

Curriculum Vitae

Date Prepared: January 5, 2015
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Place of Birth: Padua, Italy

Education

| | | | |
|------|-------|--|---|
| 1982 | B.S. | Biological Sciences | University of Texas, El Paso, TX |
| 1988 | M.D. | Medicine | University of Texas Medical School, Houston, TX |
| 1988 | Ph.D. | Biomedical Sciences (<i>Joseph P. Stein, PhD</i>) | Graduate School of Biomedical Sciences University of Texas Health Science Center, Houston |

Postdoctoral Training

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|-------------|---|----------------------|---|
| 06/88-06/89 | Intern | General Surgery | University of Texas Health Science Center, Houston, TX |
| 07/89-06/95 | Resident (2 years from 7/1992 to 6/1994 in the laboratory of Xandra O. Breakefield, PhD, MGH) | Neurological Surgery | Massachusetts General Hospital, Boston, MA |

Faculty Academic Appointments

| | | | |
|-------------|--------------------------------|-----------------------------------|--|
| 07/96-06/98 | Instructor | Surgery | Harvard Medical School, Boston, MA |
| 07/98-06/03 | Assistant Professor | Surgery | Harvard Medical School, Boston, MA |
| 07/03-02/04 | Associate Professor | Surgery | Harvard Medical School, Boston, MA |
| 02/04-07/12 | Professor | Neurological Surgery/Neurology | Ohio State University College of Medicine, Columbus, OH |
| 08/12- | Harvey W. Cushing Professor | Neurosurgery | Harvard Medical School, Boston, MA |

Appointments at Hospitals/Affiliated Institutions

| | | | |
|-------------|---------------------|--------------|--|
| 07/95-12/95 | Assistant Physician | Neurosurgery | Massachusetts General Hospital, Boston, MA |
| 07/98-02/04 | Associate Physician | Surgery | Massachusetts General Hospital, Boston, MA |
| 02/04-08/12 | Physician | Neurosurgery | Wexner Medical Center, Columbus, OH |
| 08/12- | Physician | Neurosurgery | Brigham & Women's Hospital, Boston, MA |

Other Professional Positions

| | | |
|--------------------|---|--|
| 1995-2005 | Biotechnology Consultant | Oxford Biomedica |
| 1997 | Biotechnology Consultant | Millennium Pharmaceuticals |
| 1997-2001 | Biotechnology Consultant | Prestwick Scientific Capital |
| 1998 | Biotechnology Consultant | Shanghai Biotech |
| 2000-2005 | Scientific Review Board Member | National Gene Vector Laboratories |
| 2001-2002 | Scientific Advisory Council Member Member, Abstract Review Group | American Brain Tumor Association Fourteenth International Conference on Brain Tumor Research and Therapy American Board of Neurological Surgery |
| 2002-2008 | Member, Extramural Subspecialty Writing Committee | |
| 2005 | Invited Guest Examiner | American Board of Neurological Surgery |
| 2006-2008, 2010 | Scientific Advisory Committee Member | Goldhirsh Foundation Brain Tumor Research Awards Program |
| 2006- | Scientific Advisory Committee Member | Neurosurgery Research and Education Foundation (NREF) |
| 2007-2012 | Data Monitoring Committee | Ceregene Corporation |
| 2008-2012 | Biotechnology Consultant | Ceregene |
| 2008- | Scientific Advisory Board Member | Sontag Foundation |
| 2009 | Invited Guest Examiner | American Board of Neurological Surgery |
| 2010-2012 | Biotechnology Consultant | Bexion |
| 2011- | Scientific Executive Council | Neurosurgery Research Education Foundation (NREF) |
| 2012- | Advisory Council Member | National Institute of Neurological Disorders and Stroke (NINDS) |
| 2013- | Consultant | DNATrix, Inc |
| 2013- | Consultant | Alcyone Lifesciences, Inc |
| 2013- | Chair, Scientific Advisory Council | Neurosurgery Research Education Foundation (NREF) |
| 2014 | Invited Guest Examiner | American Board of Neurological Surgery |
| 2014- | Scientific Advisory Council Member | StemGen |

Major Administrative Leadership Positions

Local

| | | |
|-----------|---|--|
| 2003 | Organizer, 3rd Annual Carolyn Frye- Halloran Symposium in Neuro-Oncology | Massachusetts General Hospital |
| 2003 | Conference Organizer, Monthly Lecture Series in Neuro-Oncology | Massachusetts General Hospital |
| 2004-2012 | Director of Neurosurgical Services | The Ohio State University Wexner Medical Center and Arthur G. James Cancer Hospital and Richard J. Solove Research |

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|----------------------|--|---|
| 2004-2012 | Director, Dardinger Center for Neuro-oncology and Neurosciences | Institute The Ohio State University Wexner Medical Center and Arthur G. James Cancer Hospital and Richard J. Solove Research Institute |
| 2004-2012 | Co-Director, Viral Oncology Program, Comprehensive Cancer Center | The Ohio State University Wexner Medical Center and Arthur G. James Cancer Hospital and Richard J. Solove Research Institute |
| 2004-2012 | Chairman | The Ohio State University Wexner Medical Center |
| 2005-2012 | Director /Physician Leader, Neuroscience Signature Program | The Ohio State University Wexner Medical Center |
| 2006 | Panel Chair, Neurosciences and Neurosurgery Research, OSU Industry Collaboration Symposium | The Ohio State University Medical Center, Columbus, Ohio |
| 2012- | Surgical Director, Neuro-Oncology Program | Dana Farber Cancer Institute |
| 2012- | Co-Director, Institute for the Neurosciences | Brigham & Women's/Faulkner Hospital |
| 2012- | Chairman, Department of Neurosurgery | Brigham & Women's Hospital |
| International | | |
| 2014 | Course Director, 13th Annual International Neuro-Oncology Updates Symposium | Brigham & Women's Hospital |

Committee Service

Local

| | | |
|-----------|--|--|
| 2004-2012 | Space Planning Committee | The Ohio State University College of Medicine Committee Member |
| 2005 | Neurology Chair Search Committee (recruited Dr. Michael Racke, Southwestern) | The Ohio State University College of Medicine Head of Search Committee |
| 2006-2012 | Neurosciences Graduate Studies Program | The Ohio State University Graduate School Executive Committee / Faculty |
| 2006-2012 | Center for Brain and Spinal Cord Repair | The Ohio State University Executive Committee / Associate Member |
| 2006 | Anesthesiology Chair Search Committee | The Ohio State University College of Medicine Committee Member |
| 2006 | Chief of Pediatric Neurosurgery Search Committee | The Ohio State University College of Medicine Committee Member |
| 2006 | Neuroscience Chair Search Committee | The Ohio State University College of Medicine |

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|-----------|---|---|
| 2006 | Anesthesiology Chair Search Committee | Committee Member The Ohio State University College of Medicine |
| 2008 | Radiation Oncology Chair Search Committee (recruited Dr. Arnab Chakravarti, Massachusetts General Hospital) | Committee Member The Ohio State University College of Medicine Head of Search Committee |
| 2012- | Neuroscience Executive Committee | Brigham & Women's Hospital Committee Member |
| 2012- | BWPO Executive Committee | Brigham & Women's Hospital Committee Member |
| 2012-2013 | Endovascular Disease Search Committee | Brigham & Women's Hospital Committee Chair |
| 2012- | Care Improvement Council (CIC) | Brigham & Women's Hospital Committee Member |
| 2012- | Presidents Council | Brigham & Women's Hospital Committee Member |
| 2012- | DFCI Executive Committee | Dana Farber Cancer Institute Committee Member |
| 2013- | Clinical Trials Portfolio Review Oversight Committee | Dana Farber Cancer Institute Committee Member |
| 2013- | Executive Committee for Clinical Research | Dana Farber Cancer Institute Committee Member |
| 2013-2014 | Standing Committee on Promotions, Reappointments, and Appointments | Harvard Medical School Committee Member |
| 2013- | Radiation Oncology Chair Search Committee | Brigham and Women's Hospital, Dana- Farber Cancer Institute, & Boston Children's Hospital Committee Member |
| 2013- | Department of Neurosurgery Executive Committee | Harvard Medical School Committee Member |
| 2014- | Spine Neurosurgery Search Committee | Brigham & Women's Hospital Committee Chair |
| 2014- | Committee on Outside Activities | Partners Healthcare System Committee Co-Chair |
| 2014- | Orthopedic Department Chair Search Committee | Brigham & Women's Hospital Committee Member |

National and International

| | | |
|-----------|---|---|
| 1997 | Committee on Herpes Simplex Virus (HSV) for Tumor Therapy | National Cancer Institute/Cancer Therapy Evaluation Program (NCI/CTEP) Committee Member |
| 1998 | Committee on Immunotherapy for Brain Tumors | Preuss Foundation Committee Member |
| 1999 | Abstract Review Committee | International Herpes Simplex Virus Workshop Committee Member |
| 2000 | Progress Review Committee on Brain Tumors | National Cancer Institute/National Institute of Neurological Disorders and Stroke (NCI/NINDS) Committee Member |
| 2001 | Committee on Gene Therapy for the Central Nervous System | National Institute of Neurological Disorders and Stroke (NINDS) Committee Member |
| 2001 | Program Committee, Tumor Section | American Association of Neurological Surgery/Congress of Neurological Surgery Joint Section on Tumors Committee Chair |
| 2003 | Program Committee, Tumor Section | American Association of Neurological Surgery/Congress of Neurological Surgery Joint Section on Tumors Committee Chair |
| 2003 | Vector Committee | European Society for Gene Therapy Committee Member |
| 2003 | Nominating Committee | American Society for Gene/Cell Therapy Committee Member |
| 2004-2009 | “Bylaws” Subcommittee, Tumor Section | American Association of Neurological Surgery/Congress of Neurological Surgery Joint Section on Tumors Committee Chair |
| 2006 | Committee for Enhancement of Neurosurgical Research | Congress of Neurological Surgeons Committee Member |
| 2006-2010 | Awards Committee | Society for Neuro-Oncology Committee Member |
| 2006-2010 | Education Committee | Society for Neuro-Oncology |

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|-----------|---|--|
| | | Committee Member |
| 2006-2010 | Education Committee | Society of Neurological Surgeons Committee Member |
| 2007- | Research Committee | Society of Neurological Surgeons Committee Member |
| 2008- | SNO Executive Committee | Society for Neuro-Oncology Committee Member |
| 2010-2013 | Recombinant DNA Advisory Committee, Office of Biotechnological Affairs | National Institutes of Health (NIH) Committee Member |
| 2010- | Committee for Assessment of Subspecialty Training (CAST) | Society of Neurological Surgeons Committee Member |
| 2010 | Nominating Committee | Congress of Neurological Surgeons Committee Member |
| 2011- | Matrix Committee for Tumors, Tumor Section | American Association of Neurological Surgery/Congress of Neurological Surgery Joint Section on Tumors Committee Chair |
| 2011- | Development Committee | American Society for Gene/Cell Therapy Committee Member |
| 2012-2014 | Search Committee for Editor-in-Chief | Journal of Neurosurgery Committee Chair |

Professional Societies

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|-------|---|---|
| 1990- | Congress of Neurological Surgeons | Member |
| 1990- | American Association of Neurological Surgery/Congress of Neurological Surgery Joint Section on Tumors | Member |
| 1999- | American Society for Gene/Cell Therapy | Executive Council Member |
| | 1999-2009 | Member |
| | 2000 | Abstract Review Group, Annual Meeting |
| | 2001 | Coordinating Reviewer, Abstract Review Group, Annual Meeting |
| | 2008 | Abstract Reviewer, Annual Meeting |
| 1999- | Society for Neuro-Oncology | Member |
| | 2008 | Elected to Board of Directors |
| | 2011-2013 | Secretary/ Treasurer |
| | 2012 | Chairman, Scientific Program |

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|-------|--|-----------|---|
| | | 2013- | Committee, Annual Meeting Vice President |
| 2001- | American Association of Neurosurgery | | Member |
| | | 2013- | Chair, Research Advisory Committee |
| 2001- | American Society for Experimental Neurotherapeutics | | Member |
| 2001- | American Society for Microbiology | | Member |
| 2001- | International Society for Neurovirology | | Member |
| 2005- | American Academy of Neurological Surgery | | Member |
| | | 2011-2012 | Chairman, Scientific Program Committee |
| | | 2013- | Academy Treasurer |
| 2005- | American Society for Clinical Investigation | | Member |
| 2006- | Society of Neurological Surgeons | | Member |
| | | 2013- | Chair, Research Committee |
| 2007- | Neurosurgical Society of America | | Member |
| 2013- | World Academy of Neurological Surgery | | Member |
| 2014- | Institute of Medicine (IOM) | | Member |

Grant Review Activities

| | | |
|------------|--|--|
| 2001-2005 | Program Project Reviews (NCI - C and D) | NCI/NIH Ad hoc consultant |
| 2001-2005 | Neurological Sciences and Disorders (NSD) Subcommittee B Study Section | NINDS/NIH Ad hoc consultant |
| 2002-2005 | Molecular Genetics and Oncology Study Section | American Cancer Society (ACS) Member |
| 2004, 2007 | Specialized Programs of Research Excellence (SPORE) Grants in Neuro-Oncology | NCI/NIH Reviewer |
| 2004 | Developmental Therapeutics (DT), Program Project Grant (P01) cluster, Integrative Molecular Analysis Technologies (IMAT) Study Sections | NCI/NIH Ad hoc Reviewer |
| 2005-2009 | NCI Parent Committee (Scientific Review Council)/ Subcommittee D (Clinical Studies), Program Projects Grants (reviewing clinical/translational studies) | NCI/NIH Member |
| 2005-2010 | Developmental Therapeutics (DT) Study Section | NIH Member |
| 2007 | Scientific Grant Committee | National Cancer Institute, Canada Ad hoc reviewer |
| 2007 | Grant Committee | Alliance for Cancer Gene Therapy |

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| | | Ad hoc Reviewer |
| 2009 | Board of Scientific Councilors | NINDS Ad hoc Reviewer |
| 2010 | Division of Neuro-Oncology and of Neurosurgery | MD Anderson External Reviewer |
| 2011 | Division of Neuro-Oncology | New York University External Reviewer |

Editorial Activities

Ad Hoc Reviewer

Cancer Gene Therapy
 Cancer Research
 Clinical Cancer Research
 Experimental Neurology
 Gene Therapy
 Human Gene Therapy
 Journal of Clinical Investigation
 Journal of Gene Medicine
 Journal of Neuro-oncology
 Journal of Neuropathology and Experimental Neurology
 Journal of Neurovirology
 Journal of Virology
 Life Sciences
 Molecular Cancer Therapy
 Molecular Pharmacology
 Molecular Therapy
 Nature
 Nature Biotechnology
 Nature Genetics
 Nature Medicine
 Neoplasia
 Neurosurgery
 Neurosurgical Focus
 Oncogene

Other Editorial Roles

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|-----------|-------------------------------|--|
| 1998- | Editorial Board | Cancer Gene Therapy |
| 1998- | Editorial Board | Journal of Neurovirology |
| 2006- | Editorial Board | Journal of Robotic Surgery |
| 2005- | Editorial Board | Molecular Therapy |
| 2000- | Editorial Board | Neoplasia |
| 2005- | Editorial Board | Neuro-oncology |
| 2007- | Editorial Board | Journal of Neurosurgery |
| 2007-2011 | Section Editor (Brain Tumors) | Youmans Textbook of Neurosurgery, Sixth Edition (released 2012) |
| 2011-2012 | Co-Chairman, Editorial Board | Journal of Neurosurgery |

Honors and Prizes

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|-------------|---|--|
| 1985 | Alpha Omega Alpha | Alpha Omega Alpha Honor Medical Society |
| 1988 | Alumni Association Senior Student Research Award | University of Texas Medical School |
| 1988 | Walter G. Sterling Outstanding Student Award | University of Texas Health Science Center |
| 1992 – 1994 | James B. Plunkett Fellow | American Brain Tumor Association |
| 1994 | Resident Award | Congress of Neurological Surgeons |
| 1994 | American Academy of Neurological Surgeons Honorable Mention | American Academy of Neurological Surgeons |
| 2001 | Charles B. Wilson Award | National Brain Tumor Foundation |
| 2002 | New Approaches to Brain Therapy (NABTT) Award | National Brain Tumor Foundation |
| 2005 | Inducted as Fellow | American Association for the Advancement of Science (AAAS) |
| 2007 | Grass Foundation Award in Neurosurgery | Grass Foundation and Society of Neurological Surgeons |
| 2007 | Lawrence Mervis, M.D. Resident Teacher of the Year Award | The Ohio State University Medical Center, Department of Neurosurgery |
| 2008 | Farber Award in Neuro-oncology | Society for Neuro-oncology and American Association of Neurological Surgery/Congress of Neurological Surgery Section on Tumors |
| 2011 | Distinguished Alumnus Award | Graduate School of Biomedical Sciences, University of Texas, Health Sciences Center at Houston, TX |
| 2013 | UTEP Gold Nugget Award | University of Texas at El Paso |

Report of Funded and Unfunded Projects

Funding Information

Past

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|-----------|--|
| 1992-1994 | Development of Viral Vectors American Brain Tumor Association Fellow |
| 1992-1995 | Molecular Genetics of Inherited Neurologic Diseases: Sub Project 2: Genetic Alteration of Central Nervous System Tumors NIH/NINDS / P01NS024279 (PI: Xandra Breakefield, PhD) PI |
| 1994-1995 | A Novel Gene Therapy for Brain Tumors Elsa B. Pardee Foundation Co-PI |
| 1995-1996 | A Novel Gene Therapy for Brain Tumors Oliver and Jenny Donaldson Charitable Trust PI |

1996-2000 Therapy of Experimental Brain Tumors with Prodrug-Activating Genes: Subproject 2
NIH/NCI / P01 (PI: Fred Hochberg, MD)
PI

1997-1999 American Brain Tumor Association
Mentor to Dr. Richard Chung

1999-2000 Therapy of Brain Tumors with SCH5800 and PTEN Adenoviruses
Schering-Plough, Sponsored Research Agreement
PI

1999-2001 Interdisciplinary Development of a Computational Tumor Model
NIH/NCI /R21CA084509
PI (\$150,000)

1999-2004 Herpes Simplex Virus for Hepatic Metastases
NIH/NCI / R01
Collaborator

2000-2003 The Wellcome Trust Foundation Travelling Fellowship
Mentor to Dr. Richard Wade-Martins

2000-2004 Brain Tumor Research at Massachusetts General Hospital (MGH)
The Carolyn Frye Halloran Fund for Brain Tumor Research
PI

2000-2005 Pharmacologic Enhancement of Viral Oncolysis: Project 1
NIH/NCI / P01 (PI: Fred Hochberg, MD)
PI (\$1,000,000)

2000-2005 Imaging Gene Transfer by Transferrin Receptor Expression
NIH/NCI / R01(PI: James P. Basilion PhD)
Collaborator

2001-2002 Oncolytic Herpes Simplex Virus (HSV) for Prostate Cancer
Prestwick Scientific Capital Sponsored Research
PI

2001-2002 Stem Cells for Brain Tumors
National Brain Tumor Foundation (C.B. Wilson Award)
PI

2001-2003 Oncolytic Virus and Immunosuppression in Subhuman Primates: Preclinical Toxicity Studies
The Cleveland Clinic Foundation Award "Finding a Cure for Glioblastoma"
PI

2002-2003 Intra-arterial Oncolytic Virus (OV) and Immunosuppression in Subhuman Primates
Accelerate Brain Cancer Cure, Inc
PI

2002-2003 Stem Cells for Brain Tumors
National Brain Tumor Foundation (NABTT Award)
PI

2002-2004 American Brain Tumor Association
Mentor to Dr. Giulia Fulci

2002-2004 Biology of Tau-Associated Dementias Studied with HSV Amplicons
Harvard Center for Neuroregeneration and Repair
PI

2002-2003 Gene Engineering of Nerve Stem Using HSV Amplicon Vector
NIH/NINDS / R21NS044514
Co-PI (\$200,000)

2002-2005 HSV Amplicon Vectors for Cerebral Ischemia
R01NS041571 (NIH/NINDS)
PI (\$750,000)

2003-2008 Interdisciplinary Modeling of Tumor Complexity
NIH-BRP/NCI / R01CA085139
PI (\$3,200,000)

2005-2007 Dose Response and Dynamics of Ultrasound Mediated Blood-Brain Barrier (BBB) Opening
NIH/NINDS - Stroke Small Business Technology Transfer Grant (STTR) Perfusion
Technology, LLC / R41NS052989
PI

2005-2007 Imaging Transcriptional Activation of Gliomas
NIH/NCI / R21CA114487
PI (\$197,650)

2005-2008 Biology of Tauopathies Studied with HSV Amplicons
NIH/NINDS / R01NS045961
PI (\$567,116)

2005-2009 OSU Comprehensive Cancer Center Support Group
NIH/NCI / P30CA016058
Senior Leader OSU Comprehensive Cancer Center

2006-2010 Early Therapeutics Development with a Phase II Emphasis
NIH/NCI / N01-CM-62207
Collaborator

2006-2011 Imaging of Gene Expression in Glioblastoma
NIH/NCI - Case Western Reserve Univ. / R01CA109620 (PI: Basilion)
Site PI (\$35,500)

2006-2011 Gene Therapy for Brain Tumors
NIH/NCI/MGH / P01CA069246 (PI: Hochberg)
Site PI (\$179,599)

2007-2008 Validation of GSK-3 as an Anti-Invasive Target in Glioma
National Brain Tumor Foundation (NBTF)
PI

2007-2008 Glioma ECM modulation to enhance OV therapy
American Association of Neurological Surgeons
Mentor to Dr. Kazuhiko Kurozumi

2007-2009 Investigation the Role of GSK-3 in Glioma Invasion
American Brain Tumor Association
Mentor to Dr. M. Oskar Nowicki

- 2007-2009 HSV Amplicon Vectors for Neuroscience Research
NIH/NIMH / R21MH082421
PI (\$247,500)
- 2007-2010 A Phase I/II clinical trial to evaluate dose limiting toxicity and efficacy of intralesional administration of REOLYSIN® for the treatment of patients with histologically confirmed recurrent malignant gliomas.
Oncolytics Biotech, Inc. / 10040176: REO 007.1
PI
- 2007-2010 Allergic Conditions Susceptibility Polymorphisms and Glioma Risk
NIH/NCI / R01CA122163
Co-Investigator
- 2008-2009 The Ivy-Genomics Based Medicine (GBM) Project
Translational Genomics Research Institute / IVY Foundation
PI (\$178,000)
- 2008-2010 HSV Vector Platform for Cell-Based Delivery of Oncolytic Adenoviruses to Gliomas
NIH/NINDS/R21NS063290
PI (\$239,825)
- 2008-2011 Combination of Cilengitide and Oncolytic HSV: a toxicology study for brain tumors
National Institutes of Health/National Inst of Neurological Disorders and Stroke
(NIH/NINDS) K01NS059575
Mentor to Dr. Balveen Kaur

Current

- 2005-2012 A phase Ib study of Adv-Tk + Valacyclovir gene therapy in combination with standard radiation therapy for malignant gliomas.
Advantagene, Inc /
PI
- 2007-2012 Development of an Oncolytic Virus with Prodrug-Activating Gene Therapy
Alliance for Cancer Gene Therapy (ACGT)
PI (\$181,818)
The goals of this proposal are to 1) perform preclinical toxicity studies in HSV1-susceptible mice and potentially marmosets and 2) implement three clinical phase I studies.
- 2008-2013 A Phase III randomized study of neuradiab in combination with external beam radiation and temozolomide versus external beam radiation and temozolomide in patients with newly diagnosed glioblastoma multiforme.
Bradmer Pharmaceuticals
PI

- 2008-2013 Preclinical Toxicity Evaluation of a Potent Oncolytic Virus
NIH/NINDS / U01NS061811
PI (\$965,661)
The objectives of this study are to 1) perform bioequivalency studies of rQNestin34.5v.2 and of reagents and standard operating protocol for future clinical grade production and to determine preclinical toxicity of rQNestin34.5 in vitro and in animal models; 2) validation of therapeutic efficacy and safety monitoring with rQNestin34.5v; 3) validation of safety monitoring with rQNestin34.5v.2 in presence of CPA; 4) Final toxicology/biodistribution study with GMP-grade clinical lot. The successful pursuit of milestone 4 will permit us to approach regulatory agencies to start a phase I trial in patients with recurrent malignant glioma using rQNestin34.5v.2 + CPA immunomodulation and subsequently a phase I trial in newly diagnosed glioma using rQNestin34.5v.2 + CPA immunomodulation + standard treatment.
- 2008-2013 Enhancing Viral Oncolysis with Vasculostatin Gene Delivery
NIH/NCI / R01CA150153 (PI: Kaur)
Co-Investigator
The ultimate goal of this project is to understand the contribution of Vstat120 expressing oncolytic viruses on OV propagation, tumor biology and anti-tumor efficacy.
- 2009-2014 Research Education Program for Residents/Fellows in Neurology and Neurosurgery at The Ohio State University
NIH/NINDS / R25NS065734
PI (\$50,935)
The purpose of this proposed R25 training program for neurologists and neurosurgeons at OSU is to prepare carefully selected residents (from neurosurgery, neurology, radiology and pathology) for future careers in research leading to improved understanding, diagnosis and treatment of neurological diseases.
- 2010-2013 Networks of Tissue Source (TSS) in support of The Cancer Genome Atlas (TCGA) Program
(NIH/NCI/ Case Western Reserve Univ / HHSN261201000057C / RES505695
Site-PI (\$45,185)

Report of Local Teaching and Training

Teaching of Students in Courses

| | | |
|-----------|---|---|
| 1996-1997 | Genetics 208: Gene Therapy Undergraduate, Graduate, Postgraduate students (average number of students 30) | Harvard Medical School Two hour preparation / one hour lecture |
| 1998 | Gene Therapy Graduate students (average number of students 20) | Harvard Biological and Biomedical Science (BBS) Workshop Two hour preparation / one hour lecture |
| 2011 | Integrated Biomedical Science Dissertation Res: 999 Graduate students (average number of students 2 per quarter) | The Ohio State University, College of Medicine Spring (18 credit hrs), Summer (18 credit hrs), Autumn (18 credit hrs), Winter (18 credit hrs) |

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| 2011 | Integrated Biomedical Science Dissertation Individual Studies 793 Graduate students (average number of students 2 per quarter) | The Ohio State University, College of Medicine Summer (15 credit hrs) |
| 2011 | “Gene and viral therapy clinical trials for brain tumors” Neuroscience Graduate School Program Class | The Ohio State University, College of Medicine Two hour preparation / one hour lecture |
| 2013 | “ Patient Safety and Clinical Communications” Interns | Society of Neurological Surgeons Bootcamp, Tufts Medical Center 30 minute lecture |

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

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|-----------|---|--|
| 1995-2004 | Attending Physician, Neurosurgical Residents | Massachusetts General Hospital (20 hours/week) |
| 2004-2012 | Attending Physician, Neurosurgical Residents | The Ohio State University Wexner Medical Center (20 hours/week) |
| 2012- | Attending Physician, Neurosurgical Residents | Brigham & Women’s Hospital (20 hours/week) |

Clinical Supervisory and Training Responsibilities

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|-----------|---|---------------|
| 2009-2011 | Neurosurgical Oncology Fellow/ Wexner Medical Center, Columbus, OH | 10 hours/week |
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Laboratory and Other Research Supervisory and Training Responsibilities

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|-------|--------------------------------|--------------------------|
| 2009- | MD/PhD student (Richard Price) | Mentorship, 5 hours/week |
| 2012- | MSTP student (Stephen Bergin) | Mentorship, 5 hours/week |

Formally Supervised Trainees

Research

| | | |
|-----------|---|--|
| 1992-1995 | Ming X. Wei, Ph.D / | |
| 1993 | Jeremiah S. Scharf, M.D., Ph.D / Assistant Professor, HMS, Director, Neurology Tic Disorders Clinic, MGH | |
| 1993-1994 | Efstathios J. Boviatsis, M.D., Ph.D / Attending Physician, Evangelismos General Hospital, Athens, Greece | |
| 1993-1994 | Takashi Tamiya, M.D., Ph.D / Professor and Chairman, Department of Neurological Surgery, Kagawa University, Japan | |
| 1994-1995 | Yasuhiro Onho, M.D, Ph.D. Attending Physician, Kinki University School of Medicine, Japan | |
| 1996-1999 | Keiro Ikeda, M.D., Ph.D. <i>Deceased</i> / Physician, Keio University | |
| 1996-2008 | Yoshinaga Saeki, M.D., Ph.D / Associate Professor, Chief, Dardinger Laboratory for Neuro- Oncology and Neurosciences, Wexner Medical Center, Columbus, OH Received the (NINDS) R21 Amyotrophic Lateral Sclerosis (ALS) Association Research Grant | |
| 1996 | Massimo Nicolo, M.D. / Professor, Faculty of Medicine and Surgery, University of Genoa, Italy | |
| 1997 | Nuzhat Husain, M.D., IFCAP, FICP / Professor and Head, Department of Pathology, Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, India | |

- 1997-1999 Richard Chung, M.D., Ph.D. / Neurosurgeon, Santa Barbara Cottage Hospital, Santa Barbara, CA
Recipient of the American Brain Tumor Association Fellowship (2-year).
- 1997-2002 Thomas Deisboeck M.D., Ph.D / Associate Professor of Radiology, Harvard Medical School
- 1997-2001 Tomotsugu Ichigawa, M.D. / Faculty, Department of Neurological Surgery, Okayama University Graduate School of Medicine
- 1999-2001 Edward R. Smith, M.D. / Associate Professor of Surgery, Harvard Medical School, Director, Pediatric Cerebrovascular Surgery, Children’s Hospital Boston.
Recipient of Synthes Award; Mayfield Award; Resident Research Award (Tumor Section) from AANS and CNS as well as the American Brain Tumor Association Fellowship
- 1999-2002 Tatsuya Abe, M.D.
- 1999-2002 Hiroaki Wakimoto, M.D., Ph.D. / Assistant Professor of Surgery, Harvard Medical School, Research Scientist, Department of Neurosurgery, Massachusetts General Hospital
Uehara Medical Foundation Grant
- 2001 Manish Aghi, M.D., Ph.D. / Associate Professor in Residence of Neurological Surgery, University of California, San Francisco
Preuss Foundation Award for Neuro-Oncology Research
- 2001 Moksa Ranasinghe, M.D. / Neurosurgeon, PinnacleHealth Neurological Surgery, Mechanicsburg, PA
- 2000-2004 Kinya Terada, M.D., Ph.D. / Professor, Okayama University Medical School, Japan
- 2000-2004 Richard Wade-Martins, MA, D.Phil., Ph.D. / Wellcome Trust Research Career Development Fellow, University Lecturer, Christs Church, Oxford
Recipient of the American Society of Gene Therapy (ASGT) Traveling Fellowship Award and Wellcome Trust Traveling Fellow Award
- 2001-2004 Giulia Fulci, Ph.D. / Instructor, Department of Surgery, Harvard Medical School
Assistant Virologist, Neurosurgical Service, Massachusetts General Hospital
American Brain Tumor Foundation Fellowship (2-year)
- 2007- Kaveh Asadi-Moghaddam, M.D. / Neurosurgical Fellow, Cincinnati Children's Hospital
Recipient, 2009 Neurosurgery Research and Education Foundation Research Fellow
- 2002 Giuseppe Mirone, M.D.
- 2002-2004 Khalid Abbed, M.D. / Assistant Professor of Neurosurgery, Yale University Medical Center, Chief, Spine Surgery, Department of Neurosurgery’s Yale Spine Institute (YSI)
American Brain Tumor Association (2-year research fellowship)
- 2002-2004 Davide Gianni / Biotechnician, Department of Immunology and Microbial Science, The Scripps Research Institute, La Jolla, California
Travelling Scholarship–Italian Association for Cancer Research
- 2002-2004 Ryo Inouye, M.D., Ph.D. / Postdoctoral Fellow
- 2002-2004 Shinji Yamamoto, M.D., Ph.D. / Director, Prosthesis Center, Matsudo Orthopaedic Hospital, Japan
- 2002-2010 Sean Lawler, Ph.D. / Translational Neuro-oncology Group Leader, University of Leeds, UK
“ Recapitulation of Glioma Invasion Using Nanofibers” - 2009 Center for Clinical and Translational Science Pilot Award,
- 2003-2004 Therese Visted, M.D., Ph.D. / Postdoctoral Fellow
Traveling Fellowship Award (Norwegian Cancer Society)
- 2003-2004 Masayuki Nitta, M.D., Ph.D.
Targeting Multiple Centrosomes: A Novel Strategy for Glioma Therapeutics
- 2003 Elizabeth Fontana, M.D. / Resident, Department of Neurosurgery, Columbia University Medical Center
American Academy of Neurology Summer Research Medical Student Award
- 2003 Martine Lamfers, Ph.D. / Faculty, Department of Neurosurgery, VU University Medical Center, Amsterdam
Traveling Fellowship Award (Dutch Cancer Society)

2003-2008 Masataka Suzuki, Ph.D. / Instructor, Department of Molecular and Human Genetics
Baylor College of Medicine
“Robust induction of type I interferons immediately after systemic delivery of HSV amplicon vectors elicits infiltration of immune cells and suppresses transcription of the vector-encoded transgene” - Travel Award, American Society for Gene Therapy (ASGT) May-June 2007

2003-2012 Nina Dmitrieva, Ph.D. / Research Associate II, Wexner Medical Center, Columbus, OH

2003-2005- Kazue Kasai, Ph.D. / Research Associate in Surgery, Brigham & Women’s Hospital
Balveen Kaur, Ph.D. / Associate Professor, Wexner Medical Center, Director, Research Relations, Chief, Dardinger Laboratory
Grant recipient, Alex’s Lemonade Stand Foundation; Career Award recipient from NIH/NINDS K01NS059575; successfully received additional funding within 2 years from NIH R21NS056203; R01NS064607; R01CA150153

2003- Michal O. Nowicki, M.D. / Research Specialist, Brigham & Women’s Hospital, Boston, MA
Joel A. Gingras, Jr./American Brain Tumor Research Fellowship, American Brain Tumor Association (ABTA), two-year award, July 2007: “Investigating the role of GSK-3 in glioma invasion”

2003-2009 Akihiro Otsuki, M.D., Ph.D. / Assistant Professor, Japan
Second place, Viral Oncogenesis, poster, Ninth Annual OSUCCC Scientific Meeting, February 2007: Otsuki A, Patel A, Camilli S, Kasai K, Tanaka S, Chiocca EA, Saeki Y. “Characterizing responses of CD133+ brain tumor-initiating cells to an oncolytic HSV mutant rQNestin34.5”

2003-2008 Shigeru Tanaka, M.D., Ph.D. / Assistant Professor, Japan
Second place, Molecular Biology and Cancer Genetics, poster presentation, Ninth Annual OSUCCC Scientific Meeting, February 2007: Tanaka S, Kasai K, Yoon SO, Saeki Y. “Neural expression of G protein-coupled receptors GPR3, GPR6, and GPR12 upregulates cyclic AMP levels and promotes neurite growth”

2004- Pier Paolo Peruzzi, M.D. / Neurosurgical Resident / Neurosurgical Research Fellow, Ohio State Wexner Medical Center, Columbus, OH
“Multitargeting the Glioma Stem Cell Population by Means of Specific MicroRNAs” Recipient, Neurosurgery Research and Education Foundation Research Fellowship, 2011,
First place, OSUMC 7th annual Graduate and Post Graduate Research Day Resident/Fellow Section, April 2008: “Functional Studies of the Microtubule-Associated Protein Tau using the HSV Amplicon System”

2005-2006 Allison Schaaf / Research Assistant I

2005-2006 Jennifer Cutter, Ph.D. / Postdoctoral Researcher
First recipient, Jeffrey Thomas Hayden Foundation Endowed Fellowship 2005-2006

2005-2006 Leslie Deckter / Research Assistant

2005-2006 Shawn Hervey-Jumper, M.D. / Chief Resident, University of Michigan Health System, RJW Health Policy Scholar

2005-2006 John Ogden, M.D / Attending Neurosurgeon, Central Ohio Neurological Surgeons, Inc, Westerville, OH

2005-2007 Ankita Patel, Ph.D. / Associate Professor, Department of Molecular and Human Genetics Baylor Medical Center, Houston, TX

2005-2007 Akhil Shah / Student Assistant

2005-2007 Wesley J. Whitson, M.D. / Neurosurgery Resident, Dartmouth-Hitchcock Medical Center, NH

2005-2011 Suzanne Camilli, M.S.P.H. / Lab Manager, Ohio State University, Columbus, OH

2005-2011 Jayson J. Hardcastle / Post-doc, Mayo Clinic, Rochester, MI
Travel Award, first-place poster presentation, Sixth Annual Graduate and Postgraduate Research Day, OSUMC, March 2007: Hardcastle JJ, Kurozumi K, Sayers MP, Saeki Y, Chiocca EA, Kaur B. “RAMBO (Rapid anti-angiogenesis mediated by oncolytic virus): a novel OV, designed to destroy tumors one p.f.u. at a time”

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| 2005-2009 | Kazuhiko Kurozumi, M.D., Ph.D. / Assistant Professor, Okayama University, Okayama, Japan <i>Journal of Gene Medicine</i> Japanese Society of Gene Therapy Young Investigator Award 2005 First place, Experimental Therapeutics, poster, Eighth Annual Conference of the Ohio State University Comprehensive Cancer Center (OSUCCC) February 2006: “Anti-angiogenic treatment enhances anti-tumor effects of an oncolytic virus in an experimental rat glioma model” Travel Award, Fourth International Conference on Oncolytic Viruses as Cancer Therapeutics, 2007; Scholar-in-Training Award, Association for Cancer Research (AACR)-Aflac, Incorporated American Association of Neurological Surgeons/Congress of Neurological Surgeons (AANS/CNS) Section on Tumors/BrainLAB International Fellowship, 2007: “Glioma ECM modulation to enhance OV therapy |
| 2006-2009 | Mirza M. Baig, M.D. / Physician, Private Practice, Texas |
| 2006- | Jakub Godlewski , Ph.D., Instructor in Surgery, Harvard Medical School Second recipient, Jeffrey Thomas Hayden Foundation Endowed Fellowship 2006-2008 |
| 2006-2009 | David Klink / Equity Analyst, Longbow Research, Cleveland, OH |
| 2006-2011 | Fang Liu / Research Assistant II, Ohio State University Medical Center, Columbus, OH |
| 2006- | Hiroshi Nakashima, Ph.D. / Research Associate in Surgery, Harvard Medical School Travel Award, American Society for Gene Therapy (ASGT), May-June 2007: “Imaging transcriptional activation of gliomas in the indicator infectious BAC (iiBAC) of SPARC” |
| 2006-2009 | Martin Peter Sayers / Medical Student Recipient, Sigma Xi Award, February 2008: “Gene Expression, Cyr61, and Oncovirus Infection in Glioma; entered medical school 2010 |
| 2006-2009 | Imran Shaikh / Medical Student Recipient, medical student summer fellowship, American Brain Tumor Association (ABTA) to will work in the Dardinger Laboratory |
| 2006-2011 | Shanté Williams / Senior Associate at Destum Partners, Inc, Charlotte, NC 2009 AACR Minority Scholar in Cancer Research; 2007-2009 Awarded Research Supplements to Promote Diversity in Health-Related Research (P01CA069246-11S1) |
| 2007-2008 | Jennifer Gerckens / Medical Student, Purdue University Recipient, medical student summer fellowship, American Brain Tumor Association (ABTA) to will work in the Dardinger Laboratory |
| 2007-2011 | Christopher Alvarez-Breckenridge / MD/PhD Student, Center for Clinical and Translational Science, Ohio State University, Columbus, OH 2010 American Association for Cancer Research (AACR) Minority Scholar; 2010 American Medical Association (AMA) Foundation seed grant recipient, “ Deciphering and circumventing the natural killer response to OV therapy” |
| 2007-2012 | Ravi Gupta / Medical Student Research summary “MicroRNA-1 Blocks Glioma Cell Proliferation and Targets Multiple Cell Cycle Components” at the 2008 Denman Undergraduate Research Forum |

Formal Teaching of Peers (e.g., CME and other continuing education courses)

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| 1994 | Review Update Course for Neurologists and Neurosurgeons | Two-hour lecture Woods Hole, MA |
| 1995 | Neuroimmunology Seminar The Ohio State University Medical School | One-hour lecture Columbus, OH |
| 1994-1997 | Neurosurgical Grand Rounds, Mass General Hospital | 2 60 minute Lectures Boston, MA |

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| 2004 | “State of the Art in Neuro-Oncology” Continued Medical Education Course / New York University Medical Center | Two-hour lecture New York, NY |
| 2006 | “The effects of the immune system on oncolytic virotherapy” The Infectious Disease Group and the Comparative Oncology Program / The Ohio State University College of Veterinary Medicine | Two-hour lecture Columbus, OH |
| 2008 | Spine Conference for Operating Room personnel Sponsor: AO Synthes | Two-hour lecture Ohio State University |
| 2009 | “Brain Tumors” Invited CME presenter / Southern Ohio Medical Center | Two-hour lecture Portsmouth, OH |

Local Invited Presentations

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| 1994 | Neurology Grand Rounds Department of Neurology, Massachusetts General Hospital Boston, MA |
| 1995 | Platform Presentation The Stanley Cobb Assembly of Neurology and Psychiatry, Boston, MA |
| 1996 | Combined Neurosciences Grand Rounds Boston University / Massachusetts General Hospital |
| 1997 | Hematology/Oncology Grand Rounds Massachusetts General Hospital, Boston, MA |
| 1997 | Medical Grand Rounds Brigham & Women’s Hospital, Boston, MA |
| 1997 | Neurosciences/Neurology Grand Rounds Boston University, Boston, MA |
| 1998 | Neurosurgery Grand Rounds Brigham and Women’s Hospital, Boston, MA |
| 1998 | Second Conference on Cellular and Molecular Treatments of Neurological Diseases Cambridge, MA |
| 1999 | Invited speaker Gordon Research Conference on Neurovirology Concord, NH |
| 2001 | “Peripheral nerve injury”/Grand Rounds Boston University Department of Neurology, Boston, Massachusetts |
| 2005 | Surgery Grand Rounds The Ohio State University, Columbus, OH |
| 2008 | “Update on CCC OV trials for glioma”/ Speaker (9/4/08) The Ohio State University Comprehensive Cancer Center, Roberts Conference Center Wilmington, OH |

2010 “Translational therapies for brain tumors.” / Lecturer (4/26/10)
Interdisciplinary Research Symposium: Engineering Approaches to Translational Cancer Research,
The Ohio State University, Columbus, Ohio

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

Regional

1992 "Neurofest 1992"/Lecturer
University of Cincinnati Medical Center, Cincinnati, Ohio

2005 “History of OSU Neurosurgery” / Lecturer
Ohio State Neurosurgical Society Annual Meeting, Dayton, OH

2006 “The iBAC system: infectious delivery and expression of genomic loci” / Lecturer
Ohio State Neurosurgical Society, Annual Meeting, Columbus, OH

2007 Neuro-Oncology / Lecturer
Comprehensive Cancer Center Solid Tumor Retreat, The Ohio State University, Columbus, OH

2008 “Oncolytic virus therapies for glioma” / Lecturer (9/12/08)
Cincinnati Childrens’ Hospital, Cincinnati, OH

2009 “Surgery for Brain Tumors” / Lecturer (10/30/09)
James Cancer Symposium, The Ohio State University Comprehensive Cancer Center,
Columbus, OH

2011 “Experimental treatments for malignant gliomas” / Lecturer (3/4/11)
Center for Neurovirology and Dept. of Neurosurgery, Temple University, Philadelphia, PA

2011 “Current Surgical Adjuvants in glioma resection” / Lecturer (4/30/11)
Ohio State Neurosurgical Society Annual Meeting, Cleveland, OH

2011 “Translational Treatments for Malignant Gliomas” / Visiting Professor (5/5/11)
Dept. of Neurosurgery, Cleveland Clinic, Cleveland, OH

2011 “Current Surgical Adjuvants in Glioma Resection” / Visiting Professor (5/6/11)
Dept. of Neurosurgery, Cleveland Clinic, Cleveland, OH

2012 “Surgical Adjuvants in Glioma resection” / Grand Rounds (1/5/12)
Neurosurgery/Neurology Grand Rounds. The Ohio State University Medical Center Columbus,OH

2012 Translational Therapeutics for Brain Tumors: from the Lab to the clinic & back/ Speaker (11/1/12)
RUNN Course, Woods Hole, MA

2013 “Brain Tumors” / Lecturer (1/9/13)
Medical Grand Rounds, South Shore Hospital, Weymouth, MA

2013 “MicroRNAs in Glioma Biology” / Invited Speaker (4/20/13)
International Society for Extracellular Vesicles Annual Meeting, Boston, MA

- 2013 “Neurosurgery at the Brigham Today” / Speaker (6/9/13)
Society of Neurological Surgeons Annual Meeting, Boston, MA
- 2013 “Surgical Adjuvants in GBM Resection” / Visiting Professor (9/4/13)
Lahey Clinic Neurosurgical Grand Rounds, Burlington, MA
- 2013 “Translational Therapeutics for Brain Tumors: From the Lab to the Clinic and Back” /
Speaker (10/30/13)
RUNN Course, Woods Hole, MA
- 2013 “Surgical Adjuvants in Glioma Treatment” / Visiting Professor (12/11/13)
Yale Neuroscience Grand Rounds, Yale University, New Haven, CT
- 2014 “Viral and gene immunomodulating therapies for gliomas” / Visiting Professor (9/26/2014)
Dartmouth-Hitchcock Medical Center Neurology Grand Rounds, Lebanon, NH

National

- 1993 Society for Neuroscience Annual Meeting / Speaker
Washington, DC
- 1994 American Brain Tumor Association Annual Meeting / Speaker
Chicago, IL
- 1994 Resident Award Presentation / Speaker
Congress of Neurological Surgeons (CNS), Chicago, IL
- 1995 Platform Presentation / Speaker
American Academy of Neurology Meeting, Seattle, WA
- 1995 International Conference on Brain Tumor Research and Therapy / Speaker
Silverado, CA
- 1997 “Advances in Medicine” / Speaker
Sarasota Memorial Hospital, Sarasota, FL
- 1997 NF2, Present and Future / Panel Member
House Ear Institute and the National Neurofibromatosis Foundation, Rockville, MD
- 1997 Conference on Genetics and Cancer / Speaker
Seacoast Cancer Center, Dover, NH (Novartis)
- 1998 Vaccine Therapies for Gliomas / Participant
Preuss Foundation Symposium, La Jolla, CA
- 1998 Seminar on Gene Therapy / Speaker
University of Virginia Cancer Center, Charlottesville, VA
- 1998 Biology of the Cerebral Vasculature / moderator
Salishna Lodge, OR
- 1998 Symposium on Novel Cancer Treatments / Speaker
University of Texas, El Paso, TX

- 1998 Symposium on Brain Tumors / Speaker
American Association of Neurological Surgeons (AANS)/Congress of Neurological Surgeons (CNS) Section on Tumors, Philadelphia, PA
- 1998 Seminar: Clinical Gene Therapy Branch / Speaker
NIH, Bethesda, MD
- 1998 48th Annual Meeting of the Congress of Neurological Surgeons / Speaker
Seattle, WA
- 1998 The Amyotrophic Lateral Sclerosis [ALS] Association / Speaker
Philadelphia, PA
- 1998 Seventh International Conference on Gene Therapy of Cancer / Speaker
San Diego, CA
- 1999 M.D./Ph.D. Program Seminar / Speaker
MD Anderson Hospital and Cancer Center, Houston, TX
- 1999 American Society for Gene Therapy Annual Meeting / Speaker
Washington, DC
- 1999 Department of Microbiology and Virology / Speaker
Mt. Sinai School of Medicine, New York, NY
- 2000 Grand Rounds / Speaker
Department of Neurosurgery, Memorial Sloan-Kettering, New York, NY
- 2000 25th International Stroke Conference / Speaker
American Stroke Association, New Orleans, LA
- 2000 Gordon Research Conference of Drug Development and Delivery / Speaker
Ventura, CA
- 2000 St. Jude Children's Research Hospital / Speaker
Memphis, TN
- 2000 "Gene therapy for central nervous system (CNS) disorders" / Participant
National Institute of Neurological Disorders and Stroke (NINDS), Bethesda, MD
- 2001 Society of Neurosurgery / Speaker
Cleveland, OH
- 2001 "Finding a cure for glioblastoma" / Speaker
Cleveland Clinic Symposium, Cleveland, OH
- 2001 Grand Rounds /Visiting Professor
Department of Neurosurgery, Johns Hopkins, Baltimore, MD
- 2001 Grand Rounds / Speaker
Department of Neurosurgery, Cornell Medical School, New York, NY
- 2001 "Meet the Expert Session / Speaker
Annual Meeting of the Society for Neuro-Oncology, Washington, DC

- 2002 Grand Rounds /Visiting Professor
Neurosurgery, Cleveland Clinic, Cleveland, OH
- 2002 Cleveland Clinic Neuro-Oncology Course /Speaker
Naples, FL
- 2002 Sixth Detroit Symposium on Neurosurgery /Speaker
Wayne State University, Detroit, MI
- 2002 Curtis-Hunt Symposium in Translational Neurosciences /Speaker
The Ohio State University, Columbus, OH
- 2002 Cleveland Clinic Blood-brain Barrier Symposium /Speaker
Cleveland, OH
- 2003 Transfer of vectors and cells across the blood-brain barrier / Speaker
Portland, Oregon
- 2003 “Oncolytic viruses” / Speaker
MD Anderson Hospital Speaker Series, Houston, TX
- 2003 “Innate responses to HSV vectors” / Speaker
American Society for Gene Therapy Annual Meeting, Boston, MA
- 2003 “Finding a cure for glioblastoma” / Speaker
Cleveland Clinic Symposium, Cleveland, OH
- 2003 “Studying functional genomics with the iBAC system” / Speaker
Invitrogen Conference in Genomics and Proteomics, San Diego, CA
- 2003 “Host responses against oncolytic viruses”
University of Pennsylvania Gene Therapy Unit, Philadelphia, PA
- 2003 “Meet the expert session” / Speaker
Society for Neuro-Oncology Annual Meeting, Keystone, CO
- 2003 12th Annual Meeting of Cancer Gene Therapy / Speaker
San Diego, CA
- 2004 Neurosurgical Grand Rounds / Speaker
Columbia University Medical School, New York, NY
- 2004 “Neuroimmunology of Gene Therapy” / Speaker
American Society of Gene Therapy Annual Meeting, Minneapolis, MI
- 2004 Practical Course in Brain Tumor Management / Speaker
Congress of Neurological Surgeons Annual Meeting, San Francisco, CA
- 2004 Review and Update Course in Neurosciences for Neurosurgeons /speaker
Woods Hole, MA
- 2004 Peripheral Markers of Brain Disease III / Speaker
Cleveland Clinic Foundation, Cleveland, OH

- 2004 Wake Forest University Brain Tumor Center of Excellence Seminar Series /Speaker
Winston-Salem, NC
- 2005 Symposium on Oncolytic Viruses / Speaker,
American Association for Cancer Research (AACR) Annual Meeting, Anaheim, CA
- 2005 Gene Therapy Seminar Series /Speaker
University of Alabama at Birmingham, Birmingham, AL (Sponsors: Dr. David Curiel, Joanne Douglas)
- 2005 Symposium on Cancer Gene Therapy / Speaker
American Society of Gene Therapy (ASGT) Annual Meeting, St. Louis, MI
- 2005 “Viral and Gene Based Therapies for Malignant Gliomas” / Speaker
American Academy of Neurological Surgery Annual Meeting, Half Moon Bay, CA
- 2005 “Management of Brain Tumors” / Speaker
Congress of Neurological Surgeons Annual Meeting, Boston, MA
- 2005 Prashant & Saloni International Hermelin Brain Tumor Center Symposium Viruses and Genes for
Glioma Therapeutics / Speaker
Detroit, MI
- 2005 “Oncolytic Viral Therapies for Brain Tumors” /Speaker
The Preuss Foundation Seminar, La Jolla, CA
- 2006 "The Power to Change Lives" Campaign / Speaker
The Ohio State University Medical Center, Naples, FL
- 2006 "The Sandie Altman Memorial Lecture" / Speaker
Department of Neurosurgery University of Pennsylvania, Philadelphia, PA
- 2006 Gene Therapy for Brain Tumors /Speaker
MGH/HMS, Charlestown, MA
- 2006 “Imaging transcriptional activation in gliomas” / Speaker
Seventh Principal Investigators Meeting for Innovative Molecular Analysis Technologies Program
(NCI), Bethesda, MD
- 2006 “Intraoperative adjuncts in the surgical management of gliomas” / Speaker
First Annual Neuro-Oncology Symposium: Recent Advances in High-grade Gliomas and the
Impact on Treatment, NCI: Comprehensive Cancer Center & The Ohio State University
Arthur G. James Cancer Hospital/Richard J. Solove Research Institute
Columbus, OH
- 2006 “Practical update on brain tumors”
CNS Annual Meeting, Chicago, IL
- 2006 “Malignant gliomas: current surgical and adjuvant strategies”
CNS Annual Meeting, Chicago, IL

- 2006 “Translational therapeutics for brain tumors: for the lab to the clinic and back” / Speaker
Society of Neurological Surgeons (SNS), Research Update in Neuroscience for Neurosurgeons (RUNN), Woods Hole, MA
- 2006 Grand Rounds / Speaker
Department of Neurosurgery, University of Medicine and Dentistry of New Jersey, Newark, NJ
- 2006 “Oncolytic herpes as a therapeutic agent for malignant brain tumors”/ Speaker
Program in Molecular Medicine, Mayo Clinic, Rochester, MI
- 2006 “RO1 grants: a reviewer’s perspective” / Speaker
Society for NeuroOncology (SNO) Annual Meeting, Orlando, FL
- 2006 “Oncolytic HSV-1 for tumor therapy”/ Speaker
Center for Cell and Gene Therapy, Baylor College of Medicine, Houston, TX
- 2007 “Using genes as therapies for gliomas” / Speaker
Interurban Neurosurgical Society, Chicago, IL
- 2007 “Tumor biology: understanding natural history and intervention strategies” / Speaker
American Association of Neurological Surgeons/ Congress of Neurological Surgeons (AANS/CNS)
Section on Disorders of the Spine and Peripheral Nerves, Phoenix, AZ
- 2007 “Innate immunity to oncolytic viruses” / Speaker
4th International Conference on Oncolytic Viruses as Cancer Therapeutics, Scottsdale, AZ
- 2007 “Malignant brain tumors: state-of-the-art treatment” / Panelist
American Association of Neurological Surgeons/ Congress of Neurological Surgeons, Washington, DC
- 2007 “Translational therapeutics for brain tumors: opportunities and challenges” / Speaker
Grass Award Recipient Speech, Society of Neurological Surgeons (SNS) Annual Meeting
University of California, San Francisco, CA
- 2007 Solid Tumor Retreat /Speaker,
OSU Comprehensive Cancer Center, Columbus, OH
- 2007 Review and Update in Neuroscience for Neurosurgeons (RUNN), /Speaker,
Woods Hole, MA
- 2007 “Modulation of tumor microenvironment to enhance oncolytic virus therapy” / Speaker
American Academy of Neurological Surgery (AANS) Annual Meeting , Lake Las Vegas,
Henderson, NV
- 2007 “The Translation of glioma therapy from the lab to the clinic” / Speaker (11/5/07)
Department of Neurosurgery, University of Arkansas Medical Center, Fayetteville AR
- 2008 “The host response to gene- and virus-based therapies in the brain” / Speaker (1/18/08)
Gene Therapeutics Research Institute, Cedars Sinai Medical Center, Los Angeles, CA
- 2008 “Intraoperative MRI in tumor surgery” / Speaker (2/21/08)
Sixth Annual Polestar User’s Meeting and First Annual Intraoperative Imaging Society
Lake Tahoe, NV

- 2008 “The host response to viral oncolysis of brain tumors” / Speaker (3/13/08)
Department of Comparative Molecular Veterinary Medicine,
Veterinary School Louisiana State University, Baton Rouge LA
- 2008 “Differential Proteomics Signatures detected by MALDI Mass Spectrometry in GBM” / Discussant
(4/28/08)
AANS Annual Meeting, Chicago, IL
- 2008 “Malignant glioma treatment; State of the art in gene therapy” / Speaker (4/29/08)
Breakfast Seminar, AANS Annual Meeting, Chicago, IL
- 2008 “Barriers to glioma virotherapy” / Speaker (4/28/08)
Farber Lecture Award, AANS Annual Meeting, Chicago, IL
- 2008 “Stem cells in gliomas” / Moderator (4/30/08)
AANS Annual Meeting, Chicago, Illinois
- 2008 “Translational Therapeutics for gliomas” / Grand Rounds (5/13/08)
Neurology Grand Rounds, New York University Medical Center, New York, NY
- 2008 “The Host Response to Viral Oncolysis” / Speaker (5/28/08)
Education Session: Entry and post-entry targeting of replicating vectors, 11th Annual Meeting of
the American Society of Gene Therapy, Boston, MA
- 2008 “Clinical update on gene therapy for brain tumors” / Speaker (9/19/08)
7th International Conference on Brain Tumors, Baltimore, MD
- 2008 “Anatomy of a NIH grant” in the CNS Neurosurgical Forum/Clinical Trial Design and
Translational Science in the community of NS” / Speaker (9/22/08)
Congress of Neurosurgical Surgeons Annual Meeting, Orlando, FL
- 2008 “Preparing for an academic career during residency” / Speaker (9/23/08)
Luncheon Seminar, Congress of Neurosurgical Surgeons Annual Meeting, Orlando, FL
- 2008 “Immune response to oncolytic HSV1 in gliomas” / Speaker (10/16/08)
CMV and Glioma Conference, Boston, MA
- 2008 “Brain Tumors and Translational Therapies” / Speaker (10/21/08)
Research and Update in Neurosciences for Neurosurgeons Course (RUNN)
Woods Hole, Massachusetts
- 2008 “Immune responses to gene- and virus-based therapeutics in brain tumors”/Speaker (10/30/08)
Ninth International Congress in Neuro-Immunology, Ft. Worth, TX
- 2008 “Oncolytic virus therapies for malignant gliomas” / Speaker (11/18/08)
Medical Diagnostics Laboratories, Hamilton, NJ
- 2008 “Intense Trial Design to maximize adjuvant cytotoxic and immunotherapeutic effects of Adv-tk in
malignant glioma” / Speaker (11/23/08)
Society for Neuro-Oncology Annual Meeting, Lake Las Vegas, NV
- 2008 “Immunomodulation for oncolytic viral therapies for malignant gliomas” / Speaker (11/23/08)
Society for Neuro-Oncology Annual Meeting, Lake Las Vegas, NV

- 2009 “Translational therapies for malignant gliomas” / Speaker (3/19/09)
Jacobsen Lecture in Neurosciences, Neuro Research Day SUNY Upstate, Syracuse, New York
- 2009 “Translational therapies for malignant gliomas” / Speakers (7/17/09)
University of Illinois at Peoria, Dept. Of Cancer Biology and Pharmacology, Peoria, IL
- 2009 “Translational therapies for malignant glioma” / Speaker (10/20/09)
RUNN Course, Woods Hole, MA
- 2009 “microRNA functions in glioblastoma” / Speaker (10/22/09)
Society for NeuroOncology Annual Meeting, New Orleans, LA
- 2009 “Adv-tk Gene-mediated cytotoxic Immunotherapy for malignant gliomas phase 1-2 trial for newly diagnosed malignant glioma” / Speaker (10/24/09)
Immunotherapy Sunrise Session Society for NeuroOncology Annual Meeting, New Orleans, LA
- 2009 “Non-NIH Funding – Foundations, Industry, and Other Governmental Agencies: – A Critical Part of Your Grants Portfolio” / Speaker (10/24/09)
NIH Grant writing Course and Academic Development, Congress of Neurological Surgeons Annual Meeting, New Orleans, LA
- 2009 “Therapies targeted to microRNAs in glioma stem cells” / Speaker (11/7/09)
71st Annual Meeting of the American Academy of Neurological Surgeons, West Palm Beach, FL
- 2009 “Therapy for malignant glioma” / Speaker (11/19/09)
Dept. of Neurosurgery, Louisiana State University, Shreveport, LA
- 2010 “Standard and Experimental Treatments for Brain Tumors” / Speaker (1/22/10)
Dept. of Neurosurgery, NYU Medical Center, New York, NY
- 2010 “Combining chemotherapy with virotherapy for brain tumors” / Speaker (1/28/10)
Searching for a breakthrough in cancer cell and gene therapy, Alliance for Cancer Gene Therapy, The Bruce Museum, Greenwich, CT
- 2010 “Translational Therapies for gliomas” / Speaker (2/12/10)
Division of Neuro-Oncology and Cancer Center, University of Virginia Medical School, Charlottesville, VA
- 2010 “Standard and Experimental Treatments for Brain Tumors” / Speaker (2/13/10)
Department of Neurosurgery, University of Virginia Medical School, Charlottesville, VA
- 2010 “Oncolytic virotherapy for gliomas” / Speaker (3/19/10)
Sylvester Cancer Center, University of Miami Medical School, Miami, FL
- 2010 “Translational Therapies for Malignant Gliomas” / Visiting Professor (4/23/10)
Department of Neurosurgery, Southwestern Medical School, Dallas, TX
- 2010 “Evidence-based treatments for malignant gliomas” / Visiting Professor (4/23/10)
Dept. of Neurosurgery, Southwestern Medical School, Dallas, TX

- 2010 “Adv- τ Gene-mediated cytotoxic immunotherapy in malignant Gliomas” / Speaker (5/3/10)
Breakfast Seminar: Malignant Glioma: state of the art treatment, AANS Annual Meeting
Philadelphia, PA
- 2010 “Translational treatments for malignant gliomas” / Speaker (10/15/10)
Linse-Bock Visiting Lecturer in Neuro-Oncology, Mayo Clinic, Rochester, MI
- 2010 “PCO3: Successful Grant Writing for the Neurosurgeon” / Speaker (10/16/10)
Congress of Neurological Surgeons Annual Meeting, San Francisco, CA
- 2010 “Malignant Glioma Treatment” / Moderator (10/20/10)
Lunch Seminar, Congress of Neurological Surgeons Annual Meeting, San Francisco, CA
- 2010 “Performing Quality Research in an Era of Reforms” / Speaker (10/20/10)
Congress of Neurological Surgeons Annual Meeting, San Francisco, CA
- 2010 “Translational Therapy for Gliomas: from the lab to the clinic and back to the lab (oncolytic
virotherapy)” / Speaker (10/25/10)
Review and Update in Neuroscience for Neurosurgeons (RUNN) course. Woods Hole, MA
- 2010 “Indirubin-mediated reduction of GSK-3 activity leads to reduced tumor and
blood vessel cell migration: a novel treatment in experimental glioblastoma initiating
cell neoplasms” / Speaker (11/4/10)
American Academy of Neurological Surgeons Annual Meeting, Pebble Beach, CA
- 2011 “microRNAs in malignant gliomas” / Speaker (1/27/11)
Neuro-Oncology Update, University of Utah Huntsman Cancer Center, Salt Lake City, UT
- 2011 “Intraoperative adjuncts for glioma resection: iMRI and CS craniotomy” / Lecturer (1/29/11)
37th Annual Richard Lende Winter Meeting, Snowbird, UT
- 2011 “A brief history of genes and viruses as therapies in gliomas” / Speaker (1/30/11)
37th Annual Richard Lende Winter Meeting, Snowbird, Utah
- 2011 “Current surgical and experimental treatments for glioma” / Visiting Professor (2/23/11)
Dept. of Neurosurgery, St. Louis University, St. Louis, MI
- 2011 “MicroRNA 451 regulates LKB1/AMPK signaling and allows adaptation to metabolic stress in
glioma cells” / Speaker (3/11/11)
37th Meeting, Preuss Foundation, Glioma Biology, San Diego, CA
- 2011 “Layers of host barriers/responses: an impediment to virotherapy?” / Speaker (3/19/11)
6th International Conference on Oncolytic Viruses as Cancer Therapeutics, Las Vegas, NV
- 2011 “Review of NFKBIA in GBM: tumor suppressor and potent predictor of outcome” / Discussant
(4/11/11)
Annual Meeting of American Association of Neurological Surgeons, Denver, CO
- 2011 “A brief history of genes and viruses as therapies in gliomas” / Speaker (4/12/11)
Breakfast Seminar (Malignant Glioma: State of the Art Treatment)
Annual Meeting of American Association of Neurological Surgeons, Denver, CO
- 2011 “NK cells, CMV and GBM” ABC2 workshop on CMV and Glioma / Speaker (4/18/11)
Washington, DC

- 2011 “Current Surgical Adjuvants in Glioma Resection” / Visiting Professor (6/1/11)
Dept. of Neurosurgery, University of Washington, Seattle, WA
- 2011 “Clinical And Experimental Treatments for Glioma” / Henderson Lecturer (6/8/11)
Dept. of Neurosurgery, University of Maryland, Baltimore, MD
- 2011 “A tale of two microRNAs in gliomas” / Speaker (9/16/11)
10th International Annual Update in Neuro-Oncology, Vanderbilt University, Nashville, TN
- 2011 “Glioma experimental therapeutics: going from the lab to the clinic” / Speaker (10/1/11)
NINDS Research Career Development Symposium, Washington DC
- 2011 “Translational Treatments for Gliomas” / UT GSBS Distinguished Alumnus Award
Lecture (10/21/11)
University of Texas, Houston, TX
- 2011 “The scientist clinician: a dying or a growing breed?” / UT GSBS Distinguished Alumnus Award
Lecture (10/21/11)
University of Texas, Houston, TX
- 2011 “Translational Treatments for Gliomas” / Speaker (11/3/11)
RUNN Course, Woods Hole, MA
- 2012 “Surgical Adjuvants in Glioma Resection” /Visiting Professor (2/22/12)
Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA
- 2012 “Discovering anti-invasive treatments for gliomas” / Visiting Professor (2/22/12)
Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA
- 2012 Eradicating Brain Cancer Symposium / Speaker (3/31/12)
Yale University School of Medicine, New Haven, CT
- 2012 “Gene and Viral-based therapies for brain tumors” / Speaker (4/19/12)
Breakfast Seminar, AANS Annual Meeting, Miami Beach, FL
- 2012 “Surgical Adjuvants in GBM resection” / Visiting Professor (4/25/12)
Department of Neurosurgery, Washington University School of Medicine, St. Louis, MI
- 2012 “Developing Viral-based Therapies Against Gliomas” / Speaker (4/25/12)
27th Annual Tolmach Symposium, Department of Radiation Oncology and Biologic
Therapeutics Center, Washington University Medical Center, St. Louis, MI
- 2012 “Gene and Viral Therapy for Glioblastoma: A Review of Clinical Trials and Future Directions” /
Speaker (9/23/12)
14th Annual Brain Tumor Update and 3rd Annual International Symposium on Long-term Control
of Metastases to the Brain, Las Vegas, NV
- 2012 “Malignant Glioma: Where are we now?” / Participant (10/10/12)
Annual Meeting, Congress of Neurological Surgeons (CNS), Chicago, IL
- 2013 “Viruses: A cause and a treatment for GBM” / Visiting Professor (2/7/13)
Neuroscience Grand Rounds, Swedish Medical Center, Seattle, WA

- 2013 “The Biology of tumor cell invasion in the brain and it's therapy” / Speaker (3/21/13)
American Physical Society March Meeting, Baltimore, MD
- 2013 “Common mistakes while submitting manuscripts” / Seminar Speaker (4/29/13)
American Association of Neurological Surgeons Annual Scientific Meeting, New Orleans, LA
- 2013 “Viruses: Causes or Treatment of Malignant Glioma” / Featured Lecturer (4/29/13)
Ronald L. Bittner Lecture, American Association of Neurological Surgeons Annual Scientific Meeting, New Orleans, LA
- 2013 “Surgical adjuvants in glioma resection” / Visiting Professor (5/4/13)
Thirteenth Hubert L. Rosomoff Research Day, Miami Medical Center, Miami, FL
- 2013 “Developing new therapies for glioblastoma: from the lab to the clinic” / Visiting Professor (5/4/13)
Thirteenth Hubert L. Rosomoff Research Day, Miami Medical Center, Miami, FL
- 2013 “Oncolytic Herpes Simplex Virus and Malignant Glioma” / Invited Speaker (6/7/13)
Brain Tumor Biotech Summit, New York, NY
- 2013 “An oncolytic HSV that targets nesting-expressing glioma cells” / Invited Speaker (9/6/13)
Targeting Oncolytic Viruses to Tumor Stem Cells Workshop, NCI/NIH, Washington DC
- 2013 “Oncolytic herpes simplex virus for brain tumor therapy” / Invited Speaker (9/23/13)
17th UCLA Human Gene Medicine Program Symposium, Oncolytic Viruses: Killing Cancer by Infection, University of California, Los Angeles, CA
- 2013 “Cytomegalovirus contributes to glioblastoma in the context of tumor suppressor mutations” / Speaker (9/26/13)
American Academy of Neurological Surgery Annual Meeting, Newport Beach, CA
- 2013 “CMV Targeted Therapies” / Invited Speaker (9/27/13)
Role of CMV in Glioma Tumorigenesis Workshop, NCI/NIH, Washington DC
- 2013 “Surgical Management of Gliomas” / Invited Speaker (10/21/13)
Congress of Neurological Surgeons (CNS) Annual Meeting, San Francisco, CA
- 2013 “Evolution of Brain Tumor Treatment: From Chemo to Vaccines to Viruses” / Invited Speaker (10/22/13)
Congress of Neurological Surgeons (CNS) Annual Meeting, San Francisco, CA
- 2013 “Malignant Glioma: Where Are We Now?” / Invited Speaker (10/23/13)
Congress of Neurological Surgeons (CNS) Annual Meeting, San Francisco, CA
- 2013 “Surgery Trials - Specific Challenges of Clinical Trial Design” / Invited Speaker (11/21/13)
SNO Annual Scientific Meeting, San Francisco, CA
- 2014 “Bringing clinical research into glioma surgery” / Visiting Professor (1/15/14)
Weill Cornell Medical College of Cornell University Grand Rounds, New York, NY
- 2014 “Viruses: a cause and a therapy for tumors” / Visiting Professor (3/21/2014)
Stanford University Medical Center, Department of Neurosurgery Grand Rounds, Stanford, CA

- 2014 "How to write and publish a successful neurosurgical manuscript" / Panelist (4/8/2014)
AANS Annual Scientific Meeting, San Francisco, CA
- 2014 "Biomarker-Based Management of Difficult Low-Grade Gliomas" / (4/8/2014)
AANS Annual Scientific Meeting, San Francisco, CA
- 2014 " Gene and Viral Therapy for Glioblastoma" / Visiting Professor (5/9/2014)
10th Annual Neuro-Oncology Symposium, John Theurer Cancer Center, Hackensack, NJ
- 2014 "Cytomegalovirus contributes to glioblastoma in the context of tumor suppressor mutations."/
Invited Speaker (7/21/2014)
ICBRT-20 Conference, Lake Tahoe, CA
- 2014 "Management of Gliomas" / Invited Speaker (10/20/2014)
Congress of Neurological Surgeons Annual Meeting, Boston, MA
- 2014 "Translational Therapeutics for Brain Tumors: From the Lab to the Clinic and back." / Invited
Speaker (10/27/2014)
RUNN Course, Woods Hole, MA

International

- 1993 Sixth Annual Conference on Immunology and Gene Therapy / Speaker
Osaka, Japan
- 1995 Basic Science Review Course / Speaker
Canadian Congress of Neurologists and Neurosurgeons, Victoria, British Columbia, Canada
- 1996 Gene Therapy of Hereditary Diseases and Tumors / Speaker
Department of Pediatrics, Padova, Italy
- 1997 Third International Workshop in Genetics in Hematology-Oncology / Speaker
Faculty of Medicine, Dusseldorf, Germany
- 1997 First International Workshop in Gene Therapy and Brain Tumors /Speaker
S. Giovanni Rotondo (FG), Italy
- 1997 12th International Conference on Brain Tumor Research and Therapy / Speaker
Oxford, England
- 1998 Seminar / Speaker
Istituto Europeo Oncologico, Milan, Italy
- 1998 49th Annual Meeting of the German Society of Neurosurgery / Speaker
Hanover, Germany
- 1998 12th International Symposium on Microsomes and Drug Oxidations / Speaker
Montpellier, France
- 1998 13th International Conference of the European Society for Functional and Stereotactic
Surgery / Speaker
Freiburg, Germany

- 1998 German Society of Neurosurgery / Speaker
Hanover, Germany
- 2000 Eurocancer 2000 / Speaker
Paris, France
- 2000 Fourth International Conference on Cancer Treatment / Speaker
Naples, Italy
- 2001 Cerebrovascular Biology 2001/ Speaker
Triennial International Meeting , , Cambridge, UK
- 2001 “Novel biologic therapies for gliomas” / Speaker
Annual Meeting, American Association of Neurological Surgeons, Toronto, Ontario, Canada
- 2001 International Conference on Gene and Cell Therapy /Speaker
Parma, Italy
- 2001 Japanese Society of Neurosurgeons Annual Meeting / Speaker
Okayama, Japan
- 2002 4th International Congress on Neurovirology / Speaker
Dusseldorf, Germany
- 2002 Institute Besta /Speaker
Milan, Italy
- 2002 European Association of Neuro-Oncology Annual Meeting /Speaker
Florence, Italy
- 2002 American Association of Pharmaceutical Scientists Annual Meeting /Speaker
Toronto, Ontario, Canada
- 2003 Italian Ministry of Health Scientific Conference / Participant
Rome, Italy
- 2003 International Conference on Oncolytic Viruses / Speaker
Banff, Alberta, Canada
- 2003 Pencher Lecturer / Speaker
University of Toronto, Western Regional Hospital/Toronto Sick Kids’ Hospital, Toronto, Canada
- 2004 Tumor Section Annual Meeting / Speaker
World Federation of Neurosurgery, Jaipur, India
- 2005 Third International Conference on Oncolytic Viruses /Speaker
Banff, Alberta, Canada
- 2005 International Symposium in Neuro-Oncology / Speaker
Arezzo, Italy

- 2007 “A Phase 1 trial of immunogene therapy for newly diagnosed malignant gliomas using adenoviral vector-mediated delivery of thymidine kinase in combination with standard therapy (surgery, radiation, and temozolomide chemotherapy”
Societa Italiana di Neurochirurgia (SINCh) Fifty-sixth Joint Meeting with the Congress of Neurological Surgeons, Rome, Italy
- 2007 International Meeting, Updates in Neuro-Oncology / Faculty
Cortona, Italy
- 2007 American Neurosurgery /Faculty
Update in the State of Kuwait, Salmiya, Kuwait
- 2008 “How we will get gene therapy to work in the clinics” / Speaker (4/25/08)
Trends in glioma treatment symposium, Erasmus Medical Center, Arminius Kerk, Rotterdam, Netherlands
- 2009 “microRNAs in Glioma Stem cell survival and maintenance” / Speaker (5/12/09)
3rd WFNO Quadrennial Meeting/6th Meeting of ASNO/Gene Therapy session, Yokohama, Japan.
- 2009 “Experimental therapies targeted to Malignant Glioma: genes and microRNAs” / Speaker (5/13/09)
Department of Neurosurgery, Kagawa University, Takamatsu, Japan
- 2009 “Intraoperative MRI in glioma surgery” / Speaker (5/19/09)
Luncheon Seminar, Therapy of Malignant Glioma, Japanese Congress Of Neurological Surgeons, Osaka, Japan
- 2009 “Gene Therapy for Malignant Glioma” / Speaker (5/16/09)
29th Japanese Congress of Neurological Surgeons, Osaka, Japan
- 2009 “Glioma tumor targeting by oncolytic HSV” / Speaker (3/20/09)
5th International Meeting on Oncolytic Viruses, Banff, Alberta, Canada
- 2009 “The predictive value for extent of tumor resection in the low-field strength iop MRI” / Speaker (6/12/09)
Society of University Neurosurgeons Annual Meeting, Naples, Italy
- 2009 “Intraoperative MRI in glioma surgery” / Speaker (6/16/09)
2nd Meeting of Intraoperative Imaging Society, Istanbul, Turkey
- 2009 “US experience in local-regional therapies; update and future perspectives” / Speaker (10/5/09)
EISAI Symposium on loco-regional therapies, Annual Meeting of the Associazione Italiana di Neuro-Oncologia, Padova, Italy
- 2009 “Ad-tk Immunotherapy for malignant glioma” / Speaker (10/5/09)
Immunotherapy breakfast meeting, XIV Annual Meeting of the Associazione Italiana di Neuro-Oncologia, Padova, Italy
- 2010 “MicroRNA-451 regulates LKB1/AMPK signaling and allows Adaptation to metabolic stress in glioma cells” / Speaker (5/20/10)
Asilomar: 18th International Conference Brain Tumor Research and Therapy, Travemunde, Germany

- 2011 Visiting Professor (Oct 7-13, 2011)
AANS, Department of Neurosurgery, Ibn Sina Hospital, Kuwait City, Kuwait.
- 2012 “Craniotomy under conscious sedation in Gliomas” / Speaker (11/8/12)
7th International Meeting in Neurosurgery, Leon City, Guanajuato, Mexico
- 2012 “Experimental Therapeutics and Research in Glioblastoma Multiforme” / Speaker (11/8/12)
7th International Meeting in Neurosurgery, Leon City, Guanajuato, Mexico
- 2012 “The evolution of intraoperative imaging techniques in brain tumor surgery”/Speaker (11/10/12)
7th International Meeting in Neurosurgery, Leon City, Guanajuato, Mexico
- 2013 “Histone deacetylase-mediated inhibition of HSV oncolysis” / Invited Speaker (6/16/13)
7th International Replicating Oncolytic Virus Therapeutics Meeting, Quebec City, Quebec, Canada
- 2013 “Biology of Malignant Gliomas: New Discoveries” / Invited Speaker (9/9/13)
XV WFNS World Congress of Neurosurgery Annual Mtg, Seoul, South Korea
- 2013 “Genes, viruses and toxins” / Invited Speaker (11/14/2013)
EANS Annual Meeting, Tel Aviv, Israel
- 2014 “Current Status of oncolytic virotherapies” / Visiting Professor (3/13/2014)
Acibadem University, Istanbul, Turkey
- 2014 “Novel targets against glioma” / Visiting Professor (3/13/2014)
Acibadem University, Istanbul, Turkey
- 2014 “Is the Initial host defense response to oncolytic viruses relevant and should it be overcome?” /
Invited Speaker (4/13/2014)
8th International Conference on Oncolytic Virus Therapeutics, Oxford, England
- 2014 “Oncolytic Viruses as Direct Cytotoxic and Vaccine Agents for Brain Tumors” / Invited
Speaker (5/18/2014)
American Society of Neuroradiology (ASNR) Symposium, Montreal, Canada
- 2014 “Gene and viral-based immunotherapies for glioblastoma” / Invited Speaker (9/15/2014)
Brazilian Neurosurgery Society Annual Meeting, Curitiba, Brazil
- 2014 “Low Grade Glioma” / Invited Speaker (9/16/2014)
Brazilian Neurosurgery Society Annual Meeting, Curitiba, Brazil
- 2014 “Basic Science Research in Neurosurgery” / Invited Speaker (9/16/2014)
Brazilian Neurosurgery Society Annual Meeting, Curitiba, Brazil
- 2014 “Multicenter phase Ib/II study of adv-tk, a gene-mediated cytotoxic immunotherapy, adjuvant to
surgical resection for patients with newly diagnosed malignant glioma” / Invited Speaker
(10/11/2014)
World Academy of Neurological Surgery Annual Meeting, Vienna, Austria
- 2014 “Where are we with Biologic Therapies for Malignant Gliomas?” / Invited Speaker (10/13/2014)
European Congress of Neurosurgery Annual Meeting, Prague, Czech Republic
- 2014 “MicroRNAs/microvesicles and their role in glioma stemness” / Keynote Speaker (10/15/2014)
DiSCUSS Symposium, Hanover Germany

Report of Clinical Activities and Innovations

Current Licensure and Certification

| | |
|-----------|---|
| 1988- | Texas |
| 1989- | Massachusetts |
| 2004- | Ohio |
| 1996-2000 | Board-eligible, Neurosurgery |
| 2000-2010 | Certified, Neurosurgery, American Board of Neurological Surgery |
| 2010- | Re-certified (MOC), American Board of Neurological Surgery |

Practice Activities

| | | | |
|---------------|---------------------|---|--|
| 1995- 2004 | Ambulatory Practice | Department of Neurosurgery Massachusetts General Hospital, Boston, MA | 1.5 Sessions / week 8 hours per session |
| 1995- 2004 | Surgery | Department of Neurosurgery Massachusetts General Hospital, Boston, MA | 2 Sessions / Week 8-10 hours per session (average) |
| 2004- 2012 | Ambulatory Practice | Department of Neurosurgery The Ohio State University Wexner Medical Center, Columbus, OH | 1.5 Sessions / week 8 hours per session |
| 2004- 2012 | Surgery | Department of Neurosurgery The Ohio State University Wexner Medical Center, Columbus, OH | 2 Sessions / Week 8-10 hours per session (average) |
| 2012- | Ambulatory Practice | Department of Neurosurgery, Brigham & Women's Hospital, Boston, MA | 1 Session/ Week 4-5 hours per session |
| 2012- | Surgery | Department of Neurosurgery, Brigham & Women's Hospital, Boston, MA | 1 Session / Week 8-10 hours per session (average) |

Clinical Innovations

Assessment of retroviral-mediated incorporation of HSV thymidine kinase and ganciclovir in human malignant gliomas. Phase I trial for recurrent glioblastoma multiforme
Harsh GR, **Chiocca EA**, Hochberg F
Massachusetts General Hospital and Somatix Therapy Inc.

This was one of the very first trials implementing an approach of intratumoral injection of gene therapy vectors ("gene marking") followed later on by excision (to study gene biodistribution) and reinjection of gene therapy vectors. I designed the approach.

A Phase I, open-label, dose- escalation, trial of intratumoral injection with an E1B-attenuated adenovirus (active and UV-inactivated), ONYX-015, into recurrent malignant gliomas.

Chiocca EA, Barker FG
Massachusetts General Hospital.

A Phase I, multi-institutional, open-label Study of BG-00001, a replication-defective adenovirus expressing human interferon-beta for recurrent malignant glioma.

Chiocca EA
Massachusetts General Hospital.

A Phase I/II study of AdV-tk + valacyclovir gene therapy in combination with standard radiation therapy for malignant gliomas.

Chiocca EA
The Ohio State University.

A Phase I/II clinical trial to evaluate dose limiting toxicity and efficacy of intralesional administration of reolysin for the treatment of patients with histologically confirmed current malignant gliomas.

Chiocca EA, Cavaliere R, Newton HN, McGregor JM
The Ohio State University.

A Phase 1 Ascending Dose Trial of the Safety and Tolerability of Toca 511, a Retroviral Replicating Vector, Administered to Subjects at the Time of Resection for Recurrent High Grade Glioma and Followed by Treatment with Toca FC, Extended Release 5-FC

Chiocca EA et al: (ongoing)
Ohio State University

A Protocol of the New Approaches to Brain Tumor Therapy (NABTT) Central Nervous System (CNS) Consortium.

I was the national PI of this multi-institutional trial that for the first time showed injection of an oncolytic virus in brain peritumoral area was well tolerated.

I was the national PI of this multi-institutional trial that for the first time revealed a dose-dependent biologic effect in tumor from a gene therapy (i.e. increased apoptosis of tumor cells and inflammation)

I was the national PI of this multi-institutional trial that for the first time combined standard of care with immunogene therapy in newly diagnosed glioma patients

Site PI for this trial that employed CED to deliver oncolytic reovirus

I am the national PI of this multi-institutional trial that for the first time employs a replication competent retrovirus in Glioma treatment.

Report of Technological and Other Scientific Innovations

A method of selectively destroying neoplastic cells

U.S. Patent 5,688,773. / Filed: October 28, 1994 / Allowed: November 18, 1997
Chiocca EA, Waxman DJ, Wei MX, Breakefield XO, Chen L

Exclusive licenses in different fields or technology awarded to Oxford Biomedica (1998-present) and to Onyx Pharmaceuticals (2001) . The technology employs transfer of CYP2B1 gene to confer chemosensitivity to cylophosphamide and ifosfamide. Has been in phase I and II trials in the UK for non CNS cancers.

Use of an internalizing transferring receptor to image transgene expression

US Patent: 6,511,967 B1 / Date: January 28, 2003. Not developed
Weissleder R, Basilion JP, **Chiocca EA**

Non-defective Epstein-Barr viral vector.

US Patent: US 6,544,781 B1 / Date: April 8, 2003 / Not developed.
Xiang, X, **Chiocca EA**, Kieff E, Wang F, Hochberg, F

| | |
|--|---|
| Enhanced packaging of herpes virus amplicons and generation of recombinant virus vectors | US Patent: US 6,573,090 B1 / Date: June 3, 2003. Breakefield XO, Chiocca EA , Saeki Y, Fraefel C, Ackermann M, et al. |
| | The technology has been used in research to develop improved HSV vectors |
| Combination viral-based and gene-based therapy of tumors | US Patent: US 6,602,499 B1 / Date: August 5, 2003. Chiocca EA , Breakefield XO |
| | The technology has been used in research to combine gene therapy with virotherapy. |
| Three-dimensional cell-growth assay | US patent: 6,602,701 B1 / Date: August 5, 2003 / Not developed Deisboeck TS, Wright JD, Chiocca EA |
| Viral delivery system for infectious transfer of large genomic DNA inserts | US Patent 7,214,515 / Date: May 8, 2007 Chiocca EA , Saeki Y, Wade-Martins R |
| | The technology has been used in research to deliver/express large genomic loci to cells. |
| Cell-specific and/or tumor-specific promoter retargeting of herpes γ 34.5 gene expression | US patent 7,514,252 B2 / Date: Apr.7, 2009 Chiocca EA , Chung RY |
| | The technology has been licensed and is now in preclinical development for cancers of the CNS and liver |

Report of Education of Patients and Service to the Community

Activities

| | |
|------|---|
| 2003 | American Brain Tumor Association / Speaker for Patients/Families Annual Meeting for Brain Tumors, Chicago, Illinois |
| 2006 | “Stem Cell Research” / Speaker Columbus Rotary Club, Columbus, Ohio |
| 2013 | Brian Science Foundation / Course Organizer “Towards Immunotherapy approaches for meningiomas: a “think tank” Boston, MA |

Recognition

| | | |
|-----------|--|---------------------------|
| 2005 | Best Doctors in Central Ohio | Columbus Monthly Magazine |
| 2005-2011 | Best Doctors in America | Best Doctors Foundation |
| 2006 | Rising Superstar (<i>Research and Development</i>) | Columbus CEO magazine |
| 2006-2011 | America’s Top Doctors® for Cancer | Castle Connolly |
| 2008 | Best Doctor in Neurological Surgery | Columbus Monthly Magazine |

Report of Scholarship

Publications

1. Guevara J Jr., **Chiocca EA**, Clayton FC, von Eschenbach AC, Edwards JJ: A simple method of eluting proteins from two-dimensional gels. *Clin Chem.* 1982 Apr;28(4 Pt 2):756-8. *PMID: 7074869*
2. Davies PJA, **Chiocca EA**, Stein JP. Retinoid-regulated expression of tissue transglutaminase in normal and leukemic myeloid cells. *Adv Exp Med Biol.* 1988;231:63-71. *PMID: 2901195*
3. **Chiocca EA**, Davies PJA, Stein JP. The molecular basis of retinoic acid action: transcriptional regulation of tissue transglutaminase gene expression in macrophages. *J Biol Chem.* 1988 Aug 15;263(23):11584-9 *PMID: 2900242*
4. Davies PJA, Basilion JP, **Chiocca EA**, Johnson J, Poddar S, Stein JP. Retinoids as generalized regulators of cellular growth and differentiation. *Am J Med Sci.* 1988 Sep;296(3):164-70. *PMID: 2902793*
5. Davies PJ, **Chiocca EA**, Basilion JP, Poddar S, Stein JP. Transglutaminases and their regulation: implications for polyamine metabolism. *Adv Exp Med Biol.* 1988;250:391-401. *PMID: 2908219*
6. **Chiocca EA**, Davies PJA, Stein JP. Regulation of tissue transglutaminase gene expression as a molecular model for retinoid effects on proliferation and differentiation. *J Cell Biochem.* 1989 Mar;39(3):293-304 *PMID: 256534*
7. Lee JK, Kim TS, **Chiocca EA**, Medhkour A, Martuza RL. Growth of human schwannomas in the subrenal capsule of the nude mouse. *Neurosurgery.* 1990 Apr;26(4):598-605. *PMID: 2330081*
8. Lee JK, Choi B, Sobel RA, **Chiocca EA**, Martuza RL. Inhibition of growth and angiogenesis of a human neurofibrosarcoma by heparin and hydrocortisone. *J Neurosurg.* 1990 Sep;73(3):429-35. *PMID: 1696626*
9. Citterio F, **Chiocca EA**, Kahan BD: Nuclear effects of cyclosporine. *Transplant Proc.* 1990 Aug;22(4):1742-3. *PMID: 1697119*
10. **Chiocca EA**, Choi BB, Cai W, DeLuca NA, Schaffer PA, DiFiglia M, Breakefield XO, Martuza RL. Transfer and expression of the *lacZ* gene in rat brain neurons mediated by herpes simplex virus mutants. *New Biol.* 1990 Aug;2(8):739-46. *PMID: 2178004*
11. Martuza RL, **Chiocca EA**, Jenike MA, Giriunas IE, Ballantine HT. Stereotactic radiofrequency thermal cingulotomy for obsessive compulsive disorder. *J Neuropsychiatry Clin Neurosci.* 1990 Summer;2(3):331-6. *PMID: 2136095*
12. Gentile V, Saydak M, **Chiocca EA**, Akande O, Birckbichler PJ, Lee KN, Stein JP, Davies PJA. Isolation and characterization of cDNA clones to mouse macrophage and human endothelial cell tissue transglutaminases. *J Biol Chem.* 1991 Jan 5;266(1):478-83. *PMID: 1670766*
13. Lee JK, Sobel RA, **Chiocca EA**, Kim TS, Martuza RL. Growth of human acoustic neuromas, neurofibromas and schwannomas in the subrenal capsule and sciatic nerve of the nude mouse. *J Neurooncol.* 1992 Oct;14(2):101-12. *PMID: 1432035*
14. Yu JS, Wei MX, **Chiocca EA**, Martuza RL, Tepper RI. Treatment of human glioma by engineered interleukin-4 secreting cells. *Cancer Res.* 1993 Jul 1;53(13):3125-8. *PMID: 8319220*
15. **Chiocca EA**, Tamiya T, Boviatsis EJ, Filipek PA, Breakefield XO, Kennedy DN. Gene therapy for gliomas using virus vectors. **Neuroimmunology Research** 6 (Japan): 23-32, 1993. (Japanese; abstract in English)

16. Boviatsis EJ, Chase M, Wei MX, Tamiya T, Hurford RK Jr, Kowall NW, Tepper RI, Breakefield XO, **Chiocca EA**. Gene transfer into experimental brain tumors mediated by adenovirus, herpes simplex virus (HSV), and retrovirus vectors. *Hum Gene Ther.* 1994 Feb;5(2):183-91. *PMID: 8186298*
17. Pakzaban P, **Chiocca EA**. Nerve growth factor protects against herpes simplex virus type 1 neurotoxicity in the rat striatum. *Neuroreport.* 1994 Apr 14;5(8):993-6. *PMID: 8061311*
18. Scharf JM, Boviatsis EJ, Fleet C, Breakefield XO, **Chiocca EA**. Genetically modified rat 9L gliosarcoma cells facilitate detection of infiltrating tumor cells in a rat model of brain neoplasms. *Transgenics 1:* 219-224, 1994.
19. Wei MX, Tamiya T, Chase M, Boviatsis EJ, Chang TKH, Kowall NW, Hochberg FH, Waxman DJ, Breakefield XO, **Chiocca EA**. Experimental tumor therapy in mice using the cyclophosphamide-activating cytochrome P450 2B1 gene. *Hum Gene Ther.* 1994 Aug;5(8):969-78. *PMID: 7948146*
20. Boviatsis EJ, Scharf JM, Chase M, Harrington K, Kowall NW, Breakefield XO, **Chiocca EA**. Antitumor activity and reporter gene transfer into rat brain neoplasms inoculated with herpes simplex virus vectors defective in thymidine kinase or ribonucleotide reductase. *Gene Ther.* 1994 Sep;1(5):323-31. *PMID: 7584098*
21. **Chiocca EA**, Boviatsis EJ, Westmark RM, Short MP, Richardson EP, Zervas NT. Deep sylvian fissure meningioma without dural attachment in an adult: case report. *Neurosurgery.* 1994 Nov;35(5):944-6; discussion 946. *PMID: 7838346*
22. Boviatsis EJ, Park JS, Sena-Esteves M, Kramm CM, Chase M, Efirid J, Wei MX, Breakefield XO, **Chiocca EA**. Long-term survival of rats harboring brain neoplasms treated with ganciclovir and a herpes simplex virus vector that maintains an intact thymidine kinase gene. *Cancer Res.* 1994 Nov 15;54(22):5745-51. *PMID: 7954393*
23. Tamiya T, Wei MX, Breakefield XO, **Chiocca EA**, Ohmoto T: [Gene therapy for brain tumors: gene therapy for brain tumors using prodrug-sensitivity genes (series 4)]. *Neurological Surgery (Japan)* 22: 1099-1110, 1994. (Japanese)
24. Wei MX, Tamiya T, Hurford RK Jr, Boviatsis EJ, Tepper RI, **Chiocca EA**. Enhancement of interleukin 4-mediated tumor regression in athymic mice by *in situ* retroviral gene transfer. *Hum Gene Ther.* 1995 Apr;6(4):437-43. *PMID: 7612701*
25. Tamiya T, Wei MX, Chase M, Ono Y, Lee F, Breakefield XO, **Chiocca EA**. Transgene inheritance and retroviral infection contribute to the efficiency of gene expression in solid tumors inoculated with retroviral vector producer cells. *Gene Ther.* 1995 Oct;2(8):531-8. *PMID: 8593603*
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27. Speliotes EK, Wei MX, Weise J, Fleet C, Do T, Shanti B, **Chiocca EA**, Finklestein SP, Breakefield XO. Basic fibroblast growth factor bearing a signal peptide transforms fibroblasts in culture but restricts fibroma growth in brain. **Transgenics 1:** 573-584, 1995.
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33. Pechan PA, Fotaki M, Thompson RL, Dunn R, Chase M, **Chiocca EA**, Breakefield XO. A novel "piggyback" packaging system for herpes simplex virus amplicon vectors. *Hum Gene Ther.* 1996 Oct 20;7(16):2003-13. *PMID: 8930661*
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Thesis

The molecular basis of retinoic acid action. (PhD Thesis, Graduate School of Biomedical Sciences, University of Texas Health Science Center at Houston), 1988.

Narrative Report (limit to 500 words)

I am a neurosurgeon and a scientist who has strived to merge my discoveries in the laboratory into applications that can benefit patients who suffer from brain tumors. In addition, I have founded and grown a Department of Neurosurgery and a Neuroscience Program at the James Cancer Center and Wexner Medical Center at The Ohio State University from 2004 until 2012. I estimate that I spend approximately 10% of my effort teaching, 40% in research, 40% in clinics and 10% administratively. My area of excellence (Investigation) has focused primarily in discovering and engineering biologic agents such as viruses into selective anticancer agents. I have been amongst the first to translate these into clinical trials for humans with malignant brain tumors to show their safety, yet efficacy has been elusive. I have thus spent the last few years, understanding why efficacy is limited. I have been awarded program project grant (PPG) that integrates the expertise of 8 different PIs at 4 different institutions and that proposes to engineer more potent anticancer biologic agents that can circumvent the current limitations of this therapy. In addition, I have focused my research efforts in discovering drugs that limit glioma invasion and have recently described a set of compounds (indirubins) that block GSK3 activity and significantly inhibit glioma invasion. I am thus in the process of bringing these compounds into clinical trials. I am also elucidating the role of microRNAs in glioma biology and have been focused on the mechanism of action of miR128 that appears to act on polycomb repressor complex transcripts and on miR451 that acts on the LKB1/AMPK signaling pathway. My teaching and educational leadership activities have led to several of my graduates and young faculty mentees becoming successful PIs (see Drs. Balveen Kaur or Mariano Viapiano, OSU) and physician-scientists (see Dr. Ed Smith, Boston Children's or Manish Aghi, UCSF). I also have been a leader of several national organizations in the field

of neuro-oncology (Secretary and 2012 Scientific Program Chair for the Society of Neuro-oncology); neurosurgery (2012 Scientific Program Chair for the American Academy of NS and member of various committees in organized neurosurgery) and was appointed this year on the Advisory Council of NINDS. Therefore, I have been committed to the translation of my laboratory discoveries to patients with brain tumors, mentoring the next generation of neurosurgeon-scientists, and providing national leadership in my discipline.

Description of Leadership Activities of Major Organizations

From 2004 until 2012, I was the Chairman of the Department of Neurosurgery at Ohio State University Wexner Medical Center (OSU WMC) and the Physician Director of its Neuroscience Program that encompassed all the clinical, administrative, teaching and research activities of Neuroscience Programs (Neurology, Neurosurgery, Psychiatry, and Basic Neurosciences). During this time period, we doubled inpatient admissions to the OSU hospitals, almost doubled outpatient encounters, grew revenue and margin yearly, increased philanthropy yearly, started multiple programs of excellence related to neurological/ neuroscience diseases with recruitment of top notch talent, and improved neuroscience graduate and postgraduate programs (see Attached Neuroscience 2011 year in review).

Since 2012, I took over the leadership of the Department of Neurosurgery at the Brigham and Women's Hospital and of its newly formed Institute for the Neurosciences, both affiliated with Harvard Medical School. This is arguable the oldest and most famous Department in the world having been founded by Harvey Cushing in 1913. Dr. Cushing was the Surgeon in Chief until his retirement in 1932 and during this span he was responsible for altering the disciplines of neurosurgery, neuro-endocrinology, neuro-radiology, neuro-anesthesiology into adopting scientifically-based and patient outcome oriented principles that are still being applied today. In the 2 years that I have spent leading this program, we have enjoyed significant growth in patient encounters (approximately 18%), have doubled the hospital net profit, have increased philanthropic contributions, have increased the number of trainees/students in our programs and have increased the number of faculty.

I am also currently in position of leadership for several national organizations. I am currently the vice-President of the Society for Neuro-oncology and was its past secretary. This is the largest national/international organization for practitioners and students of Neuro-oncology with over 4,000 members. This is an elected position, selected by vote from the membership. I am also the Treasurer of the American Academy of Neurosurgery. This is a relatively exclusive organization, in the sense that membership is limited to about 120 most meritorious academic neurosurgeons in the USA that are selected on the basis of scientific achievements. I also lead the Research Committee of the Society of Neurological Surgeons and the Neurosurgical Research Education Foundation. These societies role are to improve and measure the outcome of neurosurgical training and education in the USA. In this context, my role is to provide counsel related to the award of competitive scientific grants to meritorious neurosurgical applicants that are performing research that will improve patients' lives.