenicity of GSK Biologicals Haemophilus influenza type B and Neisseria meningitides serogroups C and Y-tetanus toxoid conjugate vaccine combined (Hib-MenCY-TT) compared to monovalent Hib vaccine in healthy infants at 2, 4, 6 and 12 to 15 months of age. GlaxoSmithKline Company – $5,186 – [15 April 2006].

Varman, M. [Investigator]. Evaluation of the persistence of bactericidal antibodies in adolescents and adults who received a single dose of menactra four to eight years earlier. Sanofi Pasteur, Inc. – $13,135 – [1 January 2009-31 December 2009].


Wilson, D. R. [Investigator]. Proactive: Brain neurotrophins and relapse in schizophrenia. University of Iowa/National Institutes of Health – $6,000 – [1 January 2008-31 December 2008].


School of Nursing


School of Pharmacy and Health Professions

Bradberry, J. C. [Investigator]. HFF Program: Research in the School of Pharmacy and Health Professions. Health Future Foundation – $115,000 – [1 July 2008-30 June 2009].


Doll, J. D. [Investigator]. The community as a classroom: Exploring the impact of community learning in occupational therapy education. Midwest Consortium for Service Learning – $1,000 – [January 2009].


Galt, K. A. [Investigator]. Care transitions project of CIMRO of Nebraska. Health and Human Services – $70,133 – [1 September 2008-31 August 2010].

Galt, K. A. [Investigator]. HFF Program: Bridge funding request to continue core faculty integration and development of the Creighton Health Services research team. Health Future Foundation – $124,998 – [1 July 2008-30 June 2009].


Galt, K. A. [Investigator]. Study analysis of citizen’s perceptions of the implications of personal records (PHRS) and electronic health records (EHRS). State of NE-DHHS – $14,000 – [1 June 2008-31 August 2008].


Goulet, C. [Investigator]. Interdisciplinary team skills development for health professional students. Association for Prevention Teaching and Research – $2,900.


Other Creighton Grants

Braden, B. [Investigator]. Osher reentry scholarship grant. Bernard Osher Foundation – $50,000 – [12 December 2006].


Walker, R. [Investigator]. National Smart. $77,014 – [1 July 2008-30 June 2009].


Vice President for Health Sciences


Taggart, K. J. [Investigator]. NSF regional workshop faculty registrations. Health Future Foundation – $4,065.

Theses and Dissertations

August 2008

Aggarwal, Himanshu. Leukemia/Lymphoma related factor in human prostate carcinoma. Master of Science (Biomedical Sciences) – Dr. Devendra Agrawal (Major Advisor).


Changstrom, Jessica. Dynamic light scattering in mixed alkali metaphosphate glass forming liquids. Master of Science (Physics) – Dr. David Sidebottom (Major Advisor).

Copps, Jeffrey. Importance of the gastrin N-terminal region in binding and activation of the putative G17 gly receptor on human colonic carcinoma cells. Doctor of Philosophy (Biomedical Sciences) – Dr. Sandor Lovas (Major Advisor).

Kriatchko, Aleksei. The V(D)J recombinase: Toward a mechanistic understanding of its cleavage activity. Doctor of Philosophy (Medical Microbiology and Immunology) – Dr. Patrick Swanson (Major Advisor).

Ophardt, Rebecca. Errb2: A regulator of the skin’s response to ultraviolet radiation. Master of Science (Biomedical Sciences) – Dr. Laura Hansen (Major Advisor).

Schmidtke, Amber. The effect of ampD on ampC expression in Pseudomonas aeruginosa and citrobacter freundii. Doctor of Philosophy (Medical Microbiology and Immunology) – Dr. Nancy Hanson (Major Advisor).

Wang, Xiang. Outer hair cell electromotility and cochlear amplifier. Doctor of Philosophy (Biomedical Sciences) – Dr. David Zhi-Zhou He (Major Advisor).

Zhao, Min. Regulation of endogenous excitatory neurotransmitters by isoprostanes. Doctor of Philosophy (Pharmacology) – Dr. Catherine Opere (Major Advisor).

December 2008

Ahmad, Selwa. Factors predicting support or opposition in Israel for the creation of a Palestinian state. Master of Arts. (International Studies) – Dr. Graham Ramsden (Major Advisor).


Enninful, George. Rarity of novel microRNAs in the mouse inner ear. Master of Science (Biomedical Sciences) – Dr. Garrett Soukup (Major Advisor).

Johnson-Gilliam, Gloria. Mouse models of allergic asthma with cockroach and house dust mite: Effect of FLT-3 ligand plasmid. Master of Science (Biomedical Sciences) – Dr. D. K. Agrawal (Major Advisor).

Lukas, Sarah. Successful women leaders in the workplace: Advice to fill a briefcase for success. Master of Arts (Liberal Studies) – Dr. Erika Kirby (Major Advisor).


Pierce, Marsha. MicroRNAs are essential for hair cell development. Master of Science (Biomedical Sciences) – Dr. Garrett Soukup (Major Advisor).

Pitz, Adam. The effects of chronic ethanol (EtOH) ingestion and smoke exposure on anti-pneumococcal host defenses. Doctor of Philosophy (Medical Microbiology and Immunology) – Dr. Martha Gentry-Nielsen (Major Advisor).

Qin, Jianbing. P-REX 1 promotes prostate cancer metastasis. Doctor of Philosophy (Pharmacology) – Dr. Frank Dowd (Major Advisor).


Rueth, Daniel. Constructing minority governments. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).


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Ball, Barbara. Intimacy in writing: Finding love in war letters. Master of Arts (English) – Dr. Greg Zacharias (Major Advisor).

Boylan, Meghan. A contemporary discussion about the influence of African art and culture on European art with an emphasis on Miquel Barcelo. Master of Arts (Liberal Studies) – Dr. Richard White (Major Advisor).

Carter, Katherine. The effects of melatonin on the teratogenic effects of homocysteine. Master of Science (Pharmaceutical Sciences) – Dr. Aimee Limpach (Major Advisor).

Krilova, Nino. Political effects of remittances: Political participation in developing countries. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).

Moore, Benjamin. TGF-beta1-induced chloride channel activity and migration of human eosinophils. Master of Science (Biomedical Sciences) – Dr. Devendra Agrawal (Major Advisor).


Okitafumba Lokola, Raphael. Rethinking the transcendent dignity of the human person. Master of Arts (Theology) – Dr. Russell Reno (Major Advisor).

Schwaller, Lucas. Untitled novel. Master of Arts (English) - Dr. Mary Helen Stefaniak (Major Advisor).

Stallworth, Arthur. TH17 cells and suppressor of cytokine signaling in house dust mite model of asthma: Effect of FLT-3 ligand. Master of Science (Biomedical Sciences) – Dr. D. K. Agrawal (Major Advisor).

Wilson, Thomas. Hope from within: Reform in the Islamic republic and Ayatollah Montazeri’s mission to fulfill the promise of the IR Rev. Master of Arts (International Relations) – Dr. John Calvert (Major Advisor).
Illustrations

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Acknowledgements

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