

Faculty & Topics Marine Biological Laboratory Woods Hole, MA

Alkon, Daniel
Blanchette Rockefeller Neurosciences Institute
"Memory"

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

Bracken, Michael
Yale University
"Clinical Trials Methodology"

Constable, Todd
Yale University
"Cortical Plasticity in Humans"

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

Edgerton, V. Reggie
University of California, LA
"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"

Gault, Judith
University of Colorado
"Introduction to Molecular Genetics I-II"

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

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

Kondziolka, Douglas
University of Pittsburgh
"Neurotransplantation"

Khurana, Vini
Mayo Clinic
"Gene Therapy"

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

Oyesiku, Nelson
Emory University
"Molecular Biology of Pituitary Adenomas"

McDonald, John W.
Washington University School of Medicine
"Stem Cells as Therapeutic Agents"

Reese, Thomas
National Institutes of Health
"History of the Marine Biological Laboratory"

Rutka, James
SPECIAL LECTURER
University of Toronto
"Molecular Biology of Brain Tumors"

Schwob, James
Tufts University
"Neural Regeneration"

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

Simard, Marc
University of Maryland
"Cerebrovascular Smooth Muscle Physiology"

Tyler, Kenneth
University of Colorado
"Viral Infections and the CNS"



Stimulating Science in a Unique Setting

**RESEARCH UPDATE
IN NEUROSCIENCE
FOR NEUROSURGEONS (RUNN)**
OCTOBER 29-NOVEMBER 3, 2002

Sponsored by:
THE SOCIETY OF NEUROLOGICAL SURGEONS

Course Director:
ISSAM AWAD

Co-Directors:
BRUCE ANDERSEN, ROBERT DEMPSEY,
ALLAN FRIEDMAN, CHARLES HODGE, EDWARD
OLDFIELD AND NELSON OYESIKU

Course Coordinator:
CATHERINE AWARD

RUNN Course Leadership

Since 1999, the RUNN Course has been entrusted to the leadership of Course Director Issam A. Awad (of the University of Colorado), and Co-Directors Charles Hodge (of SUNY at Syracuse), Edward Oldfield (of the National Institutes of Health), Allan Friedman (of Duke University), Robert Dempsey (of the University of Wisconsin), and Bruce Andersen (of the Idaho Neurological Institute). Dr. Andersen works closely with Jim Galbraith and Paul Gallant (both of the National Institutes of Health) on the squid lab and microscopy workshop. In 2002, Nelson Oyesiku was invited to serve as CO-Director, assisting in the scientific program. Course Coordinator, Catherine Awad, who works to insure RUNN is executed flawlessly, carries out countless organizational, administrative and accounting tasks throughout the year.

The 2002 RUNN Course Curriculum: Tradition and Innovation

The founding mission and core values of the RUNN Course remained unchanged for this year's offering in 2002, and the SNS Executive Committee (representing North American Residency Program Directors) rearticulated its 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 week-ends. This format, which was very popular in the last 3 years, has been maintained. The length of individual lectures remains unchanged, including evening sessions. Curriculum content has been reshaped to include lectures covering the spectrum of molecular, cellular and systems neuroscience. These include coverage of topics on molecular genetics, signaling and receptors, stem cells, cell death, regeneration, convection delivery, oncogenesis, glial barriers, vascular tone and phenotype, cognitive information science, circuit modeling, and higher cortical function. New topics addressed neurogenesis, gene therapy, functional imaging and higher organization and evidence based neurosurgery, among others. There are 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 were the traditional opening get-acquainted reception and Course Orientation, and the farewell Clambake and certificate ceremony.

The 2002 Special Lecture was delivered by James Rutka, MD PhD, director of The Labatt Brain Tumor Research Centre, and Chairman of the Division of Neurosurgery at the University of Toronto. He discussed recent insights into the molecular machinery of pediatric brain tumors. Particular emphasis was on the unique multidisciplinary methods he and the residents in his lab are using to identify the culprit genetic mutations, and the implications of these discoveries on the future of oncologic neurosurgery. Dr. Rutka also spent much time with the course participants sharing his insights into academic career development and the feasibility of integrating world class research into a stimulating and challenging clinical practice.



The collegial atmosphere at Swope Hall remained unchanged, as were the memorable late night sessions with snacks, beer and wine. We preserved several blocks of free time, and the extraordinary one on one interaction among faculty and attendees. Each attendee received a complementary copy of the 1,600 page textbook: Fundamentals of Neuroscience, edited by Zigmund, 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 22 faculty and 5 directors, representing an extraordinary student/faculty ratio of 2.7/1.0 (excluding course co-directors who did not lecture). Attendees were mesmerized by the dynamic speakers and a true realization of the splendid explosion of knowledge and possibilities. Many of the residents discussed personal choices in research commitments and career direction. Many faculty members had participated in the RUNN Course for several years, and all promised to come again if invited. The Course evaluations included countless constructive suggestions for next year. Individual faculty mean evaluation scores ranged 1.2 to 2.2 (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.

An Enthusiastic Cast of Attendees

There were 70 attendees from 69 Programs (see list) representing programs throughout the United States, Canada and Puerto Rico. This is our largest attendance to date. Our goal is to attract one neurosurgeon from each neurosurgical program in North America. We will work hard until we achieve representation of at least one participant from each North American Program. The future of the RUNN course is a catalyst towards that end.

Our participants continue to be enthusiastic. It is exciting to see the participants swept up into a topic and engaging the lecturers with probing questions.

"At the end of the week we all felt a little bit smarter, a lot more up to date on the future of neuroscience, more connected with our peers, and most importantly, we realized that we are a part of an amazing group of people around the globe who are driven to take science and medicine into the new millennium".

Matthew Chang, M.D., PGY-4
Denver, Colorado

Josh Medow, M.D., PGY-4
Madison, Wisconsin

Course Report by Vini G. Khurana, M.D.,

Ph.D. Resident Attendee
RUNN Faculty and Neurosurgical Resident,
Mayo Clinic

Continuing to fulfill its mission statement to provide a creative and inspiring opportunity for state-of-the-art neurobiological learning and discussion, this year's RUNN course enjoyed its highest attendance in its 21-year history. In keeping with its tradition, the course was held on the campus of the world-renowned Marine Biological Laboratory (MBL) located in the beautiful Cape Cod township of Woods Hole, MA, a ferry ride from Martha's Vineyard. Over the last two decades since its visionary inception by Dr. Henry Schmidek, the course has continued to flourish through the generous sponsorship of the Society of Neurological Surgeons (in neurosurgical circles, affectionately referred to as the 'Senior Society'), the dedicated leadership of Dr. Issam Awad and co-directorship of Drs. Bruce Andersen, Robert Dempsey, Allan Friedman, Charles Hodge Jr., and Edward Oldfield, the skillful administration of Ms. Catherine Awad, and the enthusiasm and diversity of its faculty-speakers and resident-attendees.

This brief report, constructed from the perspective of both a neurosurgical resident and first-time RUNN faculty member, can only begin to touch upon the unique nature of this extraordinary course. To begin with, it can hardly be a coincidence that a course which revolves around reasoning, scientific methods, and discoveries of neurobiology relevant to neurological surgery should be held at the MBL, widely regarded as a premiere national center for biology. It also remains awe-inspiring that such a comprehensive neuroscientific curriculum, representing the hundreds of years of combined clinical and research experiences of the speakers, can be delivered so smoothly in such a relaxed and cordial atmosphere. Further, in serving to highlight the interdependence of basic science and clinical practice, the course paves a critical pathway facilitating the ongoing development of the field of neurosurgery through essential translational research.

The 2002 RUNN Course Curriculum continued to uphold its rich and diverse traditions. A score of faculty members delivered 90-minute lectures on topics that spanned the gamut of neuroscience and neurobiology, including memory, cortical plasticity, angiogenesis, molecular genetics, cell signaling pathways, neural transplantation and regeneration, stem cell biology and therapeutics, genomics and gene therapy, convection delivery to the brain, CNS tumor molecular biology, synaptogenesis, glial barriers and scarring, cerebrovascular smooth muscle ion channel structure and function, CNS viral infections, apoptosis, olfaction, history of the MBL (including cell cycle discoveries, and squid giant axon neurophysiology), evidence-based neurosurgery, biological and artificial microprocessor systems, and neurosurgical career development and grantsmanship. This year's honored speaker was the renowned neurosurgeon-neuroscientist, Dr. James Rutka, who delivered an enthralling talk on the molecular biology of brain tumors.

The social aspects of the course were as remarkable as its academic attributes. In addition to providing an opportunity for neurosurgical residents and faculty from all over the country (and some from outside the United States) to mingle in an informal and congenial environment, the abundance of food and beverages from morning to night, the opening and closing receptions (including the Clam Bake and Certificate Ceremony 'finale'), and the ability to tour the MBL and the local sites during some 'afternoons off' were all enjoyable and memorable. In fact, so were the late-night live music and spirits at Captain Kidd, by all standards a truly fine establishment despite its somewhat misleading name!

In short, it is not difficult to appreciate why so many consider the RUNN course one of the greatest jewels in the crown of American neurological surgery.

Generous Educational Grants

We acknowledge generous educational grants in support of the 2002 RUNN Course by Paugh Surgical, Carl Zeiss, Inc., Mizuho, and Synthes Maxillofacial. These contributed to subsidizing general operating costs, faculty travel, honoraria, and the purchase of a

reference textbook, Fundamentals of Neuroscience for each participant.

Toward RUNN 2002 and Beyond!

We have finalized space contract with the MBL for the years 2003 through 2009. The RUNN 2003 will take place from November 9-16, 2003. 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 attract 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'!

RUNN Web Site
<http://www.societyns.org>

Future Course Dates

Marine Biology Laboratory
Woods Hole, MA

November 9-16, 2003	October 20-27, 2007
October 30-November 6, 2004	October 18-25, 2008
October 23-30, 2005	October 17-24, 2009
October 21-28, 2006	

RUNN Course Attendees
October 29 - November 3, 2002

Participant	Institution
Matthew Hunt	OHSU
Christopher Meredith	University of Kansas
Warren G Roberts	OHSU
Edward Duckworth	University of S. Florida
Michael Sharts	University of Pittsburgh
Chris Koebbe	University of Pittsburgh
Eric Deshaies	Albany Medical Center
Matthew Chang	University of Colorado
Cormac Maher	Mayo Clinic
Aaron Cohen-Gadol	Mayo Clinic
Josh Medow	University of Wisconsin
Kristen Riley	University of Alabama
Larry Wainschel	University of California
Jeannette M. Liu	University of Texas
Virany Huynh Hillard	New York Medical College
Manuel Sacapano	Loma Linda University
	Medical Center
David Cohen	Allegheny General
Stephen Campbell	University of Rochester
Sabatino Bianco	Wake Forest University
Richard Veyna	Henry Ford Hospital
John Steele	Wayne State University DMC
Nicholas Bambakidis	Case Western Reserve
	University
Meg Verrees	Case Western Reserve
	University
Tina Rodrigue	Case Western Reserve
	University
John Fahrbach	SUNY @ Buffalo
Lisa Apfel	University of Chicago
Daniel White	St. Louis University
Kirk Jobe	Rush-Presbyterian-St. Luke's
	Medical Center
Matthew Stanfield	University of Oklahoma
Dennis Kilronomos	McGill University
Mart Fewel	University of Michigan
Gabriel Tender	Louisiana State University
Peter Pryor	University of Vermont
Allen Waziri	Columbia University
William Mack	Columbia University
Paul Park	University of Michigan
Chong C. Lee	University of Washington
Huan Wang	University of Illinois
Emilio Tayag	Tulane University
	Medical Center
Mark Burnett	University of Pennsylvania
Asif Bashir	SUNY@Syracuse
Darlene Lobel	Medical College of Georgia
Kendall Lee	Dartmouth-Hitchcock
Richard Rodgers	Indiana University
Robert Sloan	Indiana University
E. Lee Nelson	Baylor College of Medicine
Mel Boulton	University of Toronto
Cian O'Kelly	University of Toronto
Ellen Shaver	VA Medical Center
Peyman Tabrizi	University of Texas
	Medical Branch
Reynaldo De Jesus	University of Puerto Rico
	School of Medicine
Koray Ozudum	Yale University
Suhaz Pai	Medical University of
	South Carolina
Ron Benveniste	Mt. Sinai School of Medicine
Edward Rustamzadeh	University of Minnesota
Elizabeth Vitabro	University of Miami
Edward Ahn	University of Maryland
Eli Baron	Temple University Hospital
Jordan Jude	University of Texas Health
	Science Center, San Antonio
Kelly Scrantz	University of Tennessee
Daniel Kueter	University of Tennessee
Carla S Jung	National Institutes of Health
Ali Zomorodi	Duke University
John Butler	Cleveland Clinic Foundation
Jonathan Hall	Emory University
Alkash Agarwal	Penn State Medical Center
Michele Aizenberg	George Washington
	University
Jeffrey Degen	Georgetown University
	Medical Center of Wisconsin
Kim Rickert	Georgetown University
	Medical Center of Wisconsin

Mission Statement

The Mission of the course Research Update in Neuroscience for Neurosurgeons (RUNN) is to provide an introduction to and update of the latest concepts, hypotheses and methods of neurobiology and neuroscience relevant to neurosurgical 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 neurosurgeons 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 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.

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.

