Jack F. Murphy

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Education

Trinity College Dublin, The University of Dublin — *Dublin, Ireland*

Baccalaureus in Arte Ingeniaria (B.A.I) + Magister in Arte Ingeniaria (M.A.I) in Biomedical Engineering — *Expected Graduation: 2023*

Publications

2019

Murphy, Jack F et al. "Adult human cardiac stem cell supplementation effectively increases contractile function and maturation in human engineered cardiac tissues." Stem cell research & therapy vol. 10,1 373. 4 Dec. 2019, doi:10.1186/s13287-019-1486-4

For full list of publications visit https://jack.engineering/#publications

Research Experience

Costa Lab, Icahn School of Medicine at Mount Sinai — *New York City, USA*

Research Assistant — *March 2017 – Present*

- Maintained human induced-Pluripotent stem cells, mesenchymal stem cells, and cardiac stem cells in culture.
- Differentiated induced-Pluripotent stem cells into cardiomyocytes and fabricated 3-D human engineered cardiac tissues.
- Used LabView and MatLab to collect and analyze data on cardiac function.
- Designed and printed 3-D accessories using Autodesk Fusion 360 to help with the data collection process.

Monaghan Lab, Trinity Centre for Bioengineering — *Dublin, Ireland*

Research Assistant — *September 2018 – Present*

- Stain and analyze tissues using polarized light microscopy to understand the effects of a silicone implant.
- Helped to develop a testing apparatus to determine if a scaffold propagates an electric pulse between tissue samples.

Center for Excellence in Youth Education at Mount Sinai — *New York City, USA*

Research Scholar — *September 2016 – June 2018*

- Helped guide middle school students through dissections of the heart, eye, and kidney.
- Participated in the New York City Science and Engineering Fair with research carried out in the Costa Lab.

Dean Lab, Columbia University — *New York City, USA*

Lab Assistant — *June 2017 – December 2017*

- Exfoliated graphite to get a monolayer of graphene.
- Created a device with graphene insulted by boron nitride and used atomic force microscopy (AFM) to identify imperfections.

Volunteer Experience

Voluntary Tuition Program — *Dublin, Ireland*

Maths Tutor — *September 2018 - May 2018*

- Met with a primary school student each week to aid them in their understanding of maths.

Key Club — *New York City, USA*

Volunteer — *September 2015 - June 2018*

- Volunteered for over 200 hours at community events such as soup kitchens, restoration efforts, fundraisers, and marathons.

Skills

Programming: C++, Python
Cell Culture: human induced-Pluripotent stem cells, mesenchymal stem cells, cardiac stem cells
Data Analysis: ImageJ/FIGI, MatLab, LabView, Excel, Graphpad Prism 8
CAD: Autodesk Inventor, Revit, Fusion 360
Microscopy: Cell and Tissue Staining, Polarized Light, Confocal