CURRICULUM VITAE

PART I: General Information

DATE PREPARED: December 1, 2012

Name
Mark Jude Tramo, M.D., Ph.D.

Home Address & Contact Information
[redacted]

Place of Birth
Bronx, New York

Education
1978, B.A., Yale College
1982, M.D., Cornell University Medical College
1998, Ph.D. (Neurophysiology), Harvard Graduate School of Arts & Sciences

Postdoctoral Training
1982-1983, Intern in Internal Medicine, LA County - USC Medical Center
1983-1986, Resident in Neurology, The New York Hospital - Cornell University Medical Center
1985, Chief Resident, Neurology Ward, The New York Hospital
1986, Chief Resident, Neurology Ward, Memorial Hospital - Sloan-Kettering Cancer Center
1986-1987, Fellow (Cognitive Neuroscience), Dept. of Neurology, The New York Hospital - Cornell University Medical Center and Memorial Hospital - Sloan-Kettering Cancer Center

Hospital and Affiliated Institution Appointments
July 1987 – June 1988, Attending Neurologist, The New York Hospital, NY, NY
July 1988 – June 1991, Attending Neurologist, Dartmouth-Hitchcock Memorial Hospital, Hanover, NH
July 1992 –Dec 2009, Attending Neurologist, Massachusetts General Hospital, Boston, MA
July 1992 – June 2005, Neurology Consultant, McLean Hospital, Belmont, MA
1996-2005, Research Affiliate, Research Laboratory of Electronics, Department of Electrical Engineering & Computer Science, Massachusetts Institute of Technology, Cambridge, MA
2009-2010, Medical Director, Neurological & Rehabilitation Services, and Staff Neurologist, Good Samaritan Hospital, Los Angeles, CA
2009-current, Attending Neurologist, Section of Neurology, Dept of Medicine, Good Samaritan Hospital, Los Angeles, CA
2012-current, Attending Neurologist, Dept of Neurology, Ronald Reagan UCLA Medical Center, Los Angeles, CA

Academic Appointments
1987-1988, Assistant Professor of Neurology, Cornell University Medical College
1988-1992, Assistant Professor of Medicine (Neurology) and of Psychiatry, Dartmouth Medical School
1992-1998, Instructor in Neurobiology, Harvard Medical School

1999-2009, Assistant Professor of Neurology, Harvard Medical School
2000-2005, Faculty, Harvard-M.I.T. Speech & Hearing Bioscience & Technology Graduate Studies Program
2000-2009, Board of Honors Tutors, Department of Psychology, Harvard University
2000-current, Faculty Fellow, Mind Brain & Behavior Interfaculty Initiative, Harvard University
2002-2009, Teaching Affiliate, Department of Biology (Neurobiology), Harvard University
2009-present, Lecturer in Ethnomusicology, UCLA Herb Alpert School of Music,
2012-2013, Clinical Assistant Professor of Neurology (Voluntary), David Geffen School of Medicine at UCLA
2013- Clinical Associate Professor of Neurology (Voluntary), David Geffen School of Medicine at UCLA

Licensure and Certification

1983, Diplomate, National Board of Medical Examiners
1983-current, Drug Enforcement Administration Certification, U.S.A.
1983-1988, New York State Medical License
1988, Diplomate in Neurology, American Board of Psychiatry and Neurology
1988-1992, New Hampshire Medical License
1991-2009, Massachusetts Medical License
1991-2009, Massachusetts Drug Enforcement Administration Certification
2009-current, California Medical License

Clinical Activities

Outpatient Neurology

Laboratory: Electromyography, Nerve Conduction Studies, Somatosensory Evoked Potentials, Visual Evoked Potentials, Auditory Evoked Potentials, Neuropsychometrics, Lumbar Puncture

Consultation: Headache, Memory Loss, Attention Deficit Disorder, Pain, Dyslexia, Spine, Carpal Tunnel, Stroke, Multiple Sclerosis, Head Trauma, Disability, Alzheimer's, Parkinson's, Neurorehabilitation, Speech & Language, Dizziness, Hearing Loss, Performing Arts Medicine, Neuropsychiatry

Inpatient Neurology

Hyperacute Stroke/IV tPA, Neurointensive Care, Encephalitis, Meningitis, Spinal Cord and Head Trauma, Coma, Encephalopathy, Other

Other Professional Positions and Major Visiting Appointments

1998-current, Advisory Board, Songs of Love Foundation, New York, NY
1999-2000, Board, Soldiers Field Park Children's Center, Boston, MA
2000-2005, Advisory Board, BioMusic Program, National Musical Arts, Washington, DC
2000, Consultant, Berkshire Hills Music Academy, South Hadley, MA
2002-current, Scientific Advisory Board, Science Museum of Minnesota, St. Paul, MN
2004-2007, Science Advisor, Morphonix, Inc., Sausalito, CA
2003-current, Founding Director, The Institute for Music & Brain Science, Boston, MA
2007-current, Advisory Board, National Center for Human Performance, Texas Medical Ctr, Houston, TX

Hospital and Health Care Organization Service Responsibilities

1986-1987, Fellow, then Attending, Stroke and Coma Team, The New York Hospital, NY, NY
1986-1988, Staff Physician, Medical and Neurological Services, Burke Rehabilitation Center, White Plains, NY
1987-1988, Attending, Neurology Consult Service, Behavioral Neurology Consult Service, Neurology Faculty Practice Group, and Neurology Residents Clinic, The New York Hospital
1988-1991, Attending, Behavioral Neurology Consult Service and Neurology Residents Clinic, Mary Hitchcock Memorial Hospital, Hanover, NH
1988-1991, Neurology Consultant, Franklin Regional Hospital, Franklin, NH
1992-2009, Attending, Neurology Inpatient Service, General Neurology Consult Inpatient Service, and Cognitive/Behavioral Neurology Outpatient Unit, Massachusetts General Hospital, Boston, MA
1995-2005, Neurology Inpatient and Outpatient Consult Services, McLean Hospital, Belmont, MA
2009-2010, Medical Director, Neurological & Rehabilitation Services, & Staff Neurologiet, Good Samaritan Hospital, LA

Committee Assignments

1996-2000, Standing Committee on Neuroscience, Harvard University
2000-current, Standing Committee on Mind/Brain/Behavior, Harvard University2002-2003, Subcommittee on Undergraduate Curriculum, Harvard Mind/Brain/Behavior Interfaculty Initiative
2002, NIH National Institute on Deafness & Other Communication Disorders, Special Emphasis Review Panel, Exploratory/Developmental Research Program
2003-4, 2008-9, NSF Grant Review Committee
2004-2007, Large Animal Users Group, Massachusetts General Hospital
2006-2009, Steering Committee, Mind Brain & Behavior Interfaculty Initiative, Harvard University
2010-2011, Scientific Organizing Committee, Music Science & Medicine Symposium, New York Academy of Sciences

Professional Societies

1983-current, American Academy of Neurology, Member
1985-current, American Society for Composers, Authors, and Publishers, Writer Member
1986-2010, Acoustical Society of America, Member
1989-current, Society for Neuroscience, Member
1991-1992, Stroke Council, American Heart Association, Fellow
1992-2007, American Association for the Advancement of Science
1995-2009, Society for Music Perception & Cognition
1998-2008 Association for Research in Otolaryngology
2000-2008, New York Academy of Sciences
2006-7, Boston Music Research Association
2009-current, National Academy of Recording Arts & Sciences

Editorial Boards

1989-current, Reviewer, *Science, Nature Neuroscience Reviews, Neuron, Journal of Neurophysiology, Trends in Neurosciences, Journal of the Acoustical Society of America, Cerebral Cortex,* Oxford Press (partial list)
1994-1998, Consulting Editor, *Music Perception*
1997-2005, Associate Editor, *Journal of Cognitive Neuroscience*
2007-current, Advisory Board, *Journal of Interdisciplinary Music Studies*

Awards and Honors

1974-1978, Joseph Tauber Scholar, Yale University
1978, Bachelor of Arts *cum laude* with Honors in the Major (Biology), Yale University
1978-1982, Joseph Collins Foundation Scholar, Cornell University Medical College
1981-1982, Vincent Astor Scholar, Cornell University Medical College
1987-1988, National Research Service Award, Physiology, National Institute of Neurological & Communicative Disorders & Stroke, National Institutes of Health
1988-1991, Program Project Award, Co-Principal Investigator, National Institute of Neurological Disorders & Stroke, National Institutes of Health
1989-1991, Cognitive Science Award, Co-Principal Investigator, Office of Naval Research
1991-1992, National Research Service Award, National Institute of Mental Health
1992-1997, Clinical Scientist Development Award, National Institute on Deafness and Other Communication Disorders, National Institutes of Health
1992-1993, Sackler Scholar in Psychobiology, Harvard University
1993-1994, Alwin M. Pappenheimer Scholar, Harvard University
1997, Research Award, National Organization for Hearing Research
1997-1998, Provost's Award for Educational Innovation, Harvard University
1997-2002, Cognitive Neuroscience Program Award, McDonnell-Pew Foundation
1998-2002, FIRST Award, National Institute on Deafness and Other Communication Disorders, National Institutes of Health

2000, Harvard Medical School Class of 2000 Faculty Award for Excellence in Clinical Teaching (finalist)
2000-2001, Gordon and Llura Gund Research Award, Mind/Brain/Behavior Interfaculty Initiative, Harvard University
2002-current, Institute for Music & Brain Science
2009, Performing Arts Medicine Association Richard Lederman Award
2009-2010, Grammy Foundation Research Award

PART II: Research, Teaching, and Clinical Contributions

Report of Teaching

Local contributions

The New York Hospital - Cornell Medical Center, 1986-1988
- 1986-1988, Neurology Outpatient Clinic, Attending, PGY 2-4 Neurology Residents, 48 hrs/yr
- 1986-1988, Cognitive Neuroscience Seminar Series for Neurology Residents, Organizer and Lecturer, 36 hrs/yr
- 1986-1988, Neurology/Neurosurgery Grand Rounds, 1 per year
- 1987-1988, Neurology Consult Service, Attending, PGY-3 Neurology Resident, 112 hrs/yr
- 1987-1988, Third Year Clerkship in Neurology, Tutor, 4 students/yr, 20 hrs/yr
- 1987-1988, Fourth Year Neurology Elective in Cognitive Neuroscience, Tutor, 2 students/yr, 40 hrs/yr

Dartmouth – Hitchcock Medical Center, 1988-1991
- 1988-1991, Neurology Outpatient Clinic, Attending, PGY 2-4 Neurology Residents, 60 hrs/yr
- 1989, 1990, Neurology/Neurosurgery Grand Rounds, 1 per year
- 1988-1991, Resident Research Elective in Cognitive Neuroscience, Tutor, 40 hrs/yr
- 1989-1991, Behavioral Neurology Ward Rounds, 12 hrs/yr
- 1989-1991, McDonnell-Pew Graduate Studies in Cognitive Neuroscience, Lecturer & Laboratory Instructor, 2 students/yr, 60 hrs/yr
- 1998-1991, 2nd-Year Scientific Basis of Medicine: Neurology, Lecturer, 10 hrs/yr
- 1989-1991, Fourth Year Elective in Cognitive Neuroscience, Tutor, 2 students/yr, 40 hrs/yr

Harvard Medical School, Graduate School Division of Medical Sciences, and College; Harvard-MIT Division of Health Sciences and Technology; and Massachusetts General Hospital, 1992-2009
- 1992, Program in Neuroscience Seminar, Wood's Hole
- 1992-2009, Neurology Ward or Consult Service, Attending, PGY 1, 2, and 4 Neurology, Psychiatry, and Physiatry Residents and Interns, 100+ hrs/yr
- 1992-2009, Cognitive/Behavioral Neurology Unit, Attending, PGY 3 Neurology Residents, 48 hrs/yr
- 1992-current, Neurology Residents Cognitive/Behavioral Neurology Seminar, Attending, 24 hrs/yr
- 1993, Second Year Physical Diagnosis in Neurology, Tutor, 4 students/yr, 16 hrs/yr
- 1993, HST 722: Brain Mechanisms of Hearing and Speech, Lecturer, 12 graduate students/yr, 4 hrs/yr
- 1993, Neurobiology Department Seminar Series, Lecturer, 20 hrs
- 1993, 1995, 1997, Neurobiology 208: The Visual System, Lecturer, 10 medical and graduate students/yr, 6 hrs/yr
- 1994-current, Clinical Clerkship in Neurology, Examiner, 1 medical student/yr, 2 hrs/yr
- 1994, 2000, Neurology Residents Neuroscience Seminar, Lecturer, PGY 2-4 Neurology Residents, 5 hrs/yr
- 1995-2004, General Neurology Residents' Clinic, Preceptor, PGY 2-4 Neurology Residents, 30 hrs/yr
- 1995-2007, Tutor, PGY-2 Residents Cognitive Neurology Case Seminar, 40 hrs/yr
- 1996,1999,2007, 2nd-Year HMS/HDS Course: Human Nervous System & Behavior, Lecturer &Tutor, 12-20 medical/dental students/yr, 60 hrs/yr
- 1997,1998,2005 HST 799, Special Topics Research in the Speech & Hearing Sciences, 1 student/yr, 120 hrs/yr
- 1997, 2001, MGH Neurology Grand Rounds, 1 per year

1998, 1999, 2001, Neurology Professor's Rounds, PGY 1-4 Neurology, Psychiatry, and Physiatry Residents and Interns, 2 hrs/yr
1998, 2000, 2001, Psychology 987b, Music, Mind, & Brain, 12 undergraduates/yr, 100 hrs/yr
1999-2001, Mind/Brain/Behavior Thesis Workshop, 12 undergraduates/yr, 15 hrs/yr
1999, 2000, 2005, 2006 Behavioral Neurology Signs Rounds, PGY 1-4 Neurology, Psychiatry, and Physiatry 12 hrs/yr
2000, Mind/Brain/Behavior Faculty Fellowship Seminar Series, 20 hrs
2000-2009, Mortality and Morbidity Conference, PGY 2-4 Neurology Residents, 18 hrs/yr
2001, Mind/Brain/Behavior Advisory Board Seminar

2004, 2007, HST 725, Music Perception & Cognition (Co-Instructor), 4-8 students/semester
2004-2009, General Neurology Residents' Clinic, Attending, PGY 2-4 Neurology Residents, 240 hrs/yr
2007, Biology Auditory Neurobiology of Language & Music (Lecture course)

UCLA Geffen School of Medicine, Ronald Reagan UCLA Medical Center, & Herb Alpert School of Music, 2010-current

2010, Neurology/Neuroscience Grand Rounds, Functional Brain Organization in Relation to Music Cognition
2010-current, Ethnomusicology 188: Advanced Topics. Music and the Brain.
2012-current, Professors Rounds, Neurology Inpatient Patient Service (monthly)
2012-current, Neurology Residents Outpatient Clinic

Continuing Medical Education Courses

1988, Cornell Medical College, Lecturer, Review of Internal Medicine, Lecturer
1997-2007, Harvard Medical School, Co-Founder, Director (2001, 2007), Co-Director, & Lecturer, Dementia: A Comprehensive Update, 80 hrs/yr

Advisory and Supervisory Responsibilities

Cornell Medical College

1987-1988, First Year Student Faculty Advisor, 6 students/yr, 24 hrs/yr

Harvard Medical School, Graduate School Division of Medical Sciences, and College; Harvard-MIT Division of Health Sciences and Technology; and Massachusetts General Hospital

1995-2007, Psychology 985, Preparation for the Honors Thesis 1 undergraduate every other yr, 50 hrs/student
1995-2009, Psychology 990, Honors Thesis Advisor, 1 undergraduate every other year, 100 hrs/student
1995-2007, Psychology 985, Preparation for the Honors Thesis, 1 undergraduate every other yr, 50 hrs/student
1997-2000, Psychology 910r, Supervised Reading/Research, 1 undergraduate every other year, 50 hrs/student
1998, 2002 Biology 98r, Introduction to Research, 1 undergraduate/yr, 50 hrs/yr
1998-1999, Biology 99, Honors Thesis Advisor, 2 undergraduates/yr, 100 hrs/student
1999-2000, Thesis Advisory Committee, HST Speech & Hearing Sciences, 1 graduate student/yr, 16 hrs/yr
2000, Thesis Qualifying Examination Committee, HST, Speech & Hearing Sciences
2000-2001, Psychology Honors Thesis Committee, 2 undergraduates/yr; 20 hrs/student
2000-2001, Special Concentrations 99, Honors Thesis Advisor, 1 undergraduate/yr, 100 hrs/yr
2001-2002, Special Concentrations 91r, Supervised Reading and Research, 1 undergraduate, 15 hrs/yr
2002-2003, PhD Thesis Committee, Cory Miller, Psychology, 20 hrs/yr
2006-2007, Mentor, Senior Neurology Resident (1), 50 hrs/yr
2008-2009, PhD Thesis Committee, Aaron Berkowitz, Music, 20 hrs/yr

Regional, national, and international contributions

1985, Session on Multiple Sclerosis: Clinical Investigation and Therapy, 37th Annual Meeting of the American Academy of Neurology
1987, Cerebrovascular Disease II: Poster Presentations, American Neurological Association 114th Annual

Meeting
1988, Session on Cerebral Metabolism, 40th Annual Meeting of the American Academy of Neurology
1989, Behavioral Neurology Poster Session, American Neurological Association 114th Annual Meeting
1989, Interhemispheric Relations Poster Session, Society for Neuroscience 19th Annual Meeting
1989, McDonnell Foundation Summer Institute in Cognitive Neuroscience Faculty and Lecturer (invited)
1990, Second International Conference on Music and the Cognitive Sciences, Cambridge University, Lecturer (invited)
1990, Human Behavioral Neurobiology Poster Session, Society for Neuroscience 20th Annual Meeting
1990, First Annual McDonnell-Pew Program in Cognitive Neuroscience Investigators' Workshop, Lecturer (invited)
1990, Behavioral Neurology Poster Session, American Neurological Association 115th Annual Meeting
1990, McDonnell Foundation Summer Institute in Cognitive Neuroscience Faculty and Lecturer (invited)
1991, Functional Aspects of Auditory Cortex Symposium, Lecturer, International Brain Research Organization Third World Congress of Neuroscience, (invited)
1991, Music and the Brain Session, Lecturer, Second International Conference on Music Perception and Cognition, UCLA (invited)
1991, Central Auditory Physiology Poster Session, Society for Neuroscience 21st Annual Meeting
1991, Cognitive Neuroscience Session, Co-Chair and Lecturer, 2nd International Conference on Epilepsy and the Corpus Callosum (invited)
1991, Scientific Session, Lecturer, Society for University Neurosurgeon (invited)
1991, Neurology Grand Rounds, Lecturer, Yale School of Medicine Neurological Study Unit and Yale-New Haven Hospital (invited)
1992, Central Auditory Physiology Slide Session, Society for Neuroscience 22nd Annual Meeting
1992, Music and the Brain Symposium, Lecturer, Art Institute of Chicago (invited)
1992, International Conference on the Psychophysiology and Psychopathology of the Sense of Music, Lecturer (invited)
1993, Central Auditory Physiology Slide Session, Society for Neuroscience 23rd Annual Meeting
1994, Behavioral Neuroscience Seminar Series, Brigham & Women's Hospital/Beth Israel Hospital (invited)
1994, Central Auditory Physiology Poster Session, Society for Neuroscience 24th Annual Meeting
1994, Harvard Music Department Seminar Series (invited)
1996, Functional Aspects of Auditory Cortex Workshop, Lecturer, XXVIth International Congress of Psychology (invited)
1996, Auditory Cortex Physiology - Primates Poster Session, Society for Neuroscience 26th Annual Meeting
1997, Music and the Brain Symposium, Lecturer, International Computer Music Conference, (invited)
1997, Pedagogical Session: Neurobiology , Lecturer, International Conference on Complex Systems (invited)
1998, Moderator, Press Conference on Music and the Brain, Society for Neuroscience 28th Annual Meeting, LA, CA (invited)
1998, Auditory Cortex Physiology - Complex Sounds Poster Session, Society for Neuroscience 28th Annual Meeting
1998, Harvard Psychology Department Seminar Series, Lecturer, 20 hrs 1999, Auditory Cortex Slide Session, 22nd Association for Research in Otolaryngology Midwinter Meeting
1999, Central Auditory Physiology: Spectrotemporal Coding Poster Session, Society for Neuroscience 29th Annual Meeting
2000, Biological Foundations of Music, New York Academy of Sciences (invited)
2000, The Music of Nature and the Nature of Music, Lecturer, Smithsonian Institute, National Musical Arts, National Academy of Sciences (invited)
2000, Association for Research in Otolaryngology: Inner Ear: Normal Structure or Function Poster Session
2000, 2001, Cambridge Hospital, Neurology Lecture Series (invited)
2001, 21 Club, Harvard Mind/Brain/Behavior Board Dinner, New York, NY (invited)
2001, Auditory: Coding, Tuning and Perception Poster Session, Society for Neuroscience 31st Annual Meeting
2001, Berklee College of Music, Music Therapy Symposium, Music & The Brain (invited)
2001, The Harvard Club of Boston: A Saturday of Symposia. Music, Mind, and Brain (invited)
2002, Learning & The Brain Symposium, Music Education, & The Brain. Cambridge, MA (invited)
2002, Hudson Theatre, Beth Abraham Music Therapy Program, Music Cognition. NY, NY (invited)
2002, Auditory Neuroscience Seminar Series, University of Connecticut at Storrs, Effects of Auditory Cortex Lesions on Music Perception (invited)
2003, Neuroesthetics Symposium, University of California at Berkeley, Widely Distributed Neural Systems

for Musical Aesthetics (invited)
2004, Linda and Jack Gill Center for Biomolecular 2004 Symposium and Award, Indiana University (invited)
2004, Jill S. Titus Lecture, Institute for Mind, Body & Spirituality, Lesley College (invited)
2004, Special Session of the 50th Annual Meeting of the Acoustic Society of America, Musical Acoustics: Neurophysiology of Musical Instrument Playing, New York (invited)
2004, Carnegie Hall Concert and Symposium, Beautiful Minds, Beautiful Music, New York (invited)
2005, Neurosciences & Music Symposium, Leipzig, Germay (invited)
2005, Leibniz Institute, Magdeburg Germany (invited)
2005, Harvard Club of Fort Lee, FL (invited)
2005, Roland M. Pinkham Annual Memorial Lecture, Swedish Medical Center, Seattle, WA (invited)
2006, Harvard Medical Exchange Club, Harvard Club of Boston (invited)
2006, Neurosciences Institute, LaJolla, CA (invited)
2006, Arts in Medicine Series, Memorial Sloan-Kettering Cancer Center (invited)
2007, National Center for Human Performance, Houston, TX (invited)
2007, Center for Performing Arts Medicine, Methodist-Cornell Medical Center, Houston, TX (invited)
2007, Cold Spring Harbor Interdisciplinary Symposium on Memory in Neuroscience & the Humanities (invited)
2008, National Academy of Sciences Annual Meeting, Koshland Science Museum, Music and the Brain: Performance and Discussion, Washington, DC (invited)
2009, Keynote Lecture, Cleveland Clinic, Music and the Brain Symposium, Cleveland, OH (invited)
2008, Duke University, Opening Lecture, Music and the Brain Sympsosium, Durham, NC (invited)
2009, Shepherd School of Music, Rice University, Exploring the Mind Through Music Symposium, Houston, TX (invited)
2009, Moderator, Press Conference on Music and the Brain, Society for Neuroscience 39th Annual Meeting, Chicago, IL (invited)
2009, Barrow Neurological Institute, Neurology/Neurosurgery Grand Rounds, Phoenix, AZ (invited)
2009, International Mind Brain & Education Society Meeting, Panel: Advances in the cognitive neuroscience of music: Implications for education, Philadelphia, PN (invited)
2009, National Academy of Recording Arts & Sciences, Board Meeting, LA, CA (invited)
2009, International Mind Brain & Education Society Meeting, Panel: Emotion, learning, & the brain: Insights from experimental neuroscience & educational approaches to children with neurological disease, Philadelphia. PN (invited)
2009, Michael Ty Memorial Lecture, Brigham & Women's Hospital and Massachusetts General Hospital, Boston, Massachusetts (invited)
2009, Richard J. Lederman Keynote Lecture, Performing Arts Medicine Association, Snowmass, CO (invited)
2009, Lincoln Center, Music and the Brain Symposium, New York, NY (invited)
2010, Stanford University Institute for Creativity & the Arts, Music & the Brain Forum, Palo Alto, CA (invited)
2011, New York Academy of Sciences, Music Science & Medicine Symposium, New York, NY (invited)
2011, Keynote Speaker, International Society for Quantitative Research in Music & Medicine Symposium, Ogden, UT (invited)
2011, Aspen Ideas Festival. Opening Ceremony: The Big Idea; and Music On the Edge Symposium. Aspen CO (invited)
2012, Integrative Music & Medicine Pain Conference, Louis Armstrong Center for Music & Medicine, Beth Israel Medical Center, New York, NY (invited)
2012, PainWEEK 2012, Music Therapy Symposium, Effect of Music on Neuromodulation of Pain Responses. Las Vegas, NV (invited)

Public Education (partial list)
1995, *NBC Nightly News with Tom Brokaw*, The New York Times *Science Times*, Boston Magazine
1996, BBC 4 Television, Los Angeles Times, Atlanta Journal-Constitution, Young Students Learning Library Science Yearbook, American Psychological Association Monitor
1997, The Washington Post, The Boston Globe *Quotes of Note*, Fox News Channel

1998, *NBC Today Show*, *PBS Healthweek*, CBS National Radio, Public Radio International, New England Cable News, KCBS Radio San Francisco, WAV-FM Radio Tokyo, ZIP-FM Radio Nagoya, LA Times. USA Today
1999, Lifetime Channel, Discovery Science Channel, NPR *Living On Earth*
2001, National Geographic TV, WBZ-TV Boston, WCVB-TV Boston, Discovery Channel, NPR *The Connection*, US News & World Report, Discover Magazine, The New York Times *Science Times*, The Boston Globe *Health/Science*
2002, WCVB-TV Boston, Canadian Broadcasting Corporation Radio *Ideas*, People Magazine, ABCnews.com, NPR *Infinite Mind*
2003, The New York Times, Harvard Medical School Alumni Bulletin, Neurology Today, Edmonton Journal
2004, Journal of the American Medical Association, PBS-TV *Closer To Truth*, WiredNews.com, Discover
2005, CBS-TV Sunday Morning, National Public Radio, Chicago Tribune, Seattle Times
2006, The Wall Street Journal, US News & World Report, NPR, St Louis Post-Dispatch
2007, Washington Post
2008, *Nightline*, WABC-TV
2009, *All Things Considered*, NPR
2009, Duke University Music and the Brain Symposium Lecture, http://www.youtube.com/watch?v=gviCJw3BqfQ
2010, Stanford University Music and the Brain Forum Lecture, http://www.youtube.com/watch?v=5zLGrbVLvhg
2011, Keynote Lecture, ISQRMM, http://www.youtube.com/watch?v=edUh2w4jCtc
2011, Aspen Ideas Festival, *GenConnect*, http://www.genconnect.com/career/harvard-medicals-dr-mark-tramo-science-of-music-video/

Report of Clinical Activities

Description of Clinical Practice
I am a general adult neurologist (board certified in 1988) with fellowship training in Behavioral Neurology and Stroke and a PhD in Neurobiology/Neurophysiology. I see inpatients and outpatients and perform laboratory testing in Neuropsychology (psychometric testing) and Neurophysiology (Electromyoneurography; Somatosensory, Visual, and Auditory Evoked Potentials).

PART III.

A. Bibliography

1. Tramo MJ, Hainline B, Petito F, Lee B, Caronna J Vertebral artery injury and cerebellar stroke while swimming. Stroke 1985; 16:1039-1042
2. Tramo MJ, Schneck MJ, Lee BCP, Rapoport S Evoked potentials and magnetic resonance imaging in
3, Tramo MJ, Hainline B Stroke in sports. In: Jordan B, Tsairis P, Warren R, eds. *Sports Neurology.* Rockville, Maryland: Aspen Publishing Co, 1989:98-115
the diagnosis of multiple sclerosis. Neurology 1985; 35(Suppl 1):105
4. Levy DE, Sidtis J, Rottenberg DA, Jarden JO, Strothers S, Dhawan V, Ginos JZ, Tramo MJ, Evans AC, Plum F The vegetative state and locked-in states affect cerebral blood flow and glucose utilization differently. Annals of Neurology 1987; 22:673-682
5. Tramo MJ, Sidtis JJ, Dhawan V, Strothers S, Moeller J, Ginos J, Sergi M, and Rottenberg DA Variability of regional glucose extraction fraction in the normal resting state. Annals of Neurology 1987; 22(Suppl):161A
6. Tramo MJ, Gazzaniga MS Discrimination and recognition of complex tonal spectra by the cerebral hemispheres: Differential lateralization of acoustic-discriminative and semantic-associative functions in auditory pattern perception. Society for Neuroscience Abstracts 1987; 15:1060
7. Tramo MJ, Baynes K, Volpe B Impaired syntactic comprehension and production in Broca's aphasia: CT lesion localization and recovery patterns. Neurology 1988; 38:95-98
8. Eidelberg D, Tramo M, Strother SC, Moeller JR, Sidtis JJ, Dhawan V, Rottenberg DA Variability in regional cerebral metabolic rate for glucose (rCMRGlu) and the consequences for the

study of neurologic disease with FDG/PET. Neurology 1988; 38(Suppl 1):367

9. Tramo MJ, Gazzaniga MS Recovery patterns in neurobehavioral syndromes. W.H.O. Collaborating Centre for Research and Training in Neurosciences, Neuroplasticity of the Nervous System, Beijing,
10. Jouandet ML, Tramo MJ, Herron DM, Hermann A, Loftus WC, Bazell J, Gazzaniga MS Brainprints: Computer-generated two-dimensional maps of the human cerebral cortex *in vivo*. Journal of Cognitive Neuroscience 1989; 1: 88-117
11. Oppenheim JS, Skerry JE, Tramo MJ, Gazzaniga MS Magnetic resonance imaging morphology of the corpus callosum in monozygotic twins. Annals of Neurology 1989; 26:100-104
12. Levy DE, Tramo MJ, Plum F Do positron emission tomographic scans measure quality of life? Reply. Annals of Neurology 1989; 2:288
13. Tramo MJ, Reuter-Lorenz P, Gazzaniga MS Pure alexia: Cognitive and anatomical correlates. Annals of Neurology 1989; 26:126
14. Tramo MJ, Bharucha JJ, Musiek FE Music perception and cognition following bilateral lesions of auditory cortex. Journal of Cognitive Neuroscience 1990; 2:195-212
(Abstracted by permission In: Hall III, J., ed. *1991 Year Book of Speech, Language, and Hearing*, Chicago: Mosby 1991; Chapter 15: Auditory Findings in Pathologies)
15. Jouandet ML, Tramo MJ, Thomas CE, Newton CH, Loftus WC, Weaver JB, Gazzaniga MS Brainprints: Inter- and intra-observer reliability. Society for Neuroscience Abstracts 1990; 16:1151
16. Tramo MJ, Guglielmo MA, Reuter-Lorenz P, Gazzaniga MS Functional dissociations in hemispatial neglect: Brainprints and quantitative lesion localization. Annals of Neurology 1990; 28:255
17. Tramo MJ Current Problems in Neurology: 5, Impact of Functional Imaging in Neurology and Psychiatry: Book Review. Neurosurgery 1990; 26:354-355
18. Tramo MJ Lesion Analysis in Neuropsychology: Book Review. Journal of Cognitive Neuroscience 1990; 2:156-157
19. Tramo MJ, Bharucha JJ Musical priming by the right hemisphere post-callosotomy. Neuropsychologia 1991; 29:313-325
20. Tramo MJ, Bharucha JJ Cortical networks in associative auditory processing. International Brain Research Organization Abstracts 1991; 252
21. Tramo MJ, Musiek FE, Gazzaniga MS Disruption of interhemispheric integration of complex auditory information following focal hemorrhage into the posterior body of the corpus callosum. Society for Neuroscience Abstracts 1991; 17:1484
22. Zatorre RJ, Heffner H, Liegeois-Chavel C, Tramo M, Samson S Functional aspects of auditory cortex. International Brain Research Organization Abstracts 1991; 8
23. Green RL, Tramo MJ, Loftus WC, Thomas CE, Brown PB, Weaver JB, Gazzaniga MS Regional cortical surface area measurements in monozygotic twins discordant for schizophrenia suggest a left hemisphere basis for the disease. Society for Neuroscience Abstracts 1991; 17:455
24. Baynes K, Tramo MJ, Gazzaniga MS Reading with a limited lexicon in the right hemisphere of a callosotomy patient. Neuropsychologia 1992; 30:187-200
25. Kussmaul CL, Tramo MJ, Mangun GR Investigation of harmonic relationships on auditory event-related potentials to successive pure tones. Psychophysiology 1992; 29:S47
26. Baynes K, Tramo, MJ, Fendrich R, Reeves AG, Gazzaniga MS Specificity of interhemispheric transfer following a partial lesion of the corpus callosum. Society for Neuroscience Abstracts 1992; 18:1207
27. Tramo MJ, Cariani PA, Delgutte B Representation of tonal consonance and dissonance in the temporal firing patterns of auditory nerve fibers: Responses to musical intervals composed of pure tones vs. harmonic complex tones. Society for Neuroscience Abstracts 1992; 18:382
28. Tramo MJ Split-brain studies of music perception and cognition. Contemporary Music Review 1993; 9:113-121
29. Loftus WC, Tramo MJ, Thomas CE, Green RL, Nordgren RA, Gazzaniga MS Three dimensional quantitative analysis of hemispheric asymmetry in the human superior temporal region. Cerebral Cortex 1993; 3:349-355
30. Delgutte B, Cariani PA, Tramo MJ Neurophysiological correlates of the pitch of complex tones. Journal of the Acoustical Society of America, Suppl. 1993; 1, 93:2293-2294
31. Bharucha JJ, Tramo MJ, Zatorre RJ Abstraction of the missing fundamental following bilateral lesions of auditory cortex. Society for Neuroscience Abstracts 1993; 19:1687

32. Peretz I, Kolinsky R, Tramo M, Labrecque R, Hublet C, Demeurisse G, Belleville S Functional dissociations following bilateral lesions of auditory cortex. Brain 1994; 117:1283-1301
33. Tramo MJ, Grant A, Braida LD Psychophysical measurements of frequency difference limens for relative pitch discrimination reveal a deficit following bilateral lesions of auditory cortex. Society for Neuroscience Abstracts 1994; 20: 325
34. Kussmaul CL, Tramo MJ, Mangun GR ERP measures of musical expectancy: Role of the N100 and other early components. Proceedings of the Herbert von Karajan Symposium, Wien, 1994
35. Tramo MJ, Loftus WC, Thomas CE, Green RL, Mott LA, Gazzaniga MS Surface area of human cerebral cortex and its gross morphological subdivisions. In vivo measurements of monozygotic twins suggest differential hemisphere effects of genetic factors. Journal of Cognitive Neuroscience 1995; 7:292-302
36. Loftus WC, Tramo MJ, Gazzaniga MS Cortical surface modeling reveals gross morphometric correlates of individual differences. Human Brain Mapping 1995; 3:257-270
37. Tramo MJ, Baynes K, Fendrich R, Mangun GR, Phelps EA, Reuter-Lorenz PA, Gazzaniga MS Hemispheric specialization and interhemispheric integration: Insights from experiments with commissurotomy patients. In: Reeves AG, Roberts DW, eds., *Epilepsy and the Corpus Callosum II*, pp 263-295, NY: Plenum Press, 1995
38. Tramo MJ, Bellew BF, Hauser MD Discharge patterns of auditory cortical neurons evoked by species-specific vocalizations and complex synthetic signals in *Macaca mulatta*. Society for Neuroscience Abstracts 1996; 22:1623
39. Tramo MJ Neural representations of tonal harmony. International Journal of Psychology 1996; 31:187
40. Baynes K, Tramo MJ, Reeves AG, Gazzaniga MS Isolation of a right hemisphere cognitive system in a patient with anarchic (alien) hand syndrome. Neuropsychologia 1997; 35:1159-1173
41. Cariani P, Tramo M, Delgutte B Neural representations of pitch through temporal autocorrelation. Proceedings of the Audio Engineering Society, AES Preprint #4583 (L-3), 1997
42. Tramo MJ, Loftus WC, Stukel TA, Green RL, Weaver JB, Gazzaniga MS Brain size, head size, and intelligence in monozygotic twins. Neurology 1998; 50:1246-1252
43. Patel AD, Peretz I, Tramo M, Labreque R Processing prosodic and musical patterns: A neuropsychological investigation. Brain and Language 1998; 61:123-144
44. Tramo MJ, Moraru D, Hauser MD Representation of species-specific vocalizations in the temporal discharge patterns of auditory cortical neurons in alert *Macaca mulatta*. Society for Neuroscience Abstracts 1998; 24:401
45. Tramo MJ Physiological acoustics. In: Beyer RT, Parker SP, eds., *McGraw-Hill 1998 Yearbook of Science and Technology, Encyclopedia of Science and Technology*, NY:McGraw-Hill , pp 305-307
46. Green RL, Hutsler JJ, Loftus WC, Tramo MJ, Thomas CE, Silberfarb AW, Nordgren RA, Gazzaniga MS. The caudal infrasylvian surface in dyslexia. Neurology 1999; 53:974-981
47. Tramo MJ, Cariani PA Receptive field organization in the core area of alert macaque auditory cortex. Society for Neuroscience Abstracts 1999; 25:395
48. Tramo MJ, Cariani PA, Moraru D Spectrotemporal response properties of auditory cortex neurons in the alert macaque. Association for Research in Otolaryngology Abstracts 1999; 22:116-117
49. Kaas JH, Hackett TA, Tramo MJ Auditory processing in primate cerebral cortex. Current Opinion in Neurobiology 1999; 9:164-170
50. Tramo MJ, McKinney MC, Cariani PA, Delgutte B Physiology of tonal consonance and dissonance. Association for Research in Otolaryngology Abstracts 2000; 23:275-276
51. Litovsky R, Fligor B, Tramo M Functional role of the human inferior colliculus in binaural hearing. Association for Research in Otolaryngology Abstracts 2000; 23: 286
52. Tramo MJ Music of the hemispheres. Science 2001; 291:54-5625.
53. Tramo MJ, Cariani PA, Delgutte B, Braida LD Neurobiological foundations for the theory of harmony in Western tonal music. Annals of the New York Academy of Sciences 2001; 930:92-116
54. Battelli L, Cavanagh P, Intriligator J, Tramo MJ, Henaff M-A, Michel F, Barton JJS Unilateral right parietal damage leads to bilateral deficit for high-level motion. Neuron 2001; 32:985-995
55. McKinney MF, Tramo, MJ, Delgutte B Neural correlates of the dissonance of musical intervals in the inferior colliculus. Association for Research in Otolaryngology Abstracts 2001; 24:54-55

56. Tramo MJ, Rosenbaum ER, Cariani PA, Hauser MD Differential responses of auditory cortex neurons to natural and unnatural vocalizations in alert *Macaca mulatta*. Society for Neuroscience Abstracts 2001; 26
57. McKinney MF, Tramo, MJ, Delgutte B Neural correlates of musical dissonance in the inferior colliculus. In Houtsma AJM, Kohlrausch A, Prijs VF, Schoonhoven R, Eds., *Physiological and Psychophysical Bases of Auditory Function*, Maastricth: Shaker Publishing, pp 71-77, 2001
58. Gray PM, Payne R, Krause B, Tramo MJ The biology of music. Response. Science 2001; 292:2432-2433
59. Tramo MJ Pathoanatomy of amusia: Harmony perception and aesthetics. Journal Watch Neurology 2001; 3:88
60. Tramo MJ, Shah GD, Braida LB Functional role of auditory cortex in frequency processing and pitch perception. Journal of Neurophysiology 2002; 87:122-139
61. Litovsky RY, Fligor B, Tramo MJ Functional role of the inferior colliculus in binaural hearing. Hearing Research 2002; 165; 177-188
62. Tramo MJ The Brain and Music. *Harvard Dictionary of Music, 4th Edition*. (new entry), Cambridge, Harvard Press, 2003
63. Tramo MJ, Koh CK, Shah GD, Braida LD Effects of bilateral auditory cortex lesions on frequency processing and virtual pitch perception. ARO Abstracts 2004; 27:78
64. Tramo MJ Physiology, anatomy, and plasticity of the cerebral cortex in relation to musical instrument performance. Journal of the Acoustical Society of America 2004 115; 2590
65. Tramo MJ, Koh CK, Shah GD, Braida LD Functional role of the auditory cortex in virtual pitch perception. Society for neuroscience Abstracts 2004
66. Tramo MJ, Cariani PA, Koh CK, Makris N, Braida LD Neurophysiology and neuroanatomy of pitch perception. Annals of the New York Academy of Sciences 2005; 1060:148-174.
67. Koss AD, Tramo MJ, Flaherty AW, Young AB Effect of auditory stimulation with popular music on visuomotor integration and gait in Parkinson's disease. Neurology 2006; 67:114
68. Tramo MJ, Koh CK, Lense MD, Van Ness CM, Krishnamoorthy KS, Kagan J, Caviness VS Effect of auditory stimulation with vocal music on neurophysiologic responses to pain in premature infants. Society for Neuroscience Abstracts 2006
69. Dykstra AD, Braida LD, Koh CK, Tramo MJ Intensity discrimination following bilateral lesions of auditory cortex. Cognitive Neuroscience Society Abstracts 2007 #G93
70. Dykstra AD, Braida LD, Koh CK, Tramo MJ Role of primary auditory cortex in intensity processing and loudness perception. Music Language Mind Abstracts 2008
71. Dykstra AD, Braida LD, Koh CK, Tramo MJ Primary and secondary auditory cortex are necessary for fine-grained intensity processing and loudness discrimination. Society for Neuroscience Abstracts 2010
72. Tramo MJ, Lense M, Van Ness C, Kagan J Effect of vmusic on physiological and behavioral responses to pain and stress in premature infants: Clinical trial and literature review. *Music and Medicine* 2011; 3: 72-83
73. Dykstra AD, Koh CK, Braida LD, Tramo MJ Dissociation of detection and discrimination of pure tones following bilateral lesions of auditory cortex. *PLoS One* 7(9): e44602. doi:10.1371/journal.pone4.0044602

In preparation
Tramo MJ, *Cognitive Neuroscience of Music, 2nd Edition.* London: Oxford Univ. Press

B. Educational Material

1. Tramo MJ Sensory and perceptual systems. In: *Cognitive and Behavioral Neurology: Focus on Dementia*, 1997-8 Course syllabus, Harvard Medical School Department of Continuing Medical Education
2. Tramo MJ Psychology 987b, Music, Mind, and Brain, 1998-2006, Course syllabus, Harvard College
3. Tramo MJ, Functional organization of the cerebral cortex. In: *Dementia: A Comprehensive Update*, 2001-7 Course syllabus, Harvard Medical School Department of Continuing Medical Education

C. Thesis

1. Tramo MJ Neural representations of acoustic information in relation to music and voice perception. Harvard University, Cambridge, MA, Ph.D. Dissertation, 1998 (Thesis Advisors: David Hubel, MD & Margaret Livingstone PhD)

D. Nonprint Material

1. www.BrainMusic.org, The Institute for Music and Brain Science

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