



Sleep Disorders Center
Michael S. Aldrich Sleep Disorders Laboratory
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October 26, 2016

WSU Medical Alumni Association
540 E. Canfield
1369 Scott Hall
Detroit, MI, 48201
lraymos@med.wayne.edu

RE: Arthur S. Walters, M.D., nominee for Distinguished Alumni Award

Dear Distinguished Alumni Award Committee Members,

I would very much like to nominate Arthur S. Walters, M.D., to receive the Distinguished Alumni Award from the Wayne State University Medical Alumni Association. Dr. Walters has made exceptional contributions “to the health field in a broader sense” – one of the main criteria for this award – in addition to having made service contributions of critical importance. Specifically, Dr. Walters has played an essential role in the development of the relatively young field of sleep medicine. He is deserving of the Distinguished Alumni Award to acknowledge the fundamental contributions he has made in a highly multidisciplinary field that is increasingly recognized as central to good health, which cannot exist without healthy sleep.

For my own relevant background, I have been a faculty member in the Department of Neurology at the University of Michigan since 1994, and I have directed the University of Michigan Sleep Disorders Center since 2000. In this capacity, I have had the opportunity to train more than 100 sleep medicine physicians, mentor many other faculty, and write hundreds of letters for employment, education, promotion, or awards. Through professional interactions, I have known Dr. Walters for about 20 years, and believe that I am well qualified to nominate this remarkable academic physician for the Distinguished Alumni Award. I serve now as President of the American Academy of Sleep Medicine (AASM), a professional organization for 11,000 individual and center members. Although this letter is written strictly from a personal perspective, my work on the AASM board and others for more than a decade gives me the opportunity to interact with many leaders in the field of sleep medicine, and forms an excellent basis now against which I can describe Dr. Walter’s contributions.

Dr. Arthur Walters is a 1972 graduate of Wayne State University School of Medicine. He then interned at the Oakwood Hospital in Dearborn, Michigan and completed his Neurology residency at Downstate Medical Center in Brooklyn, NY and subsequently a Movement Disorder Fellowship at the Neurological Institute, Columbia University Medical Center, NY, NY. He was then Assistant and later Associate Professor in the Department of Neurology at the Robert Wood Johnson Medical School—University of Medicine and Dentistry of New Jersey. He later served as Full Professor at the New Jersey Neuroscience Institute, Seton Hall University School of Graduate Medical Education where he received the university-wide Researcher of the Year award in Medicine in 2003-2004. Dr. Walters is currently an active full time Professor of Neurology at the

Vanderbilt University School of Medicine, Nashville, TN where he was awarded a Distinguished Faculty Medical License from the state of Tennessee upon his arrival to Vanderbilt in 2008.

Dr. Walters is the leading academic physician internationally when it comes to restless legs syndrome (RLS), also known as Willis-Ekbom disease. This is a sensorimotor neurologic disorder that affects about 10% of the population, for whom the consequent disruption of sleep and quality of life can be severe. With a background in neurology, and sub-specialization in movement disorders, Dr. Walters had already established national leadership in research on RLS by the early 1990s. Many physicians and patients regard Dr. Walters as having played an indispensable, pioneering role in putting this condition on the map. Many did not recognize its significance, prevalence, or impact before he and some of the colleagues he recruited to this area began to direct attention of academics, clinicians, and the pharmaceutical industry to RLS. For many years, it seemed as if every invited lecture, symposium, or conference that tackled RLS was conceived or organized at least in part by Dr. Walters. In the years since, a good number of other academic neurologists have also contributed substantial progress to this area. I doubt however that they would have been attracted to study it, had not been for Dr. Walters' energy and focus on this disease. Moreover, whereas most of the lay public years ago had never heard of the condition, even if they suffered from it themselves, RLS is now widely recognized by the public and treated by many physicians, including neurologists and primary care practitioners. Whereas years ago, sleep physicians such as myself were often the first to make the diagnosis of RLS for a given patient, now most often we are referred patients who have been diagnosed, and treated to at least some extent. I believe this sea change is in some part due to the impact Dr. Walters has had on the field and on medicine more broadly, in educating and publicizing the critical message that patients with this neurologic condition do not have to suffer needlessly for decades before receiving effective therapy.

Dr. Walters has led many projects that have focused on RLS research, with funding from the NIH, industry, or foundation sources. His publications have appeared in leading journals for our field. He has published 25 peer-reviewed reports in just the last 3 years. He led the effort to validate an RLS severity rating scale, designed by the International Restless Legs Syndrome Study Group and currently the major instrument used in all pharmaceutical and academic studies to measure the severity of RLS. His research has spanned ages from childhood to older age. Most recently for example, he has led an international effort to organize research that could effectively help separate the unique presentation of childhood RLS from that of growing pains, which have long been difficult to distinguish.

More generally in sleep medicine, Dr. Walters has also established a sterling reputation as an academic leader. When he ran a sleep medicine fellowship at the New Jersey Neuroscience Institute, Seton Hall University School of Graduate Medical Education, it was often held up as a model for programs at other sites. When the American Academy of Sleep Medicine (AASM) needed a reliable leader to organize the nosology for sleep-related movement disorders, in the International Classification of Sleep Disorders, Dr. Walters was recruited for both the 2nd and most recent 3rd editions. The group of experts he then organized established the diagnostic criteria for all the sleep-related movement disorders. Similarly, Dr. Walters was chosen by AASM to chair the movement disorders subcommittee for the polysomnographic scoring manual, with the mandate to establish the sleep study scoring rules for sleep-related movement disorders. Dr. Walters served as

the co-editor of the first book on sleep-related movement disorders (Sleep and Movement Disorders, 1st edition 2003, and 2nd edition 2013).

Dr. Walters' international leadership and service have been demonstrated in many ways. He founded and initially chaired the Medical Advisory Board of the RLS Foundation, a nationwide RLS support group for patients and their families. He founded and served as the first chair of the International RLS Study Group, now comprised of approximately 70 physicians and scientists dedicated to research on RLS. He spearheaded the initial effort by the International RLS Study Group to come up with a clinical definition of RLS, published in the name of the IRLSSG in 1995. With some modifications and some minor differences, this is essentially the core of the definition now used by the IRLSSG, the International Classification of Sleep Disorders, and the Diagnostic and Statistical Manual of Mental Disorders used by psychiatrists worldwide. He was recognized by the American Academy of Neurology for the sum total of his career contributions by being awarded the senior Sleep Science Award for excellence in sleep research in 2010.

In short, Dr. Walters is in my opinion an exceptional candidate for the Distinguished Alumni Award. He has had central influence on a young field with fundamental importance to human health. Moreover, his academic productivity and leadership have never prevented him from maintaining time to create, as a colleague or mentor, opportunities for many others in the field to excel, and satisfy their own academic curiosity. Hopefully this is just the sort of alumnus that WSU would be most proud to recognize with the Distinguished Alumni Award. I hope you will give this nomination careful consideration.

Sincerely,



Ronald D. Chervin, MD, MS
Professor of Neurology
Michael S. Aldrich Collegiate Professor of Sleep Medicine
Director, Sleep Disorders Center

Arthur Walters, M.D.

Professor of Neurology

BIOGRAPHICAL SKETCH



Arthur S. Walters, M.D. completed his medical degree at Wayne State University, Detroit, MI, his Neurology Residency at Downstate Medical Center Brooklyn, NY and subsequently his Movement Disorder Fellowship at the Neurological Institute, Columbia Presbyterian Medical Center, NY, NY. He served as Assistant and Associate Professor of Neurology at UMDNJ-Robert Wood Johnson Medical School and then as full Professor of Neuroscience at the Seton Hall University School of Graduate Medical Education, both in New Jersey, from 1998-2008. In 2008 he joined the Vanderbilt faculty as Professor of Neurology and as Associate Director of the Vanderbilt Sleep Disorders Center.

In 2008 Dr. Walters was given a distinguished faculty medical license from the state of Tennessee. Dr. Walters also received the 2010 American Academy of Neurology Sleep Science Award for excellence in sleep research. His biography is also listed in the major textbook of sleep medicine by Kryger, Roth, and Dement, for "Pioneers and Thought Leaders in Sleep Medicine."

RESEARCH INTERESTS

Originally trained in Movement Disorders and secondarily in Sleep Disorders, Dr. Walters has focused his career and research on the sleep-related movement disorders. He co-edited the first book on sleep-related movement disorders in 2003. He was chosen by the American Academy of Sleep Medicine to head up the committee for formulating the new diagnostic clinical criteria for the sleep-related movement disorders (International Classification of Sleep Disorders 2005) and the committee for formulating the new polysomnographic scoring criteria for the sleep-related movement disorders (The AASM Manual for the Scoring of Sleep and Associated Events 2007).

From 1992-1998 he helped found and was the first chair of the Medical Advisory Board of the Restless Legs Syndrome Foundation (RLSF), a nation-wide support group for RLS patients and their families. He then served as an active member of the board for a number of years thereafter. From 1993 to 2007 he founded and served as the first chair of the International Restless Legs Syndrome Study Group, comprised of over 130 physicians and scientists from 17 countries dedicated to research on Restless Legs Syndrome (RLS) and Periodic Limb Movements in Sleep. Under his leadership, universal clinical criteria for the diagnosis of RLS were established and the first validated scale for the scoring of RLS severity was created and validated. This scale is now used as the primary outcome measure in all the major pharmaceutical company studies of RLS.

In the academic year 2003/2004 he was named "Researcher of the Year in Medicine" for Seton Hall University, one of 4 such awards given by the University that year for excellence in research in (1) Medicine, (2) The Arts, (3) The Humanities, and (4) the Social and Physical Sciences.

SELECTED PUBLICATIONS

Peer reviewed articles:

Walters A, Hening W, Kavey N, Chokroverty S, Gidro-Frank S. A double blind randomized cross-over trial of bromocriptine and placebo in restless legs syndrome. *Annals of Neurology* 24:455-458, 1988.

Walters A, Hening W, Chokroverty S. Videotape recognition of idiopathic restless legs syndrome. *Movement Disorders* 6:105-110, 1991.

Walters AS, Wagner ML, Hening WA, Grasing K, Mills R, Chokroverty S, Kavey N. Successful treatment of the idiopathic restless legs syndrome in a randomized double blind trial of oxycodone versus placebo. *Sleep* 16:327-332, 1993.

Walters AS. Group Organizer and Correspondent International Restless Legs Syndrome Study Group. Towards a better definition of the restless legs syndrome. *Movement Disorders* 10:634-642, 1995.

Walters AS. Group Organizer and Correspondent: The International Restless Legs Syndrome Study Group. Validation of the International Restless Legs Syndrome Study Group Rating Scale for Restless Legs Syndrome. *Sleep Medicine* 4: 121-132; 2003.

Rajaram S, Walters AS, England S, Mehta DD, Nizam F. Some patients with "growing pains" may actually have Restless Legs Syndrome. *Sleep* 27: 767-773; 2004.

Walters AS. Clinical Identification of the simple sleep-related movement disorders. *Chest* 131: 1260-1266; 2007.

Walters AS, Lavigne G, Hening W, Picchietti DL, Allen RP, Chokroverty S, Kushida CA, Bliwise DL, Mahowald MW, Schenck CH, Ancoli-Israelis S. The scoring of Movements in Sleep: An evidence based review by the Movement Disorder task force of the American Academy of Sleep Medicine. *Journal of Clinical Sleep Medicine* 3: 155-167; 2007.

Book chapters:

Chokroverty S, Hening W, Walters A, eds. *Sleep and Movement Disorders*, 1st Edition, USA, Butterworth Heinemann, pp 1-546, 2003.

CONTACT INFORMATION

Department of Neurology, Vanderbilt University

A-0118 Medical Center North

Nashville, TN, 37232-2551

Appointments: (615) 322-4000

CURRICULUM VITAE

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Dept. of Neurology
Vanderbilt University Medical Center
MCN – A-0118
1161 21st Ave South
Nashville, Tennessee
37232-2551
Phone 615-322-0283 FAX 615-936-0223
E-mail ArtUMDNJ@aol.com, Arthur.Walters@Vanderbilt.edu

TITLES:

10/2008-present **Professor of Neurology Vanderbilt University School of Medicine, Nashville, Tennessee**

Jan 2013-July 2013 Visiting Professor Dept of Clinical Neurophysiology, Georg-August University, Goettingen, Germany

12/1998-08/2008 Professor Department of Neuroscience Seton Hall University School of Graduate Medical Education.

12/1998-08/2008 Staff Neurologist and Director Center for Sleep Disorders Treatment, Research and Education, New Jersey Neuroscience Institute at JFK Medical Center

12/1998-08/2008 Clinical Professor of Neurology UMDNJ-Robert Wood Johnson Med School

07/1991-12/1998 Associate Professor of Neurology UMDNJ-Robert Wood Johnson Med School

07/1984-07/1991 Assistant Professor of Neurology UMDNJ-Robert Wood Johnson Med School

07/1984-12/1998 Staff Physician Neurology Service VA Medical Center, Lyons, NJ

07/1979-07/1982 Staff Neurologist Brooklyn Jewish and Coney Island Hospitals, Brooklyn, N.Y

UNDERGRADUATE EDUCATION:

06/1965 Kalamazoo College, Kalamazoo, MI
BA Degree

GRADUATE EDUCATION:

06/1967 Northwestern University, Evanston, IL
MS Degree

06/1972 Wayne State University Medical School, Detroit, MI
MD Degree

LICENSURE: Medical: 44478 NJ, 122227 NY, MD0000044067 Distinguished faculty medical license Tennessee.
DEA AW2839340

POSTGRADUATE TRAINING:

07/1982-07/1984 Movement Disorder Fellow with Dr. Stanley Fahn, Lucien Cote, et al, Neurological Institute, New York, NY

07/1976-07/1979 Neurology Residency Downstate Medical Center and Kings County Hospital

07/1974-07/1976 Neurochemical research (worked with Dr. Lucien Cote, Dr. Leon Kremzner and Dr. Author Perumal)
Columbia University College of Physicians, NY, NY

07/1973-07/1974 Neurochemical Research (worked with Dr. Bernard Agranoff), University of Michigan

07/1972-07/1973 Rotating Internship, Oakwood Hospital, Dearborn, MI

BOARD CERTIFICATION:

11/1981 Neurology, American Board of Psychiatry and Neurology
04/1995 American Board of Sleep Medicine
11/2011 American Board of Medical Specialties certification in Sleep

PROFESSIONAL ORGANIZATIONS:

2005 Active Member of the American Neurological Association status updated to Fellow 2013
1995 Member of the American Association for the Advancement of Science
1995 Member of the New York Academy of Science
1995 Fellow of the American Sleep Disorders Association
1994 Fellow of the American Academy of Neurology
1990 Member of the American Sleep Disorders Association
1990 Member of the Movement Disorder Society
1990 Member of the Sleep Research Society
1983 Member of the American Academy of Neurology

BOARD EXAMINER:

2001 And 2002 For part II of Sleep Boards—American Board of Sleep Medicine

TEACHING AT BOARD PREPARATION COURSES:

1994-1999 Leesburg, Virginia – Official course of the American Academy of Sleep Medicine
2006—Chicago, Illinois—Official course of the American Academy of Sleep Medicine

LEADER OF NATIONAL COURSES

2002, 2003 and 2004 American Academy of Neurology Meeting—Kickoff program on Restless Legs/Periodic Limb Movement in Sleep.
2001 Course Director of "Sleep 2001" JFK Medical Center, Edison, NJ
2002 And 2003 Course Director of "Pediatric Sleep Disorders" JFK Medical Center, Edison, NJ
2004 Course Director of "Sleep Across the Ages: From Birth to Senescence. An exploration of Pediatric, Adolescent and Adult Sleep". JFK Medical Center, Edison, NJ
2006 Course Director of "The Intriguing World of Pediatric & Adult Sleep Medicine". JFK Medical Center, Edison, NJ
2008 Co-Director of CME course "Cutting Edge of Sleep" Orlando, Fla
2014 Course Director Breakfast seminar Restless Legs Syndrome, American Academy of Neurology, Phil PA
2014 Course Director symposium on Restless Legs Syndrome, American Geriatric Society, Orlando, Fla.

HONORS AND AWARDS:

6/1998 Bronze Oak Leaf--distinguished service award. Lyons VA Medical Center
6/1998 Ekbohm Award--distinguished service award. Restless Legs Syndrome Foundation for founding the Medical Advisory Board of the Restless Legs Syndrome Foundation and serving as its first chair 1992-1998.
1997- present "Who's Who in Medicine and Health Care"
1996- "Who's Who in Science and Engineering"
1996- "Who's Who in American Education"
1996- "Who's Who in the World"
1996- "Who's Who in America"
2003- "America's Registry of Outstanding Professionals"
2003 "500 Leaders of Science"
2003- "1000 Great Intellectuals"
2003/4/5/6/10/11 "America's Top Physicians"

- 2003/2004 "Researcher of the Year" Seton Hall University. One of 4 such awards given by the University that year for excellence in research in (1) Medicine, (2) The Arts, (3) The Humanities, and (4) the Social and Physical Sciences.
- 2005 "American Hall of Fame".
- 2006 University of Michigan "Michael S. Aldrich Commemorative lecturer Award in Sleep Medicine" for outstanding contributions to patient care, education, and research
- 2007 The International Restless Legs Syndrome Study Group distinguished service award for founding the International Restless Legs Syndrome Study Group and serving as its first chair 1993-2007
- 2008 Teaching award from community sleep physicians and sleep fellows of the New Jersey Neuroscience Institute, JFK Medical Center, Seton Hall University School of Graduate Medical Education.
- 2008 Distinguished Faculty Medical License from the state of Tennessee
- 2010 Biography listed on "Pioneers and Thought Leaders in Sleep Medicine" web site.
- 2010 Winner American Academy of Neurology Sleep Science Award for excellence in sleep research.
- 2012 "Collaborative Research Award" from the International Restless Legs Syndrome Study Group for the individual most responsible for fostering and carrying out collaborative research on Restless Legs Syndrome.
- Jan 2013-July 2013 Visiting Professor Dept of Clinical Neurophysiology, Georg-August University, Goettingen, Germany
- June 2014 Symposium participant award: "Exercise as a Behavioral Sleep Medicine Intervention" Merit Award given by the Society for Behavioral Sleep Medicine to each participant of the symposium for outstanding research and clinical presentations. Associated Professional Sleep Societies meeting, Minneapolis, Minnesota..
- 2014 OMSF Laskin Award for the most outstanding article published in the Journal of Oral and Maxillofacial Surgery in 2013 (out of 338 articles published).
Boyd SB, Walters AS, Song Y, Wang L. Comparative Effectiveness of Maxillomandibular Advancement and Uvulopalatopharyngoplasty for the Treatment of Moderate to Severe Obstructive Sleep Apnea. J Oral Maxillofac Surg, 71: 743-51; 2013.
- 2015 Leading Physicians of the World
- April 2016 Restless Legs Syndrome Foundation Award to Vanderbilt University Medical Center as a Quality Care Center for the treatment of Restless Legs Syndrome.
- 2017 Who's Who Lifetime achievement award.
- 2017 Biography added to those of approximately 120 notable alumni who graduated from Wayne State University School of Medicine in the 20th and 21st centuries (est 1868).

EDITORIAL POSITIONS AND REVIEW OF JOURNALS:

Editorial Board of the journal Sleep Medicine.

Editorial Board of the journal Sleep.

Regular reviewer for the Journal Movement Disorders.

Occasional reviewer for the journal Neurology.

Occasional reviewer for the journal Annals of Neurology.

Occasional reviewer for the journal Brain

Occasional reviewer for the journal Clinical Neurophysiology

Occasional reviewer for Sleep Medicine Reviews

SERVICE ON ROBERT WOOD JOHNSON AFFILIATIONS:

1985-1989 Assistant Chief, Division of Neurology, VA Medical Center, Lyons, NJ

1984-1987 Research (IRB Committee) VA Medical Center, Lyons, NJ

1984-1988 Mortality and Morbidity Committee VA Medical Center, Lyons, NJ

1993-1995 Long Term Care Committee VA Medical Center, Lyons, NJ

SERVICE TO THE PROFESSIONAL AND LAY COMMUNITY:

- 2013-present Member Movement Disorder committee of National Sleep Foundation.
- 2011-2014 Chair of the Movement Disorder Society Committee to review rating scales for the Restless Legs Syndrome
- 2002-05, 11-14 Chair of the Movement Disorder committee of American Academy of Sleep Medicine to revise the International Classification of Sleep Disorders.
- 2011-present Vice Chairperson of The Specialty Committee of Sleep Medicine of the World Federation of Chinese Medicine Societies
- 2013-2014 Member of the committee to select the junior sleep science awardee for the Wayne Hening Award American Academy of Neurology.
- 2013-present Member of the executive committee of the International Restless Legs Syndrome Study Group
- 2012-present Member of the Medical Advisory Board of the Restless Legs Syndrome (Willis Ekblom Disease) Foundation
- 2009-2012 Chair of the Movement Disorder section of the American Academy of Sleep Medicine
- 2007 Vice chair of the Movement Disorder section of the American Academy of Sleep Medicine
- 2004-2007 Chair of the Movement Disorder committee of American Academy of Sleep Medicine to revise the Official Manual for Scoring Sleep Studies.
- 2003-08,11 Committee to select the Sleep Science Awardees for the American Academy of Neurology
- 1993-2007 Chair of International Restless Legs Syndrome Study Group (Group of 130 physicians and scientists from 16 countries dedicated to joint research on Restless Legs Syndrome and Periodic Limb Movements in Sleep). Continue on executive committee as chair ex-officio 2007-2011.
- 1992-1998 National Chairman of the Medical Advisory Board of the Restless Legs Syndrome (RLS) Foundation (Nationwide support group for patients with RLS)
- 1997-2000 Former Treasurer and then Vice President of the New Jersey Sleep Society
- 1994-1996 Head of the RLS/Periodic Limb Movement Council for National Sleep Foundation

SPONSORSHIP OF CANDIDATES FOR POSTGRADUATE DEGREE:

1993 Annette Zoe, Dr. of Pharmacy (Pharm.D.)

1994 Robin Coleman, Dr. of Pharmacy (Pharm.D.)

SPONSORSHIP OF POSTDOCTORAL FELLOWS:

1994-1995 Claudia Trenkwalder, M.D. Visiting research fellow from the Max-Planck-Institute for Psychiatry,

- Munich, Germany
- 2001-2002 Nehal Meha, M.D. and Sujanthy Rajaram, M.D. Sleep fellows at New Jersey Neuroscience Institute at JFK Medical Center (NJNSI). Iman Youssef, M.D. Sleep and Clinical Neurophysiology.
- 2002-2003 Ye-Ming Sun, M.D., Ph.D. Sleep fellow NJNSI and winner of honorable mention for Young Investigator Award for the Associated Professional Sleep Societies meeting 2003.
- 2003-2004 Luai Al Hussein, M. D., Tatiyana Antonevich, M.D., Barbara Fisher, PhD. Sleep Fellows NJNSI.
- 2004-2005 Fouzia Siddiqui, M.D., Abdul-Hakim Dinar, M.D., Ramesh Adabala, M.D., Kalpesh Patel, M.D., Mustafa Abdul-Hadi, M.D. Sleep Fellows NJNSI.
- 2005-2006 Joseph Steeger MD, PhD, Naseer Chowdhrey, M.D., Naveed Shah, M.D., Edgar Osuna, M.D., Fouzia Siddiqui, M.D. Sleep Fellows NJNSI
- 2006-2007 Joseph Steeger, MD, PhD Ravi Chandrashekhar, MD, Jing Lu, MD, Sachin Hansalia, MD, Xue Ming, MD, PhD, Sowmya Lakshminarayanan, MD, Michael Seyffert, MD, Subakeesan Pathmanathan, MD Sleep Fellows NJNSI
- 2007-2008 Ranju Chandrashekariah, MD. Ashish Adlakha, MD, Rashpal Singh, MD, Jawad Miran, D.O., Vikas Bhataria, M.D. Sleep Fellows NJNSI
- 2008-2009 Michael Yu, MD. Karen Baker, M.D. Sleep Fellows Vanderbilt University School of Medicine
- 2009-2010 Alyson Ryan MD and Jennifer Molano MD Sleep Fellows Vanderbilt University School of Medicine
- 2010-2011 Lana Jeradeh Boursoulian, MD. And Damian McGovern, M.D. Sleep Fellows Vanderbilt
- 2011-2012 Beenish Khwaja, MD and Scott Kutscher, MD Sleep Fellows Vanderbilt
- 2012-2013 Atia Jordan, M.D. and Sheila Asghar, M.D. Sleep Fellows Vanderbilt
- 2013-2014 Vijaya Yelisetty MD and Siavash Farshidpanah MD Sleep Fellows Vanderbilt
- 2014-2015 Scott Shorten MD and Ammar Alkhazna MD Sleep Fellows Vanderbilt
- 2015-2016 Huong Pham MD and Noel Vargas-Perez MD Sleep Fellows Vanderbilt
- 2016-2017 Clinton Colaco MD, PhD and James Andry MD Sleep Fellows Vanderbilt

TEACHING RESPONSIBILITIES:

- 2008-present Training of sleep fellows Vanderbilt University Medical Center
- 2010-2013 Director of CME program in Sleep for Vanderbilt and community physicians.
- 1998-2008 I gave a monthly lecture on Movement Disorders to fourth-year Medical Students at UMDNJ-Robert Wood Johnson Medical School.
- 1998-2008 I was responsible for training Neurology residents, Medical residents, Rehab residents, Medical students, PA students, undergraduate pharmacy students, and Pharm D. students in the new Jersey Neuroscience Institute at JFK Medical Center.
- 1998-2008 I ran a free sleep school every Thursday from 5 pm to 7:30 pm for my sleep fellows and for all physicians from the community interested in preparing for the sleep boards.
- 1984-1998 I was at various times responsible for teaching Medical Students, Physician Assistant students, and Psychiatry Residents at Lyons VA Medical Center.
- 1984-1998 I was at various times been responsible for teaching Medical Students, undergraduate pharmacy students, pharmacy doctoral students, movement disorder fellows and neurology residents at UMDNJ-Robert Wood Johnson Medical School.

CLINICAL RESPONSIBILITIES:

- 1998-2008 New Jersey Neuroscience Institute at JFK Medical Center - Director of Sleep Laboratory. Responsible for interpretation of sleep studies. Ran both a Movement Disorder and a Sleep Disorder Clinic.
- 1984-1998 Department of Neurology, UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ (Two days/week). Neurology Service, Lyons VA Medical Center, Lyons, NJ (Three days/week). Responsible for both inpatients and outpatients at both locations. At both institutions, I ran a Movement Disorder and a /Sleep Disorder Clinic and was responsible for interpretation of sleep studies.
- 2008- 2012 Associate Director Sleep Medicine Vanderbilt University School of Medicine.
- 2008-present Care of sleep patients in clinic and interpretation of their overnight sleep studies,,

GRANT SUPPORT:

Past Grants

1984-1986	Medical School General Research Support Grant, P.I.; "Kinetics of Tyrosine Hydroxylase in Parkinson's Disease, \$6,000.00
1985-1986	VA RAG Grant, P.I.; "Opiate in Akathisia," \$5,055.00
1985-1988	Sandoz Corporation, P.I.; "A double blind randomized placebo study of the efficacy of bromocriptine in Restless Legs Syndrome," \$19,335.00
1989-1992	VA Merit Review Grant, P.I.; "An RFLP analysis of autosomal dominant Restless Leg Syndrome," \$127,000.00
1992-1995	Above grant was renewed-- Title changed to "A linkage analysis of dominant Restless Legs Syndrome," \$225,000.00
1995-1998	Above grant was renewed for third time, \$298,500.00
1994-1996	Clemente Foundation Grant, CO-P.I PET scanning Study of the Restless Legs Syndrome," \$15,000.00.
1996-1998	Co-Investigator Glaxo-Welcome, "Open label study Lamotrigine in Restless Legs Syndrome," \$35,000.00
1996-1998	Sub-contract Co-Investigator through Johns Hopkins-Lilly. "Double-Blind study of Pergolide in Restless Legs Syndrome," \$35,000.00

NIH. Title: "Validation of an actigraphic technique of enumerating Periodic Leg Movements". Dates 9/99-11/99 project completed. (SBIR phase 2 contract proposal). PI - David Krausman, IM Systems, Inc. (Sub-contract only, NJNI at JFK). 17 patients x \$800/patient direct and \$160/patient indirect—money received.. Goal: Validation of an actigraphic measure of Periodic Leg Movements by comparison with the gold standard of anterior tibialis EMG placement during polysomnography.

NIH/SBA/NIMH Number 2R44MH55398-02 Title: "Spectral Analyzer of Movements for Psychiatric Patients". dates 7/1/99 - 6/30/2001. PI - David Krausman, IM Systems, Inc. Annual Direct Cost: (sub-contract only, NJNI at JFK, approximate). No funding at JFK for year 1. Year 2, \$35,000. Goal: Validation of methodology for measuring tremor and dyskinesias in patients with Tardive Dyskinesia and Parkinson's Disease, including change with therapy.

NIH/NINDS. Number 1R43NS41217 Title: "Activity Guided Light Therapy for Restless Legs Syndrome." Dates 10/01/2000 - 4/01/2001. (SBIR Phase I contract proposal). PI-David Krausman, IM Systems, Inc. Annual Direct Costs: \$100,000. JFK funding to be established. Goal: Study to establish feasibility of developing a system of light therapy to achieve therapeutic phase advance in the Restless Legs Syndrome.

Restless Legs Syndrome Foundation. Title: "A Quantitative Study of the Brainstem and Cerebral Dopamine Systems Using (18F)-FPCIT/PET in Symptomatic Restless Legs Syndrome Patients." dates 7/01/2000 - 7/01/2001. PI - David Eidelberg, Cornell University. Co-Investigator -- Arthur S. Walters, M.D. Annual Direct Costs \$34,600. JFK funding -- probably none, but we will recruit patients. Goal: Attempt to discover differences in the dopamine transporter in brain sites in RLS patients through PET scanning.

NIH RO1- NS 37754-01A1. Title: "Search for the etiology of the Restless Legs Syndrome, A Sleep Disorder." dates 10/09/99 - 8/07/2002. PI - Guy Rouleau, MD, PhD, University of Montreal, the Montreal General Hospital. Co - Investigator -- Arthur S. Walters, M.D. \$166,000 direct costs. No funding for JFK for Year 1. Year 2 and 3 JFK funding to be determined, but will probably amount to \$10,000 - \$20,000. Goal: Draw blood from Restless Legs Syndrome patients and submit them to Dr. Rouleau to help discover the gene in Restless Legs Syndrome. 5% effort.

NIH R01 NS40752-01 The Genetics of Idiopathic Basal Ganglia Calcification. Dan Geschwind, M.D., PhD Principal Investigator. \$1,348,250. Consultant—Arthur S. Walters, M.D. \$3,000. 1201/00-11/30/04. Goal: Attempt to discover the gene in idiopathic basal ganglia calcification (Fahr's Disease). 5% effort

Protocol: #101468/194: "A 12 Week, Double-Blind, Placebo Controlled, Parallel Group Study to Assess the Efficacy and Safety of Ropinirole in Patients Suffering from Restless Legs Syndrome (RLS)" – monies generated totalled \$42,469

101468/243: "A 52 Week, Open-Label Extension Study of the Long-Term Safety of Ropinirole in Subjects Suffering from Restless Legs Syndrome (RLS)" - no patients enrolled, no monies generated

666E-CNS-0618-001: "A Phase II Randomized, Double-Blind, Placebo-Controlled, Dose Response Study of the Efficacy and Safety of Sumaniprole in Patients with Idiopathic Restless Legs Syndrome" - \$16,000/patient

666E-CNS-0618-007: "A Long-Term, Open-Label, Flexible-Dose Study of the Efficacy and Safety of Sumaniprole in Patients with Idiopathic Restless Legs Syndrome" - \$8900/patient monies generated to date from these two studies (001 and 007 is \$10,000)

OMC-SXB-22: "Randomized, Double-Blind, Double-Dummy, Placebo-Controlled, Parallel Group, Multi-Center Trial Comparing the Effects of Orally Administered Xyrem® (sodium oxybate) and Modafinil with Placebo in the Treatment of Daytime Sleepiness in Narcolepsy" - \$12,200/patient.

NIH/NINDS Number 1 R01 NS40829-01A2 Title: "Study of L-Dopa in ADHD and RLS/PLMS". Dates 9/30/02 – 7/31/05. Extended to 1/08. PI - **Arthur S. Walters, M.D.** Direct and indirect costs combined -- **\$1,274,047**. Goal: Determine whether L-DOPA is effective in treating ADHD in patients with and without RLS/PLMS.

A Proteomic analysis of cerebrospinal fluid in Restless Legs Syndrome. 1/07- 1/08. Arthur S. Walters, M.D. Co-Investigator. Glaxo Smith Kline Pharmaceuticals \$300, 000. paid per patient recruited.

A double blind study of istradefylline in Restless Legs Syndrome. Kyowa Pharmaceuticals. 2006-2007. \$12,000 generated.

A double blind study of a gabapentin Pro-drug in Restless Legs Syndrome. Xenoport Pharmaceuticals. 2006-2007. \$25,000 generated.

A pharmacokinetic and pharmacodynamic study of pramipexole in childhood Restless Legs Syndrome. Boehringer-Ingelheim. 2006-2007. \$7,000 generated.

A double-blind study of the rotigotine patch in Restless Legs Syndrome. Schwarz-Pharma Pharmaceuticals. 2006-2007. \$14,000 generated.

INVESTIGATOR INITIATED STUDY: UCB Pharma Grant. March, 2012-June, 2015

Arthur S. Walters, M.D. PI. \$319,195.

Arthur S. Walters M.D. 10% effort as transfer from departmental funds since UCB Pharma does not allow % effort for principal investigators.

Title: *The search for silent strokes: Magnetic Resonance Study of patients with Restless Legs Syndrome versus controls*

The goal of the project is to determine if patients with Restless Legs Syndrome have more silent strokes on MRI scan than controls. As a secondary endpoint Beth Ann McLaughlin, PhD. from the Dept of Neurology will look for inflammatory markers in both groups. This is a two center study with a research group in Italy serving as the second center

Arthur S. Walters, M.D. and Claudia Trenkwalder, M.D. Co-PIs \$200,000 Euros.

Arthur S. Walters, M.D. 100% salary support from the Georg August University, Goettingen, Germany during sabbatical to Germany Jan 1-July 1, 2013 in order to work on this project

Title: *Study of cerebrospinal fluid opioids in the Restless Legs Syndrome.*

The goal of the project is to determine if the endogenous opioids are lower in RLS patients than controls particularly during the evening when RLS symptoms are more prominent. Although the original goal was to do this in cerebrospinal fluid, the human studies committee at the Georg August University in Goettingen, Germany where this project was started during my sabbatical there Jan 1-July 1, 2013 approved the study only to be done in serum.

Current grants

RO1 ES010563-S1 3/4/14 – 10/31/16 CARRY OVER FUNDS FROM GRANT STILL AVAILABLE FOR COMPLETION OF THE PROJECT until 10/17.

PIs – Aaron Bowman and Michael Aschner and co-investigator Arthur S. Walters). NIH/NIEHS (VICTER Competing Revision RO1) Total Award: \$1,209,166.

Arthur S. Walters, M.D. \$50,000/year plus standard Vanderbilt indirects in a separate cost center for each of the 3 years of the project. Dr. Walters also receives funding for 4% effort/year as a portion of the \$50,000/year.

Title: *Mechanisms of Manganese Toxicity*

The goal of this project is to test the hypothesis that Restless Legs Syndrome (RLS) is associated with alterations in systemic and neuronal Mn status. Our groups of investigators (across 3 institutions) explore links between RLS genetic risk factors and Mn biology and evaluate small molecule modifiers of Mn status identified under ES010563 in human, human stem cell and *C. elegans* model systems.

RO1 NS082244-1A1 4/1/14 – 3/31/19

NIH/NNDS (PI Yu Qing Li and co-investigator Arthur S. Walters) Total Award: \$1,515,942

Arthur S. Walters, M.D. receives funding for 5% effort/year for each of the 5 years of the project.

Title: *Restless Legs Syndrome: Pathophysiology using Btbd9 Conditional Knockout Mice*

The goal of this project is to study the pathophysiology of Restless Legs Syndrome (RLS) using Btbd9 conditional knockout mice lacking functional Btbd9 proteins in various brain regions implicated in RLS. Our groups of investigators (across 3 institutions) explore roles of dopamine, iron, and synaptic plasticity in RLS.

INVESTIGATOR INITIATED STUDY: Mundipharma Grant: 2015-2019

PI Yu Qing Li and co- PI Arthur S. Walters. Total Award \$56,500 for first year committed with contract to the University of Florida with subcontract to Vanderbilt. Additional monies for additional years will be considered for funding depending upon initial phase results. Total budget requested for entire project \$405,518.

Arthur S. Walters, M.D. receives funding for 5% effort/year for each year of the project.

Title: *Opioid System and Restless Legs Syndrome: A Knockout Mouse Approach to Elucidate its Role.*

The goal of the project is to create a mu opiate receptor knock out mouse and determine if the animal has the sensory and motor abnormalities of human RLS including worsening of symptoms during the sleep period. In addition biochemical abnormalities characteristic of human RLS such as iron deficiency will be explored in the knock out model. The second phase of the study will be to treat these animals with medications known to improve human RLS if the first phase proves an adequate model of human

RLS.

(Walters) 1/1/2016- 8/17 0.60 calendar
months
XenoPort 108 -- now Arbor Pharma \$109,649
A Multicenter, Open-Label, Single-Dose Pharmacokinetic and Safety Evaluation of HORIZANT (Gabapentin Enacarbil Extended-Release Tablets) in Adolescents Aged 13 to 17 Years Old with Moderate-to-Severe Primary Restless Legs Syndrome.

(Walters) 2/1/2016-1/31/2018 0.60 calendar
months
XenoPort 110 -- now Arbor Pharma \$120,000
A Multicenter, Open-Label Extension Study to Evaluate the Efficacy and Safety of HORIZANT (Gabapentin Enacarbil Extended-Release Tablets) in Adolescents Aged 13 to 17 Years Old with Moderate-to-Severe Primary Restless Legs Syndrome.

(Walters) 3/1/2016-2/28/2018 0.60 calendar
months
XenoPort 109 --now Arbor Pharma \$120,000
A Multicenter, Double-Blind, Placebo Controlled, Parallel Group, Efficacy and Safety Evaluation of HORIZANT (Gabapentin Enacarbil Extended-Release Tablets) in Adolescents Aged 13 to 17 Years Old with Moderate-to-Severe Primary Restless Legs Syndrome.

CURRENT ACTIVE RESEARCH THAT IS ONGOING BUT UNFUNDED.

We are participating in a multi-center study to compare the previously validated International RLS rating scale which needs the physician present for administration and fielding questions from the patient to the examiner to a version of the same scale where the examiner does not have to be present for administration. If the validation is successful this would mean that the scale could be sent out en masse to large numbers of subjects in epidemiological studies. So far the Vanderbilt center alone has completed 30 subjects in this ongoing project.

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ABSTRACTS

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