

# Division of Medical Sciences Alumni Newsletter



Fall 1998

Volume II, Number 2

*This is the second in a series of articles about the DMS Ph.D. Programs.*

## Virology

### A Ph.D. Program for the Times

At the general meeting of the Faculty of Arts and Sciences on March 8, 1983, Agenda Item 3 was duly considered. Professor Harold Amos of the Division of Medical Sciences (DMS) presented a proposal to offer a Ph.D. in Virology, the graduate program to be administered at Harvard Medical School under the auspices of DMS. The proposal was passed by a voice vote, and the Committee on Virology was born.

#### History

Of course, much was discussed among the faculty prior to March 8, 1983. In the early 1980's the University Committee in Biological Sciences surveyed the biomedical sciences at Harvard and identified three major areas in which it seemed appropriate to develop a graduate program. Those areas were neuroscience, virology, and genetics. Before leptin, before HIV and ebola, and before the maturation of genomics as an industry, faculty interested in virology saw the potential for organizing faculty and students around these merging fields of study.

In conjunction with the above University-wide efforts, DMS professors William Haseltine, Bernard Fields, Max Essex, and Stephen Harrison, comprising the Executive Committee of the Virology group, investigated the viability of a Virology Program. On April 17, 1981, these individuals met, decided that such a program was indeed warranted, and appointed professor David Knipe as the chair of the new program. All involved with the genesis of the program believed that a Committee on Virology could leverage the strength of faculty (e.g., structural biology, biochemistry, epidemiology, and pathology) with the common desire to understand viruses and how they interact with their hosts. The ability to use multi disciplinary approaches to the study of one type of life form could create opportunities for collaborative study.



*Virology students:*  
Seddon Thomas,  
Carlo Rizzuto, Peter  
Kolchinsky,  
Cheryl Day, Jason  
LaBonte, Richard Lu

#### What's Inside.....

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### For Alumni in the Boston Area

Meet and Join  
your Fellow Alums at a  
**WINTER  
SOCIAL GATHERING**

Sunday, January 17, 1999  
from 3:00-6:00 pm

at Dr. Dennis Vaccaro's '77  
Chair of the DMS  
Alumnae/i Working  
Committee

RSVP to Carole Somol:  
617-432-2405  
or <csomol@hms.harvard.edu>

## About Our DMS Alumnae/i Committee

*A Letter from the Chair*

Dear Fellow Alums,

Just a few words to update you on the progress of our new organization. As you know the DMS alumni/ae have organized a symposium for each of the last two graduations with speakers from our ranks presenting the latest research from their labs. These presentations have been uniformly excellent and I look forward to next year's. It is exciting to see the significant contributions made by DMS alums to discovery in the life sciences. As well we have just about completed the new directory of DMS Alumni/ae. Please help us to keep it up to date by letting us know about any recent address changes you have made or if you can fill in addresses for alums we have lost track of. Also, a lot of work has gone into producing the three newsletters we have produced so far. Finally, I want to thank everyone who has helped make these activities successful.

We are now in the midst of finalizing our organizational structure. The DMS Alumnae/i organization falls within that of the GSAS Alumni group and, as such, will have bylaws that reflect that circumstance. Within the next few months, we in the Working Committee should be finalizing that document which will outline how we are structured and how elections to office will occur. Following that we can then focus on what sorts of activities our organization should be performing. Please let me know any ideas, suggestions or comments you have on this matter or anything else we are doing. I look forward to hearing from you in the coming year.

Best regards,

**Dennis E. Vaccaro, Ph.D. '77**

**<dvaccaro@ix.netcom.com>**

For more information or to contribute contact:

***DMS Alumni Newsletter***

**Harvard Medical School**

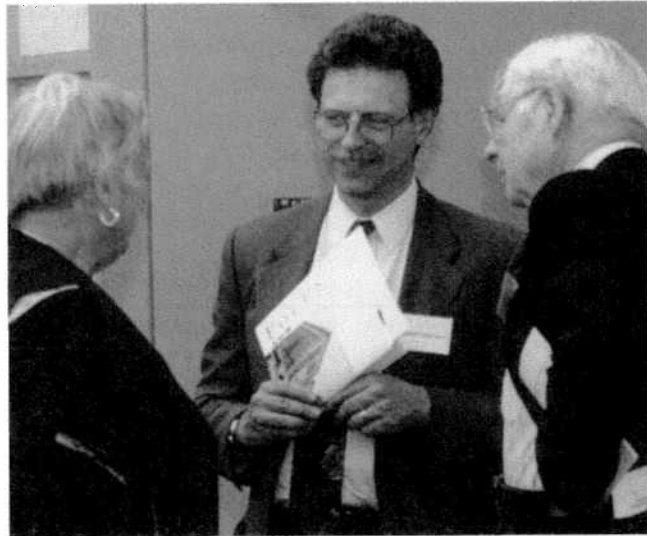
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Members of the DMS Alumni Working Committee at the 1998 DMS Degree Recipients' Reception  
(Susan Leeman '58; Chair, Dennis Vaccaro '77; George Hauser '55)

## ALUMNI WEEK SYMPOSIA

### PhD's Discuss Molecular Miscues Behind Disease

Alumni Week may be a time for old friends to reunite, but graduates of the Division of Medical Sciences (DMS) were busy drawing a different set of connections at their annual Alumni Symposium, held on June 3. Participants spoke about how they are pinpointing the molecular and cellular interactions that give rise to a wide variety of diseases, from the relatively rare Marfan's syndrome to notoriously common diseases such as Alzheimer's and breast cancer.

Familiar medical conditions, such as infertility, are also being understood in terms of defects in the interplay between cells and proteins, said the first speaker, **David Albertini, '75**. A professor of anatomy and cell biology at Tufts, Albertini told the audience of 50 people that when he was a graduate student, infertility was viewed largely as a problem between sperm and egg. Now researchers are looking at a more basic communication problem-between an immature egg cell, or oocyte, and its surrounding layer of nutritive cells, the follicle.

Albertini and his colleagues recently discovered that a protein, GDF-9, is critical to this interaction. When they knocked out the GDF-9 gene in mice, follicles failed to form normally, which in turn caused oocytes to deteriorate. HMS researchers David Paul and Dan Goodenough have recently discovered that knocking out the protein connexin 37 causes defects in oocyte development. Understanding the role of GDF-9, connexin 37, and other proteins in the development of oocytes and follicles could lead to new methods of restoring fertility, said Albertini.

Keeping the focus on women's health, **Elizabeth Neumann Spar, '92**, described how women experience a  
(con't. p.4)

*E:Mail Newsnotes*

Tell us what is new and interesting in your life.

Send your story to Newsletter Acting Co-Editor, George Hauser, ('51 Biochemistry)  
<[ghauser@warren.med.harvard.edu](mailto:ghauser@warren.med.harvard.edu)>

**Susan E. Rittenhouse**  
**'72 Biochemistry**

After migrations that have included Boston, Bethesda, and Burlington, Vermont, I am currently a Professor at the Kimmel Cancer Institute, Thomas Jefferson Medical College, Philadelphia PA. Having been "Susan R. Simmons" (at graduate school) and "Susan Rittenhouse-Simmons", I am going, more simply, with my given name "Susan E. Rittenhouse". I am active in signal transduction work, focusing most recently on integrin-triggered phosphoinositide kinase activation. My husband is Sandor Shapiro, an HMS alum. We both miss Boston and New England, but console ourselves with cross-country skiing trips to Vermont.

[rittenh1@jefflin.tju.edu](mailto:rittenh1@jefflin.tju.edu)

**Marja Van Zeijl, '91 Anatomy**

I enjoy reading about the post-graduate adventures of fellow students in the alumni newsletter, so here's my contribution:

I graduated in '91 from the Dept. of Anatomy and Cellular Biology, which I believe is now part of the department of Cell Biology. I left Harvard to do a postdoc at Lederle Laboratories, and a merger and several promotions later I am group leader of the Viral Biochemistry group in the Infectious Disease section of Wyeth-Ayerst Research, a division of American Home Products but still in the same location, about 25 miles north of New York City. My group consists of 6 researchers trying to identify compounds against human cytomegalovirus and hepatitis C virus. We develop high-throughput screening assays for viral enzymes and do a lot of basic research on the side and I still spend

time at the bench fortunately. My husband Fred Flitsch and I have two sons, 5 and 7 years old, and enjoy the combination of family and work.

[VANZEIM@war.wyeth.com](mailto:VANZEIM@war.wyeth.com)

**Glenn E. White, '83 Anatomy.**

I am currently an Associate Professor of Biology and University Honors Program Director at Ashland University, a small liberal arts university in North Central Ohio. I teach a variety of subjects: human anatomy and physiology, advanced physiology, cell biology, molecular biology, and histology. In spite of the heavy teaching load, I have managed to establish a research program involving our top seniors. We're analyzing the response of *C. elegans* to stresses such as hypoxia and heat shock. While modest in its scope, my students have made presentations at national and international meetings including ASCB and the International *C. elegans* Meeting. I have just assumed the directorship of the Honors Program and am looking to improve the offering in terms of quality and rigor. My wife Ginger is a Ph.D. candidate in Art History at Case Western Reserve University in Cleveland in addition to being a full time employee of the Akron Art Museum.

[gwhite@ashland.edu](mailto:gwhite@ashland.edu)

**Sheridan L. Swope**  
**'86 Pharmacology**

I did postdoctoral studies in the laboratory of Richard Huganir in the Department of Neuroscience at the Johns Hopkins Medical School. Since 1995 I have been an assistant professor at the Georgetown Institute for Cognitive and Computational Sciences at the Georgetown University Medical Center. My laboratory is testing the importance of Src family protein tyrosine kinases in synaptogenesis and synaptic function at the neuromuscular junction.

[swopes@giccs.georgetown.edu](mailto:swopes@giccs.georgetown.edu)

[www.dml.georgetown.edu/depts/neurology/giccs](http://www.dml.georgetown.edu/depts/neurology/giccs)

**Susan Swain, '74 Immunology**

Susan Swain has the honor of being the first graduate of the Immunology Program in the Division of Medical Sciences. In fact, she began her work with her mentor, Dr. Albert Coons, even before the Program began. Dr. Swain subsequently went to the University of California, San Diego for postdoctoral training in tissue culture techniques. She stayed on there as a faculty member and went up the academic ladder to become Professor of Biology. In 1996 Dr. Swain became director of the Trudeau Institute in Saranac Lake, New York. The Institute was founded in the 1800's as a sanitarium for patients with tuberculosis. In 1964 it became an Institute for the study of the basic immunology of infectious diseases. Susan directs a total staff of approximately 100 people, including 13 principal investigators. She is married to Richard Dutton, an immunologist at Trudeau Institute. They have two children.

[sswain@northnet.org](mailto:sswain@northnet.org)

*It's not too early to plan  
for June 9, 1999  
Remember the Reception  
from 6:00-8:00pm  
1999 PhD Degree  
Recipients and DMS  
Alumni  
More to come in the next  
Newsletter.*

### Symposium (con't..)

decrease in their estrogen levels during menopause. Spar, who was a research associate at the Dana-Farber Cancer Institute, discovered that the protein cyclin D1 regulates the activity of estrogen receptors. Because tumors with estrogen receptors are more likely to respond to chemotherapy, increasing levels of cyclin D1 in postmenopausal breast cancer patients could enhance treatment.



Elizabeth Spar '92    David Albertini '75

### A Role Player in Alzheimer's

Researchers are also exploring how proteins interact to cause Alzheimer's disease. **William Rebeck, '91**, described how the protein ApoF binds amyloid-beta (A $\beta$ ), the protein that makes up the ruinous plaques found in the brains of Alzheimer's patients. Although it is not clear how ApoE interacts with A- $\beta$ , it appears to be involved in the growth of amyloid plaques rather than their initial formation. Intriguingly, some forms of ApoE may be more damaging than others. Rebeck, who is an assistant professor of neurology at MGH, also described how people carrying the gene for ApoF 4 are at higher risk for developing the disease at an early age. Once they have it, the proportion of cortex covered by plaques is significantly greater, said Rebeck. "We're beginning to put together a genetic picture of individuals to see (con't.p.6)

### Virology (con't.)

The original twenty-eight faculty members included structural biologists, retrovirologists, pathologists, and immunologists. The faculty has always included those whose area of study centered on all aspects of one virus (e.g., everything you wanted to know about HTLV), or alternatively, one aspect of all viruses (e.g., how the immune system can be effective against a wide range of viruses). Today, the forty-eight faculty laboratories are involved in the study of emerging pathogenic agents, molecular pharmacology, and use of viruses as probes for the study of cellular processes.

Colton Smith was the first student to reap the benefits of the newly formed program. Admitted to the program in September of 1984, Colton conducted his thesis work in Professor Priscilla Schaffer's laboratory at the Dana-Farber Cancer Institute and successfully defended his thesis entitled "Molecular Genetics of the HSV Type 2 Gene Encoding ICP4" on August 23, 1988. Colton is now a Research Fellow at the University of Pittsburgh School of Medicine in Pittsburgh, Pennsylvania.

After serving as Virology Program Head for nine years, Professor Knipe became the first head of the "Triad" Program. Reovirologist Bernard Fields served as interim head of Virology for about six months before Professor Elliott Kieff became head of Virology in 1991.

Kathleen McDonald has served tirelessly and effectively as the program administrator for the Committee on Virology since 1987, managing and coordinating all administrative functions and activities associated with the Program.

### Program Structure

During the first year of study, students are exposed to DMS core courses in genetics, biochemistry, cell biology, immunology, and microbiology, as well as Virology's own animal virology course. Students are advised by a Graduate Student Advisory Committee until a thesis laboratory is chosen after two to three rotations. Once the students pass the preliminary exam at the beginning of the spring semester of their second year, each student's thesis advisory committee serves in the advisory role.

The program also hosts a weekly seminar series featuring Harvard faculty in the fall semester and other leading virologists in the spring semester. In 1998, speakers included Drs. David Ho, Stephen Goff, and Bernard Moss. In addition, weekly Virology journal clubs and luncheons are specifically designed to allow first and second year students to interact informally with the faculty and more senior students. The program also sponsors dinners, receptions, and social outings.

### Current Aspects and Future Directions

Virology has always been a focused program. In the fall of 1998, ten virology students entered the graduate program at Harvard, joining twenty-eight other virology students, the most the program has ever had at one time. Many of the students find the relatively small size of the program and the high faculty/student ratios appealing. With fewer students, it is easier to get to know one another, develop professional and personal relationships, and organize social events.

Shawn Jefferson, a second year virology student reflecting on the past year, speaks for many students in the program in commenting, (con't. p.5)

"The students are a rather tight-knit group. The size of the Virology Program allows its members to feel more like friends than just people in the same department. The Virology faculty [members] are easy to interact with. There's an interest in the students that passes beyond just our research interests, which is really nice." Carlo Rizzuto, a sixth year student about to defend his thesis, agrees that the small size of the program is a benefit. Carlo worked as a paralegal at a patent law firm in Manhattan before coming to Harvard. He accepted the offer from this program over others because of the reputation and the quality and diversity of laboratories available to him at Harvard. In choosing to conduct his thesis research in Professor Joseph Sodroski's laboratory at the Dana-Farber Cancer Institute, Carlo recalled, "I was interested in retroviruses, but I wanted to avoid HIV. At that time there was only a few labs working on HIV/SIV and murine leukemia virus. The only retrovirus lab I rotated in was Dr. Sodroski's, and I had a great experience. Weighing the positive and negative aspects of HIV research, I felt this was the best lab." Earlier this year, Carlo was the first author on a *Science* paper relating to HIV-1 envelope glycoprotein structure.



*Virology Students:* Mark Brockman, Mauritus Kleijnen, Sara Klucking, Beth McNamee, Heather Adkins, Travis Taylor and Sophie Snitkovsky

Despite Shawn's and Carlo's general approval of the program, both feel that more can be done to integrate more advanced students with the first and second year students: "There seems to be a progression where grad students in the early

years of the program are pretty closely involved with the incoming classes. The second year students get to know the first year students pretty well." However, encouraging interaction continues to be a challenge, as each successive year the students spend less and less time involved with the program.

Shawn hasn't lost touch yet, but she sees another challenge, namely funding. She indicated that because of its size, which has positive value to the students and their studies, virology is unable to achieve the level of funding found in larger programs.

As for jobs the Virology Ph.D.'s pursue after graduation, Carlo plans to assume a post-doc position in Prof. Linda Buck's laboratory in the Dept. of Neuroscience at Harvard Medical School. When asked if he has any qualms about a career in academics, he concluded, "No, none at all. The way I see it is: I'll pursue academics until I don't want to anymore. Then I can think about doing something else. It's relatively straightforward to transition into areas outside of science. I don't have any reservations about beginning in academics." Of the thirty-five Virology graduates, twenty-four have pursued academic careers.

Some virology alumni have decided to leave academic science for other careers. After completing her thesis work with Professor David Livingston at the Dana-Farber Cancer Institute, Suman Shirodkar joined management consultants McKinsey & Co. as an associate in 1994. Alyssa Shepard, who graduated in 1990, now works with the patent counsel for Creative BioMolecules, Inc., a biotechnology firm in Hopkinton, Massachusetts. Seven other alumni have selected private industry. One alumnus has pursued another degree, an MBA, and has joined a law firm, while one is in medical school.

The Virology program continues to grow, perhaps because of the increased visibility of viruses like hanta, ebola, and HIV in college biology courses and in popular culture, and perhaps because students feel that they can contribute to society through the study of such viruses. Whatever the reason, the Virology admissions committee has seen more applicants with the motivation, preparation, and maturity that are the hallmarks of success in graduate school. Clearly, the appeal of viruses has never been greater. Many current students hope, however, that the growth of the program can be managed without negating the advantages of the its small size.

*Article written by Dr. John Li ('95 Virology) with edits by Drs. Elliott Kieff, Tom Fox, Jocelyn Spragg ('69 Micro), and Ms. Kathy McDonald, Program Coordinator.*

## Symposium (con't.)

the risk of developing Alzheimer's disease later in life," he said. Since there are no known cures or preventive measures, Rebeck said he did not advocate the widespread use of genetic tests for Alzheimer's at the moment.



Reed Peyritz '72

William Rebeck '91

Yet genetic tests could be extremely useful for those at risk of developing Marfan's syndrome, said **Reed Peyritz, '72**. Marfan's syndrome, which affects one in 4,000 people, is characterized by attenuated limbs, curved spines, ocular defects, and, most damaging, cardiovascular defects. Several years ago, Peyritz, who is chair of the Department of Human Genetics at MCP-Hahnemann School of Medicine, in collaboration with colleagues, discovered that the fibrillin gene is mutated in people with Marfan's syndrome. Fibrillin interacts with other proteins to form elastin fibers, which are the basis for skin, bone, and other tissues. A mutation in the fibrillin gene could easily produce widespread abnormalities, Peyritz said.

Fortunately, Marfan's syndrome can be effectively treated. In fact, several years ago, Peyritz helped develop and test surgical and chemical protocols that have saved the lives of hundreds of Marfan's patients. "Yet seven years after the discovery of the mutation in the fibrillin gene, there is not a single lab providing diagnosis of Marfan's using a genetic test," said Peyritz.

by Misia Landau

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## The Division of Medical Sciences

will be celebrating

ITS 90<sup>th</sup>

Anniversary

in

1999-2000

The DMS Alumnae/i  
Working Committee is actively  
looking for alumni interested in  
planning and organizing some  
special events.



What ideas do you have for events?

One idea is to formulate an honor roll of faculty and alumni that will identify unique accomplishments, for example: Nobel Prize winners; progress towards diversity.

Please plan to contribute your ideas and your energy to making the celebration a success by contacting any of the members of the working committee, listed below, or Carole Somol, by email or FAX.

Dennis Vaccaro, '77, Physiology :  
<dvaccaro@ix.netcom.com>

Harold Amos, '52, Microbiology : FAX: 617-738-7664

George Hauser, '55, Biochemistry :  
<warren.med.harvard.edu>

Jocelyn Spragg, '69, Microbiology :  
<jspragg@hms.harvard.edu>

# ALUMNI NEWS

## **Porter Anderson,**

University of Rochester School of Medicine  
Professor Emeritus of Pediatrics

On September 10, 1998, Dr. Anderson was informed that he will receive an Infectious Diseases Society of America (IDSA) Citation. The Citation will be presented at the IDSA Annual Business Meeting on Saturday, November 14, 1998, in Denver, Colorado. The Society Citation is given in recognition of the development of effective vaccines for the control and virtual elimination of invasive disease due to *Haemophilus influenzae type b (Hib)*.

email:<110754.1154@compuserv.com>

**Cyril M. Kay, '56 Physical Biochemistry** is now professor emeritus in the Biochemistry Department at the University of Alberta which he joined in 1958. He is also a founder and principal investigator of the Protein Engineering Network of Centres of Excellence, a scientific alliance across Canada of some 50 researchers whose mission it is to interact with industry, government and other academic centers. Since 1974 he has been co-director of the Medical Research Council of Canada Group in Protein Structure and Function, winning the distinguished scientist award on the occasion of the 75th anniversary of the medical school at the University of Alberta.

Dr. Kay has served on a number of committees, both at his institution and on national and international organizations. He is a past president of the Canadian Biochemical Society, a past associate editor of the Canadian Journal of Biochemistry and the founding editor of Paabs Review, a review journal in biochemistry and molecular biology.

Dr. Kay has published more than 270 papers in physical biochemistry, focused mainly on the structure-function relationships of muscle and calcium-binding proteins. Especially noteworthy among his numerous distinctions and awards are election as Fellow of the New York Academy of Sciences, as Fellow of the Royal Society of Canada and as member of the Order of Canada.

**Charles O. (Chip) Rutledge, '66 Pharmacology** is Professor of Pharmacology and Dean at the School of Pharmacy and Pharmacal Sciences of Purdue University as well as at the Schools of Pharmacy, Nursing and Health Sciences. He has held these posts since 1987 following a distinguished career at the University of Colorado School of Medicine (1967-75) where his Harvard advisor, Norman Weiner, was pharmacology chairman, and as Chairman of the Department of Pharmacology and Toxicology at the School of Pharmacy, University of Kansas (1975-87). During the latter period he was also the Victoria Professor of Pharmacology at the Victorian College of Pharmacy in Australia.

His studies include the neurochemical mechanism of action of amphetamine and the metabolism of levodopa in Parkinsonism patients. He also led a large project on the lipid environment necessary for the optimal function of neurotransmitter receptors and amine carriers.

Chip has been very active in professional organizations as member and chairman of a variety of committees, particularly of the American Association of Colleges of Pharmacy and the American Society for Pharmacology and Experimental Therapeutics. He has served as president of both these societies.

According to colleagues Chip seeks out leadership positions, sets standards and defines his vision for the future, focusing on the most important problems. He is described as an individual who plans carefully, pursues the truth and demands the best of his associates. These qualities are blended with a fine sense of humor.

Dr. Rutledge and his wife Jane have a son and three daughters, all of whom have now graduated from college. The parents live in West Lafayette, Indiana.

*NEWS.....INFORMATION.....COMMENTS*

*Is there anything you would like to communicate to your fellow DMS alumnaeli?*

*We would be glad to edit and print it in the next newsletter.*

*This is your newsletter—participate in making it successful!!!!!!*

## Diversity in Research Careers

On **March 4, 1999, from 3 to 5 PM,**

the Division of Medical Sciences will sponsor a panel discussion of  
**successes, strategies, and challenges**

for advancement of women and members of under-represented minority groups in research careers.

The panelists will include a diverse group of academicians  
with expertise in the assessment and practice of faculty development:

**Professor Virginia Valian**, Hunter University, author of "Why So Slow: The Advancement of Women";

**Professor Joseph L. Martinez, Jr.**, University of Texas at San Antonio,

formerly faculty assistant to the chancellor for affirmative action at UC Berkeley

**Professor Deidre Labat**, Xavier University, Vice President for Academic Affairs.

**A reception for the panel and audience will follow from 5 to 6 PM.**

*This event is part of the "Celebration of the 30th Anniversary of Affirmative Action"*

*Looking Ahead: Other events coming up*

Wednesday, **June 9, 1999**, 4pm-6pm, Symposium

6pm-7pm Coleus Society Reception

Thursday, **June 10, 1999**, 9am-12 Noon, Presentations by HMS/HSDM Minority Alumni

### *NEWS.....INFORMATION.....COMMENTS*

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