Creighton University

Faculty Bibliography

2007-2008
# Table of Contents

**Introduction** .............................................................................................................................................. 1

**A Sampling of Creighton University’s Research Endeavors** ................................................................. 2

- Center for Health Policy and Ethics ........................................................................................................... 2
- College of Arts and Sciences ....................................................................................................................... 3
  - Department of Atmospheric Sciences ....................................................................................................... 3
  - Department of Chemistry ......................................................................................................................... 3
  - Department of Exercise Science ............................................................................................................... 5
  - Department of Physics ............................................................................................................................. 5
  - Department of Sociology and Anthropology ........................................................................................... 7
- College of Business ....................................................................................................................................... 9
- The Jesuit Community ................................................................................................................................ 10
- School of Law ............................................................................................................................................. 11
- School of Medicine .................................................................................................................................... 13
  - Department of Biomedical Sciences ........................................................................................................ 13
  - Department of Medical Microbiology and Immunology ....................................................................... 19
  - Department of Medicine: Division of Allergy and Immunology .............................................................. 21
  - Department of Medicine: Division of Cardiology .................................................................................. 22
  - Department of Medicine: Division of Dermatology ............................................................................... 26
  - Department of Medicine: Division of Pulmonary/Critical Care/Sleep Medicine ................................. 26
  - Department of Pathology ......................................................................................................................... 27
  - Department of Pharmacology .................................................................................................................. 28
  - Department of Preventive Medicine ........................................................................................................ 30
  - Department of Radiology ........................................................................................................................ 34
  - Department of Surgery ............................................................................................................................. 35
- School of Nursing ........................................................................................................................................ 38
- School of Pharmacy and Health Professions ............................................................................................. 39
  - Office of Research .................................................................................................................................... 40
  - Office of Interprofessional Scholarship, Service and Education ............................................................ 42
  - Department of Occupational Therapy ..................................................................................................... 43
  - Department of Physical Therapy ............................................................................................................. 44
  - Department of Pharmacy Practice .......................................................................................................... 44
  - Department of Pharmacy Sciences .......................................................................................................... 45

**Publications** ............................................................................................................................................... 47

- College of Arts and Sciences ....................................................................................................................... 47
- College of Business Administration ........................................................................................................... 57
- School of Dentistry ..................................................................................................................................... 58
- School of Law ............................................................................................................................................ 60
- School of Medicine .................................................................................................................................... 63
- School of Nursing ....................................................................................................................................... 89
- School of Pharmacy and Health Professions ............................................................................................. 90
- Other University Publications ..................................................................................................................... 95

**Grants** ......................................................................................................................................................... 96

- College of Arts and Sciences ....................................................................................................................... 96
- College of Business Administration ........................................................................................................... 97
- School of Dentistry ..................................................................................................................................... 97
- School of Law ............................................................................................................................................ 98
- School of Medicine .................................................................................................................................... 98
- School of Nursing ...................................................................................................................................... 127
- School of Pharmacy and Health Professions ............................................................................................. 128
- Other Creighton Grants .............................................................................................................................. 129
Theses and Dissertations

August 2007 ................................................................. 131
December 2007 ........................................................ ... 131
May 2008 ................................................................. 132

Illustrations ................................................................................. 133
Acknowledgments ........................................................................ 133
Introduction

In higher education, when we do scholarship and research that lifts the human spirit and heals the human body, when we provide an environment where love and service to others are fostered in our students, when we nurture them in their faith life and in the greatest traditions of Christian Humanism and train them to be scientists, doctors, teachers and businesspersons of integrity, when we engage our benefactors or alumni to build not only a better university but a better world….we are working in solidarity with “the least” and with all.

From – A Meditation on Our Response to the Call of Christ, 2006

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

This is the seventeenth Faculty Bibliography produced annually by Creighton University’s Graduate School. The bibliography documents the scholarly accomplishments of the University community for the 2007-2008 academic year. The bibliography includes reports from various units on campus (departments, centers, or offices) that highlight the broad range of research and scholarly activity across the campus. These reports are followed by a listing of the scholarly accomplishments of Creighton faculty, including peer-reviewed articles, book chapters, and books; funded grants; and student dissertations and theses. The bibliography does not include papers in press or abstracts of professional presentations at local, regional, national or international meetings.

The contributions in this bibliography demonstrate the rich diversity and broad application of scholarship across the Creighton campus from the traditional scholarship of discovery to scholarly work of application, integration, engagement, and teaching and learning. There is strong evidence that Creighton faculty are committed teacher-scholars and true stewards of their disciplines. As stewards, Creighton faculty 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, and LuAnn Schwery, who helped to gather and compile the information that makes up this Bibliography.

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

Gail M. Jensen, Ph.D.
Associate Vice President for Faculty Development
and Graduate School Dean
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, increasingly ill patients, and public health problems. The multidisciplinary nature of the Center for Health Policy and Ethics encourages a variety of perspectives and resources for topics of scholarly inquiry, conceptual analysis, moral discernment, and discussion. 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, justice, and ways to help students, faculty and staff realize the richness of diverse gifts. The following notable examples of scholarly work reflect sustained interest in clinical ethical issues, professional education and development, and broader social justice issues.

- Dr. Winifred Ellenchild Pinch, Professor Emerita and CHPE Faculty Member, and Dr. Amy Haddad, Director of the Center for Health Policy and Ethics, served as editors of Nursing and Health Care Ethics: A Legacy and A Vision published by the American Nurses' Association, Washington, D.C., 2008. The historical and educational significance of the book has earned it a 2008 Publications Award of Excellence from the Washington, DC, Chapter of the Society for Technical Communication.
- Dr. Richard O'Brien continues his focus on health care reform through publications such as: "There is hope for diminishing poverty and inequity in America" in the Journal of Religion & Society, and shared editorial duties with S. Kosoko-Lasaki, C.T. Cook, and M.A. Sudbury on the book Cultural proficiency in addressing health disparities published by Jones & Bartlett, Boston, MA, 2008. In the same book, Dr. John Stone and co-author Annette Dula, Ph.D., contributed the following chapter, “Race/Ethnicity, trust, and health disparities: Trustworthiness, ethics, and action” (pp.37-56).

Issues of health policy and ethics will continue to demand scholarly inquiry and public attention. Critical concerns about ethics education will require closer examination of student learning and outcomes. The health care system will continue to develop, and changes within and without acute care delivery will inevitably lead to new moral considerations. Faculty at the Center will continue to make important contributions in these challenging areas and direct attention to issues and concerns that align with the Center’s mission as they have done significantly in the past.

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

Department of Atmospheric Sciences

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

Dr. Joseph Zehnder is focusing on observations and modeling of thunderstorms. This work centers on data collected as part of a multi-institutional field experiment for which he was a co-principal investigator, funded by the National Science Foundation. The experiment, which included participation from the National Center for Atmospheric Research, University of Arizona and University of Wyoming, used an instrumented aircraft, an array of surface observing stations and pairs of digital cameras to study the onset and subsequent development of convective storms over the mountains in southern Arizona. A novel feature of this work is the automatic image processing and stereo analysis techniques developed as part of the project. An understanding of the mechanisms that control convection is essential for improving the accuracy of computer forecast models used to predict short-term weather and provide longer term predictions of climate change.

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

Dr. Jay Martinelli has a research focus examining quasi-linear convective systems that result in straight-line or tornadic wind damage at the surface. He is working with local national weather service offices to conduct damage analysis using GPS precision and GIS mapping. Damage data are then spatially correlated to structures within the convective system in order to isolate the element responsible for the damage. Furthermore, storm structures are analyzed in order to determine any precursors to the onset of damaging winds at the surface. It is hoped that results will lead to improved warnings for such events.

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 member’s research interests.

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 Dr. Mattson’s 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$_4$-$D_n$, n = 0 – 4; (2) deuterium exchange and hydrogenation at 0°C for ethane with deuterium. This study has revealed that deuterium exchange is faster than deuteration so that the deuteroethanes produced have between 1 and 4 deuterium atoms. The D/H exchange is statistical for mole ratios smaller than 2 H : 1 D; (3) ethyne undergoes D/H exchange at 0°C but, unlike ethene, does not add across the triple bond, perhaps due to the sp-hybridization; and (4) dihydrogen (H$_2$) and dideuterium (D$_2$) undergo D/H statistical exchange in the presence of the catalyst at temperatures as low as −78°C. Dr. Mattson’s group uses high-field nuclear magnetic resonance and mass spectroscopy to study these reactions.

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

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, the study has developed a method to quickly calculate the nuclear magnetic resonance (NMR) chemical shifts of nuclei in the presence of a discrete solvent potential. The study attempts to predict chemical shifts in solution. Interactions of the solvent are modeled using the Effective Fragment Potential method. These theoretical methods have recently been incorporated into the quantum chemistry package GAMESS.

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. Erin Gross’ research interests involve the combination of electrochemical and spectroscopic analytical techniques to study chemiluminescent reactions. The department 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 being studied 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. Mark Latta and Dr. R. Scott Shaddy at the Creighton University School of Dentistry, Dr. Gross’ lab looks at the adhesion of resin modified glass ionomer cements to dentin. The lab is also currently engaged in the development of new composites with dental applications; 3) In collaboration with Dr. Somnath Singh in the School of Pharmacy and Health Professions, the study is synthesizing polymers that can be used for subcutaneous drug delivery.

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

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

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

Department of Exercise Science

The Department of Exercise Science and Athletic Training at Creighton University has ongoing research/scholarly projects. Many projects involve undergraduate students. Faculty interests and accomplishments in 2007-2008 are presented below.

Dr. Thomas Baechle’s previous experience as an Olympic-style weightlifter, powerlifter, and strength and conditioning coach, combined with his involvement in developing the National Strength and Conditioning Association, a professional organization of over 33,000 members, has laid the foundation for his interest, expertise and research in strength training. The 14 books that he has authored or served on as editor expressed the purpose of educating individuals in the design of safe and effective strength training programs for college students, athletes, and older adults. He has made 35 professional presentations in 16 countries and his books have been translated into 10 languages.

Dr. Anthony Bull has two primary research interests that he focuses on at Creighton. With a personal history of morbid obesity, Dr. Bull’s interest in battling physical inactivity and obesity is very strong. Collaborating with the College of Nursing at the University of Nebraska Medical Center, Dr. Bull has been examining physical activity in mostly Latino elementary school children. This research will hopefully lead to a program to reduce childhood obesity and its related health concerns in this and other populations. In other projects, Dr. Bull continues his research on the measurement and modeling of high intensity cycling and running performance. He often collaborates with colleagues in the department using his experience in high intensity exercise to study nutritional supplementation or gastrointestinal physiology. In 2008, Dr. Bull wrote a research article published in the European Journal of Applied Physiology that examined the modeling of endurance running performance and oxygen consumption.

Dr. Joan Eckerson conducts research to examine the validity of different techniques for estimating body composition, including multi-component models, and the effects of dietary supplements on exercise performance, body composition, and muscle fatigue. She strongly believes in collaboration and works closely with her colleagues in Exercise Science, including Geri Moore and Jennifer Yee, as well as faculty in several departments across campus. During 2008, Dr. Eckerson published two book chapters and was a primary author and co-author on two journal publications in press.

Dr. G. Patrick Lambert conducts research on gastrointestinal (GI) physiology and body fluid balance as it relates to exercise in humans. Specifically, Dr. Lambert studies GI barrier dysfunction, gastric emptying, and intestinal absorption. Dr. Lambert published two research articles in 2007 in the International Journal of Sports Medicine. Those studies examined the effects of non-steroidal anti-inflammatory drugs and dehydration on GI barrier dysfunction during prolonged exercise. Dr. Lambert’s interest in GI physiology has resulted in collaborations with Drs. Stephen Lanspa and John O’Brien in the Creighton University School of Medicine.

Department of Physics

Research in the Department of Physics covers a wide spectrum from the theoretical discussion of the physical meaning of quantum mechanics to experiments in high energy nuclear physics. The high energy project involves several faculty in collaboration with Brookhaven National Laboratory in New York, Lawrence Berkeley Laboratory in California, and the European Center for Particle Physics Research (CERN) in Switzerland. Analysis efforts focus on the production of particles from intense fields occurring
in ultra-peripheral heavy ion interactions at the STAR experiment and the production of electrons in jets of particles originating from heavy quark production in nucleus-nucleus collisions at the ALICE experiment. Specialized support is provided in experiment monitoring and control systems as well as simulations of ultra-peripheral collisions. An outreach program for regional high schools helps coordinate data collection for a large baseline cosmic ray observatory project (CROP).

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

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

Faculty: Sam Cipolla.

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

Faculty: David Sidebottom.

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

Faculty: Michael Nichols.

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

Faculty: Patricia Soto.

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

Faculty: Gintaras Duda.

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

Faculty: Jack Gabel.

Department of Sociology and Anthropology

James Ault is collaborating with Dr. Stephanie Wernig in analyzing variables that predict academic success for undergraduates at Creighton University. His work with faculty and administrators in the School of Dentistry to analyze variables that predict satisfaction with professional practice patterns of alumni have resulted in four conference presentations and two articles submitted for publication in 2008. He is also in the seventh year of a project to evaluate the relative reliability of surveys of student opinion about faculty effectiveness in classroom settings. He is now completing the first year of what is expected to be a three year project working with St. Francis Mission in St. Francis, SD to describe burial plot locations in the St. Charles cemetery at St. Francis, and to make those descriptions available to members of the Rosebud Sioux Tribe as a resource to identify the probable burial plots of deceased family members.

Roger Bergman is completing a book manuscript to be titled Catholic Social Learning: How to Educate the Faith That Does Justice.

Ray Bucko, S.J. is completing research on a book introduction for the republication by the University of Nebraska press of William J Bordeaux’s Conquering the Mighty Sioux. William was the grandson of the fur trader James Bordeaux who married into the Sicangu Lakota in South Dakota. Fr. Bucko is continuing research on his photographic biography of Fr. Eugene Buechel, S.J. He is also preparing an annotated version of Fr. Buechel’s ethnographic notes on the Lakota of Pine Ridge and Rosebud for publication with Raymond J DeMallie. Finally, he is preparing an article on the war charms in Fr. Buechel’s ethnographic collection and continues to improve the Buechel Memorial Lakota Museum virtual museum as a source for scholarly research.

Barbara Dilly continues with the writing of a book that explores the social and cultural transformations of the American family farmer’s daughter image as revealed in popular culture images and ethno-historical literature. She is also researching the interaction between formal and informal health networks in a rural Midwestern community that contribute to fitness and greater lifestyle independence for middle-aged and older women.
Kristin Fitzgerald is interested in the religious syncretism and inculturation practiced among Lakota Episcopalian urban Indians in Rapid City, South Dakota. Her preliminary fieldwork began in the summer of 2006, and she will live in Rapid City from June, 2009 to June, 2010 for her long-term ethnographic study. Drawing on the fields of ethnohistory, ritual and symbolic analysis, urban sociology and anthropology, she aims to complete the first study of urban Christian American Indians.


Dawn Irlbeck is continuing her work on racial profiling, conducting additional analysis of data from the Nebraska State Patrol. One aspect of that additional analysis is being conducted with Ryan Vacanti, a Sociology major. Ryan and Dr. Irlbeck recently presented their initial findings at the Academy of Criminology conference in St. Louis, and are working on a research article based on those findings. In addition, Dr. Irlbeck is completing a book on racial profiling for a scholarly publishing company, which was scheduled to be published late in 2008. Dr. Irlbeck also is continuing her research on Latino police officers, and has been asked to write a book on the subject. Her article on Latino Police Officers and ethnic identity was published in the most recent journal of *Police Quarterly*. With regard to new projects, Dr. Irlbeck recently began collaborating with Professor John Crank from the University of Nebraska-Omaha’s Department of Criminology and Criminal Justice on two projects. The first is a research article based on community members’ perceptions of crime and disorder. Dr. Irlbeck and Dr. Crank are also collaborating on a book chapter on police organizational culture.

Rebecca Murray continues to research the effects of urban structures on crime, and by the end of the year, she expects to finish a manuscript outlining a consideration of research methods in alcohol establishment research, on which she is collaborating with former student Shannon Keating. In addition, she is expanding a previous publication to assess media perceptions of minority neighborhoods. Finally, the third edition of *Statistics in Criminology and Criminal Justice: Analysis and Interpretation*, in which she authored the chapter on working with limited dependent variables, has just been released by Jones and Bartlett.

Alexander Rodlach’s current research concerns cultural meanings of HIV/AIDS and TB in Bulawayo, Zimbabwe, and their consequences for the integration of HIV/AIDS and TB programs in the country. For years, UNAIDS and the WHO have recommended governments of countries with a high prevalence rate of HIV/AIDS and TB to coordinate and integrate programs addressing both diseases. He will collaborate with Dr. Riitta Dlodlo, MD, MPH, and others involved in Bulawayo’s health care, exploring local meanings of HIV/AIDS and TB as well as of diagnostic procedures and treatment regimens for both diseases. Knowledge of such meanings is crucial for developing a culturally sensitive integrated approach to addressing both diseases. Tailoring programs to patients’ perceptions and beliefs about the diseases and their respective treatments will increase acceptance of these programs, treatment adherence, and patients’ quality of life. An initial qualitative study will provide the foundation for a quantitative study. The ultimate aim of the study is to generate suggestions for health policy makers in Bulawayo and beyond regarding integrated programs for both HIV/AIDS and TB. Dr. Rodlach, along with Dr. Dianne Travers Gustafson, School of Nursing, is developing a study on how southern Sudanese refugees, who have been resettled in Nebraska, cope with stress. They deliberately avoided a clearly defined and narrowly focused study design in order to allow them to be guided by whatever the study participants regard as important. This exploratory study will provide the basis for more focused research. Dr. Roos Willems, who worked for years with UNHCR and IOM in various parts of Africa and studied adjustment strategies of refugees settling in urban areas, will serve as a consultant for this study. Dr. David Turkon from Ithaca College, New York, who has extensive experience with refugees from the Sudan and collaborated with the Lost Boys Project, will advise them throughout the research process.
College of Business

Faculty in the College of Business displayed great versatility in their research endeavors. The venues in which their work appeared ranged from practitioner-oriented Forbes.com to A-level academic journals (Journal of Applied Psychology) and from a middle school reading book (an age appropriate piece on financial planning) to university-level textbooks and chapters in edited series and books. Faculty members demonstrated great range when some in quantitative fields published behavioral research (Nalini Govindarajulu on organizational citizenship behavior and Mark Taylor on personal attributes and employee contracts). Faculty members across departments and from disparate backgrounds (mathematics and philosophy, for example) co-authored publications; they conducted research and wrote with graduate students and former graduate students, and they published extensively with colleagues across the country in producing multiple-authored publications.

Consistent with the university’s mission, most heavily represented among the topics of research that appeared in print during the 2007-2008 year were publications on social responsibility and ethics. The research endeavors of Beverly Kracher, Robert Marble, and former MBA student Kelly Martin (on a conceptual framework for online business protest and on cognitive moral development), Matt Seevers (sales force ethics), Nalini Govindarajulu (organizational citizenship with regard to the environment), and Robert Moorman (leader integrity) were all in this realm.

Another well-represented discipline was economics, with Ernest Goss and John Wingender co-authoring with student Megan Torau (foreign capital and US productivity growth), Vasu Murthy on health care economics with a study of physician substitutes, John Deskins on highway spending, and Matt Seevers researching the underground economy (published in Marketing Management Journal).

Faculty members in finance and accounting also made numerous contributions. Tim Bastian wrote on the perils of equity index annuities as investments for Forbes.com. New faculty member Lee Dunham’s publication on jump risk in equity and bond markets appeared in print, and accounting professor Mark Taylor wrote about academic opportunities and influences on SEC developments. Taylor also co-authored a summary of Sarbanes-Oxley Section 404 reporting for the Journal of Accountancy. In his first year at Creighton, Ken Washer’s co-authored analysis of regional banks’ repurchasing behavior appeared in the Academy of Banking Studies Journal.

First-year faculty member Todd Darnold, who completed his doctorate at the University of Iowa in the fall, contributed a piece on organizational systems and employee motivation to an edited series. Darnold also co-authored a human resources-related article (the handshake in interviews) to top tier Journal of Applied Psychology.

Other business disciplines were well-represented among College of Business faculty publication endeavors. Ravi Nath’s research on e-business procurement was published in Supply Chain Management: An International Journal. Anne York contributed both a book chapter to Advances in Mergers and Acquisitions, an edited book, and an article on attitudes toward entrepreneurship to the Journal of Enterprising Communities, People, and Places in the Global Economy.

In the pedagogical realm, William Duckworth and co-authors completed their business statistics text, and George McNary wrote cases for teaching business law that appeared in the Journal of the International Academy of Case Studies.

In summary, faculty from every discipline represented among the College’s four departments had publications appear in print in 2007-2008. The research of faculty members at every level of experience, from new to the College to seasoned veterans, was published in a wide range of journals and other venues. Many more faculty presented papers at conferences that subsequently appeared in refereed proceedings, and there are many forthcoming works in various stages of completion, as well as finished projects that have been accepted for publication, that will appear next year, during 2008-2009.
The Jesuit Community

Philip Amadon, S.J. is working on a translation of Rufinus of Aquilea's church history.

Raymond Bucko, S.J. is completing research on a book introduction for republication by the University of Nebraska press of William J Bordeaux’s *Conquering the Mighty Sioux*. William was the grandson of the fur trader James Bordeaux who married into the Sicangu Lakota in South Dakota. Fr. Bucko is continuing research on his photographic biography of Fr. Eugene Buechel, S.J. He is also preparing an annotated version of Fr. Buechel’s ethnographic notes on the Lakota of Pine Ridge and Rosebud for publication with Raymond J. DeMallie. Finally, he is preparing an article on the war charms in Fr. Buechel’s ethnographic collection and continues to improve the Buechel Memorial Lakota Museum virtual museum as a source for scholarly research.

Greg Carlson, S.J. is the collection development agent for the Carlson Fable Collection in Reinert Alumni Library. He continues to research fable publications, gathering and cataloguing books and other materials for the collection. The number of catalogued books in the collection now exceeds 6000. Beyond collection development, his research work with fables involves comparative analysis of ancient, medieval, and modern versions of the same fable. His recent presentations have focused particularly on the predecessors and successors of Heinrich Steinhoewel, who is credited with publishing the first Northern European book of fables in 1476.

Don Doll, S.J. is working with Carol McCabe on an exhibit of Eugene Buechel, S.J., photographs, making high resolution scans from the original negatives, and will be making exhibition prints for a showing at the Betty Strong Encounter Center in Sioux City, Iowa, where Don Doll serves as photo exhibition consultant. In January, Fr. Doll will resume identifying thousands of slides and negatives in the archives in preparation for a major book and exhibition. Fr. Doll continues to work as photo consultant to Jesuit Refugee Service in Rome, and will be traveling to document the Jesuit Refugee Service’s work in a number of countries.

Dennis Hamm, S.J., Graff Chair in Catholic Theology, is working on a book interpreting Matthew’s Sermon on the Mount and Luke’s Sermon on the Plain within their respective narrative contexts and in light of their background in the Greek version of the Hebrew scriptures, especially Isaiah.

Richard Hauser, S.J. is currently researching an article tentatively titled “Not sure this qualifies for your list. The Uniqueness of a Faith-Based University.” He hopes to publish it in the United States.

William Harmless, S.J. is putting the final touches on a new one-volume St. Augustine Reader (approximately 350 pages), to be published by Catholic University of America Press. It offers several hundred 1- to 3-page excerpts (many newly translated) drawn from the complete corpus of Augustine's massive works. It is meant to introduce first-time readers to the broad span of Augustine's thought and to introduce them as well to contemporary scholarly perspectives on his work. The book will include chapters on Augustine's best-known works (Confessions, On the Trinity, On the City of God); it will also include chapters on his major controversies (against the Manichees, against the Pelagians) as well as chapters on his pastoral work (as a bishop, as a preacher, and as an interpreter of the Bible). It will be published in 2009.

Roc O’Connor, S.J. is compiling songs he has written over the past 10 years or more to submit them for publication. He continues researching his book with the Liturgical Press on liturgical participation by worshipers.

Thomas Simonds, S.J. is developing a workbook that school personnel can use to implement violence prevention programs in schools. Fr. Tom plans to seek a publisher for this material, and will be presenting the workbook at a national school conference in Anaheim, CA in 2009. Fr. Tom is also developing a book of Advent and Christmas reflections for teachers and parents that includes tips on how to teach young people about these seasons of the Church year.
Jack Zuercher, S.J. has created a booklet aimed for small communities of the Christian Life Community for their use in processing the statements of this international organization to make them more meaningful to individuals and to the local, small community. In particular, questions and prayerful commentaries are meant to stimulate individual consideration and prayer which then can be the source for faith sharing and discussion during meetings of a particular small community. The booklet is available in printed form or online.

**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 bibliographies.


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. He is also finalizing an essay entitled *Changes in the role of lawyers and corporate governance in Japan—How do we measure whether legal reform leads to real change?* It will appear shortly in a symposium issue of the Washington University Global Studies Law Review.

Patrick Borchers’ current research is in the area of private international law. He is working on an article discussing the interstate and international aspects of punitive damage law. He is also preparing a new edition of his co-authored casebook on the conflict of laws which will be in print in the summer of 2009 and a revision of his co-authored treatise on the same topic expected in the summer of 2010.

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 hired and trained a team of Creighton law students to build the database on which two Rand studies were based. 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.

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

Michael Fenner’s primary research interests are evidence law, Nebraska civil trial law (particularly Nebraska pattern jury instructions for use in civil cases), and American constitutional law. He is the author of a treatise on evidence law. 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 in 2008 completed his book on Saddam Hussein and the genocide of the Iraqi Kurds entitled *Ghosts of Halabja: Saddam Hussein & the Kurdish Genocide*. He continues his research into the Kurdish situation in the Middle East. Also in 2008, he published “Genocide - The power of a label”, in the *Case Western Reserve Journal of International Law*, and recently he completed an article outlining an
architecture for the Obama Administration to re-engage public international law. His current research concerns the use of international and foreign law by U.S. federal court judges in their judicial opinions.

Raneta Mack is the author of a new casebook, *Comparative Criminal Procedure: History, Processes and Case Studies*. 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. He is also researching the Erie Doctrine and evidentiary issues in diversity cases; a jurisprudential article on the role of religion in Israeli legal argumentation; accounting standards and issues of work product and privilege; a legal/historical research concerning Mormon land issues in Winter Quarters and Council Bluffs during the 1846-52 period.

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 a forthcoming article, “Controlling the nonresponsive witness on cross-examination,” to be published in the *American Journal of Trial Advocacy*.

Edward Morse continues research in areas involving taxation, economic development, and law and technology. He is working on a presentation for the ABA Section of Business Law meeting in Vancouver, BC, which will address barriers to financing internet gambling under the Unlawful Internet Gambling Enforcement Act (UIEGA). 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. He continues ongoing work on current developments in taxation and tax policy in connection with the Great Plains Tax Institute.

Eric Pearson is the author of his recent casebook, *Environmental and Natural Resources Law*, and 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 (constitutional voting cases are Equal Protection cases), 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. She also is exploring the issue of workplace bullying and possible legal remedies to address it. She also does research in the areas of estate planning and trusts.

Larry Teply is coauthor of both a casebook and treatise on civil procedure. He also is the author of books on legal writing citation, legal negotiations, and law school competitions.

Ronald R. Volkmer continues his research in the fields of estate planning and real property law. He continues to write 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.

Sean Watts’ primary research interests focus on the regulation of armed conflict. His most recent publication examines the role of reciprocity in the law of war. Current projects include examinations of 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.

Ralph Whitten is coauthor of both a casebook and treatise on civil procedure. He is also an authority on conflict of law and the author of a casebook on the topic. He is working with Collin Mangrum on the Erie Doctrine and the Federal Rules of Evidence.

School of Medicine

Department of Biomedical Sciences

Research Overview

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

Immunobiology of Allergy and Asthma

This research is focused on the pathophysiology of allergic asthma and the use of various immunomodulators in the prevention and reversal of airway hyperresponsiveness and allergic airway inflammation. Experiments are conducted in human blood cells from normal volunteers and patients with allergic rhinitis and bronchial asthma and in mouse and guinea pig models of allergic asthma sensitized and challenged with ovalbumin, house dust mite and cockroach antigens. Role of lung dendritic cells, T-regulatory cells and Th17 cells is under investigation in the immune response and tolerance to allergen. This research is supported by grants from the National Institutes of Health and the Department of Health State of 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 vascular tissues, human
blood cells and swine model of atherosclerosis and in-stent restenosis are used to answer specific questions. In addition, gene therapy approach to treat occlusive vascular diseases in the swine model is being pursued in collaboration with interventional cardiologist, vascular pathologist, cardio-thoracic and vascular surgeon. This research is supported by grants from the National Institutes of Health and 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. Faculty are investigating the pathophysiological role of Pokemon and the underlying cellular and molecular mechanisms in the malignancy and proliferation of breast and prostate cancers.

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

**Skin Cancer**

The largest organ in the body, the skin, functions as a major sensory organ and protects the body from exogenous insults. Dr. Laura Hansen’s 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. Dr. Hansen is investigating the mechanisms of non-melanoma skin cancer development by focusing on the role of erbB2 and the epidermal growth factor receptor in this process. Since non-melanoma skin cancer is the most common form of cancer in the United States, with more than one million new cases diagnosed per year nationwide, this research may have important implications for human health.

**Faculty: Laura Hansen, PhD.**

**Comparative Ion Transport**

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

**Faculty: David Petzel, PhD.**

**Airway Hyperresponsiveness**

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

Faculty: Philip Brauer, PhD.

Developmental Neuroscience: Ontogeny and Phylogeny

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

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

Ear Development

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

One of the central questions in developmental neurobiology of the sensory systems is how the receptor cells develop and whether their development is regulated by innervation. Research in the laboratory focuses on the development of cochlear hair cells. Specifically, they 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. Other research focuses on the roles of microRNA genes in the development of sensory neurons, epithelia and hair cells. 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; and Garrett Soukup, 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. Other work focuses on determining how microRNAs affect inner ear development by post-transcriptionally regulating gene expression profiles of cells in sensory epithelia. 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 and Garrett Soukup, 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; and David Nichols, PhD.

Biophysics of Cochlear Hair Cells

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

Faculty: Richard Hallworth, PhD and David He, PhD.

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: John Yee, PhD.

Control of Appetite and Digestion

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

Regulatory Peptides

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

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

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

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

Neuropeptides of the Vasculature

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.
Peptide Synthesis and Method Development

Method development for solid phase peptide synthesis continues in the group to enable the facile, efficient synthesis of large peptides. Using the 30 amino acid residue peptide, CGRP(8-37) as a model recent studies correlated the hydrogen bonding capabilities of solvents with the ability to couple amino acid derivatives to large, resin-bound peptides. Future studies will focus on applying an orthogonal chromatography scheme to separate the desired peptide from the inevitable mixture of deletion sequences found in crude synthetic products.
Faculty: D. David Smith, PhD.

Structural Bioinformatics and Proteomics

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

Protein Processing

Communication between cells of the nervous, endocrine, and immune systems is frequently conducted through biologically active peptides. Many of these peptides are initially synthesized as larger, inactive propeptides which are subsequently cleaved by extremely specific endoproteases. The structural basis for this specificity is unknown. Researchers are presently examining the processing of proinsulin and proglucagon by the converting enzymes PC1 and PC2 in an attempt to uncover clues to the specificity of substrate recognition. The ultimate goal of this work is to describe, at the molecular level, those interactions for the differential processing of peptide hormones.
Faculty: Robert Mackin, PhD.

Bioimaging

The Department operates on behalf of the School of Medicine a Zeiss multi-photon confocal microscope and other biomedical imaging equipment as a Core Facility, the integrated Biomedical Imaging Facility. Investigators in the department and other departments of the School of Medicine, the Departments of Physics and Biology, Creighton University, Boys Town National Research Hospital, the University of Nebraska Medical Center, the University of Nebraska – Lincoln, and outside investigators are using the instrument to extend their knowledge of the inner workings of cells.
Faculty: Richard Hallworth, PhD.

Nucleic Acid Structure and Function

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

The inner ear most conspicuously consists of discrete sensory epithelia that collect and transmit information about auditory stimuli as well as the body’s dynamic position in space. In addition, however, non-sensory epithelia and the surrounding connective tissue segregate and orient the sensory epithelia, and provide the requisite ionic environment for their activity. Something is now known about the developmental mechanisms responsible for generating the sensory epithelia. However, little is known about how the non-sensory epithelia are formed. Current work aims to understand the genetic mechanisms responsible for specifying the non-sensory ear and coordinating its interaction with the sensory ear. Specifically, researchers study the roles of locally secreted Wnt’s, one of their inhibitors (the Dkk’s) and the Lm homeodomain transcription factor Lmx1a. This work is being carried out in the laboratories of Drs David Nichols and Kirk Beisel in collaboration with Dr. Bernd Fritzsch of the University of Iowa and Dr. Kathleen Millen of the University of Chicago.

**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.

**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 state-of-the-art, 3-laser, 12-parameter, high-speed sorting FACS Aria flow cytometer from Becton Dickinson. When installed, this instrument was the first FACS Aria 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 advance data analysis packages.

In addition to the FACSCalibur, the facility houses a Beckman Coulter Z1 particle counter, a Nikon E-400 microscope and an IEC Centra-GP8R refrigerated centrifuge. The cell enrichment capabilities of the facility have also been enhanced through the purchase of two magnetic separation units (a VarioMACS and a QuadroMACS) from Miltenyi Biotech. 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, PrP\textsuperscript{Sc} is pathognomonic for prion diseases and its deposition in the central nervous system (CNS) results in neuronal loss and onset of clinical symptoms. PrP\textsuperscript{Sc} is an amyloid protein that is resistant to proteolytic degradation and is posttranslationally derived from the protease sensitive non-amyloid host encoded prior protein, PrP\textsuperscript{C}. Outside of the CNS, PrP\textsuperscript{Sc} 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 pathiology 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 new drugs and novel drug combinations to effectively treat resistant bacteria. For over eleven years, CRAB faculty 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 the teaching of 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 focus 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 Internal Medicine: Division of Allergy and Immunology

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

The division is also engaged in a number of clinical research studies to define new therapies for the treatment of allergic respiratory diseases, especially asthma and allergic rhinitis. A number of these studies are examining immunomodulators and involve first in man clinical trials.

Dr. Robert Townley is currently engaged in a research project on corticosteroid-resistant asthma in the African-American community in Omaha. He hopes to determine whether tobacco smoke causes a greater degree of corticosteroid resistance; whether asthma is more severe in African Americans because of a greater degree of corticosteroid resistance; and he also hopes to promote healthier lifestyles in this community through education, asthma screenings and referral activities using a social marketing approach in cooperation with community leaders.

**Department of Internal Medicine: Division of Cardiology**

The Division of Cardiology, under the direction of Dennis Esterbrooks, M.D., continues to build upon its commitment to provide superior clinical services, participate in sponsored clinical research and take part in community-focused intervention programs.

The Cardiac Center provides referring physicians, healthcare professionals, patients and their families with the opportunity to utilize the area’s first freestanding facility dedicated to cardiovascular research and education, risk modification, diagnosis and treatment. Services at the Cardiac Center include: patient evaluation, treatment and management; electrocardiography; x-ray; exercise testing; cardiovascular sonography services; Implantable Cardiac Defibrillator (ICD) and pacemaker management; pharmacologic interventions (including the availability of compassionate drugs); laboratory services; risk reduction education and smoking cessation services.

**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, M.D., Medical Director of Research, and Stephanie Maciejewski, Pharm.D., 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.

Many of the double-blind clinical trials are focused on Acute Coronary Syndrome (ACS). The goal is to better define the best possible standard of care in the treatment of patients with unstable angina, Non-ST
elevation myocardial infarction (MI), and ST elevation MI. During 2007-2008, the Cardiac Center participated in two large global trials, CURRENT and PLATO. CURRENT compares high dose to the standard dose of clopidogrel in patients with an early invasive strategy. PLATO compares clopidogrel in ACS patients with a new investigational antiplatelet drug, AZD6140. The Cardiac Center also participated in three registries ARRIVE-2, TIMI-38, and SAPPHIRE. The ARRIVE-2 Registry followed patients for two years for major cardiovascular endpoints after receiving the TAXUS Express Paclitaxel-Eluting stent. The TIMI-38 Registry was initiated to follow patients who had completed the TRITON (TIMI-38) clinical trial, which compared an investigational antiplatelet drug, prasugrel, with standard clopidogrel in ACS patients undergoing percutaneous intervention. Clinical Research has continued to have high enrollment in the SAPPHIRE Registry, a carotid stent study which allows the use of a stent and distal protective device. This device is designed to capture emboli that may be dislodged, thereby reducing the risk of embolization/stroke during implantation.

Secondary prevention post ACS events was pursued by continued enrollment in the IMPROVE-IT Study, which evaluates Zocor® versus Vytorin® in recent ACS patients to see if very aggressive lipid-lowering therapy will translate into fewer events in the long-term. Initiated during the 2007-2008 period was another TIMI study, the TRA2P Study. This study looks at an investigational thrombin receptor antagonist as a means of decreasing recurrence of atherosclerotic events in patients with a history of myocardial infarction, stroke or peripheral vascular disease.

Studies which were completed during 2007-2008 included an outpatient study of lipid control involving an investigational fenofibric acid. A blood pressure study, COSMOS, and the NHLBI sponsored HAT – Home AED Study were also concluded. The primary results of the five year Home Automated External Defibrillator (AED) Trial (HAT) indicated that having an AED in the home did not decrease all-cause death rates, though the overall death rate was low.

Addressing the challenge of anticoagulation in patients with chronic atrial fibrillation, Clinical Research at the Cardiac Center enrolls and follows multiple patients in the RE-LY Study. These patients are assigned to one of two doses of dabigatran, an investigational anti-thrombin agent, or standard therapy with warfarin. Another alternative to warfarin is being explored through the ROCKET AF Study, comparing warfarin to Rivaroxaban, an investigational factor Xa inhibitor, in high risk patients with atrial fibrillation. The Cardiac Center also participated in the REPLACE Registry, designed to evaluate complication rate for patients who undergo an implantable cardioverter defibrillator (ICD) or pacemaker generator replacement.

The past year has been a time of transition and growth in the clinical trial area. Defined within the Clinical Research Area were three specific areas of focus for the future. As a result, three teams were organized, the Prevention, Intervention, and the Non-Invasive/EP/HF teams, to seek and conduct investigator initiated and clinical research trials that will shed more light on the prevention and treatment of cardiac disease.

Beyond these varied inpatient and outpatient clinical trials, the Cardiac Center conducts multiple investigator-initiated studies. These studies involve such areas as cardiac catheterization, prevention of myocardial remodeling, antiplatelet drug resistance, the use of statins in heart failure, and anticoagulation bridging procedures. Over the past year Clinical Research has participated in studies of drugs that may or may not go on to the FDA for approval, but in any case will shed more light on the prevention and treatment of cardiac disease. Many lab tests have been done to test for drug safety and to help develop markers of cardiac disease. We have followed many patients closely, attempting to educate and empower them to be as healthy as they can be, as a benefit of their participation in a clinical trial.

The Cardiac Center’s tobacco treatment program received State of Nebraska funding to investigate the role tobacco plays in the Nebraska gay community. Electronic surveys, focus groups and key informant interviews were utilized across the state of Nebraska. As a result of the study, the State of Nebraska has provided additional research dollars to continue the investigation. Our findings were that tobacco use in the gay community is almost three times as high as the general population (52%, 21%) Tobacco
prevention and cessation have not received as much attention as compared to other health concerns in this population such as HIV/AIDS and depression. Approaches involving empowerment have shown promise. Tobacco prevention and cessation would best be approached addressing parallel disparities in tobacco and mental health or infectious disease management. Tobacco prevention and cessation should be a part of a broader framework in reducing mental health symptoms and infectious disease treatment among the gay population. Approaches should be integrated relating depression of HIV disease disparities and encouraging dialogue on interrelated issues.

**Education**

**Funded Programs in Minority Cardiovascular Risk Prevention**

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

**Creighton Community Health Center**

The Cardiac Center of Creighton University Medical Center and Creighton University established the Creighton Community Health Center (CCHC) in an effort to enhance educational opportunities for Creighton students, improve health care services to local underserved populations and advance the science directed toward reducing, eliminating, or preventing health disparities in minority and underserved populations. CCHC provides outpatient basic medical care encompassing curative and preventative medicine, health promotion and maintenance, education, nutrition and continuing care evaluation and management of adults.

Our continued goals for the Community Health Center include:

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

The clinic continues to focus on prevention and care of patients with chronic conditions, and has experienced tremendous growth during fiscal year 2007/2008. Expanding provider hours has resulted in tremendous increase in patient clinic visits. This increase has also encouraged greater patient numbers for several outreach activities such as blood pressure, cholesterol, and glucose screenings, lunch ‘n’ learn presentations, cooking schools, shopping tours, an ongoing exercise program, HIV and STD testing. CCHC continues to explore ways to assist other Creighton clinics while serving the community.

**Black Education and Treatment of Hypertension (BEAT HTN)**

Hypertension is a key contributor to cardiovascular, renal, and all-cause morbidity and mortality, with an incidence that is disproportionately high in African Americans, contributing to 30 percent of all African American deaths. Black Education and Treatment of Hypertension (BEAT HTN) study was designed to increase the proportion of hypertensive African Americans meeting the Seventh Joint National Commission on the Control of Hypertension (JNC VII) guidelines for hypertension in an effort to eliminate
this disparity and increase quality and years of life. Participants are provided FDA approved antihypertensive medication free of charge. Subjects work with a nurse practitioner/physician team, health educator, dietitian, pharmacist, social worker, and Cardiac Center-trained lay health educators to encourage medication compliance and lifestyle modification. Our hypothesis is that the patients receiving consistent lifestyle intervention with medical care will have better blood pressure control than those receiving only standard of care. Currently, 91 individuals (26 male, 65 female) are enrolled in the study, with a goal enrollment of 300. The inclusion criteria is African Americans 25-80 years of age with uncontrolled hypertension (>140/90, or >130/80 for diabetics and those with kidney disease).

Communities of Excellence in Tobacco Control

The Communities of Excellence Tobacco grants are part of local efforts to prevent tobacco use within Douglas and Sarpy counties. This project is supported by grant dollars from Tobacco Free Nebraska, a division within the Nebraska Health and Human Services System. The goal of the grants are to reduce exposure to secondhand smoke in the workplace, home, and house of worship, and to prevent youth initiation of tobacco use through education and product placement policies. The health educator created a 12-hour tobacco prevention workshop/tobacco advocacy curriculum for 6th grade social studies course at Marrs Middle School in Omaha. This program was carried to several other schools and organizations throughout the Omaha area including, Christ Child Society, Norris Middle School and Bellevue East High School. The health educator represented Creighton at community and business events such as Buy the Big “O” Show and Health Fairs in the area to distribute tobacco prevention information and information on maintaining smoke-free homes and businesses.

Creighton University is an active member of the Metro Omaha Tobacco Action Coalition (MOTAC) and Tobacco Free Sarpy (TFS) media committee and has participated in the planning for the area media campaigns. Creighton also takes the lead on the minority media outreach component of the campaign. Through this component, the health educator has coordinated the following activities and/or placement: two new cigarette tarps for the giant cigarette supporting clean indoor air with the campaign taglines in English and Spanish; ads in the North Omaha Area Health publication (NOAH); radio sponsorship of KCOR Sunday morning gospel; radio spots on 106.9 FM and 97.7 FM; TV spots on Cox reaching approximately 65,800 people; ads in the SONA Newsletter; ads in Onda Latina magazine; ads in the Hispanic Chamber of Commerce newsletter; ads in Viva Omaha magazine; factual postcards for distribution at community events targeting Latinos and African-Americans; and MOTAC backpacks with the campaign taglines for key volunteers. Radio spots aired on KCRO AM in Nebraska, whose signal covers over half the state and reaches into 5 other states that included Iowa, South Dakota, Minnesota, Kansas and Missouri.

The health educator also participated in the Hispanic Chamber of Commerce Breakfast in collaboration with the University of Nebraska Medical Center, working with business owners to adopt a smoke-free policy in their own business. She has worked in a collaborative effort with Parents Resource on Information for Drug Education (PRIDE) to recognize Omaha businesses and organizations that have a tobacco-free/smoke-free policy, including: Creighton University, Nebraska Furniture Mart, Myth, Arbor Apartments, Cheeseburger in Paradise, Seven Monkeys and Nebraska Brewing Company. The health educator is also an active member of the Smoke Free Zoo Taskforce, that is working on efforts to have Henry Doorly Zoo adopt a smoke-free policy.

Tobacco-Free Creighton

On July 1, 2008, Creighton University became the first Jesuit-Catholic campus to be tobacco-free. Father John P. Schlegel, S.J., President, appointed Dr. Syed Mohiuddin, Richard W. Booth, M.D., Endowed Professor of Cardiology and chair of the Department of Medicine, to chair a workgroup to address the issues associated with the implementation of a tobacco-free policy at Creighton University. Dr. Mohiuddin oversaw the implementation of a successful tobacco-free pilot at the Cardiac Center. The Cardiac Center’s tobacco treatment specialist served as a member of the executive committee and technical advisor to the seven working groups. The committee developed unique and creative services for the tobacco-using students of Creighton University. The website – quitwithbilly.com – was developed as an
interactive web-based documentary that follows a real-life, typical Creighton student smoker and watches him/her quit as a testimonial to others. The student captures the feelings associated with quitting, as well as the triumphs and pitfalls on video. The videos are uploaded to the website along with tips and notes from our tobacco treatment specialist.

Corporate Tobacco Cessation Program

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

Tobacco cessation is the single most cost-effective clinical preventive service that can be provided to employees, according to the American Journal of Preventive Medicine. The goals of Commit To Quit are to:

- Encourage businesses to help employees quit tobacco use; and
- Urge insurers to provide tobacco cessation counseling and medication as standard benefits.

The Cardiac Center is contracted to provide tobacco treatment services to more than 25 worksite locations in Omaha and surrounding communities. Commit To Quit continues to offer cessation services to the general community as well. Over 160 tobacco users participated in our Commit To Quit worksite program with a 41 percent success quit rate. In 2008, seven new worksites were introduced to Commit To Quit. Commit To Quit has serviced 435 participants to date.

Department of Internal Medicine: Division of Dermatology

Dr. Christopher J. Huerter and Dr. James M. Shehan are involved in the following research projects:

- Investigation of etiologic factors behind and the epidemiology of chondrodermatitis nodularis helicis.
- Investigation of optimal approaches for teaching medical students to identify pigmented skin lesions.
- Investigation of farmers’ knowledge and attitudes about skin cancer and sun protection. This project also involved the assistance of Dr. Justin Madson.

Department of Internal Medicine: Division of Pulmonary, Critical Care and Sleep Medicine

The Pulmonary, Critical Care, and Sleep Medicine Division at Creighton University continues to build on its commitment to provide outstanding medical care for patients with pulmonary diseases and patients in the Intensive Care Unit, in the most efficient, compassionate, and cost effective way. These activities take place in an environment enriched by teaching and research.

Clinical Operations

The Pulmonary, Critical Care, and Sleep Medicine faculty provide expert inpatient and outpatient consultation and collaborate with referring physicians to serve as the community’s health care partners. The Pulmonary and Sleep Clinic is conveniently located on the 3rd floor of Creighton University Medical Center and adjacent to the Pulmonary Diagnostic Laboratory and Radiology Department. The Pulmonary
Diagnostic Laboratory provides comprehensive evaluation of patients with respiratory complaints. Experienced technical support and state-of-the-art equipment support the clinical operation.

The Sleep Laboratory is located in the lower level of the Cardiac Center and is staffed with experienced technical staff and state-of-the-art equipment for the evaluation of sleep disorders.

The faculty in the Pulmonary, Critical Care, and Sleep Medicine Division staff the intensivist program, with 24/7 ICU coverage which meets the highest standards recommended by the Leapfrog Group.

Areas of clinical interest and expertise include: chronic obstructive pulmonary disease, pneumonia, asthma, pulmonary arterial hypertension, lung cancer, interstitial lung disease, sleep apnea, preoperative consultations, or evaluation of respiratory symptoms including cough, difficulty breathing, or abnormal chest films.

Research

The Pulmonary, Critical Care, and Sleep Medicine Division continues to conduct clinical research in various areas of interest in an attempt to advance the treatment and prevention of lung diseases. The scope of research activities include NIH funded research in the Intensive Care Unit looking at prevention of ventilator-associated pneumonia and multidisciplinary approaches to improve outcomes in elderly patients with community acquired pneumonia.

The Division also participates in multiple industry-sponsored clinical trials in the areas of pneumonia, venous thromboembolism, ARDS, sepsis, COPD, and pulmonary arterial hypertension.

Department of Pathology

Faculty of the Department of Pathology are engaged in a variety of scholarly activities involving basic investigation, translational research, and clinical studies. Department of Pathology faculty and their respective scholarly emphasis are as follows:

Edward Adickes, Associate Professor of Pathology, has focused on the development of telepathology services within the Department of Veterans Affairs Veterans Health Administration medical centers and in association with University affiliates and the Department of Defense hospitals.

Robert Allen, Professor of Pathology, is an internationally-recognized expert in white blood cell function and continues his work on white blood cell myeloperoxidase, including technological advances to measure white blood cell function.

Richard Baltaro, Associate Professor of Pathology, has collaborated with Streck Laboratories in validating the specimen preservation materials for use in developing clinical hematology laboratory testing standards.

Chhanda Bewtra, Professor of Pathology, collaborates with physicians in a variety of specialties and other pathologists to characterize unique histopathologic and cytopathologic entities. She has particularly focused her efforts on gynecologic materials, including studies of the placenta.

Roger Brumback, Professor and Chair of Pathology, is the Editor-in-Chief of the monthly Journal of Child Neurology and has focused his attention on the issues related to ethics in publication, mentoring for success in academic endeavors, and the metrics for gauging academic success.

Stephen Cavalieri, Associate Professor of Pathology, collaborates with Dr. Nancy Hanson of the Department of Medical Microbiology and Immunology in the study of β-lactamase-mediated resistance in Enterobacteriaceae isolates, especially from nursing home patients.
Caishu Deng, Assistant Professor of Pathology, has collaborated in basic and clinical studies relating to the mechanisms of cancer cell metastasis. He has been involved in the investigations of the role of the G-protein pathway in metastatic breast cancer and of BRAF mutations in thyroid cancer.

Zoran Gatalica, Professor of Pathology, has been involved in a wide variety of investigations related to cancers of the breast and hereditary cancer, particularly in conjunction with Dr. Henry Lynch of the Department of Preventive Medicine and Public Health.

Qinglong Hu, Assistant Professor of Pathology, has been involved in various studies about diagnosis and prognosis of lymphoma in collaboration with the University of Nebraska Medical Center and the Henan Province Tumor Hospital in China.

William Hunter, Professor of Pathology, collaborates with the Department of Biomedical Sciences in studies related to vascular pathology.

Joseph Knezetic, Associate Professor of Pathology, works in translational research, developing molecular diagnostic tests and then applying these tests to a variety of clinical problems, including hereditary cancers, in conjunction with Dr. Henry Lynch of the Department of Preventive Medicine and Public Health.

Hina Naushad, Assistant Professor of Pathology, collaborates on a variety of studies related to characterizing hematologic malignancies.

Deba Sarma, Professor of Pathology, collaborates extensively with resident trainees, students, and other faculty members and is highly prolific in characterizing and describing representative or unique histopathologic lesions.

Poonam Sharma, Assistant Professor of Pathology, works on translational cancer research studies that focus on the characterization of diagnostic and prognostic markers as well as the biology of various gastrointestinal cancers.

Lisa Tyler, Assistant Professor of Pathology, has collaborated with the obstetricians in investigating transfusion needs of the high risk obstetrical patient population.

Qingmei Xie, Assistant Professor of Pathology, directs the flow cytometry laboratory, investigating the innovative use of cell markers to characterize hematologic malignancies.

**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 emphases 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 to aid in the design and testing 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.

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

Shashank 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 the NMDA subtype of glutamate receptors and their modulation by potential drugs for neurodegenerative diseases and mental disorders. Another area of interest is the modulation of synaptic transmission by G-protein coupled receptors. This laboratory utilizes a range of electrophysiological, calcium imaging and molecular biology techniques, including single channel and whole cell recording to investigate these processes.

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.

Yaping Tu’s research focuses on regulators of G-protein signaling (RGS) proteins that inhibit G protein-coupled receptor (GPCR) signaling. The long-term goal of this laboratory is to elucidate the functions and mechanisms of RGS proteins in prostate tumorigenesis and metastasis. Prostate cancer is the most common cancer in American men and acquisition of androgen independence by prostate cancer is the key problem of prostate cancer progression. This lab has found that RGS2, a member of the RGS protein superfamily, inhibits androgen-independent androgen receptor signaling in prostate cancer cells. These studies will significantly advance understanding of how dysregulation of RGS proteins causes GPCR-mediated androgen-independent androgen receptor activation, thus contributing to prostate cancer progression to androgen-independent disease. Such knowledge will ultimately aid in the design of novel therapeutic approaches for hormone-refractory prostate cancers.

A second area of research emphasis for this lab concerns the mechanisms of metastasis. Metastasis is the chief cause of mortality in prostate cancer. Mounting evidence suggests that Rac-dependent directed cell migration plays a critical role in prostate cancer metastasis. This lab has found that migration of prostate cancer cells was enhanced by P-Rex1, a Rac-specific activator that is stimulated by Gi-coupled GPCRs. P-Rex1 expression was correlated with the metastatic potential of established human prostate cancer cell lines, and metastatic human prostate cancer specimens expressed significantly higher levels of P-Rex1 protein compared to matched normal prostate tissues and localized prostate tumors. This group is now attempting to identify factors that trigger prostate cancer migration and is investigating the molecular mechanisms underlying prostate cancer metastasis. These
studies could lead to the development of novel anti-metastasis strategies for preventing and halting prostate cancer progression.

Thomas F. Murray’s research program is focused on neuroreceptor-operated processes in the general context of understanding excitotoxicity and the neurobiology of drugs of abuse. The analysis of receptor-mediated cellular actions requires a multidisciplinary approach, which is accomplished through the use of a variety of neurochemical and molecular methods, as well as key collaborations with medicinal and natural product chemists. Current research is directed towards understanding the mechanisms responsible for marine neurotoxin-induced alteration of neuronal viability. These toxins are also 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.

Department of Preventive Medicine

Colon Cancer Resource

Family Studies
Recruitment and testing over the past year has brought the number of hereditary colorectal cancer families enrolled in family studies to 566, with 116 of those families having an identified MLH1, MSH2, MSH6, or APC mutation. Based on information that has been obtained from these individuals, they are offered the opportunity to participate in any available research studies for which they qualify. Updating of current families and recruitment of new families is ongoing.

Novel Surveillance Strategies for Hereditary Nonpolyposis Colon Cancer Family Members

The aim of this collaborative study with William Grady, M.D., Fred Hutchinson Cancer Center, is to determine the usefulness of specific assays to detect early colorectal neoplasms by using the stool or serum of patients.

Spectral Markers for Early Detection of Colon Neoplasia

This collaborative study with Hemant Roy, M.D., Evanston-Northwestern Research Institute, attempts to develop methods to detect early changes in colonic mucosal cells that may develop into cancer by using a new-generation of biomedical optics technology, four-dimensional elastic light scattering fingerprinting (4D-ELF). Researchers determined that there are 107 individuals in the colon resource eligible for this study, and information on families is continually updated in order to recruit new families and to have more eligible participants.

Modulation of Putative Surrogate Endpoint Biomarkers in Endometrial Biopsies from Women with HNPCC

The goal of this study is to observe the effects of hormones on the endometrium in women who have an increased risk of developing endometrial cancer, the second most common cancer in Lynch syndrome. Enrollment is closed for this study; however, analysis is ongoing.

Family 4 Linkage

Family 4 is one of the Colon Resource’s oldest and largest families. Although the family has a classical Lynch syndrome pedigree, the best efforts of many researchers over the last two decades have failed to identify a genetic defect in the family. Dr. Stephen Thibodeau at the Mayo Clinic in Rochester, MN, has agreed to do a linkage study on this family. During the past year, 28 Family 4 samples have been sent to Dr. Thibodeau for analysis, additional samples have been collected, and the list of family members continues to be updated.
Kicks for a Cure

The third annual Kicks for a Cure women’s soccer exhibition, a benefit for the Liz’s Legacy Cancer Fund, was held April 18-19, 2008, at Creighton’s Morrison Soccer Stadium. The purpose of the program was to raise awareness for cancer education and prevention. Four NCAA women’s soccer teams and four local high school teams played exhibition games while Creighton’s Hereditary Cancer Center and UNMC’s Eppley Cancer Institute distributed educational materials. During the two days, the event drew several thousand people and raised over $100,000 for local cancer research efforts.

Hereditary Breast Cancer Resource

Family Studies with Genetic Testing and Counseling

Fifteen new families were enrolled into the hereditary breast cancer resource over the past year, and a BRCA1 or BRCA2 mutation was identified in 9 families, adding to the total of 178 extended families in the resource with a known deleterious BRCA1 or BRCA2 mutation. Individuals in these families who are at high risk for developing cancer are recruited to participate in various research studies as described below. To date we have provided genetic counseling with BRCA1 and BRCA2 genetic test result disclosure to 1,253 individuals; 60 have been during the past year.

Epidemiology Study

Working with Principal Investigator Dr. Steven Narod from Women’s College Hospital in Toronto, Canada, and other collaborators, researchers have been studying females over the age of 18 in HBOC families to improve understanding of the prevention and treatment of hereditary breast and ovarian cancers in relation to various environmental factors.

Modifier Gene Study of BRCA 1/2 Mutations

Samples continue to be provided to Timothy Rebbeck, Ph.D., at the University of Pennsylvania, to determine if modifier genes are present to help explain the various phenotypes in hereditary breast ovarian-cancer families. Over this past year an additional 39 samples were provided for this study. Extensive work and time in the laboratory was exerted in growing the cells to have DNA extracted for the samples to be included in this study. To date, 373 samples have been provided for analysis. Corresponding risk factor data for each individual will also be contributed for a comprehensive analysis.

Prophylactic Surgery in Carriers of BRCA1 and BRCA2 Mutations

This study has been funded to continue the investigation of cancer prevention in these high risk women. Working with Principal Investigator Timothy Rebbeck, Ph.D., of the University of Pennsylvania, we have identified the following specific aims: 1) Evaluate the effect of post bilateral prophylactic oophorectomy hormone replacement therapy use on breast cancer risk reduction; 2) Evaluate whether the timing of bilateral prophylactic oophorectomy with respect to age and reproductive events affects the magnitude of cancer risk reduction; and 3) Evaluate the effect of hormone replacement therapy and bilateral prophylactic oophorectomy on histopathological and biomarker-based characteristics in breast tumors, considering tumors arising from inherited BRCA1 and BRCA2 mutations separately.

To date researchers have contributed data on 388 subjects to this study. Currently, 629 women have tested positive for a deleterious BRCA1 or BRCA2 genetic mutation. Risk factor data will be collected and provided to the PI of this study. Over the next 2-3 years these additional subjects will be enrolled in this study, as well as additional women who are identified as being a BRCA1/2 mutation carrier. Automation of the data collection and coding of the multiple risk factor variables being studied has been completed. In addition, automation of the update questionnaire has been completed in order to increase response rates in returning the questionnaires. Subjects will now be provided with a summary of the information they have previously provided, and will only need to update the information.
Breast Cancer “Fingerprint” Protein Profiles

With NIH Early Detection Research Network (EDRN) investigators at Eastern Virginia Medical School (EVMS), Norfolk, VA; the Food and Drug Administration (FDA), Bethesda, MD; and Johns Hopkins School of Medicine (JHU), Baltimore, MD, researchers have participated in two studies of BRCA-associated breast cancer using “fingerprint” protein profiles from ProteinChip Surface Enhanced Laser Desorption/Ionization Time of Flight Mass Spectrometry (SELDI-TOF-MS). From Creighton’s frozen serum specimen archives, 132 serum specimens were provided for two separate studies. Samples for both studies were shipped to JHU, FDA, and EVMS. The EVMS results of the first study (BRCA1 breast cancer vs no breast cancer) have been published. Work on the second study (carriers vs noncarriers) showed no evidence of difference between the groups. The JHU/FDA work on these specimens was incomplete, because of personnel change at the FDA. However, the partial results essentially reinforced the EVMS findings.

Technology for protein profiling has advanced markedly since these studies were completed. A new round of the same specimens have been sent to EVMS to be run on their new equipment, in an effort to 1) identify the proteins distinguishing BRCA1/2 cancers from noncancers, and 2) determine if this more sensitive system can detect a protein signal of the high-risk phenotype prior to cancer development. Results are not yet available and analysis continues.

Early Detection of Bladder Cancer

This study utilizes the breast cancer resource because the mutations under investigation also predispose individuals to breast and ovarian cancer. This year, focus has been placed on providing the PI (EDRN investigator Bogdan Czerniak M.D., University of Texas MD Anderson Cancer Center, Houston, TX) with additional samples from women who are positive for a BRCA1 or BRCA2 mutation. Sixty-seven additional samples meeting study criteria were sent to the PI.

Pancreatic Cancer Resource

Participation in the National Pancreatic Cancer Collaborative Registry (PCCR) established at the Nebraska Medical Center continues, focusing on the creation of a validation set of study subjects, including pancreatic cancer patients, individuals with other inflammatory pancreatic diseases, and normal controls for biomarker studies. Dr. Randall Brand (previously at the University of Nebraska Medical Center, now at University of Pittsburgh Medical Center) continues to develop a grant submission to the NIH EDRN using the PCCR for clinical annotation for biomarkers to be used in early detection of pancreatic cancer.

Researchers continue to work with Surinder Batra, Ph.D., at the Eppley Cancer Institute of the University of Nebraska Medical Center, on his biomarker study for early pancreatic cancer detection using MUC4. Samples were sent on patients who developed pancreatic or ovarian cancer after the sample was drawn.

Hematological Resource

Since July 2007, 13 new families have been added to the hematological resource, bringing the total hematological cancer family number to 115. Solid tumors in these families, particularly carcinoma of the breast, malignant melanoma, and prostate cancer, are also recorded, because of the likely phenotypic cancer heterogeneity. Families are referred to Creighton from the University of Nebraska Medical Center (UNMC), the University of Arkansas Medical Center (UAMC), the Leukemia and Lymphoma Society, the Cleveland Clinic, Dana Farber Cancer Institute, Sloan-Kettering Memorial Cancer Center (SKMCC), or by self-referral.

This year, researchers began to collect saliva through the spit method, which has expanded the ability to collect DNA from high-risk people. Since July 2007, 27 saliva specimens and 38 blood specimens have been received from individuals in the hematologic cancer families. Dr. Dennis Weisenburger, hematopathologist at UNMC, studies the pathology on these patients. Researchers continue to request
slides and tissue blocks on cases affected with a hematological malignancy, although these are often difficult to obtain.

**Multiple myeloma**

Researchers plan to analyze new pedigrees and buttress their hypothesis of phenotypic and likely genotypic heterogeneity in multiple myeloma (Lynch et al. *J Clin Oncol* 2005;23:685-93). They have worked this year to confirm the hematological diagnoses of current research participants. In collaboration with UAMC; Peter Wiernik, M.D., of New York Medical College; and Funmi Olopade, M.D., at the University of Chicago Medical School, an additional 30 hematologic cancer-prone families have been identified that are potential additions to the resource.

EDRN set-aside funds have been received for hereditary hematological cancer research studying monoclonal gammopathy of unknown significance (MGUS) as a biomarker for the development of multiple myeloma. Currently, 12 samples are being analyzed with Henry Nipper, Ph.D., of Creighton University. Consent to participate has been received from an additional 11 subjects.

**Chronic lymphocytic leukemia**

Research on the chronic lymphocytic leukemia (CLL) three-generation family continues with Albert de la Chapelle, M.D., Ph.D., a medical geneticist at The Ohio State University. The culprit mutation, *DAPK1*, has been identified and manuscripts related to this family have been published (Raval et al. *Cell* 2007;129:879-90; Aoun et al. *Am J Clin Pathol* 2007;127:31-8). A family information service (FIS) educational session has been conducted with this family and genetic counseling was provided in December 2007 (Lynch et al. *Cancer Genet Cytogenet*. In press). Additional CLL families continue to be recruited. Because of the discover of the *DAPK1* culprit mutation, interest in CLL has expanded through referrals and contacts.

**Hereditary Diffuse Gastric Cancer**

The Department of Pathology continues a long-term collaboration with David Huntsman, M.D., a pathologist-molecular geneticist and director of the Cancer Genetic Program of the British Columbia Cancer Agency, Vancouver, British Columbia, in a project dealing with hereditary diffuse gastric cancer (HDGC). This research has extended throughout Canada and is more heavily involved in Newfoundland where a founder *CDH1* mutation has been identified. Researchers propose to conduct a thorough evaluation of genes that undergo aberrant methylation in gastric cancer (e.g., *CDH1*, *CDKN2A*, etc.) in tissues that represent the spectrum of normal stomach to gastric cancer, to determine if changes in gene methylation density can be used as a risk marker for gastric cancer in HDGC family members.

**Projects for the NIH Early Detection Research Network (EDRN)**

**EDRN High Risk Registry**

With funding from the National Institutes of Health/National Cancer Institute, the EDRN High Risk Registry was developed in 2001. This registry is comprised of individuals who are carriers of germline mutations for hereditary cancer syndromes, such as hereditary breast/ovarian cancer (HBOC), Lynch syndrome, familial adenomatous polyposis (FAP), and familial pancreatic and gastric cancers. These individuals are at very high risk for specific cancer types and are willing to participate in biomarker studies.

High Risk Registry recruitment materials are mailed to eligible participants of Creighton’s Hereditary Cancer Center (HCC) and to genetic counselors from other centers, who then distribute them to their eligible clients. Myriad Genetics Laboratories includes High Risk Registry brochures in their positive results packets. Eligible individuals are given telephone, website, and e-mail information for questions or to begin the enrollment process. Currently there are 474 members in the High Risk Registry with 12 new members registering this past year. Each High Risk Registry member receives a newsletter and a follow-up questionnaire each year.
EDRN Longitudinal Serum Biorepository

The Creighton University Preventive Medicine Laboratory houses the EDRN Longitudinal Serum Biorepository. All EDRN High Risk Registry members plus individuals who have tested positive for a hereditary cancer gene mutation from Creighton’s HCC are invited to participate in the biorepository. Those participating in the biorepository have serum and plasma samples drawn and stored each year. These samples are reserved for EDRN biomarker studies. Currently 832 individuals have been invited to participate in the longitudinal serum biorepository with 267 individuals participating and 481 specimens stored in the EDRN biorepository. This biorepository became operational in February of 2006. The average rate of specimen accrual is approximately 8 samples per month.

Ovarian Cancer Screening Pilot Trial in High Risk Women

This pilot trial is sponsored by the Cancer Genetics Network (CGN) and Creighton’s participation formed a collaborative partnership between EDRN and CGN. Twelve EDRN High Risk Registry members were enrolled in this pilot trial. Investigators are currently awaiting funding status information to conduct a larger ovarian cancer screening study in high-risk women. If approved, 100 women will be enrolled in this study.

Hereditary Cancer Prevention Clinic

Over this past year the Hereditary Cancer Prevention Clinic has provided genetic consultation services to 87 patients and their families. This remains constant compared with the previous year. Approximately 70% of the patients are seen for HBOC, and approximately 25% for hereditary colon cancer syndromes: Lynch syndrome, FAP, or AFAP (attenuated familial adenomatous polyposis). The remaining 5% of patients are seen for more rare types of syndromes, such as familial atypical multiple mole melanoma (FAMMM), von Hippel-Lindau, and Li-Fraumeni syndromes.

Review of the patient’s family history through the development of a family pedigree is conducted at the time of the initial visit. The natural history and genetics of the suspected syndrome is discussed with the patient along with the risks, benefits, limitations, and alternatives to genetic testing. Screening recommendations for the syndrome specific cancers are provided to the patient based on the personal and family medical history. Genetic testing is coordinated for consenting patients and a follow-up result disclosure genetic counseling session is provided. Specific screening recommendations based on the genetic test result are provided to the patient along with appropriate, evidence-based prophylactic surgery options to reduce their risk for developing the syndrome specific cancers.

Department of Radiology

The Department of Radiology is dedicated to providing superb patient care, teaching, and research in a collegial environment both within its own department and with other departments. The commitment to patient care is exemplified by the department’s involvement in the trauma program. At the recent site visit that led to the formal accreditation of CUMC as a Level 1 trauma center, the Department of Radiology was recognized for its excellence in support of the trauma program. Andrew Gelbman, D.O., is the chief of trauma radiology and is the only fellowship trained radiologist in trauma imaging within the state of Nebraska. The department hopes to enhance this program by having hospitals that are within the Nebraska trauma network connected to our department of radiology by means of teleradiography. Images can then be electronically sent to the department at CUMC and reviewed prior to the patient arriving at the trauma bay.

In addition, Angel Mironov, M.D., Ph.D. from Switzerland has been successfully recruited to be director of diagnostic and interventional neuroradiology. He is a recognized world leader in interventional neuroradiology. His expertise involves using percutaneously placed catheters that can be guided under fluoroscopy directly within or adjacent to vascular lesions such as aneurysms or arterial venous malformations within the brain. Through the catheter, coils or other materials can be injected to non-
surgically treat patients with these abnormalities. Similarly, patients who may have a stroke may benefit by being able to have drugs injected to dissolve blood clots within the brain.

The department’s commitment to teaching and education is evidenced by the involvement of all of the attendings and residents in supporting the anatomy program for the first-year medical students. We are one of only a few radiology departments in the country that perform CT examination on the students’ cadavers. These images, as well as normal and abnormal CT examinations, are reviewed in the department with the medical students over 17 separate sessions. This program is spearheaded by Allison Grayev, M.D., radiology director of medical student education. A manuscript in collaboration with Floyd Knoop, Ph.D. and others is being prepared. Dr. Grayev has also enhanced the elective course for the medical students during their 4th year. An additional source of pride is Creighton’s very successful residency program. Under the directorship of Jim Phalen, M.D., over the past 5 years all of the residents have achieved a 100% pass rate on both the written and oral national board examinations in diagnostic radiology. Because of this achievement, this program along with others with similar success is ranked by the American Board of Radiology 1st of 184 radiology residency programs.

The Department of Radiology has also been pursuing interdisciplinary collaboration in research. Attila Csordas, M.D., chief of vascular and interventional radiology, is collaborating with Robert Recker, M.D., director of the osteoporosis center, on a pilot study to evaluate in patients with very severe osteoporosis the safety and efficacy of direct injections into the femoral neck of bone morphogenic protein -2BMP-2-CPM. This protein stimulates osteoblastic activity and it is hoped that with this form of treatment, the patient will be less likely to be at risk for fracture of the hip. The first 7 patients in the United States to undergo this potentially important therapeutic approach will be treated at Creighton University.

Olaf Kaufman, M.D., Ph.D. is collaborating with Henry Lynch, M.D. and Peter Silberstein, M.D. in treating patients with multiple familial polyposis syndrome, who have as a complication, desmoid tumor within the abdomen. These fibrous tumors are notoriously resistant to therapy either by chemotherapy or by surgery. Dr. Kaufman is using cryoablation, a process that uses cold energy to destroy the tumor. Probes are placed percutaneously within the desmoid tumor under CT guidance. Cryoablation is then applied to the tumor. Subhash Paknikar, M.D., chief of nuclear medicine, is also involved in this collaboration by using PET scanning to evaluate which tumors are more likely to respond to cryoablation.

Dr. Kaufman has also obtained a Health Futures Foundation grant to develop an in vitro model to compare the sensitivity of digital angiography and dynamic CT scanning in contrast flow through models. This may lead to better understanding of which imaging modality is most useful for detecting small vascular aneurysms or arterial venous malformations in the brain.

Department of Surgery

The Division of Surgical Oncology, Department of Surgery at Creighton University Medical Center is the largest surgical oncology group in the region. There are currently three faculty members who are full-time surgical oncologists. All have trained in Society of Surgical Oncology (SSO) approved fellowships. Surgical Oncology began offering limb infusion and perfusion treatment for melanoma and sarcoma. The team offers hepatic resection and ablation for the primary treatment of metastatic liver disease and tumor destruction.

Jason Foster, MD, Assistant Professor of Surgery, is trained as an SSO accredited surgical oncology program, Roswell Park Cancer Institute. Currently his clinical interests include gastrointestinal/hepatobiliary malignancies, sarcoma, melanoma, and endocrine tumors. Additional interests include the use of minimally invasive surgery in oncology and the use of hyperthermic therapies including radiofrequency ablation (RFA) of tumors, isolated limb perfusions/infusions (ILP/ILI) and intraperitoneal hyperthermic chemotherapy (IPHC). Dr. Foster is partnering with Brian Loggie, MD, who is internationally recognized for his contributions in peritoneal malignancies and IPHC, to strengthen the Peritoneal Neoplastic Disease Program. Dr. Foster and Edibaldo Silva, MD, PhD, Associate Professor of Surgery, are working together to expand services to include RFA for liver tumors, ILP/ILI for appropriate selected
melanomas and sarcomas, and MIS for colon, adrenal, splenic neuroendocrine pancreas and parathyroid tumors. Dr. Foster’s practice has taken off quickly and he has been very well received by his patients and his Creighton co-workers.

Edibaldo Silva MD, PhD, Associate Professor of Surgery, has successfully grown the Same Day Diagnosis program for breast cancer within the multidisciplinary breast center which moved to new quarters in the Center for Breast Care in April 2006. The newly renovated area on the hospital’s main floor provides the full array of diagnostic, treatment planning and screening procedures all in one location. Aesthetically pleasing, the new center provides diagnostic results for patients on their initial visit. It houses breast imaging, cytopathology, and exam rooms for medical and surgical oncology consultants.

Dr. Silva established the first Accelerated partial Breast Irradiation team in Nebraska. He actively participates in clinical research trials through the National Surgical Adjuvant Breast and Bowel Program (NSABP) and the Mayo clinic co-operative groups in which he is a member. He is also participating in collaboration with other institutions in the national Sentinel Node Mapping Trial out of the University of California, San Francisco and the Multi-Center Web based Pancreatic Cancer Collaborative Registry with the University of Nebraska Medical Center. He has been selected as an expert reviewer for manuscripts submitted to *Cancer Journal* and the *Journal of Clinical Oncology*.

The Peritoneal Neoplastic Disease program continues to attract patients from across the country. This novel clinical program is one of a few such dedicated programs in the world and was established by Dr. Brian Loggie, who has a national and international reputation for his expertise in this area. Patients from 40 states and several countries have been seen at CUMC in the Cancer Center. These patients come for consultation and for medical and surgical treatment options for a variety of cancers metastatic to or arising from the peritoneal lining surfaces of the abdomen and pelvis. Many patients have uncommon or rare disease entities and are seeking the extensive experience of the Department of Surgery. These diseases include malignant peritoneal mesothelioma, various tumors of the appendix, and pseudomyxoma peritonei. Patients can also present with more common underlying diseases such as colon cancer or ovarian cancer. Many patients come for evaluation for major operative tumor removal, also termed cytoreductive surgery (CS), which is combined in many cases with intraperitoneal heated chemotherapy (IPHC). CS+ IPHC is done at CUMC on a regular basis. It is known as “the mother of all surgeries” in some patient circles and this is a testament to the difficulty and complexity of such surgical treatments. The department is pleased to have Dr. Jason Foster join its surgical oncology team and expand its ability to offer these complex treatments. Treatment and research go hand in hand. A clinical trial is currently ongoing using intraperitoneal heated chemotherapy perfusion with high dose carboplatin for eligible patients with primary and recurrent ovarian cancer and for patients with malignant peritoneal mesotheliomas. The department is also continuing with ongoing translational research projects in an effort to expand or improve treatment options for their patients. There are research projects on mucinous tumors (such as pseudomyxoma peritonei) and malignant peritoneal mesotheliomas. An effort is under way with the Department of Pathology to establish a tumor bank which will be important for future research efforts. Important research support has been received from patients who have been pleased with their clinical care and recognize the importance of integrating research into the clinic. A major emphasis is placed on quality of life issues in determining the best treatment options for patients. The department also plans to integrate psycho-oncology services into its clinical program.

Dr. Brian Loggie and Creighton University have been mentioned by patients in various online newsletters, such as *Sonoma Medicine*, a magazine for the Sonoma County Medical Association in California, and *Nursing Spectrum* out of Chicago, Illinois. Additionally, on-line blogs maintained by patients mention the care received by the staff in Surgical Oncology at Creighton University Medical Center. Grateful patients have donated over $600,000 to cancer research related to mesothelioma and/or pseudomyxoma peritonei. Several patients and families have, or are planning, fund raising events to raise awareness of these rare diseases, and their appreciation of the care received in Omaha, Nebraska.
Cancer Research

The depth of the surgical oncology clinical program is further enhanced by our basic research faculty. Zhaoyi Wang, PhD, Associate Professor, and Venkatesh Govindarajan, PhD, Assistant Professor, continue their emphasis on translational research in conjunction with the clinical faculty.

Basic Research

The focus of Dr. Wang’s research is to delineate the molecular mechanisms underlying the initiation and progression of human breast cancer.

In Dr. Govindarajan’s laboratory, several areas of research are being pursued. Broadly, interests are in a) molecular mechanisms that underlie cell fate determination and proliferation; and b) understanding how deregulation of these molecular events leads to tumorigenesis. The studies are performed by generation and characterization of transgenic mice.

Malignant Mesothelioma

Malignant Mesothelioma (MM) is a tumor that arises in the cells (mesothelia) that line the pleura, peritoneum and pericardium. A transgenic mouse model for MM is being generated through the use of a promoter that is active in the mesothelial cells. This mouse model will be a useful tool for analyzing the early molecular events that are critical for initiation and progression of MM.

Skin tumors

Transgenic lines with targeted expression of an activated version of H-Ras in the lens were generated to study the role of Ras in regulation of proliferation and differentiation of lens epithelial cells. These mice develop lens epithelial hyperplasia and cataracts. Mice from one transgenic line, in addition to ocular defects, also develop skin tumors (squamous cell carcinomas) by three weeks. These tumors are predominantly seen in homozygous transgenic mice. Experiments are in progress to determine if the tumors are the result of ectopic expression of the transgene or due to insertional inactivation of an endogenous gene that suppresses tumor formation.

Ocular development

Current interest includes understanding how fibroblast growth factor signaling (FGF) regulates differentiation of ocular tissues, in particular corneal/conjunctival differentiation. Previous work has identified FGF-10 as the signal that induces the conjunctival epithelial cells to initiate the lacrimal gland differentiation program. FGF-10 is both necessary and sufficient for initiation of the glandular differentiation program in the conjunctival cells. Researchers are currently investigating the role of downstream effectors and targets of FGF-10 signaling in the conjunctival epithelial cells that are relevant to proliferation and glandular differentiation. A GAL4/VP16 bigenic system for inducible transgene expression in ocular tissues has also been developed.

Skeletal development

Expression of FGF-9, a member of the FGF family, was targeted to the lens to study the role of FGF-9 during ocular development. Of the different transgenic lines, one line showed altered differentiation of the parietal bones. In these mice, the cranial mesenchymal cells that form parietal bones undergo endochondral (initial formation of cartilage and later formation of bone) program of ossification rather than the usual intramembranous differentiation (direct formation of bone). Studies have shown that the alterations in skull development in these transgenic mice are due to ectopic expression of the transgene in the cranial mesenchymal cells. Experiments are underway to: a) trace the developmental origins of the parietal mesenchymal cells that respond to FGF stimulation; b) replicate the skeletal phenotype by using alternative promoters; and c) identify the regulatory elements in the vicinity of the transgene integration site that allow cranial mesenchymal expression of the FGF9 transgene.
Translational Research

Collaboration on various translational projects is ongoing. Drs. Govindarajan and Loggie are collaborating on translational research in peritoneal mesothelioma. Drs. Wang and Foster are collaborating on breast cancer research. Collaborative work is continuing on Pseudomyxoma peritonei and mucinous colon cancers at Creighton University (Loggie, Foster, Govindarajan, Wang) and also in collaboration with Dr. Zafar Nawaz, Associate Research Director, Braman Breast Cancer Institute at the University of Miami.

The State of Nebraska, LB595 Cancer & Smoking Research Program actively supports the Cancer Biology Program and its component projects at Creighton University.

School of Nursing

School of Nursing faculty members participate in areas of research that address varied topics of interest in health care and in the scholarship of teaching. Faculty members also engage in and assist students in mastering competencies related to evidence-based practice to improve nursing care.

A qualitative, grounded theory study was recently completed that resulted in a conceptual framework of the Partnering Process with high risk, pregnant adolescents to improve their parenting and health-related outcomes. This study expanded on the existing Nurse Home Visitation Model to include the social process of nurses building an effective relationship with these vulnerable and difficult to engage patients. Faculty: Eleanor Howell, PhD, Mary Kunes-Connell, PhD, Joan Norris, PhD, and MarySue Wyedeven, MSN.

Eight faculty members completed doctoral dissertations over the past year. These included:

- Dying to be rescued: American hospitals, clinicians and death (Helen Chapple)
- The experience of infant death for lower income African American mothers (Merry Foyt)
- Treatment decision making in older adults with cancer (Maribeth Hercinger)
- Effects of involuntary institutional relocation on physical, psychological and cognitive functioning in older individuals (Ann Laughlin)
- Risk factors for overweight at five years of age: Birth characteristics, rate of weight gain, mode of infant feeding and adiposity rebound (Catherine O’Keefe)
- Spirituality and the experience of being a member of a family with hereditary breast and ovarian cancer (Susan Tinley)
- Impact of the Eden Alternative on quality of life in nursing home residents (Mary Parsons)
- Post operative symptom clusters in coronary artery bypass graft patients (Amy Abbott)

Faculty members currently working on doctoral dissertations include:

- From bedside to classroom: The process of development from clinicians to educators (Anne Schoening)
- Perceptions of parents regarding BMI and overweight in school age children (Misty Schwartz).
Five research teams are involved in ongoing projects in the School of Nursing. One team is engaged in scholarship of teaching research to develop and test high fidelity simulation strategies and the methods for assessing student performance in simulated clinical situations. They have ongoing studies and initial projects being disseminated through presentations and publications in review.

**Faculty:** Mary Parsons, PhD; Maribeth Hercinger, PhD; Julie Manz, MS; Kimberly Hawkins, MS; and Martha Todd, MS, FNP.

A team of qualitative researchers described five families’ adaptations to hereditary breast and ovarian cancer risk. They hope to identify influences and patterns of communication and decision making in an intergenerational family context.

**Faculty:** Joan Norris, PhD; Susan Tinley, PhD, Stephanie Stockard Spelic, MSN; and Carrie Snyder, MS.

Given national concern about an epidemic of obesity and the increasing prevalence of Type Two Diabetes, a team of faculty and students is conducting a program of health promotion research in multiple local schools. School-based health screenings and interventions are designed to educate students and their families on the nature and importance of healthy diets and activity levels.

**Faculty:** Ann Laughlin, PhD; Misty Schwartz, MSN; Barb Synowiecki, MSN; Amy Yager, MSN; and Meghan Potthoff, MSN.

Based on similar concerns about obesity in adults, Cindy Costanzo is studying behavioral counseling as an intervention to increase physical activity in sedentary African American and Hispanic American Women. A multidisciplinary group of faculty from the Schools of Nursing and Pharmacy and Allied Health Professions is in the process of planning to increase physical activity in school children to reduce obesity and develop a Teaching Circle intervention to improve Diabetes management in adults in the Omaha tribe.

**Faculty:** Marlene Wilken, PhD; Cindy Costanzo, PhD; and Ann Laughlin, PhD (with OISSE members).

Parent-child nurses are planning a pilot study to test use of online and neonatal nurse practitioner support to reduce stress for women who are hospitalized during their pregnancies due to risk of preterm labor.

**Faculty:** Lorraine Rubbarth, PhD; Anne Schoening, MSN; Joyce Tow, MSN; Amy Cosimano, MSN; and Holly Sandhurst, MSN.

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**School of Pharmacy and Health Professions**

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

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

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 2007 through June 2008 period, 14 externally funded research and training grant awards and three 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 $460,824. There were three funded projects where SPAHP faculty served as principal investigators and worked with co-investigators from other schools or collaborated with principal investigators external to Creighton University.

SPAHP Faculty Research Grant Development Program

Beginning in January, 2005, the School has provided internal seed money through a grant program supported by the Health Futures Foundation entitled the SPAHP Faculty Research Grant Development Program to facilitate faculty research efforts for high impact, high value and potentially externally fundable works. This program was conceptualized as a quality building effort using the peer and administrative review process to enhance faculty competitiveness and productivity in research. The award cycle was postponed during FY 2007-08, and no new grants were awarded during this period. Continued support was provided to year two grant recipients who requested an extension of the funding support they had been originally awarded. Since the first award cycle in 2005 through FY 2007-08, 24 faculty members received $289,000 in internal funding. The SPAHP Office of Research provided the complimentary education and project management expertise to launch this program and monitor its ongoing progress.

This program has demonstrated success in the development of faculty members as scholars and researchers. Since the program launch, over 125 publications and presentations have been completed by participating faculty and the result of the scholarly work and dissemination of research findings from award recipients has been positive. Projects resulting from investigator’s funded awards included: linkage on research projects with VAMC and Rutgers University Biomedical Engineering department; development of a website focusing on occupational therapy practice in rural Nebraska; faculty collaboration with the Nebraska AgraAbility project; and numerous radio and television interviews, and newspaper articles.

Student Research

- Graduate Student Research. The school has both undergraduate and graduate students actively engaged and mentored by faculty in research. At present 10 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, immunology, pharmacology, anatomy, toxicology and pharmacokinetics. The specific areas of
interest include drug delivery systems, regulation of T helper cells, pharmacology of the eye and TCDD toxicity. To date, 16 students have graduated from the program. Doctor of Philosophy (Ph.D.) candidates in a joint program with the School of Medicine participated in faculty mentored projects during this past year.

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

- Student Research Program. Students enrolled in the Occupational Therapy, Pharmacy and Physical Therapy professional degree programs were given the opportunity to competitively apply for either a summer or academic year faculty-mentored research experience. This experience was planned with a faculty member who gave oversight and guidance to the students’ research skills development by engaging the student in components of active, on-going research projects. In 2007-2008, 16 students were each awarded $3,000 stipends to participate in either the summer or academic year programs. Students from the summer and academic year research program, along with 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. Twelve posters were presented and one student participated in a podium presentation.

**Creighton University Health Services Research and Patient Safety Program (CHRP)**

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

The program was launched within the School of Pharmacy and Health Professions (SPAHP) and is funded through external grants, contracts, and partial competitive support through the Creighton Health Futures Foundation. It has grown over five years to include university-wide representation. Year one focused on establishing key technology infrastructure and interdisciplinary education and development. Year two focused on establishing and expanding external community, private and government relationships. Subsequent years focused on an intensive research development process for faculty through both training and the conduct of research, provision of education to students, practitioners and the community, and local, state and federal service related to the areas of patient safety and health care quality. Scholarly productivity has been significant, with over 100 publications, 170 presentations, and 11 media releases.

**Funding Highlights**

In FY 2007 - 2008, CHRP continued to strengthen its interdisciplinary collaboration through the submission of 8 grant proposals ($1,023,427) resulting in the funding of 4 grants totaling $253,543, 11 publications, and the delivery of 14 professional presentations at the local, state and national levels. These successes were built on the prior two years’ Building Research Infrastructure Capacity (BRIC) Proposal ($500,000) awarded through the Agency for Healthcare Research and Quality (RFA H5-05-010) – one of only five in the country. This award provided funds for the continuation and expansion of the existing program, as well as provided opportunities for new research initiatives. The success in receiving
this award is attributed to the clear plan for advancement based upon gap analysis of resource requirements to achieve sustainability, and the university’s commitment toward sustainability. CHRP has been successful in developing interdisciplinary research teams and expanding partnerships in Nebraska and surrounding states. Collaborative networks with the Schools of Nursing, Dentistry, Medicine, Arts and Sciences, Business Administration and Law have been developed as the program has matured. This growth is attributed to aggressive networking with individuals who have the expertise and interests consistent with the health services research mission of this program and who expect to have mutually beneficial success from involvement in this initiative.

Faculty and Student Development

During the 2007-08 academic year, the CHRP co-sponsored with the Office of Research Compliance Services a day-long university-wide “Mixed Methods Research Workshop” facilitated by Dr. Kimberly Galt, SPAHP Associate Dean for Research and CHRP Director, and Dr. John Creswell, a visiting professor from the Office of Qualitative and Mixed Methods Research (OQMMR) through the University of Nebraska at Lincoln. This workshop was designed to enhance awareness of the contributions of mixed methods research and develop a foundational knowledge regarding approaches to combining qualitative and quantitative methods in research. The CHRP and the School of Medicine co-hosted a two-day workshop for CUMC and campus wide attendees presented by Ms. Mary Salisbury from the Cedar Institute and Dr. Eduardo Salas from the University of Florida as part of an HFF grant entitled “Changing Safety Culture in the Perioperative Area” in its collaboration in the development and study of the impact and implementation of the national TeamSTEPPS teamwork skills development program. The workshop was designed to describe, develop, and assess the impact of an intervention intended to create or improve a culture of safety within a hospital setting. The faculty continue to be fully engaged in offering the interprofessional Foundations in Patient Safety campus-wide interdisciplinary education elective course.

During 2007-2008, CHRP-affiliated faculty members completed graduate seminars on “Qualitative and quantitative research methods”, “Introduction to missing data methods”, short course training in “Human factors engineering and patient safety” at the University of Wisconsin System Engineering for Patient Safety Program, attended the university-sponsored seminar series entitled, “Building the NIH grant proposal”, “Building the NSF grant proposal” and “Writing successful grants”, and the Institutional Review Board (IRB) training sessions entitled “Common errors: Consent and IRB documentation.” One faculty member sat on a special AHRQ grant review panel which provided valuable insights into the grant review process and the CHRP program director sits on AHRQ grant review study section and grant review panels.

Infrastructure Support and Development

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

Office of Interprofessional Scholarship, Service and Education (OISSE)

The Office of Interprofessional Scholarship, Service and Education (OISSE) was formed in 2001 and is responsible for planning, organizing, and implementing educational, service, and scholarly projects related to interprofessional community engagement in the School of Pharmacy and Health Professions. The Office of Interprofessional Scholarship, Service and Education (OISSE) maintains a long-standing
partnership with the Omaha and Winnebago Tribes addressing health disparities and providing students from across the health sciences with rural, cross-cultural, interprofessional learning experiences. Through the partnership with the Winnebago Tribe of Nebraska, a five-year clinical contract (2005-2010) was awarded to the School by the U.S. Department of Health and Human Services Indian Health Service. This provides $182,084 annually to sustain physical and occupational therapy services at the Indian Health Service facility in Winnebago, Nebraska.

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

OISSE has a demonstrated history of scholarly collaboration and maintains relationships with strong community partners. In 2008, 19 OISSE faculty associates collaborated across health professions to submit 10 grant proposals ($736,276) which resulted in the funding of 5 grants ($35,400), contribute 9 chapters in one textbook, and deliver over 13 professional presentations at professional meetings or to the local community.

Department of Occupational Therapy

The Department of Occupational Therapy consists of two administrative assistants, approximately 100 on-campus and 70 distance students, and 15 faculty, including 14 faculty with doctoral degrees and 1 clinical faculty holding a bachelor’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 patient safety, etc.
- Scholarship of Teaching and Learning: Outcomes of service learning activities; and
- Scholarship of Engagement: Health disparities, at risk youth, migrant workers, occupational patterns & disability, interprofessional care of the Native Americans through participation in OISSE grants and contracts, occupational therapy service delivery to address health disparities.

Extramural funding sources for current research projects include National Patient Safety Foundation, Harvard Immigration Project, Nebraska Crime Commission, Association for Prevention and Teaching, Substance Abuse and Mental Health Administration and the Midwest Consortium for Service Learning in Higher Education. Intramural funding was provided through faculty grants from the Creighton’s Cardoner Program, Office of Academic Excellence and Assessment and SPAHP Faculty Research Development Grant.

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

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

The Department of Physical Therapy is composed of 28 faculty, three residents, 183 students (161 entry level program; 22 transitional program) and two staff. Thirteen 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 core faculty is Dean of the Graduate School. Five 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. A collaborative research agreement exists with the Omaha VA Medical Center. Faculty have achieved R-15 NIH funding for rigidity in Parkinson’s Disease research in this laboratory. This funding will begin in January 2009.

During 2007, Department faculty produced 59 presentations, published 14 papers, and participated in 10 grants totaling an estimated $137,600 in grant funding ($45,000 from NIH).

Department of Pharmacy Practice

The Department of Pharmacy Practice is primarily responsible for the clinical education of students enrolled in the Doctor of Pharmacy program. The large majority of the 43 faculty are clinician scientists whose research efforts are integrated within their clinical practice sites. Faculty maintain practices at CUMC, hospitals in the Alegent system, Children’s Hospital, Methodist Hospital, Omaha and Lincoln VAMCs, and Bryan LGH in Lincoln. In addition the department maintains a joint relationship with Walgreen’s in Omaha for clinical model development in the community. The department’s clinical faculty has 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 departments of Neurology and Psychiatry. The Department has established and maintained 7 residency positions in pharmacy practice who complete their training throughout the CUMC, Bergan Mercy Medical Center, and Immanuel Medical Center. One fellow in the area of cardiology completed training within the department. From July 2007 to June 2008, the faculty produced 100 peer-reviewed publications as primary or co-author, and provided 108 national, regional or state presentations.

The Center for Drug Information & Evidence-Based Practice (CDI-EBP) supports four distinct Drug Information services affiliated with the Health Sciences Library, Children’s Hospital, Immanuel Medical
Center and Creighton University Medical Center. Institutional support is provided for each of these sites, as well as affording teaching opportunities for fourth year rotation students. The CDI-EBP also collaborates with the medical residency training program at CUMC to provide evidence-based medicine education. In addition, the Health Sciences Library service provides a nationally recognized healthcare professional drug information service. Four full-time Drug Information Specialist faculty members and one resident are responsible for supporting the CDI-EBP. The CDI-EBP is involved in contractual agreements with industry publishing partners to assist in the development of new products targeted at healthcare professional information needs.

Research and scholarship emphases are in educational assessment and outcomes research, clinical outcomes research, nanoparticles containing three 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 that has been made in the area of nanoparticle formation and production holds promise for the delivery of HIV drugs. This work is possible through collaborations between scientists in pharmacy practice, Department of Biology at Creighton University, and pharmaceutical sciences 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 M.S., 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 form using smart polymer based delivery system is an active area of work. Another area is transdermal drug delivery using chemical enhancers as well as physical enhancers like iontophoresis, electrooration, sonophoresis while preserving skin reversibility, as well as percutaneous absorption of chemicals (toxicants, pollutants) and associated dermatotoxicity and skin irritation.

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. Some of the faculty have focused a longitudinal effort in educational research related to pharmacy and professionalism development. Work is also being conducted in the area of educational technologies and student learning.
Publications

College of Arts and Sciences


**College of Business Administration**


**School of Dentistry**


Miyamoto, T., & Friedrichsen, S. W. (2008). Age and smoking status are associated with tooth loss during long-term supportive periodontal therapy in Brazilian patients. *The Journal of Evidence-Based Dental Practice, 8*(1), 22-23.


**School of Law**


Volkmer, R. R. (2007, November). Eligibility of posthumously conceived child to inherit under intestacy law; Authorized expenditures from son's special needs trust; Multiple party accounts and powers of attorney; Malpractice liability of estate planning attorneys. *Estate Planning, 34*(11), 50-55.

Volkmer, R. R. (2007, September). When does the ‘probate exception’ to federal jurisdiction to federal court jurisdiction apply?; Attorney's ethical obligations in settlement negotiations; Texas revocation by divorce statute construed; No-contest clauses by courts; Substantial compliance of estate planning documents; Sale by agent did not result in ademption by extinction. *Estate Planning, 34*(9), 42-47.


Volkmer, R. R. (2008, May). Issues pertaining to the termination and modification of trusts; Trust failed due to mistake in its creation; Who are default takers under a trust?; Transfer in fraud of marital rights; Standing to enforce restrictions in gifts to charity. *Estate Planning, 35*(5), 40-45.


**School of Medicine**


**School of Nursing**


### School of Pharmacy and Health Professions


**Other Units**

**Werner Institute for Negotiation and Dispute Resolution**


**University College**

Grants

College of Arts and Sciences


Gabel, J. [Investigator]. Probing the fundamental nature of broad absorption line quasars with spectra from the spitzer space telescope. National Aeronautics Space Administration/EPSCoR – $7,000 – [1 February 2008-31 December 2008].


**College of Business Administration**


**School of Dentistry**


Latta, M. A. [Investigator]. Attainable levels of nitrous oxide in dental offices that have implemented the ADA's exposure control recommendations. American Dental Association – $37,500 – [1 August 2001-1 February 2008].

Latta, M. A. [Investigator]. Clinical Evaluation of a paint-on-polish material. Dentsply – $22,000 – [1 April 2007].


Latta, M. A. [Investigator]. Laboratory evaluation of localized wear and generalized wear of three indirect resin restorative materials. Dentsply – $9,000 – [1 September 2007].

School of Law


School of Medicine


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.- $12,452 – [1 January 2006].


Beisel, K. W. [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 2009].


Bertoni, J. M. [Investigator]. Multi-centre, open label extension study to evaluate the long term safety, tolerability and efficacy of E2007 as an adjunctive therapy in Levodopa treated Parkinson's Disease patients with motor fluctuations. Eisai Medical Research, Inc. – $14,081 – [1 July 2007].

Bertoni, J. M. [Investigator]. Open-label multicenter study of the continued safety of Istradefylline (KW-6002) in subjects with Parkinson's Disease who have recently completed one year of treatment with Istradefylline. Kyowa Pharmaceuticals, Inc. – $23,858 – [1 January 2006].


Bertoni, J. M. [Investigator]. Randomized controlled open-label parallel group study to evaluate the effect of regularly scheduled neutralizing antibody testing on treatment patterns versus usual care in high-dose interferon treated subjects. TEVA Pharm. Industries, Inc. – $15,850 – [6 December 2006].

Bertoni, J. M. [Investigator]. Randomized double-blind active (Pramipexole 0.5 mg TID) and placebo controlled efficacy study of Pramipexole given 0.5 mg and 0.75 mg BID over a 12-week treatment phase in early Parkinson's Disease patients (Pramibid). University of Rochester/Boehringer Ingelheim Pharmaceuticals, Inc. – $37,314 – [1 September 2006-31 December 2008].

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 – $16,882 – [1 January 2006].

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 – $62,250 – [1 September 2005].

Bhatia, S. K. [Investigator]. Four week double-blind placebo controlled phase III trial evaluating the efficacy safety and pharmacokinetics of flexible doses of oral Ziprasidone in children and adolescents with bipolar 1 disorder (manic or mixed). Pfizer Inc. – $210 – [1 March 2006].


Bhatia, S. K. [Investigator]. An 8-week, double-blind, placebo-controlled, phase 3 trial of pregabalin (150-600 MG/Day) in the adjunctive treatment of patients with generalized anxiety disorder (GAD) who have not optimally responded to existing therapies. Pfizer Inc. – $51,373 – [5 February 2007].


Bhatia, S. K. [Investigator]. Phase 3 randomized 6-month double-blind trial in subjects with bipolar 1 disorder to evaluate the continued safety and maintenance of effect of ziprasidone plus a mood stabilizer (vs placebo plus mood stabilizer) following a minimum of 4 months of response to open-label treatment with both agents. Pfizer Inc. – $23,982 – [1 March 2006-1 August 2008].


Casale, T. B. [Investigator]. Clinical research educational/training grant. AstraZeneca – $1,550 – [1 May 2004].


Casale, T. B. [Investigator]. Travel support for fellows-educational grant. Genentech, Inc. – $7,500 – [1 August 2003].

Casale, T. B. [Investigator]. 26-week randomized double-blind parallel-group placebo-controlled multi-center study to evaluate the effect of xolair (omalizumab) on improving the tolerability of specific immunotherapy in patients with persistent allergic asthma. Novartis Pharmaceuticals Corporation – $84,411 – [3 November 2005].


Casale, T. B. [Investigator]. Efficacy and safety tolerability of ragweed mata MPL, a randomized placebo-controlled double blind study. Allied Research International Inc. – $72,899 – [1 May 2007].

Casale, T. B. [Investigator]. Efficacy and safety/tolerability of grass mata MPL, a randomized placebo-controlled double-blind study. Allergy Therapeutics Ltd. – $7,946 – [2 October 2006].

Casale, T. B. [Investigator]. Parallel, randomized, double-blind, placebo-controlled trial in adults for the sublingual-oral immunotherapy (SLIT) of allergic rhinoconjunctivitis with or without asthma caused by ragweed pollen. Greer Laboratories, Inc. – $8,590 – [1 February 2008].

Casale, T. B. [Investigator]. Randomized double-blind double-dummy placebo-controlled four-way crossover study to determine the effects of an H3 receptor antagonist (PF-03654746) on congestion following a nasal allergen challenge in subjects with seasonal allergic rhinitis. Pfizer Inc. – $178,418 – [1 October 2007-30 April 2008].

Casale, T. B. [Investigator]. Randomized double-blind parallel group placebo-controlled study to assess the efficacy and safety of oral microencapsulated ragweed pollen extract administered prior to and during the ragweed pollen season. Curalogic A/S – $140,767 – [1 February 2007].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, dose-response, cross-over study to evaluate the effect of nasal carbon dioxide on nasal congestion via acoustic rhinometry in subjects with perennial allergic rhinitis. Capnia, Inc. – $58,192 – [1 January 2008].

Casale, T. B. [Investigator]. Randomized, double-blind, placebo-controlled, multiple dose phase 2 study to determine the safety and efficacy of AMG 317 in subjects with moderate to severe asthma. Amgen, Inc. – $71,731 – [10 April 2007].


Chatterjee, A. [Investigator]. Multicenter open-label single-arm study to evaluate the single-dose pharmacokinetics and safety of Famciclovir after administration of Famciclovir oral pediatric formulation to infants 1 month of age to <1 year of age with herpes simplex infections. Novartis Pharmaceuticals Corporation – $3,750 – [16 October 2006].

Chatterjee, A. [Investigator]. Multicenter sequential-panel open-label noncomparative study to investigate the safety tolerability and pharmacokinetics of Caspofungin acetate in neonates and infants less than 3 months of age. Merck & Company, Inc – $4,210 – [10 July 2006].


Chatterjee, A. [Investigator]. Comparative immunogenicity of different multivalent component pertussis vaccine formulations based on a 5-component acellular pertussis vaccine in infants and toddlers. Aventis Pasteur, Inc. – $61,746 – [15 November 2005].

Chatterjee, A. [Investigator]. Determination of the etiology and susceptibility of bacterial pathogens causing impetigo and other uncomplicated skin infections in the USA in 2007. Replidyne – $2,075 – [1 September 2007].

Chatterjee, A. [Investigator]. An immunogenicity safety and non-interference evaluation of pediatric vaccines administered concomitantly with menactra (meningococcal (groups A, C, Y and W-135) Polysaccharide diphtheria toxoid conjugate vaccine) to healthy toddlers. Sanofi Pasteur, Inc. – $45,063 – [1 January 2007].

Chatterjee, A. [Investigator]. Phase 3 open-label randomized parallel-group multi-center study to evaluate the safety and immunogenicity of Novartis meningococcal ACWY conjugate vaccine when administered with routine infant vaccinations to healthy infants. Novartis Pharmaceuticals Corporation – $35,175 – [1 November 2007-31 October 2009].


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 – $19,630 – [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 – $26,908 – [7 June 2008].

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. – $82,922 – [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. – $19,813 – [11 April 2007].


Chatterjee, A. [Investigator]. Study of pilot manufacturing lot of HPV 16 virus-like particle (VLP) vaccine in the prevention of HPV 16 infection in 16 to 23 year old females. Merck & Company, Inc. – $5,008 – [1 November 1998].


Chiou, R. [Investigator]. Randomized double-blind placebo-controlled parallel group study of the efficacy safety of dutasteride 0.5mg administered once daily for four years to reduce the risk of biopsy-detectable prostate cancer. GlaxoSmithKline Company – $6,491 – [1 November 2006].


Del Core, M. [Investigator]. Multicenter registry for the evaluation of drug eluting stents and ischemic events (event registry). Millennium Pharmaceuticals/Millennium Pharmaceuticals, Inc. – $4,550 – [20 June 2004].


Del Core, M. [Investigator]. Multicenter, 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 50). Schering-Plough Research Institute – $8,800 – [1 September 2007].

Del Core, M. [Investigator]. Randomized, double-blind, parallel group, phase 3, efficacy and safety study of AZD6140 compared with clopidogrel for prevention of vascular events in patients with nonST or ST elevation acute coronary syndrome (ACS) - Plato. AstraZeneca – $6,635 – [1 April 2007].


Gallagher, J. C. [Investigator]. Randomized placebo-controlled parallel-groups study to evaluate the effects of 1-year administration of PF-217,763 with or without calcium and vitamin D supplements on bone mineral density, bone biomarkers and calcium metabolism in postmenopausal women with osteopenia. Pfizer Inc. – $3,894 – [1 November 2004].

Gallagher, J. C. [Investigator]. 12-month open label multicenter 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. – $32,970 – [1 January 2005].


Gallagher, J. C. [Investigator]. Dose ranging study of the effects of macroflux PTH compared with macroflux placebo and foreo in postmenopausal women with osteoporosis. Macroflux Corporation – $3,000 – [1 June 2007].


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 – $1,500 – [1 October 2007].


Goering, R. V. [Investigator]. Pulse field electrophoresis on clinical isolates. Quest Diagnostics – $2,700 – [1 July 2007].


Goering, R. V. [Investigator]. Pulse field gel electrophoresis on clinical isolates. Children's Hospital Foundation – $5,280 – [1 September 2007].


Hanson, N. D. [Investigator]. Comparisons of Meropenem activity and molecular mechanisms of resistance to other anti-pseudomonal drugs in populations of pseudomonas aeruginosa from the infected lungs of individual Cystic Fibrosis patients. AstraZeneca – $16,385 – [15 January 2006-31 August 2007].

Hanson, N. D. [Investigator]. Fulbright foreign student program office (Kayode Fashae). Fulbright Association – $2,000 – [1 October 2007-30 June 2008].


Hanson, N. D. [Investigator]. AAC Training course (Criollo, Trajanovic). Bayer Corporation – $1,200 – [1 February 2008-31 December 2008].


Hanson, N. D. [Investigator]. AAC training course (Laura Puzniak). Pfizer Inc. – $600 – [28 March 2008-30 June 2008].

Hanson, N. D. [Investigator]. AAC training course (Levy). Pfizer Inc. – $600 – [28 March 2008-30 June 2008].
Hanson, N. D. [Investigator]. AAC training course (Paap). Pfizer Inc. – $600 – [31 March 2008-30 June 2008].

Hanson, N. D. [Investigator]. ACC Training Course. bioMerieux Vitek, Inc. – $1,200 – [1 April 2007-31 May 2008].


Hanson, N. D. [Investigator]. DNA Control strains for AMPC. St. James Hospital – $188 – [1 April 2007-31 March 2008].


Hanson, N. D. [Investigator]. Surveillance of the mechanisms involved in carbapenem resistance in clinical isolates of pseudomonas aeruginosa from the Puerto Rico Medical Center. AstraZeneca – $41,500 – [1 October 2006].


Heaney, R. P. [Investigator]. Environmental influences on Vitamin D status. Procter & Gamble Company – $50,000 – [1 July 2007].


Heaney, R. P. [Investigator]. A project to advance a research data infrastructure by creating a master data bank integrating all databases produced and maintained by our research center. Dairy Management, Inc.- $235,717 – [1 July 2007-30 June 2010].

Heaney, R. P. [Investigator]. ConAgra Foods educational project. ConAgra, Inc. – $40,000 – [14 March 2007].

Heaney, R. P. [Investigator]. Educational grant. GlaxoSmithKline Company – $1,600 – [1 January 2007].


Heaney, R. P. [Investigator]. Foodminds Educational Project. Foodminds, LLC. – $1,500 – [1 January 2008].


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

Heaney, R. P. [Investigator]. Merck Educational Grant. Merck & Company, Inc. – $1,630 – [1 October 2006].

Heaney, R. P. [Investigator]. Pilot study to investigate the effect of Bonistein Bone Blend containing Genistein polyunsaturated fatty acids (N-3 Pufas) and vitamins K1 and D3 on bone mineral density (BMD) bone mineral content (BMC) and biomarkers of bone health in early postmenopausal women. DSM Nutritional Products AG – [12 August 2006-31 July 2009].

Holmberg, J. [Investigator]. Double blind placebo controlled multicenter acute study of clinical effectiveness of Nesiritide in subjects with decompensated heart failure ascend-HF. SCIOS, Inc. – $3,875 – [1 September 2007].

Huerter, C. J. [Investigator]. Multi-center randomized double-blind parallel-group study to demonstrate the efficacy and safety of Adapalene/Benzoyl Peroxide topical gel compared with Adapalene topical gel, 0.1% Benzoyl peroxide topical gel, 2.5% and topical gel vehicle in subjects with acne vulgaris (Galderma 444). Charles River Laboratories Clinical Services, Inc. – $24,494 – [10 July 2006].


Hunter, C. B. [Investigator]. Randomized double-blind double-dummy parallel group factorial design trial to assess the efficacy and safety of up to six weeks treatment with 20mg, 40mg, or 80 mg QD doses of carvedilol controlled release formulation (Coreg CR) or 10mg, 20mg, or 40mg qd doses of lisinopril (zestril) or combination of one of the doses of each medication. GlaxoSmithKline Company – $31,108 – [1 February 2007].


Lister, P. D. [Investigator]. Pharmacodynamics of imipenem and meropenem against pseudomonas aeruginosa and klebsiella pneumoniae producing plasmid-encoded AMPC cephalosporinases. Merck & Company, Inc. – $25,980 – [31 October 2005].


Lund, R. J. [Investigator]. Multi-center, randomized, double-blind clinical trial ot evaluate the safety and tolerability of 24 weeks treatment with vildagliptin (50 mg QD or 100 mg QD) versus placebo in patients with type 2 diabetes and moderate renal insufficiency. Novartis Pharmaceuticals Corporation – $3,600 – [10 August 2007].

Lund, R. J. [Investigator]. A multi-center, randomized, double-blind clinical trial to evaluate the safety and tolerability of 24 weeks treatment with Vildagliptin (50mg QD or 100 mg QD) versus Sitagliptin (25mg QD) in patients with Type 2 diabetes and severe renal insufficiency. Novartis Pharmaceuticals Corporation – $6,445 – [10 August 2007].


Lund, R. J. [Investigator]. Phase 4 single-center open-label randomized active-controlled cross-over pilot study to evaluate the effects of two Vitamin D analogs Zemplar injection and Hectorol injection on intestinal absorption of calcium in CKD stage 5 subjects on hemodialysis. Abbott Laboratories – $144,748 – [15 July 2005].

Lund, R. J. [Investigator]. Prospective multicenter open-label randomized cross-over study to compare the efficacy and safety of Fosrenol and Sevelamer hydrochloride in patients receiving hemodialysis for end stage renal disease. Shire Pharmaceuticals – $1,960 – [27 February 2007].

Lund, R. J. [Investigator]. A prospective, open-label, randomized, multi-center study to demonstrate the efficacy and safety of intravenous (IV) RO0503821 for hemoglobin control in patients transitioning from chronic kidney disease stage 4 through dialysis, protocol number ML20337. Roche Laboratories, Inc. – $4,500 – [1 August 2007-1 August 2010].


Lynch, H. T. [Investigator]. Material transfer agreement with cancer research UK-Queen Mary School of Medicine and Dentistry. Queen Mary School of Medicine & Dentistry – $1,250 – [7 March 2007].


Mackin, R. B. [Investigator]. Evaluation of rabbit anti-PC1 antibody for western blots. Chemicon, Inc. – $4,000 – [1 June 2006].


Mohiuddin, S. M. [Investigator]. 36-week, multicenter, randomized, double-blind, placebo-controlled, parallel group study to evaluate the efficacy and safety of Aliskiren on the prevention of left ventricular remodeling in high risk post-acute myocardial infarction patients when added to optimized standard of therapy. Novartis Pharmaceuticals Corporation – $1,600 – [1 February 2007].


Mohiuddin, S. M. [Investigator]. Multicenter randomized double-blind prospective study comparing the safety and efficacy of fenofibric acid and Simvastatin combination therapy to fenofibric acid and Simvastatin monotherapy in subjects with mixed dyslipidemia. Abbott Laboratories – $12,404 – [6 June 2006].


Morrow, L. E. [Investigator]. Phase 4 randomized double-blind multi-center comparator study evaluating the safety and dexmedetomidine compared to IV Midazolam in ICU subjects requiring greater than twenty-four hours of continuous sedation. Omnicare Clinical Research, Inc. – $10,175 – [1 July 2005].


Morrow, L. E. [Investigator]. Phase 2, open-label, non-comparative study of Doripenem in the treatment of nosocomial and ventilator-associated pneumonia in hospitals where Pseudomonas aeruginosa may be a prevalent pathogen. Ortho-McNeil – $16,000 – [9 April 2007].


Ramaswamy, S. [Investigator]. Open label prophylaxis study of Lithium plus extended-release carbamazepine (ERC-CBZ) combination for rapid cycling bipolar disorder. Shire Pharmaceuticals – $25,000 – [15 December 2005].

Ramaswamy, S. [Investigator]. Six-week, randomized, double-blind, multicenter, fixed-flexible dose, placebo-controlled study evaluating the efficacy and safety of oral Ziprasidone, in outpatients with bipolar 1 depression. Pfizer Inc.- $3,238 – [6 June 2007-5 June 2009].


Recker, R. R. [Investigator]. Double-blind placebo-controlled randomized multicenter study to assess the efficacy and safety of oral Iblandronate 150 mg once monthly in postmenopausal women with osteopenia. Hoffmann-LaRoche, Inc. – $22,276 – [15 December 2005].

Recker, R. R. [Investigator]. Multicenter double blind randomized active-controlled parallel group noninferiority study comparing 75 mg Risedronate dosed on two consecutive days monthly with 5 daily Risedronate in the treatment of postmenopausal osteoporosis as assessed over 24 mos. Procter & Gamble Company – $6,500 – [1 June 2004].

Recker, R. R. [Investigator]. Multi-center, randomized, open-label study to evaluate 200 and 300 UG daily Teriparatide nasal spray compared to daily Forteo on bone turnover markers pharmacokinetics and safety in postmenopausal women. Procter & Gamble Company – $241,529 – [14 August 2006].

Recker, R. R. [Investigator]. Open label parallel group multicenter study of two IV Ibandronate dose regimens (2mg Q 2mo, 3mg Q 3mo) in women with postmenopausal osteoporosis who completed trial BM16550 which is part of the Roche RO 200-5450 (Ibandronate) clinical development project. Hoffmann-LaRoche, Inc. – $18,400 – [1 July 2007].


Recker, R. R. [Investigator]. Multicenter double blind randomized active-controlled parallel group noninferiority study comparing 75 mg Risedronate dosed on two consecutive days monthly with 5 daily Risedronate in the treatment of postmenopausal osteoporosis as assessed over 24 mos. Procter & Gamble Company – $6,500 – [1 June 2004].


Recker, R. R. [Investigator]. 2-year randomized multi-center double-blind placebo controlled study to determine the efficacy and safety of intravenous zoledronic acid 5mg administered either annually at randomization and 12 months or administered at randomisation only in the prevention of bone loss in postmenopausal women with osteopenia. Novartis Pharmaceuticals Corporation – $38,748 – [17 June 2004].

Recker, R. R. [Investigator]. Double-blind partially randomized parallel group multicenter study to assess the efficacy and safety of 100mg and 150mg monthly oral Ibandronate in women with postmenopausal osteoporosis having completed the phase III oral Ibandronate trial. Hoffmann-LaRoche, Inc. – $20,066 – [15 July 2004].

Recker, R. R. [Investigator]. Double-blind placebo-controlled multicenter 16 week study to assess the effect of Vitamin D3 8400 IU once weekly on body sway and neuromuscular function in men and women over 70 years of age. Merck & Company, Inc. – $2,000 – [12 September 2005].


Recker, R. R. [Investigator]. Open label parallel group multicenter study of two IV ibandronate dose regimens (2 mg every 2 months and 3 MDG every 3 months) in women with postmenopausal osteoporosis who completed trial BM 16550. Hoffmann-LaRoche, Inc. – $17,057 – [1 November 2004].

Recker, R. R. [Investigator]. Phase III multicenter double-blind randomized active-controlled parallel group non-inferiority study comparing 150mg resedronate monthly with 5mg risedronate daily in the treatment of postmenopausal osteoporosis as assessed at 12 and 24 months. Sanofi-Synthelabo, Inc. – $20,100 – [1 November 2005].


Recker, R. R. [Investigator]. Randomized double-blind study to compare the efficacy of treatment with denosumab versus alendronate sodium in postmenopausal women with low bone mineral density. Amgen, Inc. – $85,027 – [13 March 2006].

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. – $9,520 – [1 June 2007].


Rendell, M. S. [Investigator]. A multicenter, randomized, double-blind, prospective study comparing the safety and efficacy of fenofibric acid and astorvastatin calcium combination therapy to fenofibric acid and
atorvastatin calcium monotherapy in subjects with mixed dyslipidemia (M05-750) and a long-term, open-label, safety extension study of the combination of fenofibric acid and statin therapy for subjects with mixed dyslipidemia (M05-758). Abbott Laboratories -- $11,603 -- [1 March 2006].

Rendell, M. S. [Investigator]. Apidra (insulin glulisine) administered premeal vs postmeal in adult subjects with Type 2 diabetes mellitus receiving Lantus (insulin glargine) as basal insulin: A multicenter randomized parallel open label clinical study. Aventis Pasteur, Inc. – $18,650 – [1 October 2004].


Rendell, M. S. [Investigator]. Double-blind randomized parallel group study to evaluate the safety tolerability and efficacy of TAK-475 alone or co-administered with Atorvastatin in patients with primary dyslipidemia. Takeda America, Inc. – $3,280 – [1 September 2004].


Rendell, M. S. [Investigator]. Multicenter randomized double-blind placebo-controlled phase 3 trial to evaluate the efficacy and safety of Saxagliptin (BMS-477118) in combination with metformin in subjects with Type 2 diabetes who have inadequate glycemic control on metformin alone. Bristol-Myers Squibb – $2,348 – [1 July 2005].

Rendell, M. S. [Investigator]. A multicenter randomized double-blind placebo-controlled study to determine the efficacy and safety of SYR110322 (SYR322) when used in combination with a metformin in subjects with Type 2 Diabetes. Takeda America, Inc. – $18,846 – [1 November 2005].

Rendell, M. S. [Investigator]. A 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 – $20,138 – [1 October 2007].


Rendell, M. S. [Investigator]. An open-label, multi-center, randomized, parallel group study comparing the efficacy and safety of insulin Viaject and regular human insulin in patients with Type 2 diabetes Mellitus. Biodel, Inc. – $2,000 – [1 August 2007].

Rendell, M. S. [Investigator]. Phase II randomized double-blind placebo-controlled 24-week dose finding study to evaluate the efficacy and safety of 20 mg, 40 mg and 80 mg of MCC-257 in patients with mild to moderate diabetic polyneuropathy. Mitsubishi Pharma Corporation – $44,123 – [1 January 2006].

Rendell, M. S. [Investigator]. 12-week multicenter randomized double-blind parallel-group dose-ranging study to assess the efficacy, safety and tolerability of LAF237A 25mg BID 25 50 100mg OD compared to placebo in patients with Type 2 diabetes and 40-week extension to a 12 week multicenter, double-blind, randomized, parallel-group, dose-ranging study to assess the efficacy, safety and tolerability of LAF237 25 mg bid, 25, 50, or 100 mg od compared to placebo in patients with type 2 diabetes. Novartis Pharmaceuticals Corporation – $3,317 – [1 August 2005].


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. – $12,000 – [1 December 2007].


Rendell, M. S. [Investigator]. Effects of RO078804 on renal function in patients with type 2 diabetes, as compared to actos. Hoffmann-LaRoche, Inc. – $10,800 – [1 April 2007].


Rendell, M. S. [Investigator]. Multi-center open-label follow-on trial to assess the long-term safety and efficacy of SPM 927 in subjects with painful distal diabetic neuropathy. Schwarz Biosciences, Inc. – $6,620 – [1 October 2004].


Rendell, M. S. [Investigator]. Multicenter randomized double-blind placebo-controlled phase 3 trial to evaluate the efficacy and safety of saxagliptin (BMS-477118) as monotherapy in subjects with type 2 diabetes who have inadequate glycemic control with diet and exercise. Bristol-Myers Squibb – $10,403 – [1 July 2005].


Rendell, M. S. [Investigator]. A multi-center, randomized, double-blind clinical trial to evaluate the safety and tolerability of 24 weeks treatment with Vildagliptin (50 mg OD or 100 mg OD) versus placebo in patients with Type 2 diabetes and moderate renal insufficiency. Novartis Pharmaceuticals Corporation – $6,100 – [1 October 2007].

Rendell, M. S. [Investigator]. Multi-center, randomized, double-blind, placebo-controlled, parallel study comparing the analgesic efficacy and the safety of ABT_894 (1 MG, 2 MG, and 4 MG), duloxetine (60
MG) and placebo in approximately 275 subjects with diabetic neuropathic pain. Abbott Laboratories – $11,964 – [1 March 2008].


Rendell, M. S. [Investigator]. Open label multi-center follow-on study examining the long-term safety and efficacy of insulin Viaject in subjects with Type 2 diabetes mellitus. Biodel, Inc. – $2,000 – [1 October 2007-2 October 2011].

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 – $2,500 – [1 March 2008].


Rendell, M. S. [Investigator]. Phase 2/3 randomized double-blind multicenter 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. – $13,565 – [1 October 2006].

Rendell, M. S. [Investigator]. Phase 2A, randomized, double-blind, placebo and active-controlled, parallel-group, multicenter study to assess the safety and efficacy of ADL5859 100mg BID in subjects with neuropathic pain associated with diabetic peripheral neuropathy. Adolor Corporation – $6,900 – [1 October 2007].

Rendell, M. S. [Investigator]. Phase 2B, randomized, double-blind, parallel-group, study of safety and weeks of treatment with DIO-902 or DIO-902 placebo in addition to metformin and atorvasatin or atorvasatin placebo in subjects with Type 2 Diabetes Mellitus. DiObex, Inc. – $96,894 – [1 July 2007].

Rendell, M. S. [Investigator]. Phase 3 24-week multi-center open-label randomized controlled trial comparing the efficacy and safety of prandial inhalation of technosphere/insulin in combination with metformin or technosphere/insulin alone versus 2 oral anti-diabetic agent (metformin and secretagogue) in subjects with type 2 diabetes mellitus sub-optimally controlled on combination metformin and a secretagogue. Mannkind Corporation – $27,348 – [1 July 2006].

Rendell, M. S. [Investigator]. Phase 3B Randomized open-label parallel group multicenter trial assessing the efficacy of exubera vs lispro introduced into a lantus based regimen in suboptimally controlled patients with type 2 diabetes mellitus. Pfizer Inc. – $51,970 – [1 June 2006].

Rendell, M. S. [Investigator]. A phase III randomized, active-comparator (Meformin) controlled, clinical trial to study the efficacy and safety of MK_0431A in patients with Type 2 Diabetes Mellitus. Merck & Company, Inc. – $4,500 – [1 September 2007-1 September 2011].

Rendell, M. S. [Investigator]. Pivotal open-label parallel study to evaluate the safety and efficacy of human insulin inhalation powder (HIIP) compared to injectable insulin in patients with diabetes and COPD or asthma. Eli Lilly and Company – $15,912 – [1 March 2007].

Rendell, M. S. [Investigator]. Prospective multi-center open-label randomized controlled study comparing the efficacy and safety in subjects with type 1 diabetes receiving subcutaneous basal insulin and prandial inhalation of technosphere/insulin versus subcutaneous basal and prandial insulin over a 52-week treatment period and a 24-week follow-up. Mannkind Corporation – $45,275 – [1 July 2006].

Rendell, M. S. [Investigator]. A prospective, multi-center, open-label, randomized, controlled clinical study comparing the efficacy and safety in subjects with Type 2 diabetes receiving subcutaneous basal insulin and prandial inhalation of technosphere/insulin versus subcutaneous premixed insulin therapy over a 52-week treatment period and a 24-week follow-up. Mannkind Corporation – $20,289 – [1 March 2007].

Rendell, M. S. [Investigator]. Randomized double-blind placebo-controlled five parallel group study investigating the efficacy and safety of BI 1356 BS (0.5 mg, 2.5 mg and 5.0 mg administered orally once daily over 12 weeks in drug naive and treated patients with Type 2 diabetes with insufficient glycemic control (study includes an open label metformin treatment arm). Boehringer Ingelheim Pharmaceuticals, Inc. – $23,782 – [1 June 2006].


Rendell, M. S. [Investigator]. Randomized, double-blind, placebo-controlled study of XL784 administered orally to subjects with albuminuria due to diabetic nephropathy. Exelixis, Inc. – $103,048 – [1 March 2007].

Rendell, M. S. [Investigator]. Randomized-withdrawal phase III study evaluating the safety and efficacy of CG5503 extended release (ER) in subjects with painful diabetic peripheral neuropathy. Johnson & Johnson – $33,384 – [1 April 2007].

Rendell, M. S. [Investigator]. A six month, open-label, randomized parallel group trial assessing the impact of dry powder inhaled insulin (Exubera) on glycemic control compared to insulin glargine (Lantus) in patients with type 2 diabetes mellitus who are poorly controlled on a combination of two or more oral agents. Pfizer Inc. – $38,199 – [1 April 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 multicenter 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 – $10,897 – [1 February 2008].

Reyes, A. P. [Investigator]. Randomized multinational double-blind study comparing a high loading dose regimen of Clopidogel versus standard dose in patients with unstable angina or non-ST segment elevation myocardial infarction managed with early invasive strategy. Sanofi-Aventis U.S. Inc. – $21,100 – [1 April 2007].


Schuller, D. [Investigator]. Randomized double-blind parallel group 52-week study to compare the effect of the Fluticasone Propionate/Salmeterol Diskus combination product 250/MCG BID with Salmeterol Diskus 50 MCG BID on the annual rate of moderate/severe exacerbations in subjects. GlaxoSmithKline Company – $6,432 – [28 April 2005].


Silberstein, P. T. [Investigator]. Phase II multicenter double-blind randomized trial comparing Anastrozole (ZD11033, Arimidex)-placebo to the combination Anastrosole-ZD1839 (Gefitinib, Iressa) in postmenopausal patients with estrogen receptor (ER) and/or progesterone receptor (PGR) metastatic breast cancer. AstraZeneca – $1,000 – [3 February 2004].

Silberstein, P. T. [Investigator]. Phase III, multicenter, randomized, double-blind, active controlled, parallel group study of the safety and efficacy of the intravenous and oral formulations of the neurokinin-1 receptor antagonist Casopitant (GW679769) in combination with Ondansetron and dexametasone for the
Silberstein, P. T. [Investigator]. Randomized open-label comparative study of Epoetin Alfa (Procrit) 80,000 units or 120,000 units Q3W versus Darbepoetin Alfa (Aranesp) 500 mcg Q3W in anemic cancer subjects receiving chemotherapy. Ortho Biotech, Inc. – $25,740 – [20 December 2006].


Silberstein, P. T. [Investigator]. Randomized open-label study of Procrit (Epoetin Alfa) initiated at 40,000 units every week versus 80,000 units every two weeks in anemic patients with cancer receiving chemotherapy. Ortho Biotech, Inc. – $5,005 – [23 June 2004].

Silberstein, P. T. [Investigator]. Risk and outcomes of mucositis in subjects being treated for breast, colorectal, head and neck, non-small cell lung or ovarian cancers. Amgen, Inc. – $4,160 – [19 April 2006].

Soukup, G., A. [Investigator]. EPSCoR research infrastructure improvement grant program (RII). University of Nebraska-Lincoln/National Science Foundation/EPSCoR – $95,019 – [1 July 2007-30 June 2010].


Townley, R. G. [Investigator]. Montelukast can inhibit allergen induced cystlt and IL-13 release from subjects with allergic rhinitis or allergic asthma. Merck & Company, Inc. – $21,756 – [1 May 2007-30 April 2008].


Townley, R. G. [Investigator]. Multicenter randomized double blind triple dummy placebo controlled parallel group four week study assessing the efficacy of Fluticasone propionate aqueous nasal spray 200mcg QD versus Montelukast 10mg QD in adolescent and adult subjects with asthma and seasonal allergic rhinitis who are receiving advair diskus® 100/50mcg bid or placebo bid. GlaxoSmithKline Company – $599 – [1 July 2005].


Varman, M. [Investigator]. Multicenter, 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 – $1,763 – [1 March 2008].


Wilson, D. R. [Investigator]. Randomized, multicenter, double-blind, parallel group study to compare the effects of Bifeprunox to Quetiapine on weight changes in stable schizophrenic patients. Solvay Pharmaceuticals – $10,000 – [30 July 2007].


School of Nursing


Sandhurst, H. C. [Investigator]. The positive pregnancy project. March of Dimes Foundation – $7,000 – [1 August 2007-31 December 2008].
School of Pharmacy and Health Professions


Malesker, M. A. [Investigator]. Prospective randomized comparison of two tight glycemic targets in critically ill patients. LifeScan – $15,000 – [1 August 2006].


Other Creighton Grants


Danielson, M. A. [Investigator]. Service learning to increase the educational outcomes of youth in disadvantaged circumstances. Corporation for National & Community Service – $15,000 – [1 January 2008-31 December 2008].


Theses and Dissertations

August 2007

Chhabra, Sumit. Phase-sensitive smart polymers for the sustained delivery of proteins in biologically active form. Master of Science (Pharmaceutical Sciences) – Dr. Somnath Singh (Major Advisor).

Collins, Ryan. Variation of the fine structure constant at the times of BBN and recombination. Master of Science (Physics) – Dr. Gintaras Duda (Major Advisor).

Franzese, Joseph. Expression of suppressors of cytokine signaling proteins in airway epithelial cells. Master of Science (Biomedical Sciences) – Dr. Devendra Agrawal (Major Advisor).

Kreitlow, Brian. Business or Pleasure? Examining the reasons behind China’s African venture. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).

Reifenberger, George. Improvements in upper limits of the neutralino-proton cross section through use of model-independent nuclear form factors. Master of Science (Physics) – Dr. Gintaras Duda (Major Advisor).


Su, Benjamin. Bread and circuses: The disillusionment of civic consciousness. Master of Arts (Liberal Studies) – Dr. Leonard Greenspoon (Major Advisor).

Xiao, Peng. In vivo genome-wide expression study of human blood B cells suggests a novel ESR1 and MAPK3 network for postmenopausal osteoporosis. Doctor of Philosophy (Biomedical Sciences) – Dr. Hong-Wen Deng (Major Advisor).

Xiong, Donghai. Genetic linkage and association studies for bone geometry and bone mineral density. Doctor of Philosophy (Biomedical Sciences) – Dr. Hong-Wen Deng (Major Advisor).

Zakaria, Mohammed. Zenith angle dependence of prompt muons in high energy cosmic showers. Master of Science (Physics) – Dr. Gintaras Duda (Major Advisor).

December 2007

Davis, Daniel. The challenge of modifying deviant behavior: Restructuring incentives in renegade regimes. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).

Ekpenyong, Andrew. Hybrid ray optics and continuum mechanics modeling of cell deformation in the optical stretcher. Master of Science (Physics) – Dr. Michael Nichols (Major Advisor).


Lynch, Jessica. Using FsQCA and SEM to understand democratic consolidation in the post-cold war era. Master of Arts (International Relations) – Dr. Terry Clark (Major Advisor).

Smith, Kimberly. The structural and physiological effects of -1.5°C, +4°C and +1°C acclimation on the Antarctic teleost trematomus bernacchii. Master of Science (Biomedical Sciences) – Dr. David Petzel (Major Advisor).


May 2008

German, Sarah. Development of the inner ear: A molecular, cellular and evolutionary approach. Doctor of Philosophy (Biomedical Sciences) – Dr. Bernd Fritzsch (Major Advisor).

Rossino, Danielle. Investigation of prestin membrane topology by substituted cysteine accessibility method. Master of Science (Biomedical Sciences) – Dr. Richard Hallworth (Major Advisor).


Wheeler, Theodore. How to die young in Nebraska: Stories. Master of Arts (English) – Dr. Brent Spencer (Major Advisor).
Illustrations

All of the images that appear in this document are part of the photographic collection of the Creighton University Archives.

- Dental Clinic (1949)  Front cover
- Fr. Richard McGloin, S.J., with students (1950s)  Table of Contents
- Betty Patterson instructing Nursing students (1961)  46
- Prof. Jerry Horning, Fine Arts (1970s)  95
- Dr. Al Schlesinger Laboratory (Biology, 1950s)  130
- Dr. Robert Heaney, School of Medicine (1950s)  132
- Newsroom (1951)  Back Cover

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