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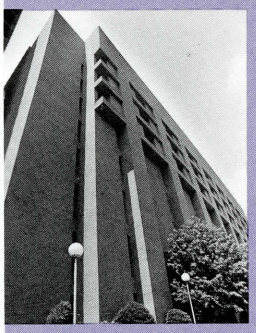
BOSTON UNIVERSITY MEDICAL CENTER

EVANS MEDICINE

Evans Memorial Department of Clinical Research and Preventive Medicine



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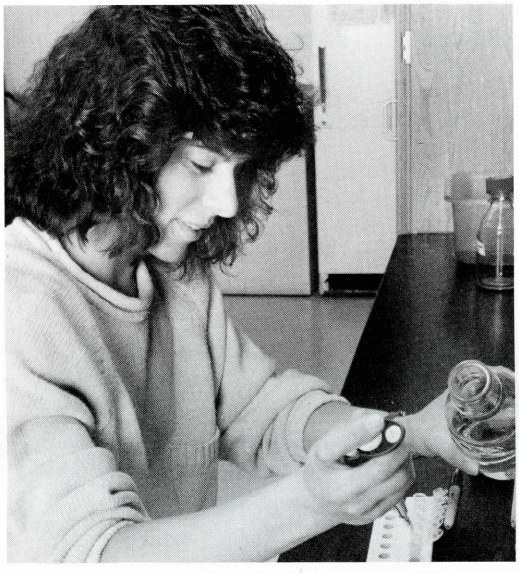

Researcher Diane Williams, a graduate student in microbiology, at work in the Biomolecular Medicine Section's new laboratory.

Biomolecular lab opening coincides with IL-2-toxin trials

The Biomolecular Medicine Section's spacious new laboratory in the Evans Building embodies the Section's commitment to fostering interdisciplinary research and patient care among Evans departments. At the laboratory's opening ceremony, it was announced that the Food and Drug Administration had granted approval for Section Chief John R. Murphy, Ph.D., and his research group to conduct clinical trials of the chimeric IL-2-toxin, a new class of drugs that attack specific leukemias and lymphomas, including adult T-cell leukemia.

Dr. Murphy's work is a prime example of the interdepartmental activity that the new laboratory was designed to facilitate. The research group, which includes Ronald McCaffrey, M.D., chief of medical oncology at UH, was the first in scientific literature to describe the ability to make these chimeric molecules.

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The new Biomolecular Medicine Laboratory:

The physical expression of a concept developed nearly five years ago

By Norman G. Levinsky, M.D.
Director,
Evans Department of Medicine

Members of the Evans Department have always benefited from close working relationships with colleagues in the basic-science departments throughout the Medical Center. Nevertheless, the Evans Department of Medicine's strategic planning committee felt that there would be a special advantage to establishing a medicine-based molecular biology program, because molecular and cellular biology have become a common language in most areas of internal medicine.

Our committee recommended that the Evans establish a mechanism for integrating molecular biologists into the framework of our clinical Department of Medicine in order to enhance collaborative research and the training of clinical investigators. As director of the Evans, I was enthusiastic about this concept.

Four years ago, we established the Section of Biomolecular Medicine and recruited John R. Murphy, Ph.D., as the first scientist in this program. His research focused on a basic problem in microbiology—the pathobiology of diphtheria toxin—but with a view to the possible clinical utility of the toxin in the treatment of human disease.

The idea of the presence of basic scientists leading to enhanced research collaborations and improved training of clinical investigators has worked as well in reality as it did in theory. Numerous collaborative relationships soon were established between Section members and their colleagues in the Department, and any number of faculty and clinical trainees have learned both concepts and tech-

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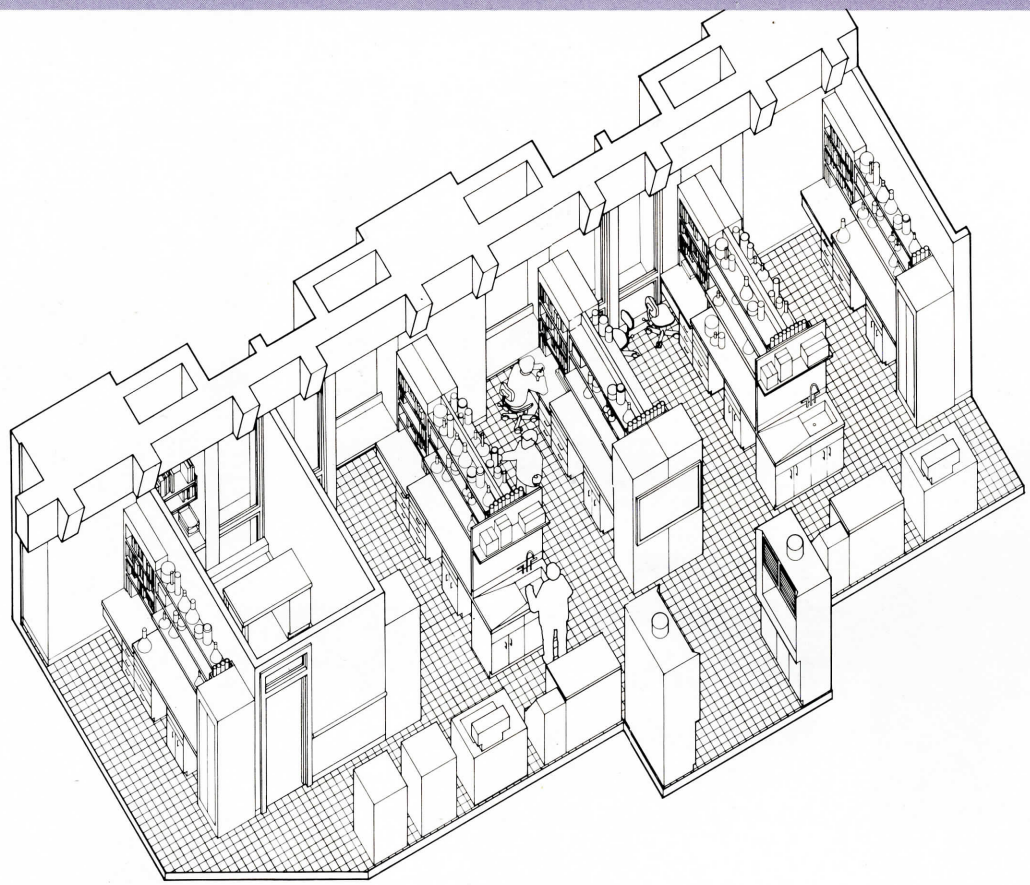
The new laboratory embodies the Evans Department's commitment to interdisciplinary research and patient care.

The University Hospital



A view of a portion of the Section's laboratory space. The laboratory is divided into eight-person suites, rather than the usual two- or four-person suites, in order to accommodate expanding research groups. Each researcher has his or her own wet-bench area, and common facilities and equipment are located in a central area of the floor. A section of the laboratory is designated for use as teaching space by Evans Department of Medicine members and visiting scientists.

New laboratory

Continued from Page 1

niques in Dr. Murphy's laboratory. Two principal investigators also joined the Section: James Burton, Ph.D., a peptide chemist who uses molecular modeling to develop inhibitors of such proteases as renin and kallikrein; and Gerhard Heinrich, M.D., who is studying the molecular biology of nerve-growth factor.

Until recently, our ability to recruit more scientists to the Section has been limited by the available space. With the opening of the magnificent new molecular biology facility on the sixth floor of the Evans Building, this barrier has been overcome. As luck would have it, simultaneous with the opening of the laboratory we were able to announce the participation of our Medical Oncology Section in the first clinical trial of Dr. Murphy's genetically modified diphtheria toxin for therapy of human disease (T-cell leukemia and lymphoma.)

The concept of translating basic science through clinical science for use in patient care is embodied in the location of the unit. The new facility, appropriately enough, is housed between the laboratories of clinical investigators on the five floors below it and the patient-care units located on the seventh and eighth floors.

The open style of the molecular biology laboratory also symbolizes the concept of interaction among colleagues. The laboratories, which have no internal walls, open onto common equipment facilities, designed to facilitate the interaction of the investigators who are housed on the floor. One area of the floor has been designated specifically as a training laboratory for clinical fellows and faculty.

Many of us who have been clinical investigators for some time have become increasingly concerned by the fragmentation of clinical research into compartmentalized disciplines. Perhaps this is an explanation for the declining attendance at the spring Clinical Investigation meeting, once the universally acknowledged meeting place for clinician-investigators, which now is becoming secondary to the many subspecialty meetings held each year.

Despite this fragmentation, the language of research is, in fact, becoming more comprehensible to scientists in all subspecialties of medicine, as molecular and cellular biology are becoming a common language for all scientists. I believe that this is a positive development for clinical science. I am grateful to the Trustees of the Evans, who have made it possible for us to build on our initial success in developing an integrating core in molecular biology by providing resources for our new laboratory.□

Despite the fragmentation of clinical research, molecular and cellular biology are becoming a common language for all scientists.

Clinical trial initiated

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Dr. Murphy is the principal investigator of the project, which involved the genetic linking of interleukin-2 (IL-2), a protein growth factor needed by some leukemia cells, with a portion of the diphtheria toxin molecule. IL-2-toxin, the new molecule, is absorbed by the leukemia and lymphoma cells as if it were pure IL-2. Once inside the cell, the diphtheria toxin component is able to attack and destroy that cell.

Pioneering research efforts

"We are pioneering research and clinical efforts in this area, and we've been able to make such progress because of close collaborations in the medical community," notes Dr. Murphy. Last fall, he was awarded a five-year, $2.3-million cooperative agreement from the National Cancer Institute to continue his work.

The awarding of the agreement to UH, which is one of only nine NCI-supported National Cooperative Drug Discovery Groups in the U.S., "recognizes the successful merging of basic and clinical research at the Hospital," according to Dr. Murphy.

The Institute's innovative National Cooperative Drug Discovery Group program encourages interaction among academic and commercial interests in partnership with NCI to discover new strategies for the treatment of cancer. The University Hospital Discovery Group includes researchers from Beth Israel Hospital and Brigham and Women's Hospital in Boston, the National Cancer Institute and Seragen, Inc., a biotechnology firm based in Hopkinton, Mass.

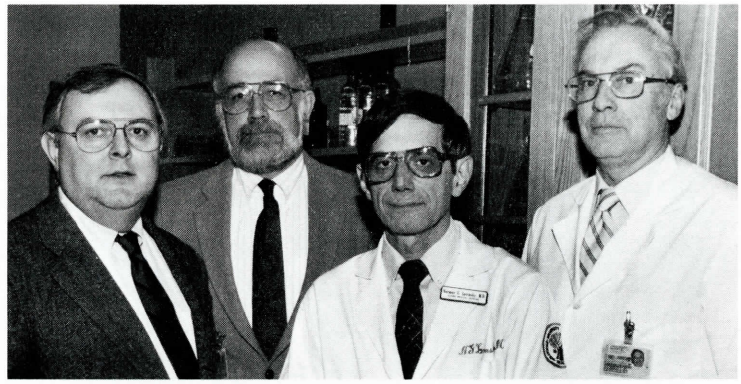
Dr. McCaffrey is attempting to identify both the types of leukemias and lymphomas that have the receptor needed to bind the new toxin, and the conditions under which these leukemias and lymphomas can be killed by the toxin. This spring, clinical trials of the drug will be conducted at UH under Dr. McCaffrey's direction; clinical trials already are under way at M.D. Anderson Hospital in Texas.

"This award allows us to approach the treatment of leukemia and lymphoma in a whole new way," Dr. McCaffrey explained when the award was announced last fall. "In the future, the technology will be adapted to almost any form of cancer, such as lung cancer and melanoma, that is dependent on a growth factor."

New level of excitement

Dr. Murphy explains that the development of IL-2-toxin is a prime example of what he refers to as "tweener" research—research that straddles the basic sciences and the clinical sciences, with the aim of bringing the two areas together "so that the powerful technology we have at our disposal can be used for better understanding disease states that cannot be well-managed therapeutically."

Scientists interested in conducting "tweener" research activities are being actively recruited by the Section, which now has approximately 20 investigators on staff. "Ultimately, we would like to have 50 people working here, including five or six principal investigators," Dr. Murphy says. Currently, Dr. Murphy, James Burton, Ph.D., and Gerhard Heinrich, M.D., are the Section's principal investigators.



Dr. Murphy, left, at the reception for the new laboratory with Drs. McCaffrey, Levinsky, and J. Scott Abercrombie Jr., M.D., president of the University Hospital.

"What we would like to convey to prospective staff members is the level of excitement in the Section regarding not only the physical space, but in providing an environment only one flight of stairs away from patients, staffed by basic and clinical scientists who are bringing the power of molecular biology to the treatment of human disease," says Dr. Murphy.

"I look at the 1990s as the era of biologicals, because it offers us the capability of modifying biological responses in a very selective way. This is an extraordinarily exciting era in medical research."

Dr. Murphy cites IL-2-toxin as an example of the Section's work in genetic orchestration. "It's a new molecule designed deliberately to carry out its functions, constructed genetically using protein engineering and recombinant DNA methodology, and now introduced into clinical trials. This is an agent that never has been seen before: It's not like penicillin, which is something that occurs naturally and was discovered by accident."

Fostering common understanding

"For the first time, we can design new biologicals and put together molecules from disparate components to form new molecules," he adds. "To have the privilege of doing this work in a community such as the Evans, where there is mutual respect, understanding and common goals among the staff, is very satisfying."

The new biomolecular medicine laboratory is designed to foster the kind of interdisciplinary activity that went into developing IL-2-toxin. That work represents Murphy's hopes for future collegial projects between other Section investigators and their colleagues throughout the Department. "We wanted a floor that would maximize the op-

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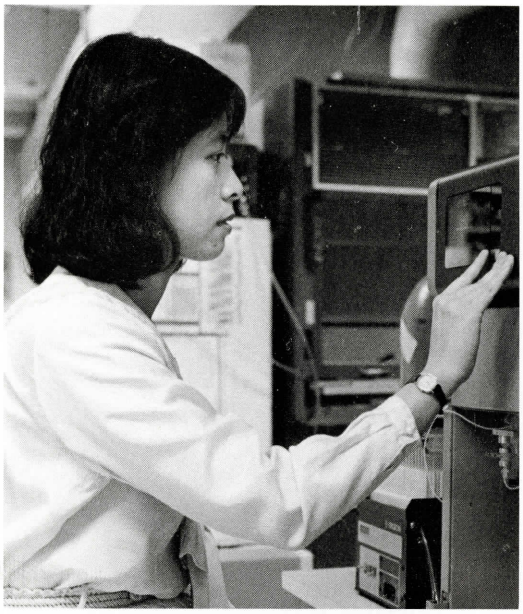
'Scientists in the new research unit are working to bring the power of molecular biology to the treatment of human disease.'



Lee Fong Jean, a graduate student in microbiology, programs the computer for the synthesis of a DNA fragment.

Clinical trial initiated

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portunities for interaction among everyone from principal investigators to technicians and postdoctoral students," Dr. Murphy explains. "Because the Section's unique mandate is somewhat like that of a working library, our mission is to provide a center of excellence for molecular biology and genetics, where others in the Evans Department of Medicine can learn these methodologies and apply that knowledge to their own research," he explains.

"The methodologies used in different research projects essentially are the same, and the design of the new laboratory makes it easier for all of us to benefit from one another's experience in using these techniques."

Unique design approach

The layout of the 18,000-square-foot facility (from exterior wall to exterior wall, including shafts) is unique for the Evans; in fact, it is an unusual design for a research facility anywhere. "Most sophisticated biomolecular laboratories of this kind are found only in basic-science departments or in research institutions where basic research scientists have little or no contact with patients or physicians," according to Dr. Levinsky.

The project manager for the construction was Curt Heuring, an architect with Ellenzweig Associates, Inc., in Cambridge. Heuring credits Drs. Murphy and Levinsky with being open to allowing his firm to explore this rather untraditional design.

"Typically, research laboratories are recessed off a corridor in distinct, separate spaces," Heuring comments. "Dr. Murphy and Dr. Levinsky were willing to consider the possibility of opening up the lab and removing any barriers—hallways, walls, doors. The result is an open, combined laboratory-office-research facility.

"In my experience, there is a tendency among researchers to say 'This is my space, equipment and experiment.' Although many talk about the idea of an open laboratory, very few will make a commitment to it. It took a great leap of faith on the part of the people at UH to go through with this."

"We felt very strongly that the laboratory should be designed in as open a configuration as possible, with each lab identical to the others," notes Dr. Murphy. "We wanted to maximize the amount of bench space and minimize the space not used in the execution of research."

One of the floor's unique design features is the division of the laboratory space into eight-person lab suites, rather than the customary two- or four-person suites. This configuration was used in order to accommodate expanding research groups and, hopefully, grants. Each researcher has his or her own wet-bench area, while common facilities and equipment, such as the ultracentrifuge, are located in a central area.

"Undertaking research is so expensive that we felt it would be advantageous to pool our financial resources in order to purchase equipment for the Section," Dr. Murphy continues. "For many research activities, equipment may only be needed short-term; if researchers already have access to equipment, like a DNA synthesizer, they'll be that much more likely to receive funding for their work, because they can do experiments that require special instrumentation without having to request funds to purchase equipment."

The Section also has dedicated a significant portion of the new laboratory to teaching space, which is used by members of other sections within the Evans Department of Medicine as well as by visiting groups who would like to take advantage of the expertise of Section members to further their research.

"We encourage visiting scientists and others who use this facility to ask for our help in conducting their research. This is an open, interactive environment, and part of our mission is to provide the training, equipment and advice necessary to further the research activities of our Medical Center colleagues and others who use our facilities," says Murphy. □

Suggested further reading

1. D.P. Williams, K. Parker, P. Bacha, W. Bishai, M. Borowski, F. Genbauffe, T.B. Strom and J. R. Murphy: Diphtheria toxin receptor binding domain substitution with interleukin-2: Genetic construction and properties of a diphtheria toxin-related interleukin-2 fusion protein. *Protein Engineering* 1: 493-498, 1987.

2. P. Bacha, D.P. Williams, C. Waters, J.M. Williams, J.R. Murphy and T.B. Strom: Interleukin-2 receptor-targeted cytotoxicity—interleukin-2 receptor-mediated action of a diphtheria toxin-related interleukin-2 fusion protein. *J Exp Med* 167: 612-622, 1988.

Mycologists in the Evans explore the complexities of systemic fungal infections

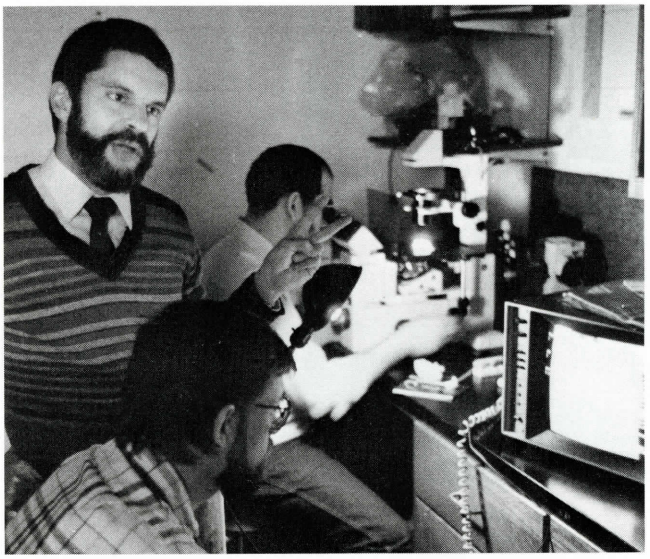
The growing subspecialty of medical mycology is well represented within the Evans Infectious Disease Section, where the primary, although by no means exclusive, research interest is systemic fungal infections.

A number of ongoing research projects conducted by Section medical mycologists and their colleagues may hold promise for those immunocompromised populations who are particularly at risk of developing fungal infections: patients with acquired immune deficiency syndrome (AIDS), organ-transplant recipients, people with certain types of tumors, patients with leukemia and, possibly, steroid-users.

"Fungal infections used to be medical curiosities, but it's clear that the occurrence of these infections, and the recognition of their importance, has been increasing since the 1950s," explains Richard D. Diamond, M.D., chief of the Section.

Dr. Diamond attributes this rise to the increasing immunosuppression of the population: cortisone was discovered in the 1950s; chemotherapy became popular, controlled and useful; organ transplantation was started in that era and advanced very rapidly, particularly in the 1960s.

"Because medicine has advanced so far that we can keep people alive in a compromised immune state, fungal illnesses have become problems of increasing magnitude," Dr. Diamond notes. "At the same time, we are better skilled in diagnosing and treating bacterial illnesses, which are still the major risk to immunocompromised patients."



Drs. Diamond, standing, and Smail, seated, use the Section's digital image-processing system to study cellular functions.

A rare depth of expertise

Alan M. Sugar, M.D., one of the Section's four mycologists (more than any other hospital in New England), notes that it is unusual for a hospital to have so many researchers studying fungal infections, particularly the more "exotic" varieties of disease that often are not well understood by physicians. "The combined interest of the staff focuses on pathogenesis, basic laboratory and treatment issues," he explains. "Our depth of expertise allows us to offer patients more than the traditional drug therapies."

Dr. Sugar's research activities are a case in point. *Cryptococcus neoformans*, a genus of yeast-like fungi, can have serious consequences in AIDS patients. Sugar and other Section researchers have actively been investigating cryptococcosis and other fungal infections, such as candidiasis, which are some of the most common infections to be seen in AIDS patients.

Even before the outbreak of AIDS in the U.S., the percentage of Americans who developed cryptococcal meningitis had more than quadrupled from 1970 to 1980. "There were cases of cryptococcosis before AIDS, not only as a complication of treatment with cortisone or as a result of certain cancer treatments or in transplant patients, but occasionally in healthy people, and it wasn't clear why these people got sick," says Dr. Diamond. For that reason, cryptococcosis was of particular interest to scientists as a research model.

Now, Dr. Diamond adds, cryptococcosis represents more than just a model. It is estimated that the infection will develop at some point in 5 to 7 percent of patients with AIDS in the United States. There are areas in the U.S. where 15 percent or more of AIDS patients have cryptococcal disease, which may develop in up to 50 percent of the AIDS patients in Africa. In addition, an estimated 90 percent of AIDS patients suffer from *Candida* infections, such as thrush and esophageal candidiasis.

'Fungal infections used to be medical curiosities, but the occurrence of these infections has been increasing since the 1950s.'

Redefining treatment goals

"We have different goals in the treatment of AIDS patients than those applied to other patient groups," explains Dr. Diamond. "Ideally, what we would like to do with an infection is to cure it, but our experience with AIDS is that it is unusual to do so because the immune system is so compromised. Instead, our goal has to be to suppress an infection, and to treat it as best we can as a chronic illness. As in any other chronic illness, we try to provide the patient with as normal a life and functional capacity as possible."

Dr. Diamond notes that this goal has been difficult to achieve: The only pharmaceutical treatment for cryptococcosis currently approved by the FDA is amphotericin B, a highly toxic intravenous medication that can cause such serious side effects as chills, fever,

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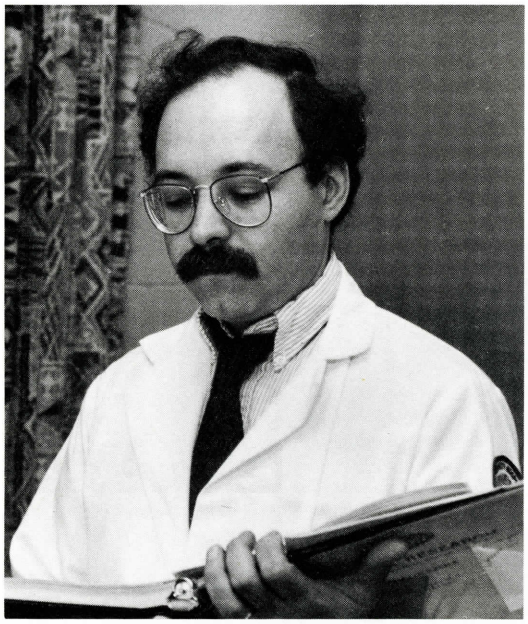

Dr. Alan Sugar

Fungal infections

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kidney toxicity and, in many cases, even renal failure. Now, researchers like Dr. Sugar are investigating newer drugs that suppress the manifestations of cryptococcal disease without the toxicity of the existing treatments.

Dr. Sugar and Carol Saunders, R.N., conducted one of the first American studies in AIDS patients (the only such study in New England) of oral fluconazole, a triazole antifungal drug manufactured by Pfizer Inc. Pfizer recently filed a New Drug Application for fluconazole for use against systemic candidiasis and other fungal infections, and as acute maintenance therapy against cryptococcal meningitis (CM).

Oral fluconazole is related to the imidazole antifungal, ketoconazole, a drug that was approved by the FDA in the early 1980s to treat various fungal diseases, but was found to be ineffective against CM. The drug also was found to cause hepatitis in some cases, and it had negative effects on the endocrine system when administered in high doses; in addition, the absorption of ketoconazole in the bloodstream is not reliable.

Dr. Sugar's initial study, in which enrollment was completed at the end of 1987, was an open, non-randomized clinical trial of oral fluconazole as maintenance suppressive therapy of disseminated cryptococcosis. Twenty patients with AIDS, 19 of whom had cryptococcal meningitis, were studied for up to 21 months. All of the patients received amphotericin as primary therapy from 20 to 257 days prior to entry; eight also received flucytosine. Oral fluconazole was administered as a single daily dose, at dosages ranging from 50 mg. to 200 mg. per day.

According to Dr. Sugar, oral fluconazole generally was well-tolerated by patients, with the most common side effects being referable to the gastrointestinal tract. There had been some reports of liver toxicity, but all such cases were reversed when the use of the drug was discontinued. Of those patients who received fluconazole, there was one substantiated relapse, resulting in a promising 5-percent relapse rate that the researchers say merits further study.

Other studies of fluconazole that Dr. Sugar will conduct include a randomized, acute-treatment study that will compare amphotericin B to oral fluconazole in patients with cryptococcal meningitis who have had no previous therapy. The Section also is receiving patient referrals for a new drug called itraconazole, which also has a broad spectrum of antifungal activity.

Fluconazole effective against thrush

While testing oral fluconazole as a treatment for CM, Dr. Sugar also found the drug to be effective against thrush and *Candida* esophagitis. "In many AIDS patients with thrush, the infection progresses into the esophagus, leading to a vicious cycle—the pain makes it difficult for patients to eat, thus contributing to malnutrition and, eventually, to increased immune suppression."

Dr. Sugar will be studying a new drug related to fluconazole that will be used in treating patients with thrush and esophagitis, which may be effective in treating CM as well.

Other Section members have actively been researching *Cryptococcus neoformans* and *Candida albicans*, including Edwin Smail, M.D., who is examining the products of *Candida* and how they interfere with neutrophil effectiveness in combating infection. He also is exploring how the organism itself modulates the immune response.

Dr. Smail runs the Section's microscopic imaging area, which allows researchers to study the biochemical changes of naturally fluorescent probes placed inside a cell in order to follow cellular functions — for example, the neutrophils' response to *Candida*.

Stuart Levitz, M.D., is studying how the immune system interacts and kills cryptococci by examining the basic mechanisms of the macrophage, and how the activation of the macrophage can make a cell more readily able to kill the fungus. For instance, he has been able to define some of the factors that enhance the killing of cryptococcus, including interferon gamma. From this research, Dr. Levitz hopes to be able to understand how the immune system breaks down, and how it can be reconstituted.

Dr. Diamond's research interests involve the study of *Candida*. One recent study focused on the feeding of yeast to vascular endothelial cells, which ingest the yeast but do not kill it. He examined the specificity of neutrophils in destroying *Candida* and the damage to the endothelial cells as a result of

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Noteworthy

Yvonne O'Meara, M.D., a fellow in the Renal Section, was awarded the American Society of Nephrology/National Kidney Foundation/Marion Laboratories fellowship. **Steven Balkan, M.D.,** of the same Section, was awarded a Clinician-Scientist Award from the American Heart Association. **David I. Salant, M.D.,** chief of the Section, recently became a member of the Pathology A Study Section of the National Institutes of Health.

Neil Ruderman, M.D., of the Diabetes Unit, will lecture on hyperglycemia and atherosclerosis as part of an NIH Consensus Panel. The Unit recently received a training grant from the American Diabetes Association.

Norman Levinsky, M.D., president of the Association of Professors of Medicine, organized and presided over the annual winter meeting of the group. The meeting was held in Tucson, Ariz. Dr. Levinsky also has been appointed chairman of the Committee on the End-Stage Renal Disease Program at the Institute of Medicine.

Barbara Gilchrest, M.D., chief of the Department of Dermatology, has been appointed to the National Advisory Council on Aging at the NIH. **Tania Phillips, M.D.,** of the same Department, recently won an American Forum Research Award for her work on cultured epidermal allografts in the treatment of skin ulcers.

R. Knight Steele, M.D., chief of the Geriatrics Section, was elected to membership in the American Clinical and Climatological Association. He also became a fellow of the National Bureau of Economic Research. He recently gave the Beverly Lecture at the annual meeting of the Association for Gerontology in Higher Education.

David Beller, Ph.D., chief of the Immunology Unit, was chairman of the workshop on "Role of Cytokines in T-Cell Activation" at the annual FASEB meeting in New Orleans.

Joseph Stokes, M.D., of the Preventive Medicine/Epidemiology Section, received the 1989 American College of Preventive Medicine Distinguished Service Award at the organization's annual meeting, held in April in Atlanta, Ga. Dr. Stokes also moderated a plenary session on "Control of Hyperlipidemia" at the annual American Heart Association meeting.

Jay Coffman, M.D., chief of the Peripheral Vascular Section and associate director of the Evans Department, was elected president-elect of the new Society for Vascular Medicine and Biology. **Richard Cohen, M.D.,** also of the Section, is secretary-treasurer of the American Federation for Clinical Research.

Ronald McCaffrey, M.D., chief of the Medical Oncology Section, was elected a fellow of the Royal College of Physicians in Ireland.

Mark Moskowitz, M.D., chief of the General Medicine Section, is chairman-elect of the Eastern section of the American Federation of Clinical Research. **Karen Freund, M.D.,** of the same Section, is the recipient of the American College of Physicians Associates Clinical Paper Award for her study on "Predictors of Smoking Cessation: The Framingham Study." **Robert Friedman, M.D.,** also of the Section, received an NIH grant to study "Blood Pressure Control in the Elderly: Evaluation of a Telephone-linked Computer."

Stuart Levitz, M.D., of the Infectious Disease Section, was the recipient of a grant from NIH for his study of "The Role of Macrophages in Cryptococcal Infections."

David Center, M.D., of the Pulmonary Section, was promoted to the rank of professor of medicine at Boston University School of Medicine. **Jerome S. Brody, M.D.,** of the same section, was elected to the Association of American Physicians and has become editor of the *American Journal of Respiratory Cell and Molecular Biology*. Also in the Pulmonary Section, **Dennis J. Beer, M.D.,** received a Career Investigation Award from the American Lung Association.

Fungal infections

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this process.

"What we are studying in the Section is a dynamic interaction, which depends on the relationship between the organism's ability to adapt and the specific properties of the host.

"It's a complicated business, because the body's response to infection is miraculously fine-tuned. We're trying to get around the situation in which we are robbing Peter to pay Paul: We're researching infections in part because other scientists have made so much progress in other areas, which can in turn affect the patient's immune system — but if we are able to 'rev up' the immune response, will we be creating more inflammatory disease? Clearly, that's not what we want." □

Suggested further reading

1. A. M. Sugar, C. Saunders: Oral fluconazole as suppressive therapy of disseminated cryptococcosis in patients with acquired immune deficiency syndrome. *Am J Med* 85: 481-489, 1988.

2. J. E. Edwards Jr., D. Rotrosen, J. W. Fontaine, C. C. Haudenschild, and R. D. Diamond: Neutrophil-mediated protection of cultured human vascular endothelial cells from damage by growing *Candida albicans hyphae: Blood* 69: 1450-1457, 1987.

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John Wilson, M.D., has been named chief resident for the 1989-1990 academic year. Born in Milwaukee, Wis., and raised in Pittsburgh, Pa., Dr. Wilson received his medical degree from Pennsylvania State University College of Medicine at Hershey. He is finishing his third year as a resident in internal medicine and will start his chief residency July 1.

Following his year as chief medical resident, Dr. Wilson expects to begin a cardiology fellowship, although he is not sure where at this time. "I'd like to be working somewhere on the East Coast, preferably in Boston," he notes.

In addition to administrative and patient-care duties, Dr. Wilson will be involved in instructing second-year medical students. Regarding his long-term goals in medicine, Dr. Wilson notes that "I'm interested in doing invasive cardiology at an academic institution. Academic medicine will definitely play some role in my future."

Thirteen Evans members will complete their residencies in July. The graduates and their future pursuits, if known, are:

David Cohen, M.D., Brigham and Women's Hospital (nephrology)

Moira Cunningham, M.D. (internal medicine)

Mary Delaney, M.D., The University Hospital (endocrinology)

Dale Janik, M.D. (gastroenterology)

Bing Ko, M.D. (internal medicine)

Jeffrey Leavitt, M.D., Boston University Medical Center (cardiology research fellowship)

Michael Lev, M.D. (neuroradiology)

Scott Machler, M.D., University of Pennsylvania (neuropharmacology)

Harry Shapiro, M.D., Veterans Administration Hospital, Bedford (internal medicine)

Alice Sheridan, M.D., The University Hospital (nephrology)

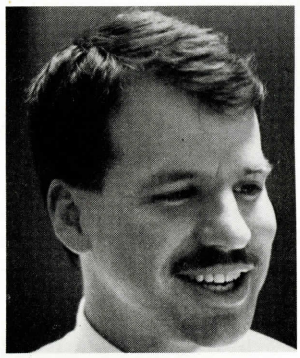
DuWayne Willett, M.D. (military service)

John Wilson, M.D., The University Hospital (chief resident, medicine)

Richard Vogel, M.D., The University Hospital (cardiology)

A message from the editor

Please take a moment to complete the postage-paid response card that is enclosed in this issue, indicating areas of interest that you would like to see covered in future issues of ***Evans Medicine****. Thank you.*



New chief medical resident John Wilson, M.D.

Evans Medicine is published by the Evans Memorial Department of Clinical Research and Preventive Medicine of The University Hospital, a member of Boston University Medical Center. Editor is Jay D. Coffman, M.D., associate director of the Department; associate editor is Erica Saperstein. Staff artist is Catherine LeBlanc. ***Evans Medicine*** is produced by Boston University Medical Center's Office of Publication Services, Owen J. McNamara, director. Send any correspondence to the Evans Memorial Department of Clinical Research, 88 East Newton Street, Boston, MA 02118. Norman G. Levinsky, M.D., is director of the Department.

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