

Alkon, Daniel - National Institutes of Health
"Memory"

Andersen, Bruce - University of Idaho
"Squid Lab and Microscopy Techniques"

Awad, Issam - Yale University
"Philosophy of Science and Scientific Method"

Bernstein, Kerry - IBM Corporation
"The Microprocessor Chip's Brain Metaphor"

D'Amore, Patricia - Schepens Eye Institute
"Angiogenesis and Neoplasia"

Dempsey, Robert - University of Wisconsin
"Academic Careers and Tracks"

Edgerton, Reggie* - University of California, Los Angeles
"Repetitive Patterned Exercise Therapy"

Fallon, Justin - Brown University
"Synapse Formation and Plasticity"

Friedlander, Robert - Brigham and Women's Hospital/
Children's Hospital
"Programmed Cell Death"

Friedman Allan - Duke University
"Academic Careers and Tracks"

Galbraith, Jim - National Institutes of Health
Squid Lab

Gallant, Paul E. - National Institutes of Health
Squid Lab

Greer, Charles - Yale University
"The Olfactory Bulb as a Model Neural System"

Gunel, Murat* - Yale University
"Signaling Pathways and Neural Cell Fate"

Hodge, Charles - SUNY @ Syracuse
"Academic Careers and Tracks"

Haddad, Gabriel - Yale University
"Fruit Fly Genes and Neuronal Tolerance to Hypoxia"

Louis, David - Massachusetts General Hospital
"Glial Neoplasia"

Martuza, Robert - MGH and Harvard Med School
"Viral Vectors for Tumors and other Therapies"

McDonald, John W.* - Washington U. School of Medicine
"Stem Cells as Therapeutic Agents"

Oldfield, Edward - National Institutes of Health
"Convection Delivery to the Brain"

Reese, Thomas - National Institutes of Health
"History of the Marine Biology Lab"

Rosenthal, Nadia - Massachusetts General Hospital
"Introduction to Molecular Genetics"

Schwob, James - Tufts University School of Medicine
"Neural Regeneration"

Shaywitz, Bennett and Sally - Yale University
"Neurobiology of Reading & Dyslexia"

Silver, Jerry - Case Western Reserve University
"Glial Barriers and Scarring"

Simard, J. Marc - University of Maryland
"Cerebrovascular Smooth Muscle Physiology"

Spencer, Dennis* - Yale University
SPECIAL LECTURE
"Biology of Epileptogenesis"

Vallano, Mary Lou - SUNY @ Syracuse
"Signaling Systems in Apoptosis"

Walker, Michael
National Institutes of Health
"Project Design and Grantsmanship"

* Denotes New RUNN Faculty



Splendid Science in a Unique Setting

Review and Update in Neurobiology for Neurosurgeons

October 15-22 2000

Sponsored by The Society of
Neurological Surgeons

Course Director: Issam Awad

Co-Directors: Charles Hodge, Edward
Oldfield, Allan Friedman, Robert Dempsey

Course Coordinator: Catherine Awad



View from Swope Hall

Mission Statement

The Mission of the course Research Update in Neurobiology for Neurosurgeons (RUNN) is to provide an introduction to and update of the latest concepts, hypotheses and methods of neurobiology and neuroscience relevant to neurological surgery. These are presented by accomplished neuroscientists in an atmosphere emphasizing scientific rigor, highlighting models of career development for neurosurgeon-scientists, and illustrating potential future neurosurgical applications. A milieu of total immersion in scientific discourse is designed to foster creative discussions among neurosurgical trainees and faculty.

Historical Background and Setting

The RUNN course was the brainchild of Henry Schmidek, formerly of Harvard University and the University of Vermont. The course was conceived in response to the anticipated expansion of neurosciences, which he predicted in the early 1980's. The course was to combat what he perceived as potential illiteracy in basic neurobiology that he feared would weaken the specialty of neurosurgery.

As so many neuroscientists from New England, Dr. Schmidek was very familiar with the Marine Biological Laboratory (MBL) at Woods Hole, Massachusetts. Established in 1888 as a non-profit institution devoted to research and education

in basic biology, the MBL has been called "the uniquely national center for biology in this country" (Lewis Thomas, *The Lives of a Cell*). Scientists and students throughout the world come to MBL to conduct research, teach, study and collaborate. They often use the diverse and abundant organisms found in surrounding waters as model systems. Here research ships leave everyday to study the pristine waters around Martha's Vineyard sound and to collect and maintain more than 200 species of marine life. There are 230,000 square feet of research space, and a splendid library with an extraordinary repository of books and journals and incredible electronic connectivity to everything biological. It is here that the giant squid axon was (and continues to be) so closely studied unfolding the splendid story of molecular mechanisms of neural function. There are incredible microscopy facilities, numerous amphitheaters and teaching facilities, a quintessential scientific community in true life and work, and a magnificent setting for creativity and scholarly productivity. And there is Swope Hall, a simple dormitory sleepily straddling a quaint harbor, with a friendly staff that knows how to host students and scholars. It is all in Woods Hole, that lovely little spot, and ideal gateway, along the magnificent coast of Cape Cod and nearby islands. With miles of bicycle trails and nearby ferries, the only competition to diligent scholarship at Woods Hole is the inspiring call of nature.

It is here that Henry Schmidek cast his RUNN course, and lobbied other residency program directors to send their trainees once a year. By the mid-1980's it was an established offering for two weeks each fall, immersing neurosurgery residents from New Orleans to Saint Louis, from Minnesota to Maryland, and from San Francisco to New York city. The faculty included scientists from the MBL, demonstrating microscopy and dissection and scientists from New England universities who would drive to MBL for one or two days to participate in RUNN. There would also be neurosurgery's rising academic stars as role models, and wiser icons telling their tales of successes and challenges in the laboratory.

There was nothing like it in neurosurgical education, and there still is not. The founding mission of the RUNN course remains relevant today, and its culture and milieu remain as appealing. This crown jewel of American neurosurgical education was adopted in the late 1980's by the American Association of Neurological Surgeons (AANS) and later by the Joint Committee on Education of the AANS and the

Congress of Neurological Surgeons (CNS). This endorsement and administrative oversight by organized neurosurgery heralded an era of expansion and uninterrupted success under the Directorship of Charles Hodge, of Syracuse, New York, with his lovely wife Cathy shepherding the Course as its coordinator. In the mid 1990's Dr. Hodge became Co-Director, passing the helm of Directorship to the late Cordell Gross, of Burlington, Vermont. In what has become a course tradition, Linda Gross served as Course Coordinator.

During this period, Charlie and Cordell cultivated a core of devoted faculty from the MBL, Syracuse, Vermont, Harvard, Brown, the National Institutes of Health (NIH), and other institutions who would participate on a regular basis as faculty. Many still receive the highest ratings from RUNN course attendees, and return again. Other RUNN attendees eventually became academic stars, and later leaders in neurosurgery and have become dedicated faculty. A requirement for faculty participation remains — that the individual be an active and accomplished scientist, speaking on topics he/she actively investigates, and that he/she be an effective speaker. Only those who are highly rated would be invited again. Many would dazzle and inspire, casting truly unforgettable lectures or discussions. The days would be filled with lectures, unhurried, with plenty of time for discussion. There would be long blocks of time for reading in the library, or for creative and vivid discussions with beer, wine and munchies late into the night. Friendships would be forged among attendees, and research ideas and even an occasional scholarly career would be hatched. All attendees stay at the dorm at Swope Hall, where the legendary cafeteria is like no other, and the views from each simple bedroom (many shared by two residents) as memorable.



Lecture in Session



MBL Pond

The Society of Neurological Surgeons and RUNN Course Leadership

Because of untimely illness in 1998, Dr. Gross asked to step down from the Directorship of the RUNN Course which he had grown to love so much. The opportunity of change of leadership allowed a re-examination and re-commitment to the Mission and core values of the RUNN Course. The AANS and CNS asked the Society of Neurological Surgeons (SNS) to assume sponsorship and oversight of the course. Established in 1920 the SNS is known in neurosurgical lore as the "Senior Society" or organization of North American Residency Program Directors. The SNS would insure Program Directors' continued commitment to this unique educational offering, and ensure residents' continued participation.

The Executive Committee of the SNS asked Issam Awad, of Yale University, to assume Directorship of the Course in 1999. Dr. Awad had participated as a RUNN faculty for many years, and had helped Drs. Gross and Hodge as Co-Directors in 1997 and 1998. Dr. Awad's lovely and talented wife Cathy became Course Coordinator, continuing the RUNN tradition of personal contact with faculty and attendees and administrative attention to every detail of course scheduling and organization.

discussed the Biology of Epileptogenesis, and emphasized the neurosurgeon's role in translating clinical questions to the laboratory bench, and scientific applications back to the bedside. Dr. Spencer then joined the Course Directors in a panel discussion on Academic Careers and Tracks. It was a session which residents will remember for years to come.

The collegial atmosphere at Swope Hall remains unchanged, as do the memorable late night sessions with munchies and beer and wine... We preserved several blocks of free time, and the extraordinary one on one interactions with faculty and among attendees. Each attendee received a complimentary copy of the 1,600 page textbook *Fundamentals of NEUROSCIENCE*, edited by Zigmond, Bloom, Landis, Roberts and Squire (Academic Press 1999), a magnificent reference to topics covered in the lectures, and an outstanding source of suggested reading.

A Splendid Cast of Faculty

The faculty and topics (see list) represented a virtual who's who of American neuroscience. There were 29 faculty, representing an extraordinary student/faculty ratio of 1.6/1.0 (excluding two course co-directors who did not lecture). The topics varied from fruitflies' genes mediating tolerance to neuronal hypoxia to cortical organization of language disorders and Harvey Cushing's dyslexia. Several lectures discussed apoptosis, signaling pathways and their modulation, and strategies for stem cell research, neural regeneration and healing barriers. Attendees were mesmerized by the dynamic speakers and a true realization of the splendid explosion of knowledge and possibilities. Many discussed personal choices in research mentorship and career direction.

Many faculty members had participated in the RUNN Course for several years, and all promised to come again if invited. The faculty evaluations included countless constructive suggestions for next year. Individual faculty mean evaluation scores ranged 1.2 to 2.7 (scale 1-5, 1 best), with more than half scoring better than 2.0 (good), and none averaging a score of 3.0 (average) or worse.

Future Course Dates Marine Biology Laboratory Woods Hole, MA

October 20-27, 2001
October 27-November 3, 2002
October 26-November 2, 2003
October 30-November 6, 2004
October 23-30, 2005
October 22-29, 2006

RUNN Course Attendees October 15-22, 2000

Participant	Institution
Akin, Eric MD	U. of Mississippi
Alp, Serdar MD	U. of Illinois-Chicago
Angevine, Peter D. MD	Columbia
Arthur, Adam MD	University of Utah
Bui, Cuong MD	Suny @Syracuse
Chiang, Veronica MD	Yale University
Cohen, Ben MD	Albany Medical Center
Cook, Shon MD	UCLA
Corsten, Luke A. MD	U. Of Illinois-Chicago
Curry, Daniel MD	U. of Chicago
D'Ambrosio, Anthony MD	Columbia
Dorros, Ari MD	Millard Fillmore Hospital
Figueroa, Santiago MD	Loma Linda U
Filardi, Tanya MD	U. Of Kansas
Finkelstein, Eric MD	Montefiore/AECOM
Friedman, Jonathan MD	Mayo Clinic
Geertman, Robert MD	CWRU
Greene, Stephanie MD	Penn State
Hadjipanayis, Costas MD	University of Pittsburg
Henry, Matthew N. MD	U. of Texas HSC-San Antonio
Kasowski, Hannah MD	Yale
Kurpad, Shekar N. MD	CWRU
Lee, John Y. MD	UPMC-Pittsburgh
Lee, Mimi Cecilia MD, PhD	Washington University, St. Louis
Limonadi, Farhad M. MD	Oregon Health Sciences
Lozier, Alan MD	Columbia
Maher, Philip MD	U. Of Cincinnati
Mattingly, Thomas MD	University of Maryland
McPherson, Christopher M. MD	U. of Cincinnati
Michael II, L. Madison MD	UT Memphis
Mobasser, Jean-Pierre MD	U. of Tennessee
Narayan, Prithvi MD	Emory Clinic
Nathan, David MD	Vermont
Nemcek, Andrew MD	U. of Washington

The organizing committee recruited Charles Hodge, Cordell Gross, Edward Oldfield, Robert Dempsey and Allan Friedman as RUNN Course Co-Directors in 1999. Drs. Hodge and Gross provided continuity of contacts and experience until Cordell's untimely passing away in the winter of 2000. Oldfield allows special access to faculty expertise from the NIH, and Friedman and Dempsey provide liaison with the SNS Executive Committee. All have extensive prior experience with RUNN, and are themselves neuroscientist role models. All participate in curriculum planning and faculty recruitment, and in personal contacts with Program Directors to enhance participation in the RUNN Course.

The 2000 RUNN Course Curriculum: Tradition and Innovation

The founding mission and core values of the RUNN Course remained unchanged for this year's offering in 2000, and the SNS Executive Committee (representing North American Residency Program Directors) has rearticulated commitment to the Course and its leadership.

In response to recent course evaluations and discussions with Program Directors and residents, the course was shortened in 1999 from two weeks to one full week, with travel days on both weekends, and this format which was very popular last year was maintained. Length of individual lectures remained unchanged, including evening sessions. Curriculum content was reshaped to include lectures covering the spectrum of molecular, cellular and systems neuroscience. These included coverage of topics on molecular genetics, signaling and receptors, stem cells, cell death, regeneration, oncogenesis, glial barriers, vascular tone and phenotype, chaos theory, cognitive information science, circuit modeling, and higher cortical function. There were focused tours of the MBL laboratories and the very popular microscopy seminar with hands-on dissection of squid giant axon (challenging the dexterity of the most agile young neurosurgeons!). There were discussions on academic career development, grantsmanship, history and philosophy of science and the scientific method, and history of the MBL. And, there was the traditional opening get-acquainted reception and Course Orientation, and the farewell Clambake and certificate ceremony.

The 2000 Special Lecture was delivered by Dennis Spencer, the Kate and Harvey Cushing Professor and Chairman of the Department of Neurosurgery at Yale University. Dr. Spencer

An Enthusiastic Cast of Attendees

There were 56 attendees from 46 Programs (see list) with a balanced distribution among all regions of the United States. This represents a 33% increase in registered attendees as compared to 1999. We will work hard until we achieve representation of at least one participant from each North American Program. The future of American neurosurgery depends on the literacy and engagement of the next generation of neurosurgeons in the possibilities of neurosurgery. The RUNN course is a catalyst towards that end.

Generous Educational Grants

We acknowledge generous educational grants in support of the 2000 RUNN Course by the Bayer Corporation, Pharmacia-Upjohn and the Danek Corporation. These contributed to subsidizing general operating costs, faculty travel, honoraria, and the purchase of a reference textbook for each participant. Zeiss Corporation provided a grant for our special lecture and Idaho Neurological Institute donated neurosurgical instruments.

Toward RUNN 2001 and Beyond!

We have finalized space contract with the MBL for the years 2000 through 2005. The RUNN 2001 will take place from October 20-27, 2001. The SNS and the Course Co-Directors and Coordinator are committed to maintaining the best of the RUNN Course, while continuing to strive to enhance curriculum content and value to each registrant. We continue to call on Residency Program Directors to support this unique gem of North American Neurosurgical Education, by providing their residents the opportunity of exposure to and update on the best of neurobiology. We hope that future courses will also appeal to fellows and young faculty at formative stages of their academic careers, and to practicing neurosurgeons who want to get reacquainted with the future of neurosurgery!

<http://www.societyns.org>

Nemecsek, Andrew MD	U. of Washington
New, Kent MD	Duke
Oyelese, Adetokunbo A. MD	Stanford University
Papavassiliou, Steve MD	MC of Wisconsin
Rosen, Charles L. MD	George Washington U.
Senatus, Patrick MD	Columbia
Siadati, Abdolreza MD	Baylor College of Medicine
Siddiqui, Adnan MD	SUNY UM
Snell, Brian MD	U. of Oklahoma
Soleau, Scott MD	University of Utah
Spiro, Richard M. MD	University of Pittsburgh
Sungarian, Arno MD	Brown
Taylor, Chris MD	CWRU
Tekule, Francesca MD	Indiana University
Tomak, Patrick MD	Emory
Underwood, Bill MD	Wayne State University
Virella, Anthony A. MD	UCLA
Walsh, Brian MD	Medical College of WI
Wang, Marjorie MD	U. of Colorado
Watson, Marshall MD	U. of Rochester
Witwer, Brian MD	University of Wisconsin
Wolinsky, Jean-Paul MD	Baylor
Youkilis, Andrew S. MD	University of Michigan



Course Directors and Special Lecturer