PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF NEUROSURGERY
DEPARTMENT OF ANESTHESIOLOGY

Approved by the Regents
May 20, 2010

Oren Sagher, M.D., associate professor of neurosurgery, with tenure, Department of Neurosurgery, and associate professor of anesthesiology, without tenure, Department of Anesthesiology, Medical School, is recommended for promotion to professor of neurosurgery, with tenure, Department of Neurosurgery, and professor of anesthesiology, without tenure, Department of Anesthesiology, Medical School.

Academic Degrees:

M.D.	1987	University of Chicago Pritzker School of Medicine
B.A.	1983	Boston University (Summa Cum Laude)

Professional Record:

2002-present	Associate Professor of Neurosurgery and Anesthesiology, University of Michigan
1993-2002	Assistant Professor of Neurosurgery, University of Michigan

Summary of Evaluation:

Teaching: Dr. Sagher is viewed as an extraordinary teacher. Evaluations from residents and medical students alike suggest that he has been instrumental not only in their career development but in helping them assess how they will approach their future careers in medicine. Many students have worked with Dr. Sagher at both the undergraduate and graduate level. He has also had an extraordinary impact on the residents. Dr. Sagher has helped design a curriculum for the residents which has been ongoing and in constant refinement over the years. His "Family Feud" neuroanatomy sessions are legendary among graduates as well as present residents. His dedication to teaching has been longstanding and, as a result, he was appointed program director in September of 2007. Since becoming program director he has successfully petitioned the Residency Review Committee for Neurosurgery for an increase in the complement of residents. He is chair of the Education Committee within the Department of Neurosurgery and has helped develop innovative, new programs to help neurosurgical residents to become competent, capable, ethical and forward thinking neurosurgeons. He has done this under the constraints of an 80-hour work week and has developed some very innovative tools such as use of I-pod technology, web-based learning materials, web-based guidelines and various teleconferencing tools to improve and enhance the educational product for neurosurgical residents at the University of Michigan. His ability to combine technology with education has resulted in a significant increase in the use of technology not only by residents but by all members of the Neurosurgery department. Dr. Sagher is consistently ranked among the top educators within the Department of Neurosurgery, receiving scores consistently above 4.5 out of 5 on resident evaluations.

Research: Dr. Sagher's research focuses around two main areas. He has had a longstanding interest in the use of spinal cord stimulation in the treatment of cerebral ischemia, specifically stroke. This research has been funded by an NIH/R01 grant in which he developed an experimental model which defined and described the effect of electrical stimulation on cerebral blood flow. This was an entirely new concept which has received wide recognition and acceptance in functional neurosurgery circles around the world. Most recently he has designed a clinical trial examining the effect of stimulation in the setting of acute stroke and is conducting this protocol under an IDA, which was recognized through the MICHR group and is assisted by CTSA funding. Most recently, he has developed collaborations with the Department of Chemistry and the School of Public Health working with Dr. Raoul Kopelman on the use of nanoparticle technology as a platform for targeting brain tumors. Working with one of our residents, he helped develop this project so that it was initially funded by an NIH F32 grant for which he was the primary mentor. The results of this project have been so significant that the project has now gained momentum and is currently funded by a Quantum Leap Grant (R01) and an R21/33 NIH grant. At present he is working on a follow-up U01 grant to the National Cancer Institute for which he is applying as the principal investigator. The most recent aspects of this project have focused on ways to optimize and refine a nanoplatform for the treatment of brain tumors. Dr. Sagher has been recognized for his efforts by being an invited lecturer and a member of a series of national and international panels. He has been a visiting professor at such prestigious institutions as the University of Chicago, Shi-Tong University in Shanghai, China, at the annual meeting of the Japan Neurosurgical Society in Tokyo, and the International Society of Reconstructive Neurosurgery in Taipei, Taiwan. He is a recognized expert in the area of functional stereotactic neurosurgery and is frequently asked to be a panel member or discussant at national and international meetings in neurosurgery. At present he has 48 peer-reviewed publications and some ten book chapters.

Recent and Significant Publications:

Snellings A, Sagher O, Anderson DJ, Aldridge JW: Identification of the subthalamic nucleus in deep brain stimulation surgery with a novel wavelet-derived measure. *J Neurosurgery* epub ahead of print, April 3, 2009.

Orringer DA, Koo YL, Chen T, Kim G, Jin Hah H, Xu H, Wang S, Keep R, Philbert MA, Kopelman R, Sagher O: In vitro characterization of a targeted, dye-loaded nanodevice for intraoperative tumor delineation. *Neurosurgery* 64: 965-971, 2009.

Weaver F, Follett K, Stern M, Hur K, Harris C, Marks W, Rothlind J, Sagher O, Reda D, Moy C, Pahwa R, Burchiel K, Hogarth P, Lai EC, Duda J, Holloway K, Samii A, Horn S, Bronstein JM, Stoner G, Heemskerk J, Huang G: A randomized controlled trial of best medical therapy versus bilateral deep brain stimulation for patients with advanced Parkinson's Disease. *JAMA* 301:63-73, 2009.

Lee JY, Huang DL, Keep RF, Sagher O: Effect of electrical stimulation of the cervical spinal cord on blood flow after subarachnoid hemorrhage. *J Neurosurgery* 109:1148-1154, 2008.

Zhong J, Huang DL, Sagher O: Parameters influencing augmentation of cerebral blood flow by cervical spinal cord stimulation. *Acta Neurochirurgica* 146:1227-1234, 2004.

Service: Dr. Sagher spends approximately one and a half days in clinic and one to two days per week in the operating room. The focus of his practice is on functional neurosurgery and specifically the treatment of pain, movement disorders and epilepsy. Most recently, his surgical focus has been on the surgical treatment of epilepsy and pain and he has developed a national reputation in the area of epilepsy surgery. He is responsible for having established the Deep Brain Stimulation Program at the University of Michigan and has strong collaborations with the Departments of Psychology, Psychiatry, Biomedical Engineering and Neurology in seeing that the program came to fruition. As part of his clinical practice, Dr. Sagher has also developed clinical research interests in the area of the role of complex functional networks in the onset and propagation of seizures. Dr. Sagher has a long history of significant service to the University of Michigan. He has been chief of neurosurgery at the Ann Arbor Veterans Administration Hospital, a member of the Senate Assembly, a member and vice chair of the University Committee on the Use and Care of Animals, and a member and chair of ACAPT (Advisory Committee on Appointments, Promotions, and Tenure). He served on the Brain Death Advisory Committee, Patient Access Task Force, the Pain Management Steering Committee and the Orders Management Clinical Leadership Committee. Nationally, he has been chair and member of the Executive Council of the American Association of Neurological Surgeons and Congress of Neurological Surgeons Joint Section on Pain, as well as the VA Executive Planning Committee. He is a member of the North American Neuromodulation Society board of directors. He is also a member of the Scientific Program Committee for the Congress of Neurological Surgeons. Dr. Sagher also maintains a strong service lead. In addition to his clinical work with functional neurosurgery, he heads up our Image Guided Surgery program. The Department of Neurosurgery was one of the first in the nation to use so-called Stealth technology to allow image guided surgery. In addition, we were the first hospital in the State of Michigan to use isocentric C-arms as well as the O-arm in treatment of neurosurgical disorders. He has also been instrumental in helping obtain rulings from the state legislature for the installation of an intraoperative MRI scanner within the new Mott Children's Hospital. Dr. Sagher is clearly the go-to person when it comes to technology within the Department of Neurosurgery. This is both in the operating room as well as outside the operating room. He supervises the neurosurgery portal platform which is a novel OR scheduling system which is now being copied and developed in other departments within the institution. In addition, his interest in technology has led him to develop I-pod technology and web-based systems to provide resident education.

External Review:

Reviewer A: "Oren has been very involved in national and international societies, including the CNS, AANS and various organizations related to functional neurosurgery, such as the Itnernational Society of Stereotactic and Functional Neurosurgeons. His role in each of these areas has been a leadership one, and he is frequently asked to Chair sections or moderate programs."

Reviewer B: "He serves as Director of Residency Training. This is a consuming role that takes countless hours. It is clear from feedback from visiting students and residents that he [is]

extremely effective in his role as teacher. His Directorship is particularly prominent given how highly regarded the U of M training program is. We always coach our…students to apply to the U of M program because of its excellence, all of which reflects directly on Oren."

Reviewer C: "…I have come to learn that he is an outstanding teacher, he is well liked by his students and is gifted as a communicator. As far as his research, he is well funded and his main and unique contributions to research have been in the field of spinal cord stimulation to treat cerebral aschemia."

Reviewer D: "Dr. Sagher has the intellectual credentials, the academic productivity, the research accomplishments, and the portfolio as an educator in the neurosurgical sciences to be a Professor of Neurosurgery. He would exceed the requirements at our institution and I think would be an asset to an institution."

Reviewer E: "His investigative work and subsequent publications are always innovative, rigorous, and sophisticated. He has become a recognized leader in epilepsy surgery and pain. He is increasingly being called upon by our national societies for his clinical, investigative, teaching, and organizational skills…He brings distinction and honor to the University of Michigan and is worthy of this recognition."

Reviewer F: "…Dr. Sagher has assumed the role of the Program Director of the Neurosurgery Residency Program at the University of Michigan, and this has occupied a large amount of time, energy and effort. One simply cannot underestimate the importance of this position in large residency programs such as that at the University of Michigan. In his specific role as Program Director, I know he has performed in an exemplary manner, and has maintained the excellence that has characterized the University of Michigan program over the past 30 years."

Summary of Recommendation:

Dr. Sagher is an exemplary teacher with strong research and an outstanding service record both to the University and nationally. I enthusiastically recommend him for promotion to professor in the Departments of Neurosurgery and Anesthesiology.

James O. Woolliscroft, M.D.
Dean
Lyle C. Roll Professor of Medicine

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