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# Department of Anatomy and Cell Biology: 1983-2007

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*University of North Dakota*

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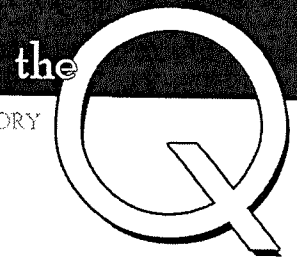
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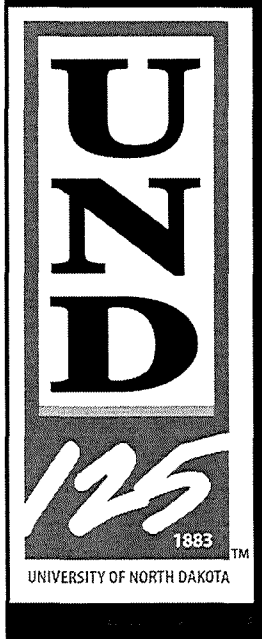
UNIVERSITY OF NORTH DAKOTA :: QUASQUICENTENNIAL :: DEPARTMENT HISTORY



UNIVERSITY OF NORTH DAKOTA  
1883-2008  
CELEBRATING 125 YEARS

DEPARTMENT OF ANATOMY AND  
CELL BIOLOGY  
1983-2007

By **Garl K. Rieke, Ph. D.**  
Associate Professor, Department of Anatomy and Cell  
Biology



# **Twenty-Five Year History**

**Department of Anatomy and Cell Biology  
University of North Dakota  
School of Medicine & Health Sciences**

**1983–2007**

By **Garl K. Rieke, Ph.D.**

Associate Professor, Department of Anatomy and Cell Biology

## I. DEPARTMENTAL GOVERNANCE:

**Chairperson:** Dr. **Edward C. Carlson**, Professor, 1981–present  
**Vice Chairpersons:** Dr. **Mark D. Olson**, Associate Professor, 1984–1987  
 Dr. **Bruce C. Albright**, Associate Professor, 1987–1990  
 Dr. **Jean C. Oberpriller**, Professor, 1995–1998  
 Dr. **Kenneth G. Ruit**, Associate Professor, 2005–present

## II. HUMAN RESOURCES

Table I: Departmental Faculty Members, 1983 to Current

Faculty Member	Rank (current or terminal)	Initial Appointment	Appointment (current or terminal)	Status
Oberpriller, John O.	Professor Emeritus	7/1967	Tenured	Retired 1997
Oberpriller, Jean C.	Professor Emeritus	7/1968	Tenured	Retired 1998
Ollerich, Dwayne A.	Professor	7/1968	Tenured	Resigned 1990
Matthies, Donald L.	Associate Prof	8/1972	Tenured	Resigned 1994
Albright, Bruce C.	Associate Prof	7/1974	Tenured	Resigned 1990
Joshi, Madhususan S.	Professor Emeritus	7/1977	Tenured	Retired 1996
Olson, Mark D.	Associate Prof Emeritus	7/1977	Tenured	Retired 1999
Carlson, Edward C.	Professor and Chair	11/1981	Tenured	Current
Hunt, Curtiss D.	Adjunct Prof	7/1985	Non-Tenure	Current
McCormack, John T.	Associate Prof Emeritus	7/1985	Tenured	Retired 2004
Keck, Arnold W.	Adjunct Assistant Prof	7/1989	Non-Tenure	Retired 1997
Thompson, Clarence	Adjunct Assistant Prof	7/1989	Non-Tenure	Resigned, 2002
Rieke, Garl K.	Associate Prof	1/1991	Tenured	Current
Ruit, Kenneth G.	Associate Prof	11/1991	Tenured	Current
Rada, Jody A.	Associate Prof	7/1995	Tenured	Resigned 2003
Smyser, Gerald S.	Adjunct Associate Prof	7/1996	Non-Tenure	Current

Faculty Member	Rank (current or terminal)	Initial Appointment	Appointment (current or terminal)	Status
Atkinson, Michael M.	Associate Prof	10/1997	Tenured	Current
Carr, Patrick A.	Associate Prof	7/1998	Tenured	Current
Grove, Bryon D.	Associate Prof	7/1998	Tenured	Current
Jackson, Jon A.	Assistant Prof	8/1998	Non-tenure	Current
Dunlevy, Jane R.	Associate Prof	3/2000	Tenured	Current
Watt, John A.	Assistant Prof	11/2003	Probationary	Current
Pyle, Sally	Adjunct Associate Prof	5/2004	Non-Tenure	Resigned 2007
Liu, Rugao	Associate Prof	9/2004	Tenured	Current

**Table II: Departmental Staff Members 1983 to Current**

Staff Member	Position/Title	Initial Appointment	Change in Status, Resignation or Retirement
Green, Gordon	Anatomical Preparator	7/1975	Resigned 6/1986
Audette, Jan	Medical Lab Tech II	11/1979	Retired 5/2007
Horn, Julie	Administrative Secretary	7/1980	Resigned 3/2004
Eiteljorge, Lisa	Administrative Clerk	7/1983	Resigned 2/1986
Aker, Faye	Dept Information Processing Officer	2/1986	Resigned 9/1998
Thompson, Clarence	Anatomical Preparator	6/1986	Became Adj Assistant Prof 7/1989
Swinscoe, John	Research Cell Biologist Post Doc Research Fellow	9/1986 4/1993 8/2001 1/2004	9/1991 6/1998 10/2003 7/2004
Young, L. Kim	Lab Tech, EM Center	1/1991 (became ½ time in 1998)	Current
Bossoletti, John	Med Lab Tech II, Anatomical Preparator	7/1992	Resigned 9/1998
Achen, Virginia	Medical Lab Tech I	10/1995	Resigned 12/2006
Perry, Cheryl	Medical Lab Tech III	10/1995	Resigned 3/2000
Wasdahl, Richard	Anatomical Preparator	9/1998	Resigned 6/1999
Rieder, Annette	Administrative Clerk	10/1998	Resigned 4/2007

<b>Staff Member</b>	<b>Position/Title</b>	<b>Initial Appointment</b>	<b>Change in Status, Resignation or Retirement</b>
<b>Kees, Denelle</b>	Manager, Deeded Body Program; Anatomical Preparator	7/1999	Current
<b>Laternus, Donna</b>	Light/Electron Microscope Technician	3/2000	Current
<b>Casavan, Tami</b>	Lab Tech, Confocal Imaging Center	6/2003	Resigned 11/2005
<b>Kee, Bonnie</b>	Administrative Secretary	3/2004	Current
<b>Luo, Chun</b>	Research Specialist	9/2004	Current
<b>Eberhardt, Amber</b>	Lab Tech, Confocal Imaging Center	3/2006	Resigned 5/2007
<b>Dehen, Nicole</b>	Student Temporary Clerk	5/2007	Current
<b>Rolling, Sarah</b>	Lab Tech, Confocal Imaging Center	5/2007	Current
<b>Tavares, Christina</b>	Student Temporary Clerk	5/2007	Current

### **III. FACILITIES**

The departmental administrative office and teaching and research facilities were housed in the Medical Science South Building with the attached Ireland Research until July 1994 when the Department moved into the newly constructed Edwin C. James Medical Research Facility. The facility was under construction from 1992 to 1994.

Research and teaching facilities within the department are well maintained and supplied with the latest in technological aids as detailed below. Other scientific instrumentation and expertise are only a floor or two (or three or four) away in the other basic sciences departments. All of these high quality facilities are important for state-of-the-art research and instruction, but the students, staff, and faculty continue to be the central focus of this department and are the basis for its success.

#### **A. Edwin C. James Research Facility**

Research facilities within the Department of Anatomy and Cell Biology, including the Imaging Center, are well maintained and supplied with sophisticated instrumentation and technological aids. This means that a full complement of instrumentation and equipment for research in structural biology, cellular biology, developmental biology, and/or neurosciences are readily available through collaborative efforts of the basic sciences departments, individual investigators, and the multi-user core facilities such as the Imaging Center and Mass Spectrometry Core. Examples include confocal microscopy (Zeiss LSM 510 Meta and Olympus Fluoview 300 microscopes), wide-field microscopy for microinjection techniques, fluorescence correlation spectroscopy,

transmission electron microscopy (Hitachi 7500 TEM), and scanning electron microscopy (Hitachi 4700 field emission SEM). In addition, sequencers and other molecular biology equipment, computer work stations, programmable glass microelectrode pullers, high-speed centrifuges, liquid scintillation counters, and cell culture facilities are available within the department or by cooperative agreements with investigators in other basic science departments.

## **B. Frank Low Conference Room**

The Department of Anatomy and Cell Biology maintains its own library and reading/conference room. This facility was dedicated to **Dr. Frank N. Low**, Professor Emeritus of the Department of Anatomy and Cell Biology on April 12, 1996. Because of the 1997 flood, the conference room was rededicated in October 2005, nine years after the initial event and in conjunction with the Centennial Anniversary Celebration of the UND School of Medicine and Health Sciences.

## **C. Imaging Center**

The Imaging Center at the UND School of Medicine and Health Sciences is located on the basement floor in the Department of Anatomy and Cell Biology and provides advanced instrumentation for researchers interested in investigating biological processes at the cellular, sub-cellular, and molecular level. The Center consists of two facilities.

### **1. Light Microscopy Facility**

The light microscopy facility was initially developed in 2001 and is equipped with sophisticated, laser-scanning confocal microscopes that can be used, for example, to study molecular interactions within live cells or the distribution of molecules within human tissue. Renovation of the light microscopy facility and purchase of a Zeiss LSM 510 META confocal and FCS system, a state-of-the-art confocal microscope and fluorescence correlation spectrometer, was made possible in 2003 with funds awarded through COBRE, a special grant program (Centers of Biomedical Research Excellence) that NIH designed to cultivate research expertise among junior faculty and strengthen the research infrastructure of states that do not receive as much NIH funding as some larger states.

### **2. Electron Microscopy Facility**

The electron microscopy facility has been a hallmark of the Department of Anatomy and Cell Biology since 1964 when a new RCA transmission electron microscope (TEM) was purchased. The current facility located adjacent to the Light Microscopy center, houses a full complement of preparatory equipment, an Hitachi 7500 TEM and an Hitachi 4700 field emission scanning electron microscope (SEM). The facility provides modern and powerful SEM and TEM capabilities necessary for examining the ultrastructure of cells and tissue down to the level of individual molecules.

#### **IV. EDUCATIONAL RESPONSIBILITIES**

Traditionally the Department of Anatomy and Cell Biology offered basic courses in gross, microscopic and neuroanatomy for medical students and graduate students. In addition, the department offered courses for nursing, medical technology, occupational and physical therapy, physical education and other paramedical students. In 1997 the teaching of gross anatomy to occupational and physical therapy students was taken over by faculty of the respective OT and PT Departments and in 1998, a major revision in the medical curriculum was developed. Anatomy 204 (Anatomy for Paramedical Personnel) has been a stand alone undergraduate course and is currently a major teaching responsibility under the direction of **Dr. Jon A. Jackson**.

##### **A. Patient Centered Learning Medical Curriculum**

The medical curriculum underwent a significant revision and a Patient Centered Learning (PCL) Curriculum was implemented in the academic year of 1998. Many anatomy faculty members were involved in the planning and development process (1995–1998) underlying the revision. For a detailed explanation refer to the Office of Medical Education listed in the School of Medicine and Health Sciences Web-page (<http://www.med.und.nodak.edu>). Briefly, the PCL Curriculum is unique in that it is an integrated curriculum so that didactic material is presented over the four 10-week Blocks in the first and second years. The Department of Anatomy and Cell Biology contributes substantially to all four Blocks of the first year medical curriculum. Lectures are presented in the general areas of gross human anatomy, histology, cell biology, developmental anatomy and neuroscience. In addition, the department is responsible for developing and implementing laboratory experiences for medical students in these areas. To accomplish the department's role in the PCL Curriculum, a number of up-to-date facilities are available through the School of Medicine and Health Sciences. Three amphitheaters with digital video capabilities (video projectors, internet access, cable, digital video camera, DVD, etc.) are available to all of the departments. Modern teaching laboratories, also equipped for digital image projections, are available on the basement floor.

##### **B. Graduate Education**

The implementation of the PCL-Curriculum had a major impact upon the graduate education program. Because of the integrated design of the medical curriculum the opportunity to teach major graduate courses in gross anatomy, microscopic anatomy and neuroanatomy simultaneously with the medical students disappeared. As a consequence the graduate curriculum was restructured starting in 1998. The reorganization is described following a brief history of the traditional program that existed from 1981–1998.



## 1. Brief History

The departmental graduate program has been very active over the past twenty five years, producing 27 Ph.D. degrees, 24 M.S. degrees, and one M.D./Ph.D. degree. Four students earned both an M.S. and Ph.D. within the departmental graduate program. Five Ph.D. students entered Medical School after their doctorate, while 12 M.S. students entered Medical School. Seven students entered post-doctoral programs while seven Ph.D. students and one M.S. student accepted academic teaching positions, and two students (1 M.S., 1 Ph.D.) took positions in industry. Three additional students entered other training programs (PT; Ph.D.) outside of the Department of Anatomy and Cell Biology. Currently (academic year 2007–2008) there are 13 graduate students matriculated in the graduate program including 7 doctoral candidates. For a complete list of all graduate students and their advisors see **Table III**.

Graduate education is a dynamic activity and must evolve to keep abreast of demands. The Graduate Faculty (10 members) in the department has held an Annual Graduate Program Retreat over the last 12 years in which the program is critically evaluated and changes are implemented in response to major changes in the Medical Curriculum and the development of the interdepartmental graduate studies in the biomedical sciences (BIMD program).

## 2. Current Degree Programs

Students accepted to either of the graduate programs in Anatomy and Cell Biology (M.S. or Ph.D.) receive formal education and training to prepare them for careers in academic teaching and research, or alternatively, for careers in a variety of scientific settings such as biotechnology industries, biomedical research institutes, etc. Basic graduate courses are offered in Gross Anatomy, Histology, Developmental Biology and Human Embryology, and Neuroscience. In addition, anatomy and cell biology faculty members participate in the teaching of basic interdepartmental graduate courses for all departmental graduate students. These include Cellular and Molecular Foundations of Biomedical Science (BIMD 500), Basic Biomedical Statistics (BIMD 510), Seminars in Biomedical Science (BIMD 513), Steps to Success in Graduate School (BIMD 515) and Responsible Conduct in Research (BIMD 516). The graduate program in the department centers around the research areas of developmental cell biology, cell and molecular biology of intercellular junctions, cell biology of the extracellular matrix in visual systems and in diabetes, wound healing, neurodegenerative disorders, and developmental neurobiology.

Upon successful completion of a student's graduate program the M.S. or Ph.D. degree in Anatomy and Cell Biology is conferred. Programs of Study for students are based on the individual's scientific interests and career goals within the framework of required courses and activities. The requirements for both M.S. and Ph.D. degrees include coursework, and original independent research in the basic biomedical sciences of structural biology, cell biology, developmental biology, and/or neurobiology.

### 3. Current Degree Requirements

The training of professionals in the health sciences occurs in stages. Graduate students enroll in graduate level courses, conduct original research under the guidance of a graduate faculty member, develop a scientific expertise based on experimentation and study, and, for the doctoral degree, assist in the instruction of students. Following is an outline of the requirements for a degree earned at the M.S. level and at the Ph.D. level.

#### **M.S. Degree Requirements**

- Minimum of 35 semester hours of graduate credit (can be completed in four full semesters and one summer session).
- Completion of the following core graduate level courses:

##### **Coursework:**

- Cellular and Molecular Foundations of Biomedical Science (BIMD 500, 6 credits)
- Basic Biomedical Statistics (BIMD 510, 2 credits)
- Seminars in Biomedical Science (BIMD 513, 1 credit)
- Steps to Success in Graduate School (BIMD 515, 1 credit)
- Responsible Conduct of Research (BIMD 516, 1 credit)
- Seminar in Anatomy and Cell Biology (ANAT 505, 1 credit), one semester for each year in the program, excluding year one)
- Histology (ANAT 515, 3 credits)
- Principles of Developmental Biology and Human Embryology (ANAT 518, 6 credits)
- Research (ANAT 593) and ANAT 998 (Thesis)

Other graduate courses may be taken as electives if they are part of an approved program of study.

- A thesis written on an independent research problem.

##### **Research:**

Original, experimental research should constitute a substantial portion of a student's effort towards earning the Masters of Science degree, culminating in the preparation and successful defense of a thesis based on the laboratory investigation and acquired knowledge of the specific field.

## Ph.D. Degree Requirements

- A minimum of 90 semester hours of graduate credit (can be completed in eight full semesters and four summer sessions).
- Completion of the following core graduate level courses:

### **Coursework:**

- Cellular and Molecular Foundations of Biomedical Science (BIMD 500, 6 credits)
- Basic Biomedical Statistics (BIMD 510, 2 credits)
- Seminars in Biomedical Science (BIMD 513, 1 credit)
- Steps to Success in Graduate School (BIMD 515, 1 credit)
- Responsible Conduct of Research (BIMD 516, 1 credit)
- Histology (ANAT 515, 3 credits)
- Principles of Developmental Biology and Human Embryology (ANAT 518, 6 credits)
- Seminar in Anatomy and Cell Biology (ANAT 505, 1 credit), one semester for each year in the program, excluding year one.
- Gross Anatomy (ANAT 513, 6 credits) **or** Neuroscience (ANAT 522, 6 credits)
- A scholarly tool, e.g. Computer Science 101/101L, Anatomy 591, or other **formal** training experiences.

Other graduate courses may be taken as electives if they are part of an approved program of study.

### **Teaching:**

- Students obtain experiences in teaching as a teaching assistant in one (or more) of the following:
  - Human Gross Anatomy
  - Histology
  - Neuroscience
- A dissertation written on an independent research problem.

**Research:** By far the most intense activity in the Ph.D. program, research to be carried out by the student will form the focus of his or her expertise in a subfield of cell biology, neuroscience, and/or anatomy/structural biology. The goal is to obtain original results and insights that are published in scientific journals. All aspects of the research will be presented in written form to the faculty advisory committee and defended in the final oral examination.

## 4. Summary of Graduate Education

The graduate program in the Department of Anatomy and Cell Biology is described in a self study evaluation and review entitled "Evaluation and Review of the Graduate Program in the Department of Anatomy and Cell Biology" compiled by

**Dr. Kenneth G. Ruit**, Associate Professor, Vice Chairman of the Department, and Director of Graduate Education. The document addresses seven major points: (I) Program mission, goals and objectives, (II) Faculty, (III) Students, (IV) Curriculum, (V) Assessment data, (VI) Resources, (VII) Anticipated changes. This document was submitted on May 31, 2007 to Wayne E. Swisher, Ph.D., Associate Dean, Graduate School, University of North Dakota, who serves as the chair of the Graduate Program Evaluation Committee.

**Table III: Departmental Graduate Students, Degrees Earned, and Faculty Advisor**

Student	Degree	Date	Faculty Advisor
Timothy J. McDonnell	M.S.	8/1980	John O. Oberpriller
Timothy J. McDonnell	Ph.D.	8/1982	John O. Oberpriller
Robert S. McGee	M.S.	6/1983	Madhusudan S. Joshi
Allan R. Sinning	M.S.	8/1983	Mark D. Olson
LaVaun M. McCann	M.S.	12/1983	Bruce C. Albright
Allan R. Sinning	Ph.D.	8/1985	Mark D. Olson
Jon A. Jackson	M.S.	6/1986	Mark D. Olson
Gro Thorne-Tjomslund	Ph.D.	12/1986	Madhusudan S. Joshi
Mildred Voss	M.S.	7/1987	Edward C. Carlson
Walter J. Berger	Ph.D.	5/1988	Edward C. Carlson
Jeffery A. Block	M.S.	5/1988	Edward C. Carlson
John M. Tate	Ph.D.	5/1988	John O. Oberpriller
Allan D. Forsman	M.S.	12/1988	Madhusudan S. Joshi
Ronald K. Jyring	Ph.D.	12/1988	Edward C. Carlson
Jody A. Rada	Ph.D.	8/1989	Edward C. Carlson
Maria K. Statton	Ph.D.	12/1989	John T. McCormack
Jon A. Jackson	Ph.D.	5/1990	Edward C. Carlson
XanQin Lou	M.S.	8/1991	Edward C. Carlson
Allan D. Forsman	Ph.D.	12/1991	John T. McCormack
Mark H. Soonpaa	Ph.D.	12/1991	John O. Oberpriller
M. Susan Marion	Ph.D.	12/1992	Edward C. Carlson
Matthew G. Friederichs	M.S.	12/1994	John T. McCormack
Donald G. Matz	Ph.D.	12/1994	John O. Oberpriller
Ann M. Valder	Ph.D.	3/1995	Mark D. Olson
Mark W. Rodacker	Ph.D.	5/1995	John T. McCormack
Naomi A. Bakken	M.S.	12/1995	Curtiss D. Hunt
David H. Hyjek	M.S.	8/1997	Mark D. Olson
Dawn K. Mersch	M.S.	8/1997	Jean C. Oberpriller
Mike E. Bennett	M.S.	12/1997	Kenneth G. Ruit
Yuri F. McKee	M.S.	12/1997	Kenneth G. Ruit
Julie C. Rutherford	Ph.D.	7/1998	Edward C. Carlson
Lara A. Streng	M.S.	7/1998	Edward C. Carlson
Craig D. Cameron	Ph.D.	8/1998	Kenneth G. Ruit
Wendy C. Perryman	Ph.D.	8/1998	Kenneth G. Ruit
Susan H. N. Jenó	Ph.D.	5/1999	Jody A. Rada
Kamilla L. Reed	M.S.	5/1999	Mark D. Olson

Student	Degree	Date	Faculty Advisor
Yuan Huang	M.S.	12/1999	Jody A. Rada
Michelle L. Slover	Ph.D.	8/2000	Edward C. Carlson
Sally A. Aadland	M.S.	8/2001	Michael M. Atkinson
Nancy L. Traiser	Ph.D.	8/2001	Michael M. Atkinson
Jared M. Bratvold	M.S.	12/2001	Edward C. Carlson
Meifang Liu	M.S.	12/2001	Byron D. Grove
Bobbie A. Austin	Ph.D.	8/2002	Jody A. Rada
Aaron L. Luebke	M.S.	5/2003	Jody A. Rada
Rhonda R. Schafer	Ph.D.	5/2003	Jody A. Rada
Sandra M. Siegel	Ph.D.	8/2003	Patrick A. Carr
Crystal Hayes	M.S.	7/2004	Michael M. Atkinson
Katerine Vanasek	M.S.	7/2004	Jane R. Dunlevy
Xiaohong (Peter) Yan	Ph.D.	12/2004	Byron D. Grove
Richard A. Zaruba	Ph.D.	5/2005	Patrick A. Carr
Mandy M. Meyer	Ph.D.	8/2006	Edward C. Carlson
Christopher Knudson	Ph.D.	12/2007	Patrick A. Carr

### C. Undergraduate Education

Our primary undergraduate anatomy course (Anatomy for Paramedical Personnel, ANAT 204) and its associated laboratory course (ANAT 204L) is taught by **Dr. Jon A. Jackson**. The lecture course is a prerequisite or co-requisite for 204L. Both ANAT 204 and 204L are prerequisites for programs in Occupational Therapy, Nursing, Physical Education/Exercise Science, and Music Therapy, while only the lecture course is a prerequisite for programs in Physical Therapy, Clinical Lab Science, Forensic Anthropology, Psychology and Mechanical Engineering. Anatomy 204 and 204L are offered in both the fall and spring semesters. Over the past several years the lecture course has averaged about 300 students in the fall and about 360 students in the spring, while ANAT 204L has about 210 students in the fall and about 300 in the spring. Five sections of ANAT 204L are offered in the fall semester and six in the spring. The laboratories are managed and taught by Anatomy and Cell Biology graduate students who are supported by graduate teaching assistantships. The teaching assistants meet bi-weekly with Dr. Jackson for guidance and to assure quality control. Dr. Jackson and selected Anatomy and Cell Biology faculty members provide nearly 60 lectures in two lecture sections of ANAT 204. For the past 10 years the ANAT 204 and 204L courses have been highly oversubscribed and their high demand has resulted in nearly 1200 students matriculating in these courses annually.

## V. SPECIAL (HISTORICAL) EVENTS THAT IMPACTED THE DEPARTMENT

**A. COBRE: A five year Center of Biomedical Research Excellence (COBRE)** grant entitled *Pathophysiology of Neurodegenerative Disease* was funded starting September 15, 2002. This was one of the largest grants ever awarded to the School of Medicine and Health Sciences. COBRE was designed by the National

Institutes of Health to cultivate research expertise among junior faculty and strengthen the research infrastructure of states that do not receive as much NIH funding as some larger states. The University of North Dakota School of Medicine and Health Sciences received a \$10.4 million award from the National Institutes of Health (NIH) to establish this nationally recognized center of biomedical research excellence. The principal investigator was **Dr. Jody A. Rada**, Associate Professor in the Department of Anatomy and Cell Biology. In addition to Dr. Rada's administrative responsibilities to COBRE (administrative core), **Dr. Patrick A. Carr** held one of the five projects supported by the COBRE grant. When Dr. Rada resigned from the department in 2003, Dr. Jonathan Geiger (Professor and Chair, Department of Pharmacology, Physiology and Therapeutics) became the PI with administrative core responsibilities to COBRE. In addition, the five-year COBRE grant provided funds to establish and support two technical core facilities, including the **Imaging** and **Mass Spectrometry Centers**. The Imaging Center impacted the Anatomy and Cell Biology Department directly because **Drs. Michael Atkinson and Bryon Grove** served as co-directors of the facility. COBRE also provided funding to the Harley E. French Library of the Health Sciences for additional electronic library resources. This also directly impacted the department since the faculty utilizes the medical library as an information resource for both research and teaching needs.

Although the original COBRE grant (COBRE I) expired on June 30, 2007, its renewal (COBRE II; 5 years, \$10.4 million, Dr. Jonathan Geiger, PI) was initiated on August 8, 2007. COBRE II directly impacts the Anatomy and Cell Biology Department because it provides funding for the Departmental **Imaging Center**, including salary for a full time confocal technical assistant and a budget for operations. In addition, **Dr. John A. Watt**, Assistant Professor of Anatomy and Cell Biology, has a project funded by COBRE II.

**B. Flood of 1997:** On April 17, 1997, President Kendall Baker closed the University of North Dakota in preparation for the impending massive flood of the Red River in Grand Forks. Many buildings on the UND campus were water damaged or sustained damage as a consequence of flood related events. The basement of the School of Medicine and Health Sciences was filled with five feet of sewer backup. The flooded basement impacted the department because the electron microscopic suit (both transmission and scanning microscopes) was inundated and all of the teaching laboratories were damaged. There was an intense focus and effort to repair the damaged teaching laboratories. As a consequence, classes (the traditional medical curriculum, graduate and undergraduate) were able to begin on time in August of 1997.

**C. Anatomy Exchange Day:** This scientific and social event was initially organized between **Dr. Edward C. Carlson**, Chair Department of Anatomy and Cell Biology, UNDSOMHS and Dr. T. V. N. (Vid) Persaud, Chair Department of Cell Biology and Anatomy, School of Medicine, University of Manitoba, Winnipeg, Canada. The initial exchange day occurred on September 29, 1984 and was hosted by the UND Department of Anatomy and Cell Biology. We most recently held the 23<sup>rd</sup> Annual Exchange Day on Saturday September 8, 2007 hosted by the University of North

Dakota. The exchange day was not held in 1997 because of the flood, and in 2001 because of the World Trade Center Disaster. Although the Chair of Cell Biology and Anatomy at the University of Manitoba has changed three times, the format of the Exchange Day has remained stable, with only the addition of a poster session for presentation of scientific research. Originally the morning scientific session was formatted with a welcome followed by a keynote address (speaker from host institution) and then four platform scientific presentations by faculty and graduate students from both institutions. A poster session was recently (1998) inserted at the one hour break between the keynote address and the platform presentations. The poster session seems to be successful. Following the scientific presentations, a lunch is provided by the host institution. Saturday afternoon is a free period and the exchange day is concluded with an evening picnic, usually a barbeque dinner at the home of a faculty member of the host institution.

**D. Annual Departmental Fishing Trip:** At the end of May 1995, the department was invited by Dr. Donald Mersch to travel to his fishing camp on South Mosher Bay of Upper Manitou Lake in Western Ontario, Canada. A number of faculty members responded and spent three days of intense fishing in the shield lakes surrounding the fishing facilities. The successful fishing and the growing popularity of the annual fishing trip led to some changes in the fishing trip. Following the third year it became more feasible to convert the trip to a fly-in, where we utilized two charter services (initially Rusty Meyer's Charter and then Northern Wilderness Outfitters) out of Fort Francis, Ontario, to fly us into Mosher Bay, and recover us three days later and return to Fort Francis. The costs for the fishing trip were shared equally among the participants, usually a maximum of 11 individuals. The last fishing trip was at the end of May 2005, because Dr. Mersch sold his interest in the fishing camp to his partners. There were many very interesting and exciting experiences related to the fishing trip. For 11 outstanding years the annual fishing trip served as an enthusiastic and challenging event to close out the academic year.