

Faculty & Topics
Marine Biological Laboratory
Woods Hole, MA

Andersen, Bruce
"Squid Lab"

Awad, Issam
"Scientific Method: History and Philosophy"

Benowitz, Larry
"Axonal Guidance and Regeneration"

Bernstein, Kerry
"The Evolution of Our Neuroelectronic Species"

Black, Peter
SPECIAL LECTURER
"The Neurosurgeon as a Translational Scientist"

Bonni, Azad
"Signal Transduction Pathways in the CNS"

Bracken, Michael
"An Introduction to Evidence Based Neurosurgery"

Brem, Henry
"Brain Tumor Therapy"

Chiocca, Antonio
"Gene Transfer for Biologic and Therapeutic Studies in Neurosciences"

Connolly, E. Sander
"Neuroinflammation/Adhesion Molecules"

Dempsey, Robert
"Putting Scientific Thoughts Together: What a Reviewer looks for in a Grant or Manuscript"

D'Amore, Patricia
"Angiogenesis and Neoplasia"

Edgerton, V. Reggie
"Activity Dependent Mechanisms that Enhance Sensorimotor Function Following Spinal Cord Injury"

Friedlander, Robert
"Programmed Cell Death"

Galbraith, Jim
"Squid Lab"

Gunel, Murat
"Signaling Pathways and Neural Cell Fate"

Haglund, Michael
"Optical Imaging of Epileptiform Activity: From Brain Slices to the Operating Room"

Kristal, Bruce
"Collecting and Making Sense of Large Datasets"

MacDonald, Marcy
"Understanding Human Neurodegenerative Disease through Genetics"

Macklis, Jeffrey
"Neural Precursors and Stem Cells: Basic And Translational Science"

Madsen, Joseph
"Neuroengineering: Pulses and Waves"

McIntosh, Tracy
"Molecular Sequelae of Traumatic Brain Injury: Implications for Novel Therapeutic Strategies"

Oldfield, Edward
"Convection Delivery to the Brain"

Pomeroy, Scott
"Genomics and Proteomics in Clinical Neuroscience"

Reese, Thomas
"History of the Marine Biological Laboratory"

Rutka, James
"Developmental Signaling Pathways and Brain Tumors"

Scholz, Joachim
"Mechanisms of Neuropathic Pain"

Schwob, Jim
"Neural Regeneration and the Olfactory System"

Setton, Lori
"Tissue and Cellular Engineering Approaches to Regeneration and Repair of the Intervertebral Disc"

Silver, Jerry
"Glial Barriers and Scarring"

Simard, Marc
"Cerebrovascular Smooth Muscle Physiology"



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 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. Participants are instructed on how to select a research topic and mentor as well as how to design hypothesis driven experiments and grant writing. The course is designed to stimulate neurosurgical trainees to participate in basic, translational, and clinical research relevant to the practice of neurological surgery.

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. Dr. Schmidek's RUNN Course has been instrumental in setting the course of the last generation of academic neurosurgeons.

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 Cordell Gross, of Burlington, Vermont. 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



ANNUAL REPORT

Stimulating
Science
in a
Unique Setting

RESEARCH UPDATE
IN NEUROSCIENCE
FOR NEUROSURGEONS
(RUNN)
OCTOBER 30 - NOVEMBER 6, 2004

Sponsored by:
THE SOCIETY OF NEUROLOGICAL SURGEONS

Course Directors:
ALLAN H. FRIEDMAN, M.D.
ROBERT M. FRIEDLANDER, M.D.

Co-Directors:
BRUCE ANDERSEN, ISSAM A. AWAD, HENRY BREM,
ROBERT J. DEMPSEY, CHARLES HODGE, JR., AND
EDWARD OLDFIELD

Course Coordinator:
KAREN KOENIG



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 by the neurosurgical trainees 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 snacks 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.

In 1999, the leadership of the RUNN Course was entrusted to Issam A. Awad. Dr. Awad broadened the goals of the RUNN Course to educate neurosurgical residents in formulating hypothesis driven experiments, establishing laboratories and writing grants. To this end, several neurosurgeons who headed successful basic science laboratories were added to the faculty. The Society owes a debt of gratitude to Cathy Awad who administered the Course during Dr. Awad's tenure. Cathy coordinated everything from "T" shirts to accommodations to finances.

RUNN Course Leadership

In 2004, Dr. Awad passed the baton of leadership to Allan H. Friedman (Duke University) and Robert M. Friedlander (Harvard) as the new Directors of the Course. The Co-Directors of the Course are Issam A. Awad (Northwestern), Bruce Andersen (Idaho Neurological Institute), Henry Brem (Johns Hopkins), Robert J. Dempsey (University of Wisconsin) and Charles Hodge, Jr. (SUNY at Syracuse). Dr. Andersen works closely with Jim Gailbraith and Paul Gallant (both of the National Institutes of Health) on the squid lab and microscopy workshop. Course Coordinator, Karen Koenig, works throughout the year to insure RUNN is executed flawlessly, manages the organization, administration and accounting of the Course.

The 2004 RUNN Course Curriculum: Tradition and Innovation

The founding mission and core values of the RUNN Course remained unchanged for the 2004 course, 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 weekends. This format was maintained. The one and one half hour length of individual lectures remained unchanged and six evening sessions were held. Curriculum content was 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, oncogenesis, glial barriers, vascular tone and phenotype, chaos theory, cognitive information science, circuit modeling, and higher cortical function. Approximately one-third of the lectures were given by practicing neurosurgeons with active laboratories. 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 were the traditional opening get-acquainted reception and Course Orientation, and the farewell Clambake and certificate ceremony.

The 2004 Special Lecture was delivered by Peter McL. Black, M.D. Ph.D., Chairman, Department of Surgery, Brigham & Women's Hospital. Dr. Black discussed his views on the role of a neuroscientist and ways in which neurosurgeons can shepherd innovations in neuroscience into clinical practice.



The collegial atmosphere at Swope Hall remained unchanged, as were the memorable late night sessions with snacks, beer and wine and the late night sessions at Captain Kidd's. We preserved several blocks of free time, and the extraordinary one on one interaction among faculty and 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 30 faculty and 8 directors, representing an extraordinary student/faculty ratio of 2/1 (excluding course co-directors who did not lecture). Attendees were mesmerized by the dynamic speakers and post lecture discussions were lively and probing. 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 from 1.2 to 2.2 (scale 1-5, 1 best), with more than two-thirds 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 Programs (see list) representing programs throughout the United States, Canada and Puerto Rico. The reshaped course is ideal for young attending neurosurgeons just embarking on their academic career. 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 engaging the lecturers and confronting the lecturers with insightful questions.

Course Report by Peter Grossi, M.D.

Resident Attendee

Neurosurgical Resident, Duke University Hospital

I believe I speak for the group of faculty and resident attendees in declaring the 2004 RUNN course a tremendous success. This year was the 20th year of the RUNN Course. The course, set on the historic campus of the Marine Biological Laboratory in Woods Hole Massachusetts, brought 70 attendees from programs together for a week of inspiring lectures on various topics in neuroscience and neurosurgery.

The course directors, Dr. Allan Friedman from Duke and Dr. Robert Friedlander from Harvard, organized a wonderfully diverse group of enthusiastic lecturers from all over the country to discuss research topics shaping clinical neurosurgery. Talks ranged from basic science lectures on the neuronal cell signaling to discussions of clinical research design and the history of the scientific method. We were also fortunate to have Dr. Henry Schmidek, the founder of the RUNN Course, in attendance. Dr. Schmidek's interest and insightful comments clearly demonstrated his passion for the course and the topics presented and his enthusiasm was infectious.

All lectures were held in the conference center of the historic Woods Hole Marine Biological Laboratory. We attended lectures during the day and ate and slept within the confines of the "MBL" imbedded in the history of Hodgkin and Huxley and other pioneers of neurobiological research. During the week, we were also able to explore the resources of the MBL and even demonstrate our own surgical prowess by dissecting a squid giant axon.

The daily lectures included fascinating lectures on brain tumor therapy by Dr. Henry Brem and convection-enhanced delivery by Dr. Edward Oldfield, as well as Dr. Friedlander discussing his cutting-edge research on apoptosis. The evening sessions, including lectures on axonal regeneration and computer neural networks, were some of the most enlightening and entertaining talks. The course concluded with a special lecture by Dr. Peter Black on "the Neurosurgeon as a translational scientist." His lecture nicely brought together many of the concepts discussed during the week and clearly ended the week on an inspiring note.

Following the final lecture, the course concluded with a delicious Cape-Cod style Lobster bake and farewell ceremony.

Perhaps the most rewarding aspect of the week though was the interaction amongst the participants. Whether during lecture, over meals, or at the nightly trips to Captain Kidd's (Wood Hole's most happening (and only) nightspot in the off season) fellow residents discussed everything from research topics and career paths, to our respective programs, to NFL football. Many lasting relationships were formed. It was wonderful to be able to interact with fellow residents as well as some of the leading neurosurgeons in the country in a collegial atmosphere, and I am sure that many of the friendships I formed while at the RUNN Course will persist throughout our future careers in Neurosurgery. While I know that we were fortunate to be able to hear lectures by world-renowned physician scientists, I am sure that the pre-eminent academic neurosurgeons of tomorrow were actually sitting alongside me in the audience

Generous Educational Grants

We acknowledge generous sponsorship level grants from  and SYNTHES,USA and generous educational grants in support of the 2004 RUNN Course by Ad-Tech Medical Instruments Corporation, The Anspach Effort, Inc., Mizuho America, Inc., Paugh Surgical, Inc., and Carl Zeiss, Inc. These grants paid for the purchase of textbooks for each participant and subsidized faculty travel and honoraria costs.

Toward RUNN 2005 and Beyond!

We have finalized space contract with the MBL for the years 2005 through 2009. The RUNN 2005 Course will take place from October 23-30, 2005. 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 states 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

October 23-30, 2005
October 21-28, 2006
October 20-27, 2007
October 18-25, 2008
October 17-24, 2009

RUNN Course Attendees October 30 - November 6, 2004

Participant	Institution
Adamo, Matthew	Albany Medical University
Aguilar, Pedro	University of Pittsburgh
Almodovar, Luis	University of Puerto Rico, San Juan
Arredondo, Nicolas	UNIVERSITY of S. Florida
Azmi, Hooman	UMDNJ
Baig, Mirza	Ohio State
Bhamidipaty, Sunita	University of Cincinnati
Brahma, Barunashish	University of Michigan
Braxton, Ernest	Allegheny General Hospital, Pittsburgh
Buttram, Jr., J. Grant	University of TN
Cetas, Justin	OHSU, Portland, Oregon
D'Agostino, Sabino	Medical University of SC
Darbar, Aneela	Upstate Medical University Syracuse
Eden, Sonia	University of Michigan
Figueroa, Bryan	Children's/Brigham & Women's Hospital
Gallia, Gary	Johns Hopkins
Garner, Hart	University of Minnesota
Ghostine, Samer	Loma Linda University
Golshani, Kiarash "Josh"	Oregon Health Sciences University, Portland
Grossi, Peter	Duke Medical Center
Gump, William	Tulane Medical Center
Hankinson, Todd	Columbia
Hartley, Chad	SUNY Syracuse
Hartzfeld, Paul	Henry Ford Hospital
Hawryluk, Gregory	University of Toronto
Hill, Kenneth	Penn State
Jones, G. Alexander	LSU New Orleans
Karas, Chris	Ohio State
Karim, Aftab	LSU-Shreveport
Kelly, John	University of Calgary
Kim, Paul	Wake Forest
Kim, Betty	Ottawa University
Kim, Grace	Columbia University
Komotar, Ricardo	Columbia University
Lawson, H. Christopher	Johns Hopkins
Lim, Michael	Stanford University
Link, Timothy	University of Vermont//FAMC
Lollis, S. Scott	Dartmouth-Hitchcock
Lozanne, Karl	University of Pittsburgh
Marotti, Louis	Yale University
Moftakhar, Roham	University of Wisconsin
Muro, Kenji	Northwestern University
Musacchio, Jr, Michael.	Rush University Medical Center
Omeis, Ibrahim	New York Medical
Park, Michael	Brown University/RIH Neurosurgery
Pirris, Stephen	University of Pittsburgh
Rahimi, Scott	Medical College of Georgia
Redmond, Andy	Yale University
Reid, Patrick	University of Rochester Med Center
Roeser, Andrew	Baylor College of Medicine
Schmidek, Henry	Dartmouth-Hitchcock Med Center
Shamji, Mohammed	University of Ottawa
Shin, John	University of Illinois
Shukairy, Mohammad	Henry Ford
Sin, Anthony	Louisiana State University
Smitherman, Sheila	Baylor College of Medicine
Smucker, Philip	Indianapolis
Spomar, Daniel	University of Illinois
Stippler, Martina	University of Pittsburgh
Stone, Scellig	University of Toronto
Sobbaiah, Sathish	Children's Hospital/Brigham & Womens Hospital
Szerlip, Nicholas	University of Maryland
Tabaddor, Ron	Brigham & Women's Hospital
Turner, Raymond	Cleveland Clinic
Ugokwe, Kene	Cleveland Clinic
Ulloth, Joel	University of Minnesota
Van Sickle, David	Univ. of Colorado
Wetjen, Nicholas	Mayo
Wirchansky, William	University of Maryland
Williams, Owen	Manitoba (Attending Neurosurgeon)