Medical Biotechnology Center - University of Maryland Biotechnology Institute

Inside MBC

"...molecular medicine through biotechnology"

Volume 4, Number 5 **September-October, 2001**

Inside:

•MBC/UMBI Perspectives
•Web Site for Funding Sources
•Science Exchange Day
•New Look for MBC
•Tricks of the Trade
•MBC Hosts CUSS
•MBC Happenings

UMBI Regents Day

Regents Day at UMBI was held on October 17, 2001, including presentations and tours through MBC and IHV. Dr. W.J. Lederer and Dr. Robert Gallo addressed the invitees, who included members of the Board of Visitors of UMBI, as well as the Board of Regents and Chancellor Daniel N. Langenberg of USM. Tours and demonstrations at the Center for Fluorescence Spectroscopy and the Molecular Cardiology Laboratory seem to be particularly interesting to the distinguished visitors. The vaccine and clinical work of IHV was also highlighted. From the MRF building, the group returned to the Columbus Center to hear presentations by CAB and CARB and tour COMB. The day ended with dinner at the Columbus Center. Remarks by several of the attendees were very complementary to UMBI and, while the number of visitors was lower than expected, those that did attend strongly urged Dr. Hunter-Cevera, President of UMBI, to repeat the exercise while they recommended attending the next one to their absent colleagues. It was clear that the visitors came away with a better understanding of the unique and valuable position of UMBI within the university system.

Dr. Marian Jackson Elected

Dr. Marian Jackson, Associate Professor at MBC, was elected as Chair of the Faculty Staff Senate at their September meeting and installed October 1. She had been one of the MBC faculty representatives since 1999. Dr. Jackson is well known in the UMBI community for her work on the bioinformatics initiative, though her research interests are centered on the genetic regulation of nitric oxide metabolism. As the newly elected Chair, she replaces Dr. Marvin Reitz of IHV.

The Faculty Staff Senate addresses issues of concern to both the faculty and staff of UMBI and funnels information on those issues to the senior leadership of UMBI to help shape the scope and direction of policy. The Senate is limited to UMBI; system wide concerns are dealt with through CUSF (Council of University System Faculty) and CUSS (Council of University System Staff). Dr. John Collins of MBC is UMBI's representative to CUSF and Venus Windmiller, also

continued on page 4

Anthrax Expert Visits MBC

Given the recent events in this area, it was almost prophetic that MBC hosted a special seminar by Dr. Les Baillie entitled "The Development of New Vaccines against *Bacillus anthracis*" on September 21, 2001, just weeks before the first case was announced in Florida. Dr. Baillie is the Anthrax Group Leader for the Defence Sciences Technologies Laboratory in Porton Down, Salisbury, United Kingdom, not our usual academic based speaker. *Bacillus anthracis* or anthrax has now been shown to be a viable candidate organism for bioterrorism. In a time when we all too aware of it, the thought of greater, mass infections is even more ghastly, but Dr. Baillie's research is aimed at that particular threat, if it can move fast enough.

Only the inhalation form of anthrax disease is particularly deadly to humans, producing easily mistaken flu-like symptoms. The cutaneous form is more common. Both are curable with antibiotics, if caught early. However, Dr. Baillie pointed out that it is not exactly clear under what exact conditions or doses it is fatal. It is not transmitted host to host. Animals can be infected but the etiology is unknown. The spores are found in soil but no one knows if it replicates there or how long it can hang around. What is most disturbing, according to

continued on page 3

MBC/UMBI Perspectives

by Tim Hughes

May 1987 - MBC appoints Acting Co-Directors and begins to hire permanent faculty and staff…

With an active Scientific Advisory Board in place, it was critical to bring in strong leadership to move the MBC from a conceptual phase into an operational phase. In May of 1987 Dr. Colwell named Dr. Myron M. Levine Acting Director of the MBC. In addition, Dr. Maimon Cohen, was appointed MBC Acting Co-Director. Dr. Levine, a long time colleague of Dr. Colwell, was Professor and Director of the UMB School of Medicine's Center for Vaccine Development (CVD). The CVD, the first unit of its kind, still remains the only university vaccine research center in the world engaged in the full range of vaccinology: from basic science through vaccine development, clinical evaluation and field studies. The CVD started in 1974 with one faculty member (Dr. Levine) and six staff. By 1987 the center had grown to encompass 150 faculty and staff in Maryland and a major satellite facility in Santiago Chile, with active research projects worldwide. Dr. Cohen, then Professor and Head of the UMB School of Medicine's Division of Human Genetics, was also distinctively qualified as scientific leader and program developer. Under his leadership the Human Genetics unit, with both clinical and research sections, was also a first at the University of Maryland.

Two months after appointing the new MBC Acting-Directors (July), Dr. Colwell resigned her position as USM Vice Chancellor for Academic Affairs and was named the first permanent Director (President) of UMBI. This marked an elemental event in the foundation and future of UMBI. Her extraordinary vision and dynamic leadership would propel UMBI to ten years of unprecedented growth and expansion.

In August of 1987 Drs. Levine and Cohen appointed Tim Hughes as the Assistant Director and the first permanent employee of the MBC. Tim came from the Department of Medicine within the University of Maryland School of Medicine. Having also been the first employee hired by Dr. Levine in the CVD in 1974, he brought broad experience in the development of a research center and was eager for the challenge of helping start the new MBC from scratch.

Next…MBC appoints it's first faculty member and finds a place "to live"…

Editor and Designer: Pamela B. Wright
Assistant Editor: Tim Hughes

Publisher: W. Jonathan Lederer, Director MBC
Assistant Publisher: Joseph Kao, Assoc. Director MBC

Contact us at: wrightp@umbi.umd.edu or 1-410-706-8181
Medical Biotechnology Center
725 West Lombard Street
Baltimore, MD 21201 USA

Web Site for Funding

The Community of Science (COS) is a service web site (www.cos.com) dedicated to keeping researchers and their colleagues in touch with each other and available funding sources. Institutions subscribe to the service and add faculty CV's to the site. UMBI central has undertaken to increase the awareness of this unique service and to update all the faculty sites. To do this, each center has designated liaisons. For MBC, Tim Hughes and Pamela Wright are the liaisons and it will be their job to introduce COS to MBC faculty, research staff and students and update all the faculty CV's.

The two COS services of direct interest to MBC are the Individual Site (CV included) and Funding Sources. The real advantage of having your CV on COS is that it can be used to create job CV's or NIH bios (in format!). Potential employers and/or collaborators can access your CV directly. In addition, publications can be added via Medline or several other citation sources. One of the few disadvantages, however, is that the citations sources are limited.

The second service of potential benefit to MBC is the identification of funding sources, especially for new researchers, post doctoral fellows and students, from sources outside of NIH. You can search on multiple parameters, including key words, subject, source type, location, and many others.

Check out the COS site and let Tim or Pamela know what you think of it.

UMBI Science Exchange Day

MBC Faculty Members Joseph Kao and Ignacy Gryczynski participated in a unique scientific gathering, Science Exchange Day, a joint program by UMBI and the Applied Physics Laboratory of Johns Hopkins University. The day-long event was hosted by UMBI at the Columbus Center and featured a wide-range of topics, highlighting the diverse interests of both institutions. This exchange day is expected to be repeated with other Maryland institutions, who may not be aware of UMBI's broad array of expertise and the opportunities UMBI offers for fruitful collaborations.

Les Baillie continued

Dr. Baillie, is how little we know of its basic biology and ecology. However, it is easy to grow, it is incapacitating, it is easy to store, it can be delivered as an aerosol, a little bit goes a long way and it is incredibly persistent despite heroic eradication efforts. It is the ideal, low-tech organism for bioterrorists.

The licensed human anthrax vaccines currently available provide effective protection in primates but suffer from problems of standardization, are relatively expensive to produce, require repeated dosing and have been associated with transient side effects. In general, Dr Baillie pointed out that there is little basic information on which to determine effective immunization schedules. Dr Baillie's work is directed at filling the holes in our basic knowledge while developing new vaccines and the assay tools to deploy them effectively.

His group is using recombinant technologies for the creation of second generation vaccines, already patented and ready for trials. This is based on one protein produced within the bacillus. They are also developing quality controls and assays to test levels of induced antibodies. In the mean time, his group is isolating other proteins from spores to learn as much to learn about the biology of that stage to develop a third generation vaccine, one that is an oral, single dose. Given the times we live in, Dr. Baillie's work is critically important to all of us.

New Look for MBC

In preparation for UMBI Regents Day, the lack of information about MBC research efforts was very noticeable. The exception was the second floor, where the Center for Fluorescence Spectroscopy hang their recent posters. So 20 new bulletin boards were ordered and mounted on both the second and third floors. Within days, posters came out of the closets and off the top shelves to add both color and information to the hallways. Many of us were not aware of some of the fascinating work that was being done right down the hall! If you have not already done so, check out all of the new boards. You will find them in the central halls, as well as the main office hallway and the second floor hallway leading to the Kao and Lederer laboratories.

Tricks of the Trade

By Pamela Wright

Slide presentations, whether via the computer or traditional photographic slides, are the most personal of scientific communications. Above all other forms, they convey the personality and individuality of the communicant. With the advent of computer graphics, slide presentations have become more interesting visually, but all too often the content is overshadowed by visual trickery. All presenters need to learn how to use the power of the programs to enhance the presentation of the content without becoming gimmicky.

Starting with this installment, I want to go over some of the basic rules for creating slides.

1. Keep it simple. One slide should make one point, without any extraneous material on it. Trying to put a lot of data on one slide, half of which you are not using to make a point is confusing to your audience. It also means that the data you do need has to be presented in a smaller format to make space for the unnecessary part.

2. Be consistent. Do not mix fonts and formats. Not only should all the slides have the same layout but tables or graphs should as well. Choose fonts and colors appropriate for the occasion and the topic.

3. Choose one and only one template. If you use templates, select one that fits with all the diagrams, graphs and tables you have. Changing templates to go with a particular table or diagram gives the presentation a crazy quilt feel. Too many decorative changes also disrupt the flow of the talk visually, are confusing and make the designs more interesting than what you are saying. The design is suppose to enhance the content, not the other way around.

Look for future articles on creating your own templates and adding animation.

MBC Hosts CUSS

On September 25, MBC hosted the monthly meeting of CUSS, Council of University System Staff. Dr. W. Jonathan Lederer, Director of MBC, welcomed Roy Ross, chair of CUSS and the other delegates. CUSS is responsible for identifying issues of concern to staff that may exist system wide, such as benefits and collective bargaining. They then bring recommendations to the Board of Regents for resolution.

The meeting was arranged by Venus Windmiller, MBC's human resources specialist and UMBI's non-exempt employee representative to CUSS. Each campus has one exempt employee representative and one non-exempt. Currently, Sheila Richburg in the President's office is our exempt representative.

MBC Happenings

Comings and Goings

Dr. Ilia Baskakov started September 1, 2001.

Grants and Contracts

Dr. W. J. Lederer, NHLBI, NIH, "Calcium Dependent Cardiac Arrhythmias," a subcontract of a Program Project Grant with Dr. Andrew Marks, Columbia University, 10/1/01, $342,456, year 1 of 5.

Publications

Okeke IN, Borneman JA, Shin S, Mellies JL, Quinn LE, **Kaper JB**. "Comparative sequence analysis of the plasmid-encoded regulator of enteropathogenic Escherichia coli strains." INFECT. IMMUN. 69 (9): 5553-5564 SEP 2001

Sperandio V, Torres AG, Giron JA, **Kaper JB**. "Quorum sensing is a global regulatory mechanism in enterohemorrhagic Escherichia coli O157 : H7." J. BACT. (17): 5187-5197 SEP 2001

Maliwal BP, Gryczynski Z, **Lakowicz JR**. "Long-wavelength long-lifetime luminophores." ANAL. CHEM. 3 (17): 4277-4285 SEP 1 2001

Wei DS, Mei YA, Bagal A, **Kao JPY**, Thompson SM, Tang CM. "Compartmentalized and binary behavior of terminal dendrites in hippocampal pyramidal neurons." SCIENCE 293 (5538): 2272-2275 SEP 21 2001

DeLisa MP, Chae HJ, Weigand WA, Valdes JJ, Rao G, Bentley WE. Generic model control of induced protein expression in high cell density cultivation of Escherichia coli using on-line GFP-fusion monitoring. BIOPR. BIOSYS. ENG. 24:83-91 SEP 2001.

Shin S, Castanie-Cornet MP, Foster JW, Crawford JA, Brinkley C, **Kaper JB**. "An activator of glutamate decarboxylase genes regulates the expression of enteropathogenic Escherichia coli virulence genes through control of the plasmid-encoded regulator, per." MOL. MICROBIOL. 41 (5): 1133-1150 SEP 2001

Di Cesare N, **Lakowicz JR**. "Wavelength-ratiometric probes for saccharides based on donor-acceptor diphenylpolyenes." J. PHOTOCHEM. PHOTOBIO. A-CHEM. 143:39-47 OCT 1 2001

Lakowicz JR, Shen B, Gryczynski Z, D'Auria S, **Gryczynski I**. "Intrinsic fluorescence from DNA can be enhanced by metallic particles." BIOCHEM. BIOPHYS. RES. COMM. 286 (5): 875-879 SEP 7 2001

Reed P, Porter N, Strong J, Flanigan KM, **Luther P**, Kuncl R, Bloch RJ. "Sarcolemmal reorganization in facioscapulohumeral muscular dystrophy." ABST. NEUROMUSC. DISORDERS 11 (6-7): 633-633 SEP 2001

Wu CF, Valdes JJ, **Rao G**, Bentley WE. "Enhancement of organophosphorus hydrolase yield in Escherichia coli using multiple gene fusions." BIOTECH. BIOENG.75 (1): 100-103 OCT 5 2001

Thohan S, Zurich MC, Chung H, Weiner M, Kane AS, **Rosen GM**. "Tissue slices revisited: Evaluation and development of a short-term incubation for integrated drug metabolism." DRUG METABOL. DISPOSITION 29 (10): 1337-1342 OCT 2001

Lakowicz JR, Gryczynski I, Shen YB, Malicka J, Gryczynski Z. Intensified fluorescence. PHOTONICS SPECTRA 35:96-+ OCT 2001

Shin S, Castanie-Cornet MP, Foster JW, Crawford JA, Brinkley C, **Kaper JB**. An activator of glutamate decarboxylase genes regulates the expression of enteropathogenic Escherichia coli virulence genes through control of the plasmid-encoded regulator, per. MOL. MICROBIOL. 41 (5): 1133-1150 SEP 2001

DiCesare N, **Lakowicz JR**. A new highly fluorescent probe for monosaccharides based on a donor-acceptor diphenyloxazole. CHEM. COMM.(19): 2022-2023 OCT 7 2001

Kostov Y, Harms P, **Rao G**. Ratiometric sensing using dual-frequency lifetime discrimination. ANAL. BIOCHEM. 297 (1): 105-108 OCT 1 2001

Talks and Travels

Dr. J.R. Lakowicz, IHV General Staff/Seminar, September 5, 2001, "Biomedical Applications of Fluorescence Radiative Decay Engineering."

Dr. Gerald Rosen, Department of Immunology, Cleveland Clinic, October 4, 2001, "Do Human Neutrophils Make Hydroxyl Radical?"

Dr. W.J. Lederer, Invited Speaker, American Physiological Society Conference on Cellular and Molecular Physiology of Sodium-Calcium Exchange, Banff, Alberta, Canada, October 10-14, 2001, "Na/Ca Exchange and the Heart: Physiology, Pathophysiology and E-C Coupling."

Dr. Gerald Rosen, Department of Radiation and Cellular Oncology, University of Chicago, October 18, 2001, "Role of Nitrous Oxide in Host Immunity."

Dr. M. Monteiro, University of Kent at Canterbury, University of Leeds, and National Institute for Medical Research, MRC, MillHill, UK, October 29-31, 2001, "Presenilins and Alzheimer's Disease."

Dr. Jackson continued

of MBC, is the UMBI representative to CUSS.

There are several issues of concern that Dr. Jackson and the Senate are addressing. Research and intellectual property, for which the Board of Regents are proposing policy changes, have become particularly pressing concerns. Dr. Jackson has also formed a committee to resuscitate the Annual Research Retreat, one of the ways that centers in the past have had for exchanging scientific information and scouting collaborations. Fostering collaboration is one of the Senate's primary roles at UMBI, as well as to suggest new, relevant research directions to the UMBI President.

The Senate meets the first Friday of every month via IVN. Each center has three representatives, two faculty and one staff, though several of the centers have not filled all the seats available to them. Staff representatives are especially needed. Tim Hughes is MBC's staff representative; Dr. Joseph Kao is a faculty representative. Dr. Jackson's election left one of MBC's seats on the Senate vacant. Voting in early October filled the vacancy with Dr. Bruce Vogel, one of the newest members of MBC's faculty. Congratulations to Dr. Jackson and Dr. Vogel, your elections continue MBC's strong leadership within the UMBI community.