Creighton University
Faculty Bibliography
2009-2010
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Introduction

…in Jesuit education, the depth of learning and imagination encompasses and integrates intellectual rigor with reflection on the experience of reality together with the creative imagination to work toward constructing a more human, just, sustainable, and faith-filled work.


Fr. Adolfo Nicolas, SJ, Superior General of the Society of Jesus, challenges Jesuit higher education today to promote depth of thought and imagination that involves a profound engagement with the real. The scholarly work done by faculty at Creighton represents evidence of this kind of meaningful engagement with the real. This is the nineteenth Faculty Bibliography produced annually by Creighton University’s Graduate School under the guidance of the University Research Council (URC). The bibliography documents the scholarly accomplishments of the University community for the period of July 1, 2009 through December 31, 2010. 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, theses and a new addition this year, creative works. 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, teaching and learning and creative work. There is strong evidence that Creighton faculty are committed teacher-scholars and true stewards of their disciplines. As stewards, Creighton faculty have 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.

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Associate VP for Research, Health Sciences
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Dean, Graduate School and University College
Associate VP for Research, Academic Affairs
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. One example of a long-standing Center effort 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. During an hour-long session, ethical 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 continuing growth and refinement of the Master of Science program in Health Care Ethics will require closer examination of student learning and outcomes, especially those obtained in an online environment. The health care system will continue to develop, policies will change, and technology will introduce challenges that inevitably lead to new moral considerations. Faculty at the Center will continue to make important contributions in these areas and direct attention to issues and concerns that align with the Center’s mission as they have done for more than a quarter of a century.

For additional information about the Center for Health Policy and Ethics, visit the Center’s webpage at: http://chpe.creighton.edu.
College of Arts and Sciences

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, his research group has developed a method to quickly calculate the nuclear magnetic resonance (NMR) chemical shifts of nuclei in the presence of a discrete solvent potential. Basically, they try to predict chemical shifts in solution. They 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 she 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’ group seeks to develop replacements for fetal bovine serum (FBS) in tissue culture. His group is quantitating differences in growth and protein expression of insect cells grown in culture supplemented with various lipid replacements for FBS. It is hoped that elucidation of the biochemical pathways that are activated or deactivated upon exposure to specific lipids (and other components of serum) will provide a rational basis to design a culture medium that provides improved cell growth without need for FBS supplementation. In a separate project, he is uncovering the biochemical pathways of the immune response to bacterial challenge in the squash bug, Anasa tristis. This pest organism is economically devastating in the Midwest, and the goal is to use knowledge of the biochemistry of the immune response to engineer more effective biological controls against squash bug outbreaks.

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 powerful 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 useful in conformational engineering;
The synthesis of modified amino acids to build peptides with increased bioactivities;

Photochemical reactions exploiting the unique properties of light emitting diodes;

The synthesis and $^{17}$O NMR characterization of endoperoxides;

Preparation of intermediates in lignan biosynthesis, 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, CH$_4$-$n$D$_n$, $n$ = 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 2H:1D; (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 (H$_2$) and dideuterium (D$_2$) undergo D/H statistical exchange in the presence of the catalyst at temperatures as low as –78 °C. His group uses high-field nuclear magnetic resonance and mass spectroscopy to study these reactions.

Dr. Julie Soukup’s laboratory has a general interest in the structure and function of riboswitches. Specifically the lab is interested in how bacterial riboswitch RNAs interact with particular cellular metabolites in order to modulate genetic control. 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 they have designed a technique to study interactions between the catalytic riboswitch and its metabolite in the hopes of being able to design non-natural ligands that target natural riboswitches and act as novel antimicrobial agents against some of the hardest to treat human pathogens.

College of Business

The research activity of the faculty of the College of Business represented interests as diverse as the disciplines represented among the members of the faculty. Faculty published sole-authored publications, and multiple-authored publications with colleagues both here at Creighton and at various universities across the country. They were successful in getting acceptances at high-level outlets where the odds are stacked against the author(s).

Not everything published was theoretical. Members of the College of Business published practitioner-oriented applied updates, tomes on service learning and even chapters in a business English text for Chinese students.

In the management area, Todd Darnold continued to publish in the human resources arena, with an article on personality related to personnel selection and selection techniques.

Economics faculty members created knowledge in the area of tax policy, state taxation and economic growth, as well as the role of intellectual property rights in developing companies and economies.
Operating leverage and value and risk and hedging and index fund management issues occupied the research agendas of various finance faculty, although a pair of economics and finance faculty members forged into unique territory. Juli-Ann Gasper and John Wingender's paper on a risk and return index for quilts – yes, quilts – won a best paper award in *The Business Review*. Interesting!

Overall, faculty of the College of Business effectively create and disseminate new knowledge. They publish for the sake of knowledge alone, and in support of teaching their own students as well as others. Their interests and expertise span a wide realm of business-related disciplines, and as a body of work, represent significant contributions to the academy.

**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 dental materials science, health services research and in translational and clinical trials. In addition, a newly created Master of Science in Oral Biology program has been created. This is an interdisciplinary research thesis program within the School of Dentistry and in collaboration with the College of Arts and Sciences.

Active areas of research include:

- 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 that are engineered for longevity and strength in the oral environment.

- Microencapsulation methods that will lead to materials with a controlled release of bioavailable remineralizing agents. These investigations could lead to dental restorative 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.

- Research and educational initiatives in Oral Cancer prevention and diagnosis.
School of Law

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 addressed a conference of more than 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 was completed in 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. Dean 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.

G. Michael Fenner’s primary research interests include 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 edition of *Nebraska Jury Instructions* (Thomson West, St. Paul, MN 2008-09). In the Constitutional law area he is studying federal legislative power generally and particularly under the Commerce Clause, limits on state and local legislative power under the dormant Commerce Clause, the Confrontation Clause, the Search and Seizure Clause, and the Second Amendment right to bear arms.

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. Associate Dean Kelly also serves as contributing editor to the on-line 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 attended an international conference on comparative criminal procedure in Parma, Italy, during 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, IA, 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 co-author 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 to the *2008 Cumulative Supplement to Transfers by Deed*, and Chapter 83, "Donative Transfers," to vol. 9 of *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, published 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 co-author, 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 the development and differentiation of the brain, inner ear, and cardiovascular system; comparative neuroanatomy and neurodegenerative disorders; 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, 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 Pulmonary and Vascular Diseases, and Cancer

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. 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 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; 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. Our 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. We 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.

**Airway Hyper-responsiveness**

Research on mechanisms on 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 that is 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 nicotine and elevated homocysteine on neural crest morphogenesis and mechanisms on cardiovascular and craniofacial development is also ongoing. In order to develop preventative strategies for congenital defects, we must understand the mechanisms driving neural crest and cardiac morphogenesis and how nutritional elements may be involved. These studies also enhance our understanding of adult diseases because many diseases may have embryological origins.

Faculty: Philip R. 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, we 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. Our 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 enable us to understand the molecular machinery that makes and braces ear formation, especially the innervation. In a parallel avenue, we are
investigating the activity-dependent connectional dynamics. For this we 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, we 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; David He, PhD; 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, 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; Richard Hallworth, PhD; David He, PhD; 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; David He, PhD.

Glycobiology of Development

All vertebrate cells are surrounded by a layer of sugars that mediate how cells interact with each other. Our research is focused on understanding how changes to the sugars control development. We use zebra fish as a model system, allowing us to readily visualize organ development. We are particularly interested in ear and vascular development as similar sugars regulate these two distinct processes. The research is funded by the National Institutes of Health and is being pursued in collaboration with investigators at Harvard University, the Stowers Institute, Iowa State University, and the University of Utah.

Faculty: Kenneth Kramer, 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 reduces and heavy use increases 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: Diane Cullen, PhD; 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**

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. Our 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 our 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. Our 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 and domains of proteins including GnRH, gastrin, CEA fragments, antibacterial peptides and amylodogenic peptides are examined using synthetic peptide chemistry and biological characterization of activity. Solution structures of these compounds are characterized by circular dichroism spectropolatrimetry, molecular dynamics simulations and *ab initio* quantum chemical calculations.

*Faculty: Sándor Lovas, 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**

The genome sequencing projects provide vast quantities of new information that is invaluable for identifying and characterizing gene products. Primary structure is only part of the complete structural characterization required for understanding mechanisms of protein functions. The three-dimensional (3D) structures must also be known. For structure-function studies, fragments/domains of proteins can be efficiently synthesized using solid phase peptide synthesis. These fragments could be structural, functional domains or epitopes for raising antibodies. The selection and design of fragments/domains is done with emphasis on 3D structural characterizations of polypeptides. The facility is equipped with state-of-the-art computer cluster, graphic workstations, peptide synthesizer, mass spectrometer, ECD and VCD instruments.

*Faculty: Sándor Lovas, 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 that are subsequently cleaved by extremely specific endoproteases. The structural basis for this specificity is unknown. We 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: Richard Hallworth, PhD.

For more information about the Department of Biomedical Sciences’ current research activities, visit the

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 FACSARia flow cytometer from Becton Dickinson. When installed, this instrument was the first FACSARia 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 Multiwell 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 with 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 postranslationally 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 Cardiology

Since its founding in 1961, the Division of Cardiology has been dedicated to being a leader in the fields of cardiovascular research, clinical education, early detection and prevention of cardiovascular disease, and pioneering the use of new cardiac procedures and therapies. Over the past 50 years, The Cardiac Center has served more than 185,000 patients and trained over 124 cardiologists.

Our team of 19 cardiologists, nurses, pharmacists, exercise physiologists and healthcare professionals are specialists in the diagnosis and treatment of cardiovascular disease. We will work closely with primary care physicians to provide the highest quality of care and state-of-the-art diagnostic procedures.

Services at The Cardiac Center include: Physician evaluation and management, electrocardiography (including atrial fibrillation ablation), x-ray, exercise testing, echocardiograph (including transesophageal), implantable Cardiac Defibrillator (ICD), angioplasty, pacemaker management, medication management, heart failure management, event recorder monitoring, cardiac catheterization (diagnosis and intervention), exercise testing, laboratory services, risk reduction, cardiac prevention and rehabilitation, individualized weight management consultations, smoking cessation, worksite wellness programs, and research opportunities.

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.

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 multiple new research studies during the past year, primarily phase III and IV pharmaceutical and device trials and registries, as well as investigator-initiated research.

Interventional/Acute Coronary Syndrome Trials

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. CURRENT is a large global trial that compared high dose clopidogrel, (600 mg loading dose, 150 mg daily for the first week, then 75 mg daily) to the standard dose of clopidogrel (300 mg loading dose followed by 75 mg 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.

The Cardiac Center enrolled patients in an acute ST elevation MI study called PROTECTION AMI. This study looked at 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.

Two coronary stents trials were initiated. ELITE is long-term evaluation of the safety and efficacy of an FDA approved and an investigational size of Cypher Elite compared to Cypher Velocity DES coronary stent. The second trial, CYPRESS, was designed to assess the effectiveness and safety of different durations of dual antiplatelet therapy (DAPT) in patients receiving a Cypher stent.
The Cardiac Center also participated in two carotid registries: CABANA and SAPPHIRE. 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 second carotid study, CABANA, is another stent trial which uses the WALLSTENT® Monorail® endoprosthesis filterwire EZ embolic protection system and is similarly designed to potentially reduce the risk of embolization and or stroke.

Prevention Trials

Multiple global outcome studies are in progress at the Cardiac Center to improve efforts toward secondary prevention post ACS. Enrollment continues in the TRILOGY study, which compares the safety and efficacy of clopidogrel with prasugrel in the treatment of medically managed ACS patients. The TRA2P-TIMI 50 trial evaluates the ability of vorapaxar, an investigational thrombin receptor antagonist, to decrease recurrence of atherosclerotic events in patients with a history of myocardial infarction, stroke or peripheral vascular disease. The IMPROVE-IT Study continues in its fifth year of follow-up as it evaluates simvastatin 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 dalcetrapib, an investigational CETP inhibitor, will translate into fewer cardiovascular outcomes post-ACS when compared with placebo. The TRA2P-TIMI 50, IMPROVE-IT and Dal-OUTCOMES studies have completed enrollment of new patients, but continue to follow patients for long-term outcomes.

Two new safety and secondary prevention studies were initiated during this period. SOLID is a double blind study of darapladib and placebo in patients with an ACS event in the last month. In the area of type II diabetes mellitus and ACS, EXAMINE seeks to determine if alogliptin, an investigational DPP4-inhibitor, can decrease cardiovascular risk.

Non-invasive, Anticoagulation and Electrophysiology Trials

The Cardiac Center has continued to be active in anticoagulation clinical trials in atrial fibrillation patients. Several studies have been completed and are currently underway to improve treatment in this arena. The RE-LY study was completed and eligible patients who were randomized to dabigatran were followed on a long-term follow-up study RELY-ABLE. The RE-LY results were instrumental in the FDA approval of dabigatran (Pradaxa®) for the prevention of stroke and blood clots in atrial fibrillation patients. ROCKET-AF assessed patients with atrial fibrillation treated with rivaroxaban or warfarin. The study was completed and results have been reported which show that rivaroxaban met its primary efficacy end point of non-inferiority to dose-adjusted warfarin with regard to all-cause stroke and non-central nervous system systemic embolism. Our site also looks forward to the ORBIT-AF registry which will look at treatment patterns of atrial fibrillation across multiple centers. Finally, ENGAGE-AF is a comparison of warfarin to DU176b, another investigational Factor Xa inhibitor. The study is still enrolling.

The Cardiac Center also participated in several studies of patients with heart failure. TOPCAT is an ongoing NIH study which evaluates the use of spironolactone versus placebo in the treatment of patients with preserved systolic function. EMPHASIS evaluated the safety and efficacy of eplerenone compared to placebo in the treatment of systolic heart failure. The study was closed early by the sponsor due to proven benefit in patients with NYHA Class II heart failure. Patients enrolled were continued in the extension portion of the study with open-label drug for 12 months. Two studies were conducted for decompensated heart failure involving hospitalization. TRIDENT was a comparison between BG9928 and placebo that concluded in 2010. RELAX-HF is currently enrolling and is examining the use of relaxin compared to placebo in patients with decompensated heart failure to reduce symptoms and decrease mortality. PARADIGM-HF is a study for chronic heart failure which was just recently begun. The study will evaluate the use of LCZ696 compared to enalapril to reduce morbidity and mortality in patients with chronic heart failure and reduced ejection fraction.
A growing area of research at the Cardiac Center is in the area of electrophysiology. The REPLACE registry concluded, which was designed to evaluate complication rates for patients undergoing an implantable cardioverter defibrillator (ICD) or pacemaker generator replacement. SMART –AV evaluated the optimal programming of cardiac resynchronization devices (CRT) in patients receiving an implant procedure. The ATTAIN registry for Medtronic biventricular devices has recently started. The objective of this registry is to assess the implant success rate of the ATTAIN family of left-heart leads using the ATTAIN family of delivery catheters.

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**

In November, 2005, 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. In March 2009, CCHC began a collaboration with Charles Drew Health Center (CDHC) to create the Benson Community Health Center (BCHC). Through this new venture, Creighton University staff continue to offer health promotion and educational activities to community members, and community service and practical opportunities to Creighton University allied health students. While CU staff continue to provide cholesterol, blood glucose, and blood pressure screenings both on- and off-site, CDHC provides outpatient medical care encompassing curative and preventative medicine for both children and 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.

**Health Fairs**

The Creighton staff members at BCHC have provided blood pressure, cholesterol, and glucose screenings to over 1500 community members at various organizations throughout the north Omaha metro area. Organizations range from non-profit community service organizations to community centers and
schools to local churches. Although health fair participant demographics vary, most of those served are African American women over the age of 40 years.

**Student Partnership and Assistance**
In 2009, faculty from the Department of Pharmacy Practice asked BCHC staff to be co-instructors of and preceptors for the newly created PHA 335 Cardiovascular Risk Screening and Health Promotion Course for students wishing to volunteer at community health screening events. PHA 335 students are certified in blood pressure and cholesterol/glucose screening by Creighton faculty and Benson Community Health Center preceptors. These students are then qualified to assist with community screening activities to further their educational experience.

**Exercise and Education Classes**
Exercise and educational opportunities remain the most popular on-site activities offered by BCHC. Since 2009, Creighton staff members have expanded exercise opportunities to include a walking group, an exercise-only class, and a 12-week exercise and education class. Currently a fourth, higher intensity circuit class is being designed to provide an additional layer to this component of BCHC. Community health presentations by Creighton faculty and professional students have continued as well. These highly requested, well attended one-time sessions are offered between six and ten times throughout the year.

Creighton staff at BCHC continue to explore ways to assist other Creighton Medical Associates clinics as well as Creighton’s Exercise Science and Physical Therapy departments to enhance students’ educational experiences while providing high-quality health education and screening services to the community.

**Tobacco Prevention and Cessation**

**Tobacco Prevention Coalitions**
Creighton is an active member of the Metro Omaha Tobacco Action Coalition (MOTAC) and Tobacco Free Sarpy (TFS) Coalition. 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. Creighton is also the lead on the minority outreach component of the tobacco free campaigns. The health educator has coordinated activities surrounding tobacco prevention for youth and adults over the past year. The health educator has participated in recognizing multiple businesses during this period for their tobacco free building and/or campus status, including the Omaha Henry Doorly Zoo.

**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. Our tobacco treatment specialist served as a member of the executive committee and has assisted the group with ongoing efforts to keep Creighton tobacco free.

**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. Commit to Quit is available to corporations, on-site, during the workday to offer businesses the chance to help employee’s lead healthier lives. The Cardiac Center is contracted to provide tobacco treatment services to employees at over 25 worksite locations in Omaha and surrounding communities. Commit to Quit
continues to offer cessation services to the general community as well. Commit to Quit has served over 500 participants to date.

Grants

Within the research section, we assisted in the development and technical assistance of 11 grants, eight of which have been funded since July 1, 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 α1- and α2-adrenergic receptor subtypes and the calcitonin gene related peptide receptor family. His 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 α1-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 our program addresses the molecular basis for the protective effect of enriched environments on susceptibility to nicotine addiction.

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 other ionotropic glutamate 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 research focus 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 focuses on gene-nutrient-environment interactions
during pregnancy, and the role of maternal folate supplementation in the prevention of specific types of birth defects (i.e. 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 temperament. 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. We are interested in discerning how seizures influence hypothalamic pathology and function. To achieve this aim, we employ a multi-disciplinary approach including techniques that examine molecular neurobiology, cell-signaling, electrophysiology and behavior.

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, and 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. Three major projects are currently underway in his lab. Project 1 focuses 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 studies 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 the Tu lab.

Thomas F. Murray's research program made progress in the investigation of novel strategies to treat neuronal injury and neurodegenerative disease through the use of novel activators of sodium channels. These studies require 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’ studies are supported by National Institutes of Health funding from the National Cancer Institute and the National Institute of Nursing Research, Health Futures Foundation, and the Iota Tau chapter of Sigma Theta Tau Nursing Honor Society.

Six faculty members completed their doctoral dissertations this year. Amy Cosimano completed a phenomenological study of the experience of new nursing graduates on labor and delivery units. Ann Harms completed a qualitative study of non-psychiatric nurse faculty perceptions of working with the mentally ill. Anne Schoening developed a grounded theory of the transition from nurse clinician to nurse educator. Lori Rusch studied students’ critical thinking in preparation for clinical assignments. Misty Schwartz studied parents’ perceptions of BMI reports in their overweight children. Cynthia Hadenfeldt tested the impact of an intervention to promote student success.

Studies in progress demonstrate a range of faculty interests. These broad interests include: health promotion in pediatric and adult populations; disease prevention and nursing care; health disparities; faculty balance in life issues; patient decision making and illness experiences; mental health; spiritual care; assessment ratings for clinical practice simulations; and health care policy and ethics issues. Faculty members published 30 articles and book chapters and presented 51 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 was recently given the National Institute of Nursing Research Ada Sue Hinshaw Award for significant research based on her recently completed studies of stress fracture reduction in Navy recruits using Vitamin D and calcium supplementation and her current studies of the role of Vitamin D3 in cancer prevention in post menopausal women. 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 a Co-Investigator on the 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 inner city schools. A qualitative study of the nature of spiritual care as described by nurses was completed by Sue Tinley, Nancy Shirley and Maribeth Hercinger. Cindy Costanzo has completed a three year study of motivational interviewing to increase self-efficacy and physical activity by older women.

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 established a website to train, support, and evaluate its use by other Schools of Nursing. They were recently notified that they will participate in a national study by the National Council of State Boards of Nursing that will use the C-SEI to compare the efficacy of clinical practicum experiences to simulated clinical experiences for student learning.

Eight book chapters published this year by faculty addressed various topics. These focused on the bone benefits of calcium and exercise in children and the cancer reduction effects of Vitamin D3 and calcium (Joan Lappe), hospitals and the ideology of rescue and hospice care (Helen Chapple), health policy, ethics and advocacy (Beth Furlong). Two faculty members (Amy Abbott and Janet Graves) participated in chapters on safe patient care systems in a multidisciplinary book, Patient Safety for Health Professionals, edited by K.A. Galt and K.A. Paschal.
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 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 in strategic efforts to engage community and academic partners in research opportunities with Creighton faculty. Individualized efforts are 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 Research Student Program and supports the School’s work in campus wide efforts of University Research Day and St. Albert’s Day.

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 2009 through December 2010 period, 20 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 $2,208,928. There was one funded project where a SPAHP faculty member served as principal investigators and worked with co-investigators from other schools.

Student Research

- Graduate Student Research. The school has both undergraduate and graduate students actively engaged and mentored by faculty in research. At present 9 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, 21 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. Between July 1, 2009 and December 31, 2010, 19 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 through posters and podium presentations.

**Faculty and Student Development**

During the timeframe of July 2009 to December 2010, the SPAHP Office of Research held a Research Methodologies/ Research Case Presentation Series. The series focused on presenting a spectrum of research methods, design, and analytic approaches. Sessions included Overview of Research Methods, Mixed Methods Review, Qualitative Methods Review and Analysis Workshop and Sampling Considerations in Research Workshop. Overall a total of 42 people attended the sessions. The average score for how well objectives were met for the series was 4.58 (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, School of Dentistry and School of Pharmacy and Health Professions. The series offered presentations by incorporating the methodologic approaches with research conducted by Kimberly Galt, Pharm.D., Ph.D. (SPAHP), Ted Kasha (SPAHP), Joan Norris, Ph.D., R.N., F.A.A.N. (SON) and Xiang Fang, Ph.D (Grants Administration).

**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 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 grant. 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 114 publications, 210 presentations, and 20 media releases.

**Funding Highlights**

Between July 2009 and December 2010, CHRP continued to support its interdisciplinary collaboration through the submission of 11 grant proposals ($2,195,112) resulting in the funding of 7 grants totaling $1,177,166. 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.

Research Skills Development

Between July 2009 and December 2010, CHRP offered university wide research skills development for faculty, staff, and students through its Meet the Researcher Series presentations. This series brings skills, methods, and networking relationships to others on campus and across the country through audio and web-aided live presentations on a monthly basis. Seven seminars were presented by Creighton faculty members and nationally known researchers. One seminar was offered by students involved in research projects with CHRP faculty. Topics included the process of participating in academic interdisciplinary health services team research, building successful interdisciplinary collaborations, interpersonal and group communication to improve patient safety, the future of health services research, network structure and community health, and the role of community health care quality improvement. Attendance for these presentations has been outstanding with close to 100 faculty, staff, and students participating from the schools of Pharmacy and Health Professions, Nursing, Dentistry, Medicine, and Arts and Sciences.

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 and China. The OISSE infrastructure recognizes Faculty Associates 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 health promotion and disease prevention initiatives across the lifespan to meet authentic community needs, provide student learning opportunities, and disseminate initiatives via scholarly products.
**Department of Occupational Therapy**

The Department of Occupational Therapy consists of two administrative assistants, 161 on-campus and 66 distance students, and 18 faculty, including 17 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: 16 peer reviewed journal articles, five non-peer reviewed articles, 15 book chapters, five 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 position papers for professional bodies.

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 45 faculty, five residents, 168 students (163 entry level program; 5 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 and Associate Vice President for Research in Academic Affairs. Six core faculty have Clinician-Educator classification appointments. The remaining faculty have Contributed – Service faculty appointments.

The core faculty have identified four areas of emphasis for scholarship:

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

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.

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 47 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 of 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. During 2009-2010, the faculty produced 147 peer-reviewed publications as primary or co-author. This is a 71% increase from the previous 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 within the clinical scientists in the department.

Department of Pharmacy Sciences

The Department of Pharmacy Sciences has 23 faculty who are either Pharm.D, Ph.D. or Pharm.D., Ph.D. 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, electroosmosis, 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.
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**College of Business**


**School of Dentistry**


**School of Law**


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**School of Pharmacy and Health Professions**


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**Vice President for Health Sciences**


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Cherney, I. [Investigator]. Student Summer Fellowship: The effects of Nintendo Wii play on mental rotation abilities. Creighton College of Arts and Sciences – $5,000 – [15 May 2010-31 August 2010].

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Duda, G. K. [Investigator]. Homing in on dark matter: Following up lead from direct and indirect detection. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $11,073 – [1 September 2010-31 March 2011].


Gabel, J. [Investigator]. NASA Nebraska space grant fellowship for David Austerberry. University of Nebraska at Omaha/National Aeronautics and Space Administration – $8,000 – [1 September 2010-31 March 2011].

Gabel, J. [Investigator]. NASA Nebraska space grant JPL internship for David Austerberry. University of Nebraska at Omaha/National Aeronautics and Space Administration – $6,000 – [1 June 2010-31 August 2010].

Gabel, J. [Investigator]. Testing evolution versus orientation models for quasar outflow systems using IRS spectra from the Spitzer space telescope. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $12,425 – [1 September 2010-31 March 2011].


Gross, E. [Investigator]. Development of a microfluidic biosensor. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $4,000 – [1 October 2009-31 March 2010].


Houtz, L. E. [Investigator]. Expanding aerospace education among preservice and in-service teachers and their students. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $1,000 – [1 October 2009-31 March 2010].

Houtz, L. E. [Investigator]. Creative mathematics workshop training for preservice elementary teachers. University of Nebraska at Omaha/National Aeronautics and Space Administration – $2,457 – [1 March 2010-31 March 2010].


Khanna, M. M. [Investigator]. Children’s use of sentence level and word level context for meaning selection. Creighton University Summer Faculty Fellowship Program – $4,800 – [1 May 2010-31 August 2010].

McShane, T. S. [Investigator]. Concurrent extended air showers with crop project. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $5,000 – [1 January 2010-31 March 2010].

McShane, T. S. [Investigator]. Supplementary crop cosmic ray detector for concurrent air showers. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $5,000 – [1 January 2010-31 March 2010].


Mueller, J. [Investigator]. 2010 CCHD Grant.


Nichols, M. [Investigator]. UNMC INBRE: Assessment of cellular energetics by NADH FLIM. University of Nebraska Medical Center/NIH-National Institutes of Health – $16,823 – [1 May 2010-30 April 2011].


Pogge, C. [Investigator]. Adding meditation instruction to Magis Catholic Teacher Corps. Trust for Meditation – $8,000 – [30 June 2010-1 July 2011].

Reedy, M. V. [Investigator]. Effect of low doses of nicotine on avian embryo development. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $2,500 – [1 January 2010-31 March 2010].


Schalles, J. F. [Investigator]. Coastal geospatial research for undergraduates, with an emphasis on oil spill effects on Gulf of Mexico coastal habitats. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $4,600 – [5 May 2010-30 September 2010].

Schrage, J. M. [Investigator]. Perceptions of blizzards held by decision-makers and stakeholders in eastern Nebraska and western Iowa. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $5,000 – [1 September 2010-31 March 2011].


Stairs, D. J. [Investigator]. Summer Faculty Fellowship: Do high levels of novelty during development alter the subjective effects of caffeine. Creighton University Graduate School – $4,800 – [1 May 2009-31 August 2009].


van Dijk, K. [Investigator]. Type III Chaperones in the Type III protein secretion system of pseudomonas syringae. University of Nebraska Medical Center/National Institutes of Health – $37,696 – [1 May 2010-30 April 2011].

Zehnder, J. [Investigator]. Stereophotogrammetric investigation of orographic cumulus onset. University of Nebraska at Omaha/National Aeronautics Space Administration/EPSCoR – $5,000 – [1 January 2010-31 March 2010].

Zehnder, J. [Investigator]. Student fellowship: Timothy Nendick, Observations of cumulus development during the CuPIDO experiment. NASA Nebraska Space Grant & EPSCoR – $5,000 – [1 January 2010-31 March 2010].
College of Business


School of Dentistry

Arouni, A. [Investigator]. Bridging anticoagulation in patients who require temporary interruption of warfarin therapy for an elective invasive procedure or surgery (bridge) trial. Duke University/National Institutes of Health – $4,000 – [1 November 2009-30 June 2012].


Lang, M. S. [Investigator]. Effects of bone graft placement at implant installation on buccal plate stability: Randomized controlled clinical trial. Nebraska Society of Periodontology – $2,000 – [1 June 2010].


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 – $1,200 – [1 December 2008].


Latta, M. A. [Investigator]. Shear bond strength of composite resin to dentin and enamel comparing adhesive one F and xeno IV. Ivoclar Vivadent – $2,400 – [1 September 2009-16 November 2009].

Latta, M. A. [Investigator]. Shear bond strength of composite resin to dentin and enamel comparing using excite F in the vivapen delivery system. Ivoclar Vivadent – $2,400 – [1 March 2010-10 May 2010].

Latta, M. A. [Investigator]. Student dental research support. Iowa Dental Association – $500 – [15 January 2004].


School of Law


School of Medicine


Armas, L. [Investigator]. Role of vitamin D in secondary prevention of cardiovascular events. Home Instead Senior Care Foundation – $10,000 – [1 February 2010-31 December 2011].


Arouni, A. [Investigator]. Randomized evaluation of long term anticoagulant therapy (re-ly) comparing the efficacy and safety of two blinded doses of dabigatran etexilate with open label warfarin for the prevention of stroke and systemic embolism in patients with non-valvular atrial fibrillation: Prospective multicentre, parallel-group, non-inferiority trial (re-ly). Boehringer Ingelheim Pharmaceuticals, Inc. – $8,573 – [1 February 2006].


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 (BAY 59-7939) with adjusted-dose oral warfarin for the prevention of stroke and non-central nervous


Bartz, J. [Investigator]. Stipend support. University of Nebraska Medical Center/National Institutes of Health – $22,759 – [1 August 2010-30 April 2011].

Bauerly, C. [Investigator]. Phase II, randomized, single-dose, double-blind, placebo-controlled study to investigate the efficacy, safety and pharmacokinetic profile of the collarx bupivacaine implant in patients after gastrointestinal surgery. Innocoll Technologies – $5,841 – [1 June 2009].


Beisel, K. [Investigator]. Functions and disorders of K channels in the inner ear. University of California, Davis/National Institutes of Health – $57,400 – [1 April 2008-31 March 2013].


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 – $32,040 – [1 September 2005].

Bewtra, A. K. [Investigator]. Open label extension study of CE1145 (human pasteurized C1 esterase inhibitor concentrate) in subjects with congenital C1-INH deficiency and acute HAE attacks. ZLB Behring – $7,500 – [1 January 2006].


Casale, T. B. [Investigator]. 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 followed by a 4-week open label combivent resperimat treatment phase when all study drugs are used. Boehringer Ingelheim Pharmaceuticals, Inc. – $68,492 – [1 December 2008-31 December 2009].

Casale, T. B. [Investigator]. Phase 1B randomized, placebo-controlled clinical trial to study the safety and bronchodilatory effect of MK-0467 in patients with chronic asthma. Merck & Company, Inc. – $6,842 – [1 July 2008].

Casale, T. B. [Investigator]. Phase 2A, randomized, double-blind (3rd party open), double-dummy, placebo and active controlled 5-way crossover study to assess the bronchodilatory action, safety, toleration and pharmacokinetics of single oral doses of PF-04191834 in asthmatic patients. Pfizer, Inc. – $121,801 – [5 January 2009].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, multi-center study to evaluate the efficacy and safety of nasal carbon dioxide in the treatment of seasonal allergic rhinitis. Capnia, Inc. – $5,103 – [20 August 2008].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, multi-center, phase III study of the efficacy and safety of 300 ir sublingual immunotherapy (SLIT) administered as allergen-based tablets once daily to adult patients suffering from grass pollen rhinoconjunctivitis. Stallergenes, S.A.– $24,883 – [1 October 2008].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, multi-center, pilot study to evaluate the efficacy and safety of nasal carbon dioxide used four times a day in the symptomatic treatment of seasonal allergic rhinitis. Capnia – $43,655 – [1 July 2009-30 June 2010].

Casale, T. B. [Investigator]. Randomized, multi-center, parallel group, double blind, study to assess the safety of QMF twisthaler (500/400) and mometasone furoate twisthaler (400) in adolescent and adult patients with persistent asthma. Novartis Pharmaceuticals Corporation – $30,260 – [1 July 2009-30 June 2010].

Casale, T. B. [Investigator]. Double blind (3rd party open), 3-way crossover study to explore the reproducibility of inflammatory markers after nasal allergen challenge in subjects with seasonal allergic rhinitis (out of season) and the effect of a single dose of ibuprofen or fluticasone on the allergic response. Pfizer Inc. – $543,638 – [1 October 2009].


Casale, T. B. [Investigator]. Multi-center, double-blind, randomized, placebo-controlled, parallel-group study evaluating the efficacy and long term safety of ragweed (ambrosia artemisiifolia) sublingual tablet (sch 39641) in adult subjects with a history of ragweed-induced rhinoconjunctivitis with or without asthma. Schering-Plough Foundation – $44,866 – [1 October 2009-30 September 2010].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, multiple dose phase 2 study to determine the safety and efficacy of amg 853 in subjects with inadequately controlled asthma. Amgen, Inc. – $44,866 – [1 November 2009-31 October 2011].
Casale, T. B. [Investigator]. Randomized, multi-center, parallel group, double blind, study to assess the safety of QMF twishaler (500/400) and mometasone furoate twishaler (400) in adolescent and adult patients with persistent asthma. Novartis Pharmaceuticals Corporation – $18,880 – [1 July 2009-30 June 2010].


Cavalleri, S. J. [Investigator]. Pathology instruction. Streck Laboratories, Inc. – $2,135 – [1 April 1993].


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 in healthy 1 to <12 month-old children. MedImmune, Inc. – $26,506 – [1 September 2008].


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. GlaxoSmithKline Company – $4,403 – [29 January 2007].

Chatterjee, A. [Investigator]. Phase 3, open-label, randomized, multi-center study to evaluate the safety and immunogenicity of proquad vaccine when administered concomitantly with Novartis meningococcal acs/ conjugate vaccine to healthy toddlers. Novartis Pharmaceuticals Corporation – $47,277 – [1 November 2007].

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 – $23,373 – [1 March 2006].

Chatterjee, A. [Investigator]. A Phase III, double-blind, randomized, controlled, multi-center 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 HPB-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 – $23,676 – [7 June 2008].

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 – $14,230 – [20 February 2009].

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 Papilloma Virus (HPV) L1 virus-like particle (VLP) vaccine administered to 16 to 26-year old women. Merck & Company, Inc. – $39,629 – [1 September 2007].

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. – $67,746 – [11 April 2007].


Chatterjee, A. [Investigator]. Phase IIb, open multi centre gynecological extension study for follow up of a subset of 580299/008 study subjects who were either cervical cytology negative and oncogenic HPV positive or pregnant at their final 580299/008 study visit. GlaxoSmithKline Company – $3,666 – [1 September 2009-11 February 2010].

Chatterjee, A. [Investigator]. Phase III open label clinical trial to study the immunogenicity and tolerability of V503 (a multivalent human Papilloma virus (HPV) L1 virus-like particle (VLP) vaccine) given concomitantly with menactra and adacel in preadolescents (11 to 15 year olds). Merck & Company, Inc. – $56,706 – [1 November 2009].

Chatterjee, A. [Investigator]. Phase III, double blind, randomized study to evaluate the immunogenicity and safety of gsk biologicals’ quadrivalent influenza vaccine candidate, gsk2282512a (flu q-qiv), compared to gsk biologicals’ trivalent influenza vaccine fluarix administered intramuscularly to children 3 months to 17 years of age; and to describe the safety and immunogenicity of GSK2282512A in children 6 to 35 months of age. GlaxoSmithKline Company – $63,387 – [1 September 2010].


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. – $2,692 – [15 September 2004].


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 – $10,870 – [1 June 2008].

Del Core, M. [Investigator]. Inhibition of B-protein kinase C for the reduction of infarct size in acute myocardial infarction (protection AMI). Biogen – $13,607 – [31 December 2008].


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 – $47,280 – [1 September 2007].

Del Core, M. [Investigator]. Phase III, 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. – $32,881 – [1 May 2008].

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 – $8,300 – [1 May 2008-31 December 2013].

Del Core, M. [Investigator]. Clinical outcomes study of darapladib versus placebo in subjects following acute coronary syndrome to compare the incidence of major adverse cardiovascular events. Brigham & Women’s Hospital/GlaxoSmithKline Company – $8,886 – [1 May 2010].


Del Core, M. [Investigator]. Prospective, multi-center, randomized, double-blind trial to assess the effectiveness and safety of 12 versus 30 months of dual antiplatelet therapy (DAPT) in subjects undergoing percutaneous coronary intervention (PCI) with either drug-eluting stent. Harvard Clinical Research Institute – $7,975 – [1 April 2010].

Del Core, M. [Investigator]. Prospective, randomized, multi-center, double-blind trial to assess the effectiveness and safety of different durations of dual antiplatelet therapy (DAPT) in subjects undergoing percutaneous coronary intervention with the cypher sirolimus-eluting. Cordis Corporation – $6,375 – [16 December 2009].


Deng, C. [Investigator]. Functional genomics and proteomics analysis of oral cavity squamous cell carcinoma. Dobleman Institute – $70,000 – [1 July 2010-30 June 2011].

Dravid, S. [Investigator]. NMDA receptor constructs. University of Nebraska Medical Center – $4,000 – [1 October 2009-30 June 2010].


Dworzack, D. L. [Investigator]. Alegent Health IRB review agreement. Alegent Health – $20,000 – [12 September 2001]. Last year was $10,000


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. – $18,571 – [1 January 2005].


Gallagher, J. C. [Investigator]. Open label, single arm, extension study to evaluate the long term safety and sustained efficacy of Denosumab (AMG162) in the treatment of postmenopausal osteoporosis. Amgen – $16,716 – [1 October 2007].

Gallagher, J. C. [Investigator]. Randomized, double-blind, multiple dose, placebo-controlled, parallel group, 48-week, study of oral recombinant sct compared to calcitonin nasal spray in postmenopausal osteoporotic women. Unigene Laboratories, Inc. – $69,512 – [1 January 2009].


Goering, R. V. [Investigator]. HFF SOM research development: Start-up support for chair of Medical Microbiology and Immunology. Health Future Foundation – $119,005 – [13 April 2006-30 June 2010].


Goering, R. V. [Investigator]. Chromosomal analysis of staphylococcus aureus isolate by pulsed field gel electrophoresis. Procter & Gamble Company – $8,450 – [1 October 2009].


Hanson, N. D. [Investigator]. DNA control strains. USAMC-AFRIMS/Enteric Diseases Department – $375 – [1 January 2009-31 December 2009].


Hanson, N. D. [Investigator]. Potential for collateral damage associated with the exposure of KPC-producing organisms to different antibiotic drug classes. Merck & Company, Inc. – $64,500 – [1 December 2009-30 December 2011].

Hanson, N. D. [Investigator]. ACC training course. bioMerieux Vitek, Inc. – $3,500 – [1 April 2007].

Hanson, N. D. [Investigator]. Characterization of chromosomal ampc, blaoxa-1 and blatem-1 rna expression in selected escherichia coli isolates. bioMerieux Vitek, Inc. – $7,763 – [1 May 2010].

Hanson, N. D. [Investigator]. Clinical impact of pseudomonas aeruginosa possessing KPC-2 carbapenemases in addition to chromosomal mechanisms associated with carbapenem resistance. AstraZeneca – $60,000 – [1 January 2008].
Hanson, N. D. [Investigator]. Development of a molecular diagnostic protocol for the detection of different plasmid-encoded ampc genes using molecular beacons and multiplex real time pcr technology. BD Diagnostic Systems – $65,769 – [1 September 2008].

Hanson, N. D. [Investigator]. DNA control strains. Leiden University Medical Center – $305 – [1 June 2009-31 December 2010].


Hanson, N. D. [Investigator]. Pilot study to examine chromosomol and transcriptional modifications between two clinical isolates of klebiella pneumoniae: A kpc and non-kpc producer. Merck & Company, Inc. – $18,686 – [1 September 2010-31 August 2011].


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


Heaney, R. P. [Investigator]. Lovate Health Sciences USA Inc. project. Kelley Drye & Warren LLP – $600 – [1 June 2009].


Hopp, R. J. [Investigator]. Efficacy and safety study of reslizumab (CTX55700) in the treatment of eosinophilic esophagitis in subjects aged 5-18 years. Ception Therapeutics, Inc. – $16,770 – [1 February 2008].


Huerter, C. J. [Investigator]. Phase 3, multi-center, open-label extension study designed to describe the safety, tolerability and efficacy of long-term administration of the human monoclonal antibody against il-12 in subjects with moderate to severe chronic plaque psoriasis. Abbott Laboratories – $1,915 – [1 April 2008].


Huggett, K. [Investigator]. Randomized trial to improve tobacco cessation skills among medical students. University of Massachusetts Medical Center/National Institutes of Health – $100,967 – [6 July 2009-31 May 2014].


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. Novartis Pharmaceuticals Corporation – $50,615 – [16 April 2008].
Lund, R. J. [Investigator]. 28-week extension to a 24-week multi-center, randomized, double-blind, active-controlled clinical trial to evaluate the safety and tolerability of vildagliptin 50 mg qd versus sitagliptin 25mg qd in patients with Type 2 diabetes and severe renal insufficiency. Novartis Pharmaceuticals Corporation – $5,805 – [1 October 2008].


Lund, R. J. [Investigator]. Multi-center, randomized, double-blind clinical trial to evaluate the safety and tolerability of 24 weeks treatment with vildagliptin (50MG QD or 100MG QD) versus sitagliptin (25MG QD) in patients with Type 2 diabetes and severe renal insufficiency. Novartis Pharmaceuticals Corporation – $18,351 – [10 August 2007].


Lund, R. J. [Investigator]. Open randomized, controlled, parallel group, phase III study to investigate the safety and efficacy of fermagate and lanthanum carbonate together with a randomized placebo controlled double blind fermagate comparison in hemodialysis patients with hyperphosphatemia. INEOS Healthcare Limited – $7,225 – [20 October 2009-20 October 2011].

Lund, R. J. [Investigator]. Randomized evaluation of efficacy and safety of ferric carboxymaltose in patients with iron deficiency anemia and impaired renal function. Luitpold Pharmaceuticals, Inc. – $2,000 – [5 May 2010].


Mackin, R. B. [Investigator]. Evaluation of mouse and rat proinsulins for diagnostic test kit. ALPCO Diagnostics – $7,000 – [1 June 2007].

Mittal, S. [Investigator]. Mittal projects for esophageal center. Health Future Foundation – $70,000 – [1 July 2010-30 June 2011].


Mittal, S. [Investigator]. Research nurse salary support. SafeStitch, LLC – $18,000 – [1 August 2010-31 July 2011].


Mohiuddin, S. M. [Investigator]. Randomized, double-blind, placebo controlled, parallel group, multi-center study to evaluate the efficacy and safety of AD5FGF-4 in female patients with stable angina pectoris who are not candidates for revascularization (AWARE study). Cardium Therapeutics – $1,875 – [1 December 2007].


Mooss, A. N. [Investigator]. Cardiovascular outcomes study to evaluate the potential of aleglitazar to reduce cardiovascular risk in patients with a recent acute coronary syndrome (ACS) event and Type 2 diabetes mellitus (t2d). Hoffman-LaRoche, Inc. – $4,625 – [1 August 2010].


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


Murray, T. [Investigator]. Cancer and smoking disease research program: Administration and planning program. State of NE-LB595 – $150,000 – [1 July 2009-30 June 2011].


Nichols, D. H. [Investigator]. UNMC COBRE: Molecular analysis of the LMX1A (Dreher) mutant inner ear. University of Nebraska Medical Center/National Institutes of Health – $454,780 – [15 September 2009-30 June 2010].


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. – $44,927 – [1 June 2007].


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 – $38,131 – [1 October 2008].

Recker, R. R. [Investigator]. Histomorphometry for non-inferiority comparison of 35mg delayed-release risedronate, administered once-weekly either before or after breakfast, and 5 mg immediate-release risedronate, administered once-daily before breakfast, in the treatment of postmenopausal osteoporosis as assessed over 2 years; A phase III, multi-center, double-blind, double-dummy, randomized active-controlled, parallel-group study. Procter & Gamble Company – $113,300 – [1 February 2010].


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. – $176,290 – [1 October 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. – $1,243 – [1 September 2007].

Rendell, M. S. [Investigator]. Vital study: Selective vitamin D receptor activator (paricalcitol) for albuminuria lowering study: A phase 2, prospective, randomized, double-blind, placebo-controlled multi-center study to evaluate the safety and efficacy of paricalcitol capsules on reducing albuminuria in type 2 diabetic nephropathy subjects who are currently being treated with rennin-angiotensin system. Abbott Laboratories – $2,404 – [1 February 2008].

Rendell, M. S. [Investigator]. 28 Week extension to a 24 week multi-center, 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 – $3,788 – [1 October 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. – $3,125 – [1 January 2009].

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. – $15,000 – [1 December 2007].


Rendell, M. S. [Investigator]. Multi-center randomized double-blind placebo-controlled phase 3 trial to evaluate the efficacy and safety of Saxaglipitin (BMS-477118) as monotherapy in subjects with type 2 diabetes who have inadequate glycemic control with diet and exercise. Bristol-Myers Squibb – $30,040 – [1 July 2005].

Rendell, M. S. [Investigator]. Multi-center, 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 – $20,695 – [1 October 2007].

Rendell, M. S. [Investigator]. Multi-center, randomized, double-blind, parallel group study comparing the efficacy and safety of clonidine topical gel, 0.1% with placebo in the management of pain associated with painful diabetic neuropathy. Arcion Therapeutics, Inc. – $37,195 – [1 June 2009].

Rendell, M. S. [Investigator]. Phase 1 randomized, blinded, placebo controlled, safety and pharmacodynamic study of BHT-3021 with open label cross-over in subjects with Type 1 diabetes mellitus. Bayhill Therapeutics – $62,436 – [1 March 2008].


Rendell, M. S. [Investigator]. Phase 2A, prospective, randomized, double-blind, placebo-controlled, multi-center study to evaluate the safety and efficacy of artrasentan on reducing albuminuria in type 2 diabetic nephropathy subjects who are currently treated with an rennin-angiotensin system inhibitor. Abbott Laboratories – $19,502 – [1 June 2009].

Rendell, M. S. [Investigator]. Phase 3 randomized, double-blind, placebo- and active-controlled, multi-center, 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. – $5,097 – [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 glycemic control despite Metformin therapy.  Boehringer Ingelheim Pharmaceuticals, Inc. – $63,111 – [1 February 2008].

Rendell, M. S. [Investigator]. Randomized, double-blind, placebo controlled, multi-center, phase 2B study to evaluate the safety and efficacy of Pyridorin (pyridoxamine dihydrochloride) in patients with neuropathy due to Type 2 Diabetes. Nephrogenex, Inc. – $23,768 – [1 October 2008].

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 – $20,038 – [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 – $5,954 – [1 January 2009].


Rendell, M. S. [Investigator]. 26-Week, multinational, multi-center, open-labeled, two-arm, parallel, randomized, treat-to-target trial comparing efficacy and safety of soluble insulin analogue combination (SAIC) once daily plus meal-time insulin aspart for the remaining meals vs basal-bolus treatment with insulin detemir plus meal-time insulin aspart in subjects with type 1 diabetes.  Novo Nordisk Pharmaceuticals Inc. – $102,548 – [1 August 2009].

Rendell, M. S. [Investigator]. Extension trial comparing safety and efficacy of NN5401 plus meal-time insulin aspart for the remaining meals with insulin detemir plus meal-time insulin aspart in Type 1 diabetes. Novo Nordisk Pharmaceuticals Inc. – $33,943 – [1 February 2010].


Rendell, M. S. [Investigator]. Multi-center, multinational extension of study cp-mga031-01 to evaluate the long-term efficacy and safety of teplizumab (mga031), a humanized, for non-binding, anti-cd3 monoclonal antibody, in children and adults with recent onset type 1 diabetes mellitus. MacroGenics, Inc. – $3,125 – [1 June 2010-1 June 2014].

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 – $7,187 – [2/1/2008-]

Rendell, M. S. [Investigator]. Multi-center, randomized, double-blind, placebo-controlled study to evaluate cardiovascular outcomes following treatment with alogliptin in addition to standard of care in subjects with type 2 diabetes and acute coronary syndrome. Takeda Global Research & Development Center, Inc. – $15,411 – [1 February 2010-1 February 2012].


Rendell, M. S. [Investigator]. Phase 2, randomized, double-blind, double-dummy, placebo and active-controlled, multi-center study to determine the efficacy and safety of TAK-875 in subjects with Type 2 diabetes mellitus. Takeda Global Research & Development Center, Inc. – $14,555 – [1 February 2010].

Rendell, M. S. [Investigator]. Phase IIIB randomized, double-blind, placebo-controlled, parallel group, safety and efficacy study of BI 10773 (10 mg and 25mg) administered orally, once daily over 78 weeks in Type 2 diabetic patients receiving once-daily treatment with basil insulin. Boehringer Ingelheim Pharmaceuticals, Inc. – $29,410 – [1 November 2009].

Rendell, M. S. [Investigator]. Phase III randomized, double-blind, placebo-controlled, parallel group efficacy and safety study of lixisenguin (5 mg), administered orally once daily for at least 52 weeks in Type 2 diabetic patients in combination with basal insulin therapy. Boehringer Ingelheim Pharmaceuticals, Inc. – $1,266 – [1 November 2009].

Rendell, M. S. [Investigator]. Phase III, 3-arm, randomized, double-blind, placebo-controlled, multi-center study to investigate the impact of diamyd on the progression of diabetes in patients newly diagnosed with Type 1 diabetes mellitus. Diamyd – $19,063 – [1 November 2009-31 October 2013].

Rendell, M. S. [Investigator]. Randomized double-blind, placebo-controlled clinical trial to assess the effects of taspoglutide on cardiovascular outcomes in subjects with inadequately controlled Type 2 diabetes and established cardiovascular disease. Hoffman-LaRoche, Inc. – $8,707 – [1 April 2010].

Rendell, M. S. [Investigator]. Randomized, double-blind, active controlled, parallel-group, multi-center study to determine the efficacy and safety of albiglutide as compared with sitagliptin in subjects with type 2 diabetes mellitus with renal impairment. GlaxoSmithKline Company – $2,000 – [1 July 2010].

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, GlaxoSmithKline Company – $71,389 – [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 plus. GlaxoSmithKline Company – $34,827 – [1 January 2009].

Rendell, M. S. [Investigator]. Randomized, double-masked, placebo-controlled, multi-center, phase 2 study to evaluate the safety and renal efficacy of ly2382770 in patients with diabetic kidney disease due to Type 1 or Type 2 diabetes. Eli Lilly and Company – $3,125 – [1 September 2010]

Rendell, M. S. [Investigator]. Randomized, open-label, active-controlled, parallel-group, multi-center study to determine the safety and efficacy of albiglutide administered in combination with insulin glargine as compared with the combination of insulin glargine and preprandial lispro. GlaxoSmithKline Company – $28,066 – [1 November 2009].

Rendell, M. S. [Investigator]. Randomized, open-label, parallel-group, multi-center study to determine the efficacy and long term safety of Albiglutide as compared with liraglutide in subjects with type 2 diabetes mellitus. GlaxoSmithKline Company – $2,000 – [1 July 2010].


Schima, S. [Investigator]. Multi-center, randomized, double-blind, placebo-controlled phase IV trial to evaluate the effect of saxagliptin on the incidence of cardiovascular death myocardial infarction or ischemic stroke in patients with type 2 diabetes (SAVOR). Brigham & Women’s Hospital/AstraZeneca – $3,000 – [1 September 2010-30 June 2012].

Schima, S. [Investigator]. Multi-center, randomized, double-blind, placebo-controlled study to evaluate cardiovascular outcomes following treatment with alogliptin in addition to standard of care in subjects with type 2 diabetes and acute coronary syndrome. $7,575 – [1 February 2010].


Schuller, D. [Investigator]. Multicentre 3 year longitudinal prospective study to identify novel endpoints and compare these with forced expiratory volume in 1 second (FEV1) for their ability to measure and predict COPD severity and its progression over time. GlaxoSmithKline Company – $18,461 – [1 March 2006].


Schuller, D. [Investigator]. Phase 3, randomized, double-blind, placebo-controlled, multi-center, parallel-group study to evaluate the efficacy and safety of ambrisentan in subjects with idiopathic pulmonary fibrosis and pulmonary hypertension. Gilead Sciences, Inc. – $6,125 – [26 October 2009].


Silberstein, P. T. [Investigator]. A randomized, double-blind trial comparing arimidex alone with nolvadex alone with arimidex and nolvadex in combination, as adjuvant treatment in post-menopausal women with breast cancer. AstraZeneca – $4,000 – [1 June 1997].

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. Genetech, Inc. – $5,000 – [9 February 2007].


Swanson, P. [Investigator]. HFF faculty development: Role of vrbp in v(d)j recombination. Health Future Foundation – $20,000 – [1 July 2010-30 June 2012].

Swanson, P. [Investigator]. Targets of an e3 ubiquitin ligase in v(d)j recombination. State of NE-LB692 – $100,000 – [1 July 2010-30 June 2011].


Thomson, K. S. [Investigator]. Comparative activity of carapenems against gram negative bacterial isolated in U.S. Meiji Seika Kaisha, Ltd. – $18,000 – [31 August 2009-31 December 2009].


Townley, R. G. [Investigator]. Phase II, randomized, double-blind, placebo-controlled study to evaluate the safety, tolerability and efficacy of lebrikizumab (MILR1444A) in adult patients with asthma who are inadequately controlled on inhaled corticosteroids (milly). Genentech, Inc. – $43,648 – [1 July 2009-31 December 2010].

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 – $30,316 – [1 October 2008].


Townley, R. G. [Investigator]. Phase II, randomized, double-blind, placebo controlled, dose-ranging study to evaluate asthma who are not taking inhaled corticosteroids (molly). Genetech, Inc. – $13,129 – [1 February 2010].


Tu, Y. [Investigator]. UNMC COBRE: Targeting g protein-coupled receptor signaling to suppress breast cancer metastasis. University of Nebraska Medical Center/National Institutes of Health – $34,680 – [1 July 2010-30 June 2011].

Varman, M. [Investigator]. Evaluation of the persistence of bacterial antibodies in adolescents and adults who received a single dose of menactra four to eight years earlier. Sanofi Pasteur, Inc. – $5,440 – [1 January 2009-31 December 2009]


Varman, M. [Investigator]. Multi-center, open-label, ascending multiple-dose study to assess the pharmacokinetics, safety and tolerability of tigecycline in patients 8 to 11 years of age with selected serious infections. Wyeth-Ayerst Laboratories – $2,865 – [1 March 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 HAV and PCV. GlaxoSmithKline Company – $13,199 – [1 March 2008].


White, M. [Investigator]. HFF faculty development: Radial versus femoral arterial access for cardiac catheterization: Comparison of complications at 30 days. Health Future Foundation – $8,920 – [1 July 2009-30 June 2011].

White, M. [Investigator]. Randomized, partially blinded, multi-center, active-controlled, dose-ranging study assessing the safety, efficacy, and pharmacodynamics of the reg1 anticoagulation system compared to unfractionated heparin in subjects with acute. Regado Biosciences – $12,333 – [1 April 2010]


Williams, M. A. [Investigator]. Low blood flow, mitochondrial dysfunction and oxidative damage in claudication. University of Nebraska Medical Center/National Institutes of Health – $43,526 – [1 July 2010-30 June 2014].

Wilson, D. R. [Investigator]. Long-term safety, tolerability and effectiveness of lirasidone in subjects with schizophrenia or schizoaffective disorder: A randomized, active comparator- controlled trial. Dainippon Sumitomo Pharma America – $2,520 – [22 May 2008].


Zetterman, R. [Investigator]. Equipment- openarray nt cycler system. Health Future Foundation – $45,000 – [1 July 2010-30 June 2011].

Zetterman, R. [Investigator]. Mission support agreement. Creighton Saint Joseph Regional HealthCare System – $6,000,000 – [16 February 2010-15 February 2012].


School of Nursing


Rubarth, L. [Investigator]. Use of online support and NICU education to decrease stress for prenatal patients on bed rest: A pilot study. Health Futures Foundation Faculty Development Grant – $18,033 – [1 July 2010-30 June 2012].

School of Pharmacy and Health Professions


Doll, J. D. [Investigator]. Growing Gardeners: Gifford Park Community Garden. Green America Award – $1,000 – [April 2010].


Galt, K. A. [Investigator]. Creighton research infrastructure program to achieve sustainability project-primary project. Health and Human Services – $149,217 – [21 April 2009-31 August 2012].


Galt, K. A. [Investigator]. Opportunities to improve access to health information technology in rural Nebraska. NE-DHHS/Health and Human Services – $10,000 – [15 April 2010-31 December 2010].
Galt, K. A. [Investigator]. Oral health access for young children program. NE-DHHS / Health and Human Services – $55,000 – [1 January 2010-31 August 2012].

Grindstaff, T. L. [Investigator]. Effects of anterior to posterior talocrural joint mobilizations in patients with sub-acute lateral ankle sprain. Orthopaedic Section, APTA, Inc. – $15,000 – [1 April 2010-31 March 2012].


Henriksen, B. [Investigator]. Computational meta-analysis of apentapeptide involved in magnesium binding deficiency. Magnesium Diagnostic, Inc. – $2,300 – [9 October 2009].


Sexson, E. [Investigator]. Touching the hearts of the community through a cardiovascular risk screening and health promotion course. American Association of Colleges of Pharmacy – $15,000 – [10 February 2010].

Tolman, J. [Investigator]. Pulmonary delivery of antibiotics for treatment or prevention- minority access to research careers- FASEB. FASEB MARC Program – $7,102 – [30 May 2010-13 August 2010].


Other Creighton Grants

Vice President for Academic Affairs


Vice President for Health Sciences


Haddad, A. M. [Investigator]. Breast Cancer Awareness luncheon. Susan G. Komen for the Cure (Nebraska) – $5,000 – [September 2009].


**Vice President for Student Services**

Creative and Artistic Works
College of Arts and Sciences

Creative/Artistic Productions


Hanna, F., Concert Conductor. Wind Ensemble & University Orchestra. Sunday, November 22, 2009, Lied Education Center for the Arts, Main Stage.

Hanna, F., Concert Conductor. Wind Ensemble & University Orchestra. Sunday, April 18, 2010, Lied Education Center for the Arts, Main Stage.


Harmless, J.W. *St. Augustine: Life, Eloquence & Theology*. This is a mini-course-on-CD project to be produced by Now You Know Media. Now You Know Media is similar to the Teaching Company; it specializes in doing multi-media works on Catholic theology and currently offers a number of courses-on-CD by leading Catholic theologians, such as Brian Daley, S.J., Daniel Harrington, S.J., John Donahue, S.J., and John O’Malley, S.J. From January 20th to 22nd, 2010, I worked in a recording studio, completing the recording of a 15-lecture series on the life and theology of St. Augustine, an audio mini-version of my forthcoming book *Augustine in His Own Words* (Catholic U., 2010). These recordings were officially released to the public in February, 2010.

Ono, M. 2010. Piano Recital and Master Class. Seoul National University in Seoul, South Korea.

Ono, M. 2010. Solo Piano Recital. Peru State College, Peru, Nebraska.

Ono, M. 2010. Solo Piano Recital. Dana College, Blair, Nebraska.

Ono, M. 2010. Solo Piano Recital. Creighton University, Omaha, Nebraska.

Ono, M. 2010. Solo Piano Recital. Creighton University, Omaha, Nebraska.


Zuegner, C., The documentary, “Esperanza” produced and created by Dr. John O’Keefe, Tim Guthrie, Carol Zuegner, Kyle Woolley and nine students won Best of Show and Best Documentary in the Elkhorn Valley Film Festival.

Zuegner, C., “Extraordinary Rendition” at Bemis Underground in Omaha. A collaborative exhibit led by Tim Guthrie and Doug Hayko, including Tim Guthrie and Doug Hayko with Jamie Burmeister, Peter Cales, Justin Kemerling, Landi Olsen, Nolan Tredway, Carol Zuegner, Sarah Baker Hansen and omahaliveartdivision
Documentaries

O’Keefe, J., Guthrie, T., Zuegner, C. & Wooley, K. *Esperanza* [documentary].

Performances

Spencer, B. “Cannibal Girls” (Actor), The Dead Hour, Director: Daniel Iske, November 2010.

Spencer, B. “Soul of the City” (Actor), Great Plains Theatre Conference, June 4, 2010

Spencer, B. Blue Roses (Director), Great Plains Theater Conference, Spring 2009.

Spencer, B. Vipers in the Grass (Actor), UNL Film Program, 2009

Spencer, B. Lucky (Actor), Ten/Four Pictures, 2009.

Spencer, B. God Costume (Actor) Great Plains Theatre Conference, 2009

Spencer, B. Bugeaters (Actor), Apartment 101 Films, January 3, 2009

Spencer, B. WPS Training Video (Actor), UNL School of Agronomy, 2009.

Prizes

Mullins, D. P. Mary McCarthy Prize in Short Fiction, Sarabande Books.
Theses and Dissertations

August 2009

Casey, Peter. Extracting fuzzy preference measures to predict government formation. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).

Fabian, Roberto. Dynamic light scattering in sodium ultraphosphate glasses. Master of Science (Physics) – Dr. David Sidebottom (Major Advisor).

Hansen, Maria. Measuring and comparing the diffusion rate of fluorescent-lipophilic-neurotracing probes in murine-peripheral-nerve preparations. Master of Science (Physics) – Dr. Michael Nichols (Major Advisor).

Jain, Neha. Preparation and characterization of melatonin and amifostine nanoparticle for radioprotective therapy. Master of Science (Pharmaceutical Sciences) – Dr. Alekha Dash (Major Advisor).

Lierz, Stefanie. A study of the causal factors of civil wars in the 1990’s. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).

Makinde, Toluwalope. Extravascular signaling of Tie-2 receptors in the pathogenesis of airway remodeling in chronic asthma. Doctor of Philosophy (Biomedical Sciences) – Dr. Devendra Agrawal (Major Advisor).

McGee, Halvor. T-regulatory cells and Fit3-ligand in the therapy of cockroach antigen-induced asthma. Doctor of Philosophy (Biomedical Sciences) – Dr. Devendra Agrawal (Major Advisor).


Shao, Zhifei. Functional responses of lung dendritic cell subsets in Fit3 ligand-induced immunomodulation in allergic asthma. Doctor of Philosophy (Biomedical Sciences) – Dr. Richard Hallworth (Major Advisor).

Wragge, Hans. X-ray fluorescence cross sections for elements 55<Z<60. Master of Science (Physics) – Dr. Sam Cipolla (Major Advisor).

Yohannes, Amanuel. WNT-3A in angiotensin II-induced proliferation of vascular smooth muscle cells from human coronary artery bypass graft conduits. Master of Sciences (Biomedical Sciences) – Dr. D.K. Agrawal (Major Advisor).

December 2009


Dandekar, Radhika. Regulation of ERK1/2 and SAPK/JNK phosphorylation by histamine. Master of Science (Pharmaceutical Sciences) - Dr. Manzoor Khan (Major Advisor).

Donnellan, Meghan. Purification of human immunodeficiency virus type 1 preintegration complexes by velocity gradient centrifugation. Master of Science (Medical Microbiology and Immunology – Dr. Michael Belshon (Major Advisor).

Humphreys, William Brooks. The missing founding fathers: The need to teach the role of the antifederalists in the adoption of the Bill of Rights. Master of Arts (Liberal Studies) – Dr. Richard White (Major Advisor).


Murari, Catherine. The misexpression of sonic hedgehog leads to digit duplication. Master of Science (Pharmaceutical Sciences) – Dr. Aimee Limpach (Major Advisor).

Zhang, Ming. Sequence and structure specific cleavage of cryptic recombination signal sequences by the V(D)J recombinase. Doctor of Philosophy – Dr. Patrick Swanson (Major Advisor).

May 2010

Al-Sarraf, Hussain. Relationship between the land/sea breeze circulations and the air pollution dispersion over the coastal area of Kuwait. Master of Science (Atmospheric Sciences) – Dr. Joseph Zehnder (Major Advisor).


Ludwig, Stephanie. The association of strong near-surface wind shear profiles with enhanced probabilities of significant severe weather and tornado events. Master of Science (Atmospheric Sciences) – Dr. Sonia Sanchez (Major Advisor).

Miller, Joseph. The role of microRNAs in craniofacial development. Master of Science (Biomedical Sciences) – Dr. Sonia Sanchez (Major Advisor).

Reiter, Jacqlynn. Characterization of the inner ear defects in a transgenic mouse line that mis-expresses sonic hedgehog. Master of Science (Biomedical Sciences) – Dr. David Zhi-Zhou He (Major Advisor).

Yao, Mingyi. Moderate cooling selectively potentiates O2-adrenoceptor mediated vasoconstriction of rat tail vein. Doctor of Philosophy (Pharmacology) – Dr. Peter Abel (Major Advisor).

August 2010

Ayers, Jacob. Mechanisms for prior strain targeting in the central nervous system. Doctor of Philosophy (Medical Microbiology and Immunology) – Dr. Jason Bartz (Major Advisor).

Bhatt, Jay. Effects of ifenprodil on the gating of NR1/2B NMDA receptors. Masters of Science (Pharmaceutical Sciences) – Dr. Shashank Dravid (Major Advisor).

George, Joju. Influence of sodium channel activation on NMDA receptor-mediated structural plasticity. Doctor of Philosophy (Pharmacology) – Dr. Thomas Murray (Major Advisor).


Palermo, Nicholas.  Design of peptide ligands which mimic the activity of carcinoembryonic antigen. Doctor of Philosophy (Biomedical Sciences) – Dr. Sandor Lovas (Major Advisor).


Urban, Lauren.  Effects of meteorological forcing events on colored dissolved organic matter (CDOM) in the South Atlantic Bight

Youssef, Dalia.  Vitamin D and chemotaxis of human blood eosinophils.  Master of Science (Biomedical Sciences) – Dr. Devendra Agrawal (Major Advisor).

December 2010


Currall, Benjamin.  Structures involved in the oligomerization of prestin.  Doctor of Philosophy (Biomedical Sciences) – Dr. Richard Hallworth (Major Advisor).


Kurtz, Jonathan.  A climatology of cold season nonconvective wind events across the north central plains. Master of Science (Atmospheric Sciences) – Dr. Jon Schrage (Major Advisor).

Lydiatt, Daniel.  The influence of the "Final Cause Doctrine" on anatomists of the Sixteenth and Seventeenth Centuries concerning selected anatomical structures of the head and neck.  Master of Arts (Liberal Studies) – Dr. Richard White (Major Advisor).


Tan, Xiaodong.  The structure-function relationship of prestin: From an evolutionary perspective.  Doctor of Philosophy (Biomedical Sciences) – Dr. David He (Major Advisor).

Witt, Kelly.  Molecular and pharmacological characterization of the rat RAMP2b splice variant.  Doctor of Philosophy (Pharmacology) – Dr. Margaret Scofield (Major Advisor).

Yanagida, Jodi.  The role of CDC25A in ultraviolet-induced nonmelanoma skin tumorigenesis.  Master of Science (Biomedical Sciences) – Dr. Laura Hansen (Major Advisor).
Illustrations

All of the images that appear in this document are part of the photographic collection of the various Creighton University Schools and Colleges and Marketing and Public Relations.

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Acknowledgements

The Creighton University Faculty Bibliography is an annual compilation of Creighton’s research and scholarly endeavors and as such could not be produced without the full support of the University’s educators, researchers, and staff. We thank those who, each year, provide the research, publication, and grant information that comprises this document. In addition, there are individual members of the Creighton community who deserve special thanks for their contributions to this year’s edition:

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- Kathy Taggart, Associate Vice President for Research and Compliance, and Beth Herr, Director of Grants Administration.