



# The Minnesota Chemist

Official Publication of the Minnesota Section of the American Chemical Society

Issue 1, Jan - Feb 2015



## 2015 MN ACS Officer Election Results

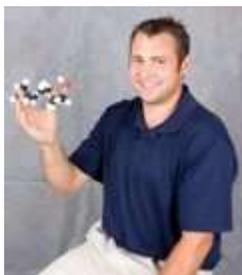
Chair Elect: Russell Pylkki

Treasurer: Patti Sanft

Councilors: Sarah Mullins & Wayne Wolsey

Alternate Councilors: Becky Guza & Rita Majerle

Nomination Committee: Phil Buhlmann (U of M), Adam Miller (industry), Ron Fedie (small college)



## Greetings from the Chair

Hello section members. As the holiday season has past we can look ahead to another year full of chemistry events in the section. This year we hope to provide an appropriate mixture of academic, industrial, and social events to section members. This will include programs at local companies, universities, and breweries. If there are any companies in the section that would like to host an event or speaker please let me know and we can try and add you to the 2015 or 2016 schedule.

My goals as chair for this year are to

1. Engage chemists in industry by hosting two local section meetings at industrial locations and continue the growing annual MN-ACS chemistry career fair.
2. Attempt to build a sustainable Young Chemists Committee by creating a network of undergraduate, graduate, and early career chemists. Creating a vibrant YCC will build the section's membership base and provide leadership opportunities to the section's future leaders.
3. Support section volunteers through outreach activities upon their request.

We have a great slate of speakers this spring. On January 20th Biothera, a local biotechnology company that is looking to use immunotherapy to combat cancer, will host a meeting at their headquarters in Eagan. In February, the section is looking to start a new tradition of highlighting ACS fellows in the MN section. The ACS Fellows Program was created by the ACS Board of Directors in December 2008 to recognize members of ACS for outstanding achievements in and contributions to science, the profession, and the Society. This February 12th Mark Distefano (2014 ACS fellow) will be speaking about his research in the field of chemical biology. March 19th will be the annual Minnesota Technical Symposium (MinnTS) at Medtronic. In light of the recent Ebola outbreak this year's topic will be on epidemiology in the state of Minnesota. In late April, Tracy Hamilton (University of Alabama Birmingham) will give a seminar on the chemistry of brewing. This can't miss event will be held at a local brewery. May will be the annual awards banquet and June will be another social event at either a winery or brewery.

I am looking forward to a fun and productive slate of events. Thank you to all of our speakers and the sections many volunteers. I cannot believe I get to work with so many wonderful people this upcoming year. One thing is for sure it is good to be a chemist in the state of Minnesota.

Dr. James Wollack  
Assistant Professor of Chemistry  
St. Catherine University  
2014 MN-ACS Chair



## January 20 - Biothera

### A Cancer-Fighting Carbohydrate

Myra L. Patchen, Ph.D., Chief Science Officer

Michael E. Danielson, Ph.D., Senior Director of Chemistry Research

Biothera is a biotechnology company dedicated to improving immune health. The company is a pioneer in the field of cancer immunotherapy and the leader in harnessing the innate immune system in fighting cancer.



The company's lead drug, Imprime PGG, is a biologic immunotherapy that enables neutrophils and monocytes/macrophages (innate immune cells) to exert anti-tumor activity. This is distinct from most other cancer immunotherapies that target cells of the adaptive immune system, e.g., T-cells. Additionally, compared to most biologic immunotherapeutics which are proteins, Imprime PGG is a complex carbohydrate.

This presentation will highlight the chemistry and manufacturing of Imprime PGG, provide an overview of its unique mechanism of action, and summarize results of clinical trials investigating Imprime PGG in various oncology indications.

#### Agenda

5 – 6 pm – Executive Committee Meeting

6 – 7 pm – Buffet Dinner

7 – 8 pm – Presentation

**Dinner - Dickey's Barbeque Pit**

Pulled pork and beef briquette with salad, macaroni and baked potato casserole.

\*A vegetarian entrée (giant baked potato with cheese and sour cream) will also be available upon preregistration and request on paypal notes.

Soda & water

**Cost (for meal; attendance at exec meeting and talk are free)**

\$13 online or \$15 at the door; students \$5

**Address**

Biothera  
3388 Mike Collins Drive  
Eagan, MN 55121

**RSVP by January 16, 2015 on the MN ACS website: [www.mnacs.org](http://www.mnacs.org)**



**February 12 - University of Minnesota**

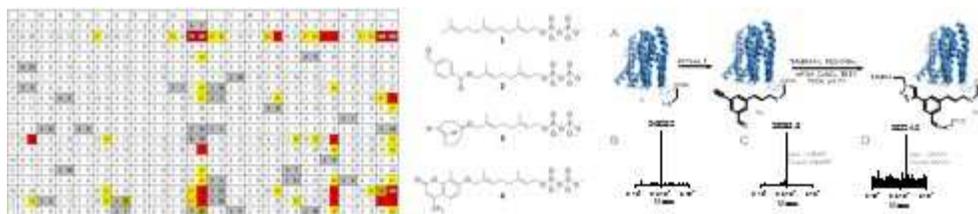
**Protein Lipid-Modification: From Chemical Biology to Protein-Based Nanoscale Materials**

Dr. Mark Distefano

Protein lipid-modification involves the attachment of hydrophobic groups to polypeptides within cells after they are synthesized by ribosomes. The purpose of these modifications is to target particular proteins to the cell membrane where they can relay chemical messages from the exterior to the cellular interior. Protein prenylation is one example of lipid modification and consists of the addition of either C15 or C20 isoprenoid groups to a variety of proteins. Prenylated proteins play key roles in regulating processes within cells including cell division, shape and differentiation. Of particular note is the observation that protein prenylation is required for the transforming activity of mutant Ras oncoproteins; inhibition of the enzyme farnesyltransferase (which catalyzes protein prenylation) arrests the growth of transformed cells in a variety of models. A number of inhibitors of this enzyme and others in the protein prenylation pathway are currently in clinical trials for cancer therapy and other diseases.

A central question in the field of protein prenylation is how prenyltransferases (the enzymes that catalyze the lipid modification) recognize and target specific proteins for modification. From a biological perspective, understanding this process could facilitate the design of new therapeutic agents. From a biotechnology viewpoint, understanding and manipulating prenyltransferase specificity could allow these catalysts to be used to prepare a new generation of chemically modified proteins for a variety of applications.

In this presentation, three types of experiments will be reported. First, studies of the specificity of prenyltransferases using a combination of peptide libraries and synthetic isoprenoid analogues will be described. Next, experiments designed to manipulate the specificity of prenyltransferases using recombinant DNA techniques will be summarized. Finally, several examples of how prenylation using synthetic substrates is being used to prepare novel protein-based materials and nanoscale products for diagnostic and therapeutic applications.



**Left:** Heat map showing results of screening a 380 member peptide library for farnesyltransferase activity. **Center:** Engineering of enzyme active site allows incorporation of larger synthetic isoprenoid analogues. **Right:** Enzymatic labeling using farnesyltransferase facilitates the preparation of a therapeutic protein linked to a polymer and imaging agent.



## March 19 - Medtronic

### Minnesota Technical Symposium (MinnTS)

**Date:** March 19, 2015, 5:00 to 9:00 pm

**Location:** Medtronic Headquarters at 694 & Hwy 65 in Fridley, MN.

**Attendance:** All interested persons are welcome to attend. Because there are a limited number of seats, sponsoring organization members and guests of members will be given preference if registrations exceed available seating.

**Cost:** To be announced

**Reservations:** The reservation process will open approximately February 20. Reservation details will be added here at that time.

#### Speakers:

Dr. Richard Danila  
Epidemiology Program Manager and Deputy State Epidemiologist  
Division of Gastroenterology  
Minnesota Department of Health  
Abstract to follow

Second speaker to be announced.

**Schedule of events:** To be announced

**Dinner Menu:** To be announced

For up-to-date information see: <http://www.minnts.org/>



## 2015 Awards - CALL FOR NOMINATIONS

### The Lyle Hall Senior Chemist Award

The Lyle Hall Senior Chemist Award is based upon post-retirement professional activities of a

member of the Minnesota ACS Section who has entered into formal retirement from his/her primary job. Professional activities can include volunteer ACS service, volunteer activities in any other scientific organization such as the Minnesota Academy of Science (i.e. Science Fair Judging), professional writing, consulting, and/or research. Nominations (including no more than 2 seconding letters) should be submitted electronically to Ramesh C. Kumar ([rckumar0051@mmm.com](mailto:rckumar0051@mmm.com)). A CV is useful. The Awards Committee may also select an award recipient, based upon their collective knowledge of the activities of an individual. The deadline for completed nomination is February 16, 2015.

### **Brasted Award for Excellence in College Chemistry Teaching**

The Minnesota Section honors excellence through three awards given on a rotating basis - the Award for Excellence in High School Chemistry Teaching, the Minnesota Award for outstanding achievement in a chemistry career, and the Brasted Award. This year the section invites nominations for the Brasted Award for Excellence in College Chemistry Teaching. The deadline for the completed nomination packet is February 16, 2015.

The nominee must be actively engaged or retired from teaching chemistry at the college level. The nomination packet should include a biographical sketch, a list of publications, and a statement and evaluation of the nominee's achievement. Significant attributes can include quality of the candidate's teaching effectiveness and his/her ability to challenge and inspire students.

Letters of support are encouraged and may come from the department chair, associates, current or former students, and colleagues.

The Brasted Award consists of a plaque and a cash award of \$500; it will tentatively be presented at the May 2015 Section meeting. Past winners include Robert Brasted (U of MN, for whom the award was named after his death), Olaf Runquist (Hamline), John Holum (Augsburg), Emil Slowinski and A. Truman Schwartz (Macalester), Richard Borch, Claire Woodward, Gary Gray (U MN), Arne Lansjoen (Gustavus Adolphus), John P. Walters (St. Olaf), John Hill (U WI River Falls), Wayne Wolsey to name a few.

Please submit the nomination electronically to the chair of the Awards Committee, Ramesh C. Kumar ([rckumar0051@mmm.com](mailto:rckumar0051@mmm.com)).

### **Janet Tarino Volunteer Award**

The Janet Tarino Volunteer Award will be given to an individual for outstanding volunteer service to the MNACS, and/or Chemistry related projects and events not directly connected to MNACS. This person will have demonstrated an exceptional passion for and commitment to community outreach, and dedication to projecting a positive image of chemists.

Nominating documents should include curriculum vitae and examples of volunteer service. Nominator's name should be included. Nominations are due February 16, 2015.

Nominations should be submitted electronically to the chair of the Minnesota Section's Awards Committee, Ramesh Kumar ([rckumar0051@mmm.com](mailto:rckumar0051@mmm.com)).



## MN ACS Career Fair

On November 13th, 2014 the MN-ACS career fair was held at St. Catherine University in Saint Paul, MN. St. Kate's donated the space and the national office sent ACS career CDs and literature for all attendees. Over 125 job seekers attended the event. The attendees were from nineteen different colleges and universities across four different local sections. There were also attendees that were not affiliated with academic institutions. Eighteen different companies/placement agencies sent a combined forty representatives to the event. The companies met with job seekers from 4-6 pm. There were continuous lines at all of the company booths during this time. At 6 pm a free pizza dinner was served to all attendees and company representatives. At 6:30 pm a panel consisting of scientists from industry and placement agents answered questions until 7:30 pm. Over fifty people stayed for the panel and asked questions for an hour. The section would like to thank those companies that participated this year. If your company would like have a booth at next year's event email James Wollack at [jwollack@stkate.edu](mailto:jwollack@stkate.edu).



## Seniors' Lunch: Volunteer Opportunities

Lynn Hartshorn organized a Senior Chemists' Lunch on Tuesday November 18th at the Green Mill Restaurant on Grand Avenue in St Paul. This was the first meeting held in an attempt to revive the former Senior Chemists' Lunch Meetings, which have not been held now for several years. About 20 people attended. After lunch Lynn and Wayne Wolsey handed round copies of a summary of volunteer opportunities, including the Chemistry Olympiad, judging Science Fairs, Chemistry Coaches in schools, tutoring in schools, Kids and Chemistry, Chemistry in the library, etc. Several people present including Jerry Kersten, Wayne Wolsey, Barb Barany, and Sumitra and Sam Mitra briefly outlined activities that they have done, and there was a general discussion about volunteering.

Those present decided that they would like to continue these lunch meetings about every two months. Topics of discussion will vary but usually will be related to chemistry or to volunteer activities. The next meeting will take on Wednesday January 14th at the Green Mill restaurant on Grand Avenue. Please mark your calendars. George Barany volunteered to make and bring a chemistry crossword for attendees. Please join us! (The ACS definition of a senior chemist is

one who is 50 years old or older).

## St. Thomas Chemistry Adjunct Position

The University of St Thomas is looking for candidates to fill adjunct teaching positions in the Chemistry Department, beginning in February 2015. Details about the position can be found at: <https://facultyemployment-stthomas.icims.com/jobs/1494/adjunct-faculty%2c-chemistry/job>

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