
Minnesota Microscopy Society

Local affiliate of the *Microscopy Society of America*
and the *Microbeam Analysis Society*



Newsletter

May 2002

Minnesota Microscopy Society and Iowa Microscopy Society Joint Meeting

Friday, June 21, 2002

Tour of the Mayo Clinic & Technical Talks

The Minnesota Microscopy Society and the Iowa Microscopy Society will be having their first joint meeting in Rochester, Minnesota. The meeting will be held near the Mayo Clinic, a world class medical and research facility, which will provide us with an excellent opportunity for tours of the facilities. Our joint meeting will consist of both technical talks and tours of the medical/research facilities and microscopy labs.

Program:

- 1:00 - 3:00 PM Registration and poster set up
- 2:00 - 3:00 PM Tours of the Mayo Clinic and its Microscopy Labs
- 3:00 - 4:00 PM Poster viewing and social hour
- 4:00 - 5:00 PM Speaker: Randy Nessler, University of Iowa,
“Stem Cell Research and Genetic Therapy”
- 5:00 - 5:30 PM Break
- 5:30 - 7:00 PM Dinner: Italian Buffet
- 6:30 - 7:30 PM Speaker: Sara Miller, Duke University,
“Emerging Diseases and Microscopy”

This should be an excellent meeting. Dr. Miller's talk was a big hit at the M&M meeting in Long Beach last summer. For those interested, the MMS will be renting a bus to make the trip to and from the meeting. We will meet at the Mall of America for the ride to Rochester (see page 2 for more details).

The Minnesota Microscopy Society has received a grant of \$1,000 from the Microscopy Society of America to support this meeting, and MMS will be paying for the bus rental. Therefore, the cost of this meeting will be greatly reduced for members...a real deal!!!

Emerging Diseases and Microscopy

Sara Miller

Infectious diseases are the leading cause of death worldwide and the third leading cause in the US; many can be classified as emerging diseases. Some may be caused by truly novel pathogens, in other cases, the causative organisms have been present for many years, but have escaped detection until recently. Still others represent the re-emergence of known pathogenic organisms after a long period of quiescence.

The mention of emerging pathogens brings to mind sensational, exotic and feared microorganisms such as Ebola virus, human immunodeficiency virus (HIV), hantavirus, West Nile virus, Yersinia pestis (plague), and prion diseases such as bovine spongiform encephalitis (BSE, "mad cow" disease) which have been associated with variant Creutzfeldt-Jakob disease (CJD) in humans. However, other organisms that have been known for some time can be classified as emerging pathogens as they continually mutate, recombine, and adapt, like influenza virus, causing misery and death. A major category of emerging diseases is that of drug-resistant organisms.

Changes in technology permit organism spread by contaminated water and air conditioning systems, by surgical and diagnostic instruments, or by transplantation. Geographic spread of disease organisms through more widespread human travel, transport of vectors in shipping containers, and increased mobility of insects and animals accounts for some emerging diseases. Food-borne illnesses are a world wide problem. In addition to agents that actually invade and cause disease, numerous organisms cause tremendous morbidity and some mortality through toxin production. Increased awareness due to better detection and identification methods has brought these organisms to the forefront.

Microscopy techniques for detection of organisms are rapid and do not require specific probes. Electron microscopy is particularly useful for viral agents. It can visualize a wide variety of viruses at once, including non-cultivable and unexpected ones. It does not require antibodies or nucleic acid reagents for identification, and it is rapid; negative staining of fluid samples can be accomplished in a matter of minutes to a couple of hours. Thin sectioning of cells can be accomplished in one to two days. Finally, speed of microscopical methods and lack of requirements for probes are the reasons microscopy laboratories are being asked to participate in the surveillance for bioterrorism agents—horrible and feared examples of emerging diseases.

Biography

Univ Georgia BS (Microbiol/Chem) 1968. Univ Georgia PhD (Microbiol) 1972.

Director, EM Diagnostic Virology Lab; Director, Surgical Pathology EM Lab, Duke Hospital. Director, EM/IEM Cancer Ctr Shared Resource, Duke Univ Med Ctr. Assoc Res Prof, Microbiol 1983-; Assoc Clin Prof, Pathol 1994-.

Research interests: Rapid EM techniques for viral diagnosis, viral infections in immune suppressed and HIV-infected individuals; human T cell leukemia virus-infected patients and cell cultures, production and packaging of virus proteins in infected cells, protein trafficking in cells, emerging diseases.

Stem Cell Research and Genetic Therapy

Randy Nessler

The talk will present research that has been performed at the University of Iowa Center for Gene Therapy of Cystic Fibrosis and Other Diseases. Much research has been performed using viral and lipid vectors for transfer of the normal gene construct into deficient cells. Lately, stem cell research has been undertaken as well. For viral transfections to persist, it is important that the genetic make-up of progenitor cells be corrected.

Randy started working in the University of Iowa's Central Microscopy Research Facility in 1986 as a student, and became a full time research assistant prior to graduating with a Bachelor of General Studies degree in 1988. Currently, he is Associate Director of the CMRF, Supervisor of the Cell Morphology Core, President of the Iowa Microscopy Society, and a member of the Microscopy Society of America.

Sustaining Corporate Members

Sustaining members are the backbone of financial support for the Society. These members make it possible for the Society to support Project Micro and to cover many expenses of the regular meetings and the Spring Symposium. We greatly appreciate the continued support of these individuals and corporations. To become a Sustaining Member, complete and return the MMS membership form at the end of the newsletter.

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The Minnesota Microscopy Society would like to express a sincere thanks to our Patron Members. These members provide financial support to the organization above the standard membership fee. This type of added support makes it possible for MMS to maintain its financial well being. To become a Patron Member, complete and return the MMS membership form at the end of the newsletter.

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All microscopists are urged to support their Society at one of the membership levels offered below. The more dues-paying members we have, the more likely we are to attract sustaining corporate memberships which form the financial backbone of our Society. Often, supervisors will support MMS memberships out of their project budget because they recognize that it is a very inexpensive way to maintain and increase the skills of their microscopists. If you have been a member over the years and recognize the value of MMS to the community of microscopists it serves, consider upgrading your membership this year to the patron or sustaining level. Thank you.

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June 21, 2002

**Joint MMS and Iowa Meeting:
Mayo Clinic**

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Correction Requested