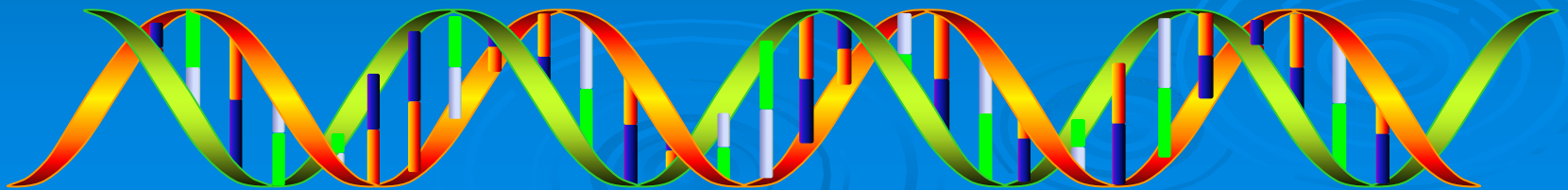
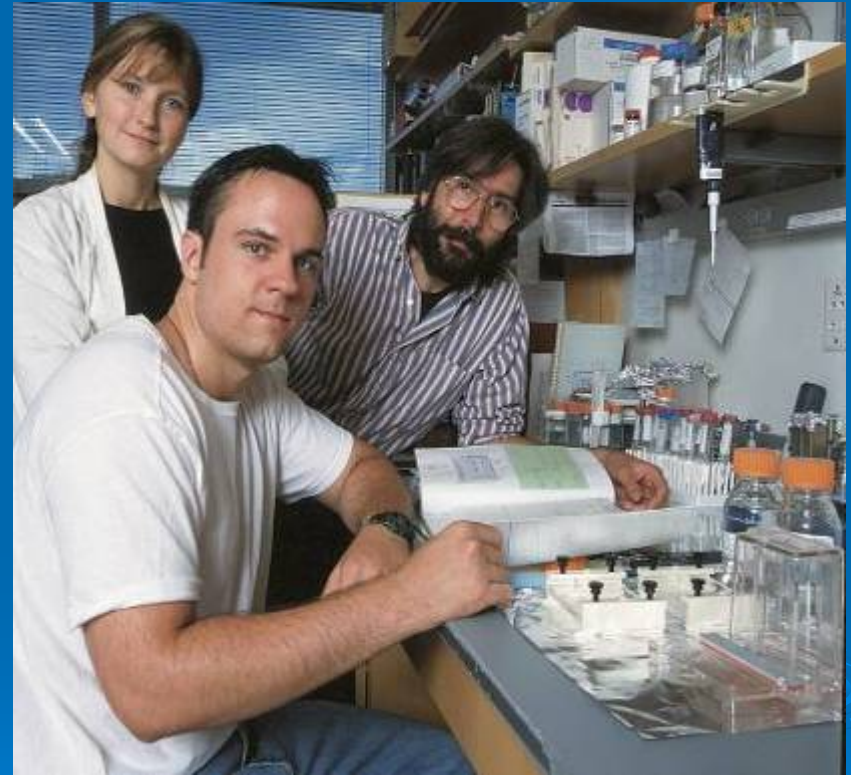


Majoring in the molecular life sciences at UNH

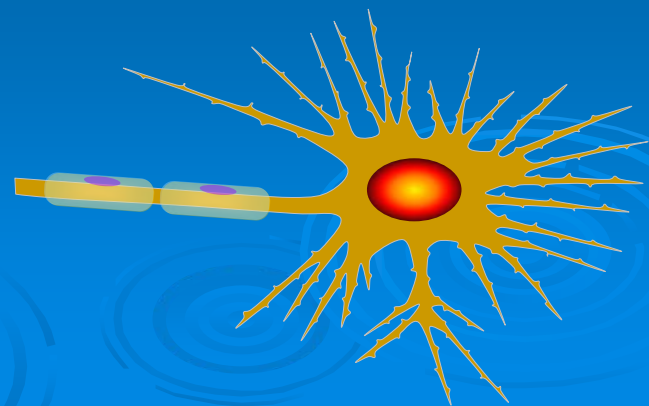


Rudman Hall



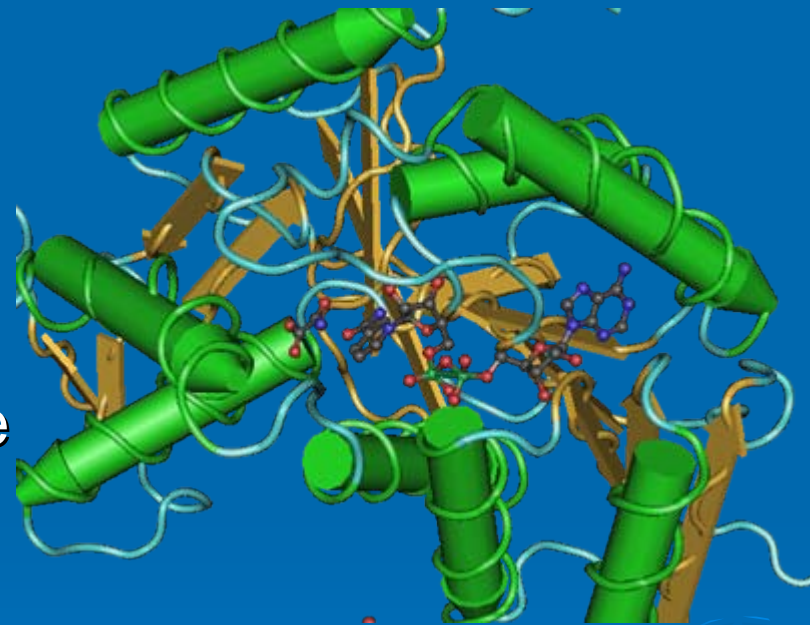
What are the molecular life science areas at UNH?

- Several UNH majors currently offered that focus on the molecular and cellular basis of life:
- Biochemistry
- Molecular, Cellular & Developmental (MCD) option within Biology Program
- Microbiology
- Bioscience and Technology option in Animal Science



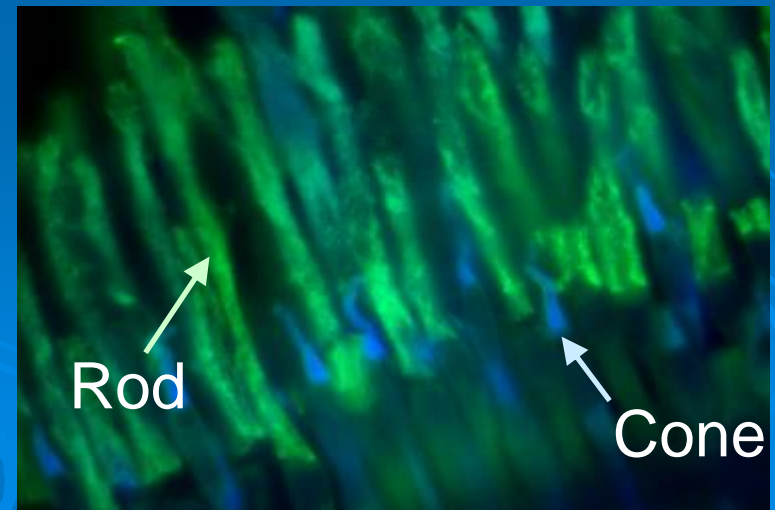
Some areas covered by Biochem/MCD

- Creating genetically engineered crops
- Perfecting forensic methods to identify criminals based on hair or blood
- Determining structure of enzymes and receptor proteins to develop drugs and vaccines
- Molecular evolution & origins of life
- Mass-producing life-saving chemicals
- Engineering bacteria to clean up environment by “eating” toxic chemicals
- Human genome project
- Biomedical research to cure cancer, inherited diseases, obesity, etc.



Career prospects

- Career prospects excellent for foreseeable future
- Current shortage of trained biochemists, and molecular & cellular biologists
- The greater your level of education, the greater your potential for rewarding work



Some possible career paths

Biochem/MCD Major
B.S. degree

Job Market

- Research technician
 - biotechnology
 - pharmaceutical
 - toxicology
 - forensics
 - clinical chemistry
- Sales
- Teaching

Professional School

- Medical school
- Dental school
- Veterinary school
- Law or Business

M.S. or
Ph.D. degrees

- M.S. degree
 - Greater autonomy
- Ph.D. degree
 - Lead R&D programs in industry
 - Professor

Biochemistry and MCD Biology Majors at UNH

- **B.S. in Biochemistry in 3 areas of concentration:**
 - Biochemistry
 - Molecular biology
 - Pre-medical
- **Five-year combined B.S.-M.S. Biochemistry program**
 - Accelerated training for research-based careers
- **B.S. in Molecular, Cellular and Developmental Biology option within Biology major**
- Biochemistry major: greater focus on chemistry, and a emphasis on genetic, molecular and cellular aspects of biology and biomedicine
- MCD Biology major: more emphasis on organismal biology and ecology
- Switching between majors not difficult in early years because core curriculum similar.

Courses for First-Year Students

Most Biochem majors take:

- General biology (BIOL 411-412)
- General chemistry (CHEM 403-404)
- Calculus (MATH 425-426)
 - Pre-calculus (MATH 418) sometimes needed first
 - *Option:* 1 semester calculus (MATH 424B) and one semester Biostatistics (BIOL 528) in 2nd year
- English or general education course

Most MCD/Biol. majors take:

- General biology (BIOL 411-412)
- General chemistry (CHEM 403-404)
- 1 semester calculus (MATH 424B)
 - Pre-calculus (MATH 418) sometimes needed first
- 1 general elective
- BIOL 400
- English or general education course

Commitment to undergraduate research in molecular and cellular biology

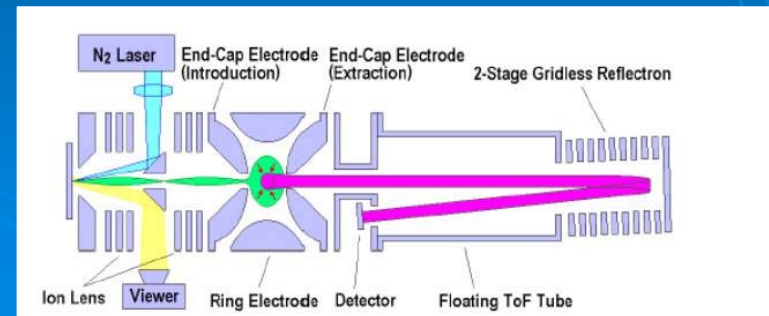
- **NSF or NIH funds many faculty research programs**
- **COLSA commitment to undergraduate research**
 - Senior thesis
 - Independent research projects
 - Student laboratory technicians
- **UNH commitment to research: Hamel Center for Undergraduate Research**
 - UROP grants during semester
 - Summer Undergraduate Research Fellowships at UNH or in U.S.
 - International Research Opportunities Program funds travel and research worldwide
- **Importance of undergraduate research**
 - Helps define career path.
 - Research training enhances job prospects as research technician.
 - Develop personal relationship with faculty research advisor.
 - Valuable for gaining entry to graduate school or professional school.
 - Contributes to scientific knowledge.

Research areas in the molecular life sciences

- Molecular basis of obesity
- Reproductive endocrinology
- Bioinformatics
- Gene regulation & DNA repair mechanisms
- Molecular genetics and evolution
- Glycoprotein structure and function
- Microbe-host interactions
- Molecular pharmacology
- Environmental genomics
- Biological instrumentation
- Cancer and oncogenes

Affiliated Bioscience Centers at UNH

- Hubbard Center for Genome Studies
 - Kelly Thomas, Director
- Center to Advance Molecular Interaction Studies
 - Tom Laue, Director
- Biomolecular Interaction Technology Center
 - Tom Laue, Director
- Center for Structural Biology
 - Vern Reinhold, Director



For more information...

- American Society for Biochemistry and Molecular Biology
- www.asbmb.org

- American Society for Cell Biology
- www.asbmb.org



**THE AMERICAN SOCIETY
FOR CELL BIOLOGY**

UNH department contacts...

Biochemistry major or MCD option in Biology:

- Professor Rick Cote
 - 306 Rudman Hall
 - 862-2458
 - rick.cote@unh.edu
- COLSA Advising Center
 - G07 Rudman
 - 862-1450