

**Eric Szelenyi**  
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### POSITIONS

<b>Present:</b> Senior Postdoctoral Fellow University of Washington Department of Biological Structure	Seattle, WA 2019-Present
<b>Previous:</b> Scientist I Allen Institute for Brain Science Molecular Genetics	Seattle, WA 2017-2019
Biological Research Assistant Department of Defense United States Army Research Institute of Environmental Medicine	Natick, MA 2006-2010

### EDUCATION

<b>Stony Brook University &amp; Cold Spring Harbor Laboratory</b> PhD, Neuroscience	Stony Brook and Cold Spring Harbor, NY 2017
<b>Shippensburg University</b> BA, Psychology, biochemistry minor Psi Chi National Honors Society in Psychology	Shippensburg, PA 2006

### AWARDS

<b>Program for Excellence in Science</b> AAAS/Science	2014-2016
<b>President's Award for Excellence in Teaching by a Graduate Student</b> Stony Brook University	2014
<b>Special Act Award</b> United States Army Research of Environmental Medicine	2010
<b>Certificate of Student Research Achievement</b> Shippensburg University	2003, 2004, 2005, 2006
<b>Dean's List</b> Shippensburg University	2003, 2004, 2005

### SKILLS & TECHNIQUES

- Serial two-photon tomography, light sheet fluorescent (LSFM), confocal, epi-fluorescent, and live cell microscopy
- Whole-mount brain tissue staining and clearing for LSFM
- Whole-brain imaging dataset validation and analysis
- Fluorescent-activated cell sorting (FACS) of live cells from microdissected brain tissue
- Cell culture of primary and immortalized cell lines for transient transfection and lentiviral infection experiments
- Stereotaxic delivery of adeno-associated virus (AAV) and retrovirus in mouse brain
- Behavioral assays in mice: open field test, t-maze, 3-chamber task, elevated plus maze, fear conditioning
- Chemogenetic DREADD experiments in mice
- Design and development of gene targeting vectors and establishment of transgenic knock-in mice colonies
- Embryonic stem cell gDNA screening of targeted recombination via PCR and southern blotting
- Molecular cloning for gene-targeting, over-expression, and viral vector experiments
- Protein analysis and purification methods including western blot, ELISA, immunohistochemistry, gelatin zymography, silver staining, immunoprecipitation, and immunoaffinity chromatography
- Transcriptional analysis using qRT-PCR
- Guide RNA (gRNA) design and cloning for in-vitro CRISPR experiments

### LEADERSHIP & TEACHING EXPERIENCE

<b>Cold Spring Harbor Laboratory</b> Partners for the Future Program Mentor PhD Candidate, supervising	Cold Spring Harbor, NY 2016-2017 2012-2017
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**LearningRX**  
Cognitive Skills Trainer

Jericho, NY  
2013-2015

**Stony Brook University**  
Teaching Assistant; Fundamentals of Scientific Inquiry in the Biological Sciences II  
Teaching Assistant; Animal Physiology

Department of Neurobiology and Behavior, Stony Brook, NY  
2012  
2011

## PUBLICATIONS

### Pending

- Szelenyi ER**, Fisenne D, Knox JE, JA Harris, Gornet JA, Palaniswamy R, Kim Y, Venkataraju KU, Osten P. Paternal and stochastic ~55:45 bias in brain X-chromosome inactivation is sufficient for fragile X phenotypic penetrance. In peer review; *Science*; Apr 2020
- Szelenyi ER**, Palaniswamy R, Osten P. Brain-wide composition of imprinted Grb10-expressing cells with allelic specificity. In-preparation.
- Szelenyi ER**, Matzko M, Barnes BR, Motch SM, Kremser J, Stout T, Blizard D, McCarter R, Hymer WC (2017) Short-term caloric restriction does not enhance spatial memory and has differential effects on the ghrelin-responsive growth hormone in hippocampus and pituitary gland. *Submitted*.

### Published

- Szelenyi ER** and Urso ML (2012) Time-course analysis of injured skeletal muscle suggests a critical involvement of ERK1/2 signaling in the acute inflammatory response. *Muscle & Nerve* 45(4):552-61. (PMID: 22431089)
- Urso ML, **Szelenyi ER**, Warren GL, Barnes BR (2010) Matrix Metalloprotease-3 and Tissue Inhibitor of Metalloprotease-1 mRNA and Protein Levels Are Altered in Response to Traumatic Skeletal Muscle Injury. *European Journal of Applied Physiology* 109(5):963-72. (PMID: 20349081)
- Barnes BR, **Szelenyi ER**, Warren GL, Urso ML. Alterations in mRNA and Protein Levels of Metalloproteinases-2, -9 and -14 and Tissue Inhibitor of Metalloproteinase-2 post-Traumatic Skeletal Muscle Injury. *Am J Physiol Cell Physiol*, 2009 Dec; 297(6):C1501-8. (PMID:19794148)

### Preprints

- Katherine S. Matho, Dhananjay Hulgo11, William Galbavy, Gukhan Kim, Miao He, Xu An, Jiangteng Lu, Priscilla Wu, Daniela J. Di Bella, Ashwin S. Shetty, Ramesh Palaniswamy, Joshua Hatfield, Ricardo Raudales, **Eric R Szelenyi**, Arun Narasimhan, Eric Gamache, Jesse Levine, Jason Tucciarone, Partha Mitra, Pavel Osten, Paola Arlotta, Z. Josh Huang. Genetic dissection of glutamatergic neuron subpopulations and developmental trajectories in the cerebral cortex. *bioRxiv*. May 2020
- Lucas T Graybuck, Adriana E Sedeño-Cortés, Thuc Nghi Nguyen, Miranda Walker, **Eric Szelenyi**, Garreck Lenz, La'Akea Sieverts, Tae Kyung Kim, Emma Garren, Brian Kalmbach, Shenqin Yao, Marty Mortrud, John Mich, Jeff Goldy, Kimberly Smith, Nick Dee, Zizhen Yao, Ali Cetin, Boaz Levi, Ed Lein, Jonathan Ting, Hongkui Zeng, Tanya Daigle, and Bosiljka Tasic Prospective, brain-wide labeling of neuronal subclasses with enhancer-driven AAVs. *bioRxiv*. January 2019
- Szelenyi E**, Fisenne D, Knox JE, JA Harris, Gornet JA, Palaniswamy R, Kim Y, Venkataraju KU, Osten P. A brain network basis of Fragile X syndrome behavioral penetrance determined by X chromosome inactivation in female mice. *bioRxiv*. November 2018

## SELECTED ABSTRACTS

- Szelenyi E**, Daigle TL, Sieverts L, Walker M, Lenz G, Graybuck LT, Larsen R, Madisen L, Yao S, Cetin AH, Zeng H, Tasic B. Expanding the mouse genetic toolkit: New transgenic and viral strategies for cell-type specific investigations. Society for Neuroscience Meeting, 10/2018, San Diego, CA
- Szelenyi E**, Fisenne D, Kim Y, Venkataraju KU, Osten P. Cellular X chromosome inactivation ratio densities amongst defined brain regions predicts female behavioral penetrance of fragile X syndrome in mouse brain. Society for Neuroscience Meeting, 10/2017, Washington, D.C.
- Szelenyi E**, Kim Y, Venkataraju KU, Pradhan K, Osten P. Quantification of whole-brain X-chromosome inactivation in healthy and X-linked disease states. Federation of European Neuroscience Societies Meeting, 7/2016, Copenhagen, Denmark.
- Szelenyi E**, Palaniswamy R, Schiff H, Tucciarone J, Huang J, Li B, Osten P. Biallelic expression mapping of the imprinted Grb10 locus reveals novel fear-suppressive neurons in the periaqueductal gray. Society for Neuroscience

Meeting, 10/2015, Chicago, IL

**Szelenyi E**, Palaniswamy R, Schiff H, Osten P. Maternal *Grb10* Expression Defines a Novel Subpopulation of Periaqueductal Grey Neurons That Gate Fear Memory. Wiring the Brain Meeting, 3/2015, Cold Spring Harbor, NY

**Szelenyi ER**, Barnes BR, Urso ML. Traumatic Skeletal Muscle Injury Activates the Erk1/2 Pathway and Down-Regulates AtroGene Transcription. Tissue Repair & Regeneration Gordon Research Conference, 6/2009, New London, NH