Muhamed Hadzipasic MD, PhD

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Education

Harvard University, Massachusetts General Hospital — Boston, MA
Neurosurgery Resident — *June 2017-present*

Yale University — New Haven, CT
MD, PhD (Neuroscience) — *August 2010-May 2017*
PhD Thesis: "Cell and Circuit Electrophysiology Studies in a Mouse Model of ALS"
PhD Awarded with Distinction, November 2015, Laboratory of Arthur Horwich, MD

Johns Hopkins University — Baltimore, MD
BA — *September 2006-May 2010*
Neuroscience (Honors), Applied Mathematics (Honors), Mathematics (minor)
GPA 3.91, Focus areas in Systems Neuroscience and Scientific Computing

Certifications and Skills

General Medical Licensure and Neurosurgical Training

- Completion of American Board of Neurological Surgery Primary Board Exam (93^{rd} percentile)
- Completion of three years of neurosurgical residency at Massachusetts General Hospital (7 year program)
- Completion of United States Medical Licensing Exam (USMLE) Step 1, Step 2 CK, Step 2 CS, Step 3
- Massachusetts Limited Medical License (License Number 272378)

Basic Science

- Experience in project conceptualization, execution, and establishing techniques
- Expertise in electrophysiological techniques including whole cell patch clamp, in vivo single and multiunit recording, recording in awake behaving mice, designing and building custom recording setups
- Experience with cell biology, microbiology, and biochemistry techniques including cell culture, immunostaining, microscopy, qPCR, Western blot

Engineering and Quantitative Analysis

- Experience with device design, engineering, and prototyping including CAD, 3D printing, electronics/circuit design, PCB design, software/code design (LabView, C++/Arduino, MATLAB)
- Extensive experience with statistical analysis, computational analysis (MATLAB, Stata, technical/scientific computing), and image analysis in the context of both basic science and clinical research

Research

Ganesh Shankar MD PhD, Laboratory — *2020-present*
Harvard Medical School/Massachusetts General Hospital

John Shin MD, Spine Clinical Research Group — *2018-present*
Harvard Medical School/Massachusetts General Hospital

Arthur Horwich MD, Laboratory (PhD Advisor) — *2012-2015*
Yale University, Howard Hughes Medical Institute (HHMI)

Richard Huganir PhD, Laboratory — *2008-2010*
Johns Hopkins Medical School, Department of Neuroscience, Howard Hughes Medical Institute (HHMI)

Howard Weiner MD, Laboratory — *2005-2008*
Harvard Medical School, Brigham Women's Hospital, Center for Neurologic Disease

Selected Publications

Hadzipasic, M., Ni, W., Nagy, M., Steenrod, N., McGinley, M.J., Kaushal, A., Thomas, E., McCormick, D.A. and Horwich, A.L., 2016. Reduced high-frequency motor neuron firing, EMG fractionation, and gait variability in awake walking ALS mice. Proceedings of the National Academy of Sciences, 113(47), pp.E7600-E7609.

Hadzipasic, M., Tahvildari, B., Nagy, M., Bian, M., Horwich, A.L. and McCormick, D.A., 2014. Selective degeneration of a physiological subtype of spinal motor neuron in mice with SOD1-linked ALS. Proceedings of the National Academy of Sciences, 111(47), pp.16883-16888.

Hadzipasic, M., Karsten, M.B., Olson, H., Rodan, L., Lidov, H., Prabhu, S.P., Wright, K. and Fehnel, K.P., 2021. Medulloblastoma in the setting of megalencephaly polymicrogyria polydactyly hydrocephalus. American Journal of Medical Genetics Part A, 185(5), pp.1614-1618.

Ferrante, M., Tahvildari, B., Duque, A., Hadzipasic, M., Salkoff, D., Zagha, E.W., Hasselmo, M.E. and McCormick, D.A., 2016. Distinct Functional Groups Emerge from the Intrinsic Properties of Molecularly Identified Entorhinal Interneurons and Principal Cells. Cerebral Cortex, p.bhw143.

Yang, K., Vega, J.L., Hadzipasic, M., Peron, J.P.S., Zhu, B., Carrier, Y., Masli, S., Rizzo, L.V. and Weiner, H.L., 2009. Deficiency of thrombospondin-1 reduces Th17 differentiation and attenuates experimental autoimmune encephalomyelitis. Journal of autoimmunity, 32(2), pp.94-103.

Shankar, G., Van Beaver, L., Choi, B., Hadzipasic, M., Sivaganesan A., Karhade V., Ferrone, M., Harris, M., Schoenfeld, A., Sadow, P., Oh, K., Schwab, J., Saylor, P., Shin, J., 2020. Survival after surgery for renal cell carcinoma metastatic to the spine: impact of modern systemic therapies on outcomes. Neurosurgery. Accepted for Publication.

Massaad, E., Fatima, N., Hadzipasic, M., Alvarez-Breckenridge, C., Shankar, G.M. and Shin, J.H., 2019. Predictive Analytics in Spine Oncology Research: First Steps, Limitations, and Future Directions. Neurospine, 16(4), p.669.

Fatima, N., Barra, M.E., Roberts, R.J., Massaad, E., Hadzipasic, M., Shankar, G.M. and Shin, J.H., 2020. Advances in surgical hemostasis: a comprehensive review and meta-analysis on topical tranexamic acid in spinal deformity surgery. Neurosurgical Review, pp.1-13.

Hadzipasic, M., Giantini-Larsen, A.M., Tatsui, C.E. and Shin, J.H., 2020. Emerging Percutaneous Ablative and Radiosurgical Techniques for Treatment of Spinal Metastases. Neurosurgery Clinics, 31(1), pp.141-150.

Koffie, R., Larsen, A.M.G., Grannan, B.L., Hadzipasic, M., Yanamadala, V., Shankar, G.M., Van Beaver, L.A. and Shin, J.H., 2019. 265. Novel C1-2 loop-suture technique for securing interlaminar bone graft during atlantoaxial arthrodesis: surgical technique and outcomes. The Spine Journal, 19(9), pp.S129-S130.

Hadzipasic, M., Koch, M.J., Stapleton, C.J., Patel, A.B. "Ruptured Cerebral Aneurysms." Neurointerventional Surgery: An Evidence Based Approach. Min S. Park, MD; M. Yashar S. Kalani, MD, PhD; and Michael F. Stiefel, MD, PhD (Accepted for Publication)

Koch, M.J., Mahal, B.A.V., Hadzipasic, M., Fehnel, K.P., Chapman, P.H., Loeffler, J.S., Orbach, D.B. and Smith, E.R., 2019. Dynamic Changes in Arteriovenous Malformations (AVMs): Spontaneous Growth and Resolution of AVM-Associated Aneurysms in Two Pediatric Patients. Pediatric neurosurgery, 54(6), pp.394-398.

Grannan, B.L., Hadzipasic, M., Eskandar, E. "Ablative Neurosurgical Procedures for Chronic Pain." Bonica's Management of Pain 5th Ed. James P. Rathmell

Duran, D., Hadzipasic, M. and Kahle, K.T., 2017. Mystery Case: Acute hydrocephalus caused by radiographically occult fourth ventricular outlet obstruction. Neurology, 88(5), pp.e36-e37.

Hadzipasic, M., Grant, R., Johnson, M., Cheng, J., Bulsara, K. R. (2017). Spinal Dural Arteriovenous Fistulas with Segmental Arterial Supply Also Giving Rise to a Radiculomedullary Artery: A Case Report and Review of the Literature. World neurosurgery, 97, 749-e21.

Carter, J.C., Lanham, D.C., Cutting, L.E., Clements-Stephens, A.M., Chen, X., Hadzipasic, M., Kim, J., Denckla, M.B. and Kaufmann, W.E., 2009. A dual DTI approach to analyzing white matter in children with dyslexia. Psychiatry

Research: Neuroimaging, 172(3), pp.215-219.

Invited Talks

Congress of Neurological Surgeons Meeting *2019*
Postoperative Stereotactic Radiosurgery for Spinal Metastases: Outcomes, Failures, and Analysis of Local Control

International Stereotactic Radiosurgery Society Congress Meeting *2019*
Postoperative Stereotactic Radiosurgery for Spinal Metastases: Outcomes, Failures, and Analysis of Local Control

International Motoneuron Meeting *2016*
Loss of high frequency motor neuron output produces intraburst EMG variability in awake walking ALS mice

Yale Neurosurgery Grand Rounds *2015*
Cell and Circuit Studies in ALS

Yale Interdepartmental Neuroscience NeuroDay *2013*
Selective degeneration of a physiological subtype of spinal motor neuron in mice with SOD1-linked ALS

Awards and Achievments

NIH R25 NINDS Research Education Grant *2021*
Analysis of Molecular Mechanisms in Degenerative Spinal Disease

The Yale MD/PhD Thesis Prize *2017*
Awarded to the graduating MD/PhD student with the most outstanding dissertation

PhD awarded with Distinction *2016*

Yale Biophysics Fellow *2015*

Barry M. Goldwater National Research Scholar *2008-2010*

Phi Beta Kappa *2010*

Applied Mathematics Achievement Award *2010*
Awarded for outstanding achievement by a graduating Applied Mathematics and Statistics major in areas of academic performance, research, pedagogy, and leadership.

Teaching

Section teacher, Neuroanatomy for Medical Students *2020*
Harvard Medical School

Mentor and Supervisor for HHMI Visiting Scholars Program 2014, 2015 *2014-2015*
Yale University

Section Teacher, Physiological Systems (MCDB 310) *2014*
Yale University

Section teacher, Mathematical Statistics (550.430) *2010*
Johns Hopkins University, Department of Applied Mathematics

Teaching Assistant, Statistical Analysis I (550.111) *2009*
Johns Hopkins University, Department of Applied Mathematics