



# Emal Lesha, MD

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## Training and Education

- Neurosurgery Resident – **University of Tennessee Health Sciences Center** (2020 – Present)
- Doctor of Medicine – **Tufts University School of Medicine** (2020)
- Bachelor of Science – **University of Massachusetts Boston** (2015)  
Summa Cum Laude  
Biology Major, Psychology Minor, Honors College

## Clinical/Research Experience

- Medical Liaison – **GC Therapeutics** (2020 – Current)
  - Stem cell therapy for clinical disease
- Research Intern – **Adel Malek Lab, Tufts Medical Center** (2017 – 2020)
  - Analysis of pseudoaneurysm management and outcomes at TMC
  - Angular Remodeling of Intracranial Bifurcation Arteries due to Neuroform Atlas Stenting
  - Morphological analysis of MCA segments and bifurcations to determine factors of aneurysm formation
  - Identifying morphological characteristics leading to aneurysmal bifurcations of the PCoA
  - Association between tapering of A1 segment with aneurysm presence at the anterior communicating artery bifurcation
  - Effect of A1 segment dominance on angular morphology of the anterior communicating artery bifurcation in healthy and aneurysmal Patients
- Research Intern – **George Church Lab, Harvard Medical School** (2017)
  - Gene-editing of oligodendrocytes for immune-protection against Multiple Sclerosis (MS)
  - Transcription factor analysis for rapid differentiation of iPSCs to oligodendrocytes
  - Production of oligodendrocytes resistant to inflammatory damage in MS patients
  - Designing of knockout and knock-in constructs to engineer the induced pluripotent stem cells
  - Designing of immunologic assays to test the edited oligodendrocytes
- Research Associate – **eGenesis Inc** (2016-2017)
  - Immunoassay Development
  - Pig genome CRISPR KO screening library for antigen discovery
  - Human gene delivery in porcine primary cell lines for increased xenograft compatibility
- Research Fellow – **George Church Lab, Harvard Medical School** (2015-2016)
  - Pig genome CRISPR KO screening library for antigen discovery
  - Human gene delivery in porcine primary cell lines for increased xenograft compatibility
  - Genome wide porcine endogenous retrovirus knockout in porcine cell lines
  - gRNA library generation to knock-out antigen responsible genes in the pig genome
  - cDNA library generation knock-in to increase immune compatibility to the human immune system
  - T-cell engineering with CRISPR-Cas9 for cancer therapeutics
- Research Intern – **Genomes2People, Brigham and Women's Hospital** (2013 – 2017)
  - Alzheimer's Disease Neuroimaging Initiative (ADNI) – the impact of ADNI on Alzheimer's Disease research and Data Sharing in Science
- Research Intern – **Ali Khademhosseini Lab, Brigham and Women's Hospital** (2013 – 2015)
  - pH-sensing hydrogel fibers for epidermal applications
  - Robust Microfluidic Platform for Fabrication of Meter-long Hydrogel Microfibers
  - 3D Vascularization in Gelatin Methacrylate and the Role of Stiffness
  - Bioactive composite living fibers for organ weaving
- Unit Coordinator – **Orthopedics Department, Brigham and Women's Hospital** (2013 – 2016)
- Tufts Medical School–UMass Boston Enrichment Program (Winter 2013)
- Medical Student – **University of Medicine of Tirana, Albania** (2010 – 2011)

## Publications/Abstracts

- Zaki M†, **Lesha E**†.... Church G. *Cell therapy strategies for COVID-19: Current approaches and potential applications*. **Science Advances**, 2021, 33.
- Rosato R, Comptdaer G, Mulligan R, **Lesha E**, Lauric A, Malek AM. *Marked Bending of the Internal Carotid Artery in Patients with Posterior Communication Artery Aneurysms*. **J NeuroIntervent Surg**, 2020, 0:1–7.
- **Lesha E**, Darouie Sh, Seyfoori A, Dolatshahi-Pirouz A, Akbari M (2020). *In vitro disease and organ model*. *Biomaterials for Organ and Tissue Regeneration*, **Elsevier**.
- Tamayol A, Akbari M, Serex L, Fallahi A, **Lesha E**, et al (2019). *Customizable composite fibers for engineering skeletal muscle models*. **ACS Biomaterials Science and Engineering** (Cover of February 10 Issue)
- Khoshakhalgh P, Ng A.... **Lesha E**, Church G. (2019), *From synthetic 3D hydrogels to genetically engineered self-assembled 3D tissues*. **New Frontiers in 3D Conference**, Boston 2019
- S Borna, B Teimoori, A Esmailzadeh, M Shariat, E Lesha (2019). *Association of cervical length and uterine artery Doppler with threatened preterm labor*. **Clinical and Experimental Obstetrics & Gynecology**.
- Lauric A, Silveira L, Esquer P, **Lesha E**, Malek A. (2018), *Aneurysm Presence at the Anterior Communicating Artery Bifurcation is Associated with Tapering of the A1 Segment*. **Congress of Neurological Surgeons**, Annual 2018
- Molaie A, Silveira L, Ibrahim S, **Lesha E**, Malek A. (2018), *Single-Center Experience With Endovascular Treatment Of 110 Intracranial Aneurysms Using the LVIS Braided Microstent Device*. **Congress of Neurological Surgeons**, Annual 2018
- Khoshakhalgh P, Ng A.... **Lesha E**, Church G. (2018) *Transcription Factor-Mediated Cell Engineering for Rapid Generation of Functional Oligodendrocytes*. **Centers of Excellence in Genomic Science**, 16th Annual Meeting, Chicago 2018
- Nouralizadeh A, Sharifiaghdas F.... **Lesha E**, et al. (2018), *Fluoroscopy-Free Ultrasonography-Guided Percutaneous Nephrolithotomy in Pediatric Patients: Report of a Single-Center Experience*. **World Journal of Urology**
- Niu D\*, Wei H\*, Lin L\*, George H\*.... **Lesha E**, et al. (2017), *Inactivation of porcine endogenous retrovirus in pigs using CRISPR-Cas9*. **Science** (Cover of September 22<sup>nd</sup> 2017 issue)
- Yang L, Briggs AW\*, Chew WL\*... **Lesha E**, et al. (2016), *Genome Editing with Targeted Deaminases*. **Nature Communications**
- Tamayol A\*, Akbari M\*, Zilberman Y\*, Comotto M, **Lesha E**, et al. (2016), *Flexible pH-Sensing Hydrogel Fibers for Epidermal Applications*. **Advanced Healthcare Materials**
- Yang L\*, Güell M\*, Niu D\*, George H\*, **Lesha E**, et al. (2015), *Genome-wide inactivation of porcine endogenous retroviruses (PERVs)*. **Science** (Top 10 Immunology Articles of the Year)
- Ghasemi-Rad M, **Lesha E**, et al. (2015), *Primary Hyperparathyroidism: comparing between Solid and Cystic adenoma and the efficacy of US and SPECT in their diagnosis*. **Endocrine Practice**
- Guell M, Yang L, Shrock E, **Lesha E**, et al. (2015), *Discovery and implementation of novel pig genotypes using advanced genome technologies with increased survival in primates*. **Xenotransplantation**
- Ghasemi-rad M, Attaya H, **Lesha E**, et al., *Ankylosing spondylitis: A state of the art factual backbone*. **World Journal of Radiology**
- Mohammadi A, Shateri K, Behzadi F, Maleki-Miandoab T, **Lesha E**, et al. (2014), *Evaluation of the relationship between intima-media thickness and bone mineral density in postmenopausal women: a cross-sectional study*. **International Journal of Clinical and Experimental Medicine**
- Ghasemi-rad M, Nosair E, Vegh A, Mohammadi A, Akkad A, **Lesha E**, et al. (2014) *A handy review of carpal tunnel syndrome: From anatomy to diagnosis and treatment*. **World Journal of Radiology**
- Akbari M, Serex L, **Lesha E**, et al. (2014), *A Robust Microfluidic Platform for Fabrication of Meter-long Hydrogel Microfibers*. **MicroTAS International Conference**

## Medical Educational Activities

- **American Association of Neurological Surgeons**
  - The AANS/CNS Joint Section on Tumors – Social Media Team (2020)
- **Congress of Neurological Surgeons**
  - CNS Resident Committee (2020 – Present)
    - CNS Resident Research Forum – Founding Member

- Conflict Of Interest Committee (2019 – Present)
  - Conflict of Interest Compliance Review for CME Courses, Scientific Abstracts and Presentations for the CNS Conference
- **Admissions Committee**, Tufts University School of Medicine (2019-2020)
  - Tour interviewing applicants around the TUSM campus
  - Interview applicants and complete their interview evaluation
  - Discuss and vote for interview applicants in committee meetings
- **Neuroscience Curriculum Committee**, Tufts University School of Medicine (2019)
  - Development of the new curriculum at Tufts University School of Medicine
  - Responsible for the Neurology, Neuroanatomy, Psychiatry, Addiction Medicine Courses
- **House of Delegates, Massachusetts Medical Society**
  - HOD Delegate (2017 – 2020)
  - Norfolk South Executive Committee Member (2018 – Present)
  - Committee on Publications (2018 – 2020)
    - Directs the New England Journal of Medicine
  - Accreditation Review Committee (2017 – 2018)
    - Oversees and serves as a statewide resource for hospitals, specialty societies, and health care organizations offering Continuing Medical Education (CME)
- **American Medical Association, Medical Student Section**
  - Committee of Scientific Issues – **Advisor** (2019), **Chair** (2018), **Vice-Chair** (2017)
    - CSI member selection from applying candidates
    - Abstract review and selection for the AMA Research Symposium
    - Establishment of a scientific policy guide for the AMA-Medical Student Section
    - Establishment of interview series with scientists and physicians

## Other Experiences

- International Donor Engagement Manager – **Mother and Child Hospital Foundation** (2018 – 2020)
  - Explore funding opportunities in US and Europe to support the organization's goals and projects
  - Explore collaborations with health professionals, organizations, global health outreach programs, and pharmaceutical companies
- Advisory Board Member – Massachusetts Albanian American Association Besa (2019 – Present)
- Treasurer and Board Member – Albanians Fighting Cancer USA (2019 – Present)
- Team Member – Albanian Scholarship Effort (2019 – Present)
- Medical Student Liaison – **New England Journal of Medicine Resident 360** (2018 – 2020)
  - Recommending, writing and monitoring topics for discussions related to medical student and resident education and enrichment
  - Identifying appropriate experts and moderators to serve as panelists in discussions
- Speaker Coach – **TEDx Tirana** (2018 - 2020)
- Research Scholar – **TEDMED** (2018)
  - Evaluate the scientific impact and potential of Speaker nominations for the TEDMED 2018 "Chaos + Clarity" Conference.
  - Evaluate the scientific impact and potential of Biotech companies for TEDMED Hive