

**Amy L. Albrecht**  
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## EDUCATION

University of North Dakota, Grand Forks, North Dakota

- **PhD. Biochemistry & Molecular Biology** August 2009
- Advisor: Scott H. Garrett, PhD

University of Minnesota, Morris, Morris, Minnesota

- **BA Major: Chemistry Minor: Physics** June 1998

## TEACHING EXPERIENCES

Charleston Southern University Physical Science Department, Charleston, SC

**Professor**, August 2018-present

- Courses taught: Biochemistry I & II (lecture and laboratory), Introductory Biochemistry (lecture and laboratory), Elementary Organic and Biochemistry (lecture and laboratory), Concepts of Chemistry (lecture and laboratory), General Education Freshman Seminar, Chemical Research,

**Associate Professor**, August 2014-July 2018, tenured August 2016

- Courses taught: Biochemistry I&II, Biochemistry Lab I & II, Elementary organic and biochemistry lecture and laboratory; Concepts of Chemistry Lecture and Laboratory; General Education Freshman Seminar; Chemistry Research, College Chemistry I Laboratory
- Faculty mentor for new faculty, Academic year 2014-2015 and 2016-2017

**Assistant Professor**, August 2009-July 2014

- Courses taught: Biochemistry I & II, Biochemistry Lab I & II, Elementary Organic and Biochemistry, Elementary Organic and Biochemistry Lab, Concepts of Chemistry, Concepts of Chemistry Lab, Freshman Seminar, Chemistry Research

CLS 340/340L Molecular Diagnostics, UND Dept of Pathology, Grand Forks, ND

**Graduate Research/Teaching Assistant**, Spring 2005-2009

- Plan, prepare and teach lecture and labs to undergraduate students
- Plan course materials and syllabus
- Prepare electronic lectures for distance education students
- Focuses on molecular techniques and their uses in research and clinical laboratories
- Lectures on RNA/DNA and proteins; focusing on their properties and how to manipulate them in the laboratory
- Use following techniques: RNA/DNA extraction and quantification, PCR, real-time PCR, bacterial transformations, plasmid preps, protein isolation and quantification, western blot, SDS Page, electrophoresis, bioinformatics, polymorphisms and how to identify with genomic DNA.

STEER, UND Dept of Pathology, Grand Forks, ND

**Graduate Research Assistant** Summer 2008

- Trained undergraduate students in laboratory techniques: Cell culture, RNA isolation, Protein Extraction, Quantification of RNA and protein, real time PCR, Western Blot, Immuno Blotting
- Planned, prepared and taught lectures covering the techniques and the background to the compounds studied during the summer

CLS 519, UND Dept of Pathology, Grand Forks, North Dakota

**Graduate Teaching Assistant** September 18-22, 2006

- Taught Molecular Diagnostics Week to CLS Graduate Students
- Prepared and presented lectures and laboratory materials
- Taught the following techniques: RNA isolation, RNA quantization, one-step Real Time PCR, Data calculations and interpretation, Protein isolation, protein quantization, SDS Page, Western Blot, Genomic DNA isolation, Comparison of genomic DNA for differences between individuals.

LaMoure Public School, LaMoure, North Dakota

**Science Teacher Junior-Senior High School**, 1999-2000

- Taught: Earth Science, Life Science, Biology, and Chemistry
- Planned, prepared and assessed all lessons and courses
- Prepared the laboratory materials and lessons
- Prepared all exams for the students

**LAB TECHNIQUES AND EQUIPMENT**

- **Molecular Biology:** Isolation and quantification of Nucleic acids, PCR, real-time PCR, PCR primer design, Bacteria isolation and growth, Plasmid isolation, Restriction analysis of plasmid DNA, Cloning, Transformation of bacteria, Agarose gel electrophoresis, Cloning
- **Mammalian Cell Culture:** Routine culture of mammalian cell lines, Mammalian cell culture techniques, Soft agar assay, MTT proliferation assay, Transient and stable transfection of cultured mammalian cell lines, Viral transfections and transductions of cultured mammalian cell lines
- **Protein extraction and manipulation:** Protein isolation and quantification, SDS-PAGE, Western Blots, Immuno-Dot Blot, Electro-mobility shift assays
- **Equipment:** UV-spectrophotometer, Brightfield and Fluorescent Microscopes, PCR, Electrophoresis, Centrifuge

**GRANTS AWARDED:**

2017 SCICU Student/Faculty Research Program

Project Title: Hydrogel Delivery of Essential Oil to Breast Cancer Cells

2015 SCICU Student/Faculty Research Program

Project Title: The Effects of Essential Oil on the Growth and Gene Expression of Breast Cancer Cells.

## **WORK EXPERIENCES**

North Dakota Department of Health, Bismarck, North Dakota

**Chemist** October 2000 – August 2004

- Worked in the organic laboratory of the environmental chemistry laboratory
- Performed extraction, identification, and quantification of herbicides in drinking and ground water
- Developed new methods to extract and quantify organics (herbicides and pesticides) from soils and fish tissue and other matrix as needed
- Supervised summer/temporary employees in lab techniques
- Utilized: Gas Chromatography (GC), GC/MS, Liquid/Liquid phase separation, Liquid/solid separation, gel chromatography, data management software

## **SOCIETY MEMBERSHIP**

South Carolina Women in Higher Education

Executive Board Member Aug 2019-present

Intuitional Representative 2016-2019

American Chemical Society, CSU Student Chapter

Faulty Advisor, 2010-present

Pre-med Club, CSU Chapter

Faculty Advisor, 2013-present

Society of Toxicology

**Member** September 2006-2009

Society of Toxicology, Metals Specialty Section

**Member** 2006-2009

**Graduate Student Representative** 2008- 2009

- Metals Specialty Section Executive Board 2008-2009
- Specialty Sections Graduate Committee 2008-2009

North Dakota Academy of Science

**Member** 2007-2009

## **COMMUNITY ACTIVITES**

Old Fort Baptist Church, Summerville, South Carolina

Sunday School teacher, 2009-2010

AWANA Leader, 2009-2016

Nursery Volunteer, 2009-2010

Infant/Babies Coordinator, 2010-present

Sunday School Substitute teacher, 2010-present

Low Country Metal Detector Club, Summerville, South Carolina

Member 2009-2017

- The club discovers history through metal detecting
- The club also offers a free service to anyone in the community needing to locate metal objects. The members have recovered car keys, wedding rings, class rings, and property stakes for members of the community.

Undergraduate Research in the Molecular Sciences, Minnesota State University  
Moorhead, Moorhead Minnesota

**Judge 2008**

- Judged the undergraduate poster sessions at the conference

NE Regional Science and Engineering Fair, Grand Forks, North Dakota

**Judge 2006-2008**

- Judged science projects and presentations of middle school and high school students.

University Apartment Advisory Council

**Area Representative 2005-2006**

- Chair of Community Pride: Summer 2006

**BOARD MEMBERSHIPS**

Faculty Appeals Committee, CSU, Charleston, South Carolina

Faculty Member 2016-present

- Committee hears appeals of a tenured faculty member who is terminated or given notice of non-renewal under the terms of his or her contract, or of a non-tenured faculty member who is terminated for violation of the terms and conditions of his or her contract before the end of the contract.

Curriculum Committee, CSU, Charleston, South Carolina

Faculty Member 2015-present

- Committee is responsible for approving all undergraduate academic programs and courses of study

Christian Leadership Council, CSU, Charleston, South Carolina

Faculty Member 2012-2014

- Committee is tasked to help educate the CSU faculty, students and staff the importance of a Christian Worldview.
- Committee also helps provide support to the faculty with Faith integration in courses taught at Charleston Southern University.
- Helped to prepare the Faith Institute three year plan for the Whitfield Center for Christian Leadership.

General Education Committee, CSU, Charleston, South Carolina

Faculty Member 2013-2015

Recording Secretary, 2013-2014

- Committee is tasked oversee the Liberal Arts Core education classes.
- Committee is also tasked to oversee and coordinate the Christian Worldview Freshman seminar course.

Publications Committee, CSU, Charleston, South Carolina

Faculty member 2009-2011

Recording Secretary 2010-2011

- Committee is tasked to help encourage faculty and staff publications
- Helped to organize the CSU Spring Symposium 2010 & 2011

Graduate Curriculum Committee, SMHS, UND, Grand Forks, North Dakota

**Graduate Student Representative 2007-2008**

- Represented graduate students on the committee that reviews the curriculum for the BIMD classes
- Provided input from the students as to how to improve classes
- Organized monthly Science Gatherings of the graduate students
- Provided an opportunity for the students to network and share ideas at gatherings
- Prepared the schedule of events and food preparations

**ORAL PRESENTATIONS**

CSU Faith Science Dialogue Group

- March 27, 2015: History and Worldview.
- October 25, 2013: Abortion, In-vitro Fertilization, and Stem Cell Research.
- April 19, 2013: Scientific Support for a Young Earth.

CSU Spring Symposium

- March 18 2010: Albrecht AL. Basal and Metal Induced Expression of Metallothionein in RWPE-1.

North Dakota Academy of Science

April 24, 2008: Albrecht AL, Somji S, Sens MA, Sens DA, Garrett SH. Zinc Transporter mRNA Expression in the RWPE-1 Human Prostate Epithelial Cell Line.

**ABSTRACTS/POSTERS/SPONSORED STUDENT ORAL PRESENTATIONS**

CSU Spring Symposium

- April 2019: Le J, Albrecht AL. Aged Black Garlic and Its Effects on Cancer and Normal Cells
- April 2019: Meilinger K, Salvador C, Christopher B, Albrecht AL. Effects of Sulforaphane on Normal and Cancerous Breast Tissue
- April 2018: Salvador C, Betcher M, Albrecht AL. The Effects of Kalmia latifolia Petroleum Ether Extract on Cancerous and Non-cancerous Human Mammary Gland Tissue
- April 2017: Betcher M. The Delivery of Frankincense Oil via In situ-forming Hydrogel and its Effects on Breast Cancer Cells
- April 2017: Crane JN, Gable HE, Salvador C, Albrecht AL. Frankincense Induced Cell Death of Breast Cancer
- April 2016: Bonilla I. The Effects of Essential Oil Frankincense on Human Breast Cancer Cells
- April 2016: Gable HE, Crane JN, Albrecht AL. Effects of Tea Tree (Melaleuca alternifolia) Essential Oil on Breast Tissue Cell Lines
- March, 2015: Anderson KG, Bonilla IV, Albrecht AL. Effects of Frankincense Oil on Breast Cancer Cells

- March 2014: Broome K, Hood A, Albrecht AL. Using Real-time PCR to measure Zinc Transporter Levels in Cancer Cells.

## **PUBLICATIONS**

Albrecht AL, Singh RK, Somji S, Sens MA, Sens DA, Garrett SH. 2008. Basal and metal-induced expression of metallothionein isoform 1 and 2 genes in the RWPE-1 human prostate epithelial cell line *Journal of Applied Toxicology* **28**:283-293.

Albrecht AL, Somji S, Sens MA, Sens DA, Garrett SH. 2008. Zinc transporter mRNA expression in the RWPE-1 human prostate epithelial cell line. *Biometals* **21**:405-416.

Singh RK, Albrecht AL, Somji S, Sens MA, Sens DA, Garrett GH. 2008. Alterations in metal toxicity and metal-induced metallothionein gene expression elicited by growth medium calcium concentration. *Cell Bio Toxicology* **24**:273-281.

Wang R, Sens DA, Albrecht AL, Garrett S, Somji S, Sens MA, Lu X. 2007. Simple method for identification of metallothionein isoforms in cultured human prostate cells by MALDI-TOF/TOF mass spectrometry. *Analytical Chemistry* **79**(12):4433-41.