

GEORGIOS TSEROPOULOS

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EDUCATION

- PhD** SUNY at Buffalo, Chemical and Biological Engineering August 2021
Dissertation: *“From Skin to Nervous System: Epidermal Neural Crest Stem Cells and their Schwann cell Derivatives”*
Advisor: Dr. Stylianos T. Andreadis
- MS** University of Houston, Chemical and Biomolecular Engineering January 2014
Advisor: Dr. Patrick Cirino
- BS** University of Patras, Chemical Engineering February 2012
Diploma Thesis: *“Viscoelastic polymer film flow over 2D topography”*
Advisor: Dr. John Tsamopoulos

RESEARCH EXPERIENCE

University of Colorado Boulder, Boulder, CO October 2021 - present
Postdoctoral Research Associate, Dept. Chemical and Biological Engineering
Advisor: Dr. Kristi S. Anseth

- Engineered granular hydrogels for the controlled delivery of extracellular vesicle aiming towards bone regeneration in critical calvarial bone defects
- Developed functional biomaterial platforms for drug testing on the myofibroblast differentiation and calcium deposition of valvular interstitial cells for heart disease
- Implemented ML models for image analysis and shape classification of valvular interstitial cells towards a diagnostic platform for aortic heart valve stenosis

SUNY at Buffalo, Buffalo, NY January 2015 - August 2021
Research Assistant, Dept. Chemical and Biological Engineering
Advisor: Dr. Stylianos T. Andreadis

- *In vitro*: Transdifferentiated human Skin Cells to Nervous System Cells suited for Neurobiological Disorders, Signaling Pathway Analysis
- *In vivo*: Worked with mouse neurological disorder models (demyelinated brain) for stem cell transplantation
- *Materials – Cellular platform*: 3D microfibers for Stem cell differentiation and drug testing / 3D HA based hydrogels for in vivo stem cell transplantation delivery
- *Computational*: Bulk and Single Cell RNA seq analysis of human primary stem cells

University of Houston, Houston, TX 2012 to 2014
Research Assistant, Dept. Chemical and Biomolecular Engineering
Advisor: Dr. Patrick Cirino

- Bacterial Metabolic Engineering
- Bacterial Ligand Specificity for Biosensor Applications

General Chemistry of Greece, Athens, Greece May - August 2005
Analytical Chemistry Intern, Dept. of Food and Heavy Metals

- HPLC, Infrared Spectroscopy, UV-VIS Spectroscopy, Gas Chromatography

TEACHING EXPERIENCE

University of Colorado Boulder, Boulder, CO Spring 2025
Co-Instructor, Dept. of Chemical and Biological Engineering

- System Analysis of Cells and Tissues
 - Biological Transport Phenomena across Cells and Tissues
 - Developed lectures, homeworks, exams and supervised student groups' final projects

University of Colorado Boulder, Boulder, CO Spring 2022
Laboratory Teaching Assistant, Dept. of Chemical and Biological Engineering

- Tissue Engineering Methods Laboratory
 - Histology, Cell-Matrix interactions, Cell migration

Auburn University, Auburn, AL Spring 2022
Guest Lecturer, Dept. of Chemical Engineering

- Cell and Tissue Engineering CHEN 5970
 - Lecture on "Neuroengineering"

SUNY at Buffalo, Buffalo, NY

Teaching Assistant, Dept. of Chemical and Biological Engineering

- CE Thermodynamics CE 304 Spring 2015
- Fundamental Principles of Chemical Engineering CE 212 Fall 2015
- CE Thermodynamics CE 304 Spring 2016

University of Houston, Houston, TX Spring 2013
Teaching Assistant, Dept. of Chemical and Biomolecular Engineering

- Laboratory of Unit Operations CHEE 3462
 - Designed Experiments, Designed and graded quizzes, Taught the lab for ca. 40 undergraduate students

PUBLICATIONS

Journal Publications

(*denotes equal contribution)

1. Batan D.*, **Tseropoulos G***, Kirkpatrick B.E., Bishop C., Bera K., Khang A. Weiser-Evans M.E., Anseth K. S., “*PTEN regulates Myofibroblast Activation in Valvular Interstitial Cells based on Subnuclear Localization*”, Advanced Biology: 2400540
2. Khang A., Barmore A. **Tseropoulos G.**, Bera K. Batan, D., Anseth S. K., “*Automated Prediction of Fibroblast Phenotypes Using Mathematical Descriptors of Cellular Features*”, . Nature Communications 16.1 (2025): 1-17
3. **Tseropoulos G.**, Mehrotra P., Podder K. A., Willson E., Koontz A., Feltri L., Bronner M. E., Andreadis S. T., “*Immobilized NRG1 accelerates differentiation towards functional Schwann cells, mediated through YAP/TAZ nuclear translocation*”, (2024) Advanced Science: 2402607.
4. Podder A., Mohamed A. M., Seidman R., **Tseropoulos G.**, Polanco J. J., Lei P., Sim F., Andreadis S. T., “*Supramolecular Shear-Thinning Hydrogels Promote Oligodendrocyte Progenitor Cell Survival and Remyelination in the Central Nervous System*”, (2024) Science Advances, 10(28), eadk9918.
5. Mehrotra P., Ikhapoh I., Lei P., **Tseropoulos G.**, Zhang Y., Wang J., Liu S., Andreadis S. T., “*Wnt/BMP mediated metabolic and epigenetic reprogramming preserves multipotency of skin derived neural crest like stem cells*”, (2023) Stem Cells, 41 (3), 287-305
6. Choudhury D., Rong N., Ikhapoh I., Rajabian N., **Tseropoulos G.**, Wu Y., Mehrotra P., Thiyagarajan R., Shahini A., Seldeen K., Troen R. B., Lei P., Andreadis S. T., “*Inhibition of glutaminogenesis restores mitochondrial function in senescent stem cells*”, (2022), Cell reports, 41 (9)
7. Podder A. K.*, Mohamed A. M.*, **Tseropoulos G.***, Nasiri B., Andreadis S. T. “*Engineering nanofiber scaffolds with biomimetic cues for differentiation of skin derived neural crest-like stem cells to Schwann cells*”, (2022), International Journal of Molecular Sciences 23 (18), 10834
8. Mehrotra P., Koontz A., **Tseropoulos G.**, Kerosuo L., Mehrotra P., Bronner M. E., Andreadis S.T. “*Adult tissue-derived neural crest-like stem cells: Sources, regulatory networks, and translational potential*”, (2020), Stem cells translational medicine 9 (3), 328-341.

9. Rong N., Mistriotis P., Wang X., **Tseropoulos G.**, Zhang Y., Wang J., Liu S., Andreadis S. T., “*Restoring extracellular matrix synthesis in senescent stem cells*”, (2019), The FASEB Journal 33 (10), 10954-10965.
10. Moghadasi Boroujeni S., **Tseropoulos G.**, Bronner M. E., Andreadis S. T., “*Neural crest stem cells from human epidermis of aged donors maintain their multipotency in vitro and in vivo*”, (2019), Scientific reports 9 (1), 1-12
11. **Tseropoulos G.**, Moghadasi Boroujeni S., Bajpai V. K., Lei P., Andreadis S. T., “*Derivation of neural crest stem cells from human epidermal keratinocytes requires FGF-2, IGF-1, and inhibition of TGF- β 1*”, (2018), Bioengineering & translational medicine 3 (3), 256-264
12. Bajpai V. K., Kerosuo L., **Tseropoulos G.**, Cummings K. A., Wang X., Lei P., Liu B., Liu S., Popescu G. K., Bronner M. E., Andreadis S. T., “*Reprogramming postnatal human epidermal keratinocytes toward functional neural crest fates*”, (2017), Stem Cells 35 (5), 1402-1415
13. **Tseropoulos G.**, Dimakopoulos Y., Tsamopoulos J., Lymperatos G., “*On the flow characteristics of the conical Minoan pipes used in water supply systems, via computational fluid dynamics simulations*”, (2013), Journal of archaeological science 40 (4), 2057-2068

Journal Paper Pre-prints / under review / in preparation

1. **Tseropoulos G.**, Bera K., Kirkpatrick B. E., Jaschke W. M., Burdick J. Anseth K. S., “*Substrate Mechanical Properties regulate Mesenchymal Stromal Cell derived Extracellular Vesicles uptake*”, in preparation for imminent submission to Biomaterials
2. **Tseropoulos G.***, Jaschke W. M.*, Friend N. E., Khang A., Anseth K. S., “*Engineering Mesenchymal Stromal Cell derived Extracellular Vesicles to regulate Calvarial Defect Bone Regeneration in Osteoporotic rats*”, in preparation
3. Jaschke W. M., O’donnell, D., Holdren A., **Tseropoulos G.**, Anseth K.S. “*Chemical and physical properties of hydrozone crosslinked PEG hydrogels on the diffusion of Extracellular Vesicles*”, in preparation
4. **Tseropoulos G.**, Bera K., Petrich N., Anseth K. S. “*Close encounters: the signaling interactions between Yap/Taz and biomaterial scaffolds*”, review, in preparation

CONFERENCE PROCEEDINGS

Oral Presentations

1. Tseropoulos G., Rao V., Balouch A., Donahue S., Anseth K. S., “*Granular hydrogel scaffolds modulate MSC microenvironment and extracellular vesicle secretion to influence bone regeneration in vivo.*”, 2024, 12th World Biomaterials Congress, Daegu, S. Korea
2. Tseropoulos G., Rao V., Balouch A., Donahue S., Anseth K. S., “*Granular Hydrogel Scaffolds Modulate MSC Microenvironment and Extracellular Vesicle Secretion for Calvarial Defect Bone Regeneration*”, 2023, American institute of Chemical Engineers (AIChE), Orlando, FL
3. Tseropoulos G., Andreadis S.T., “*From Skin to Nervous System: Epidermal Neural Crest Stem Cells, an Autologous, Multipotent Cell Source for Neurodegenerative Disorders*” 2020, American institute of Chemical Engineers (AIChE), Virtual
4. Tseropoulos G., Wilson E., Feltri L. M., Andreadis S. T., “*Immobilized NRG1-Fc Enhances Differentiation of Human Epidermal Neural Crest to Schwann Cells and Promotes Radial Sorting*”, 2020, American institute of Chemical Engineers (AIChE), Virtual
5. Tseropoulos G., Boroujeni S. M., Bajpai V., Andreadis S. T., “*From Skin to Nervous System: Experimental and Bioinformatics Approaches Investigating Signaling in Neural Crest Stem Cells from Interfollicular Human Epidermis*”, 2018 American institute of Chemical Engineers (AIChE), Pittsburgh, PA
6. Tseropoulos G., Boroujeni S. M., Bajpai V., Andreadis S. T., “*Derivation of neural crest stem cells from human epidermal keratinocytes requires FGF-2, IGF-1, and inhibition of TGF- β 1*”, 2016 American institute of Chemical Engineers (AIChE), San Francisco, CA

Select Poster Presentations

1. Tseropoulos G., Polanco J., Boroujeni S. M., Gao N., Gunawan R., Sim F., Andreadis S.T., “*Glabrous Keratinocyte Derived Neural Crest Stem Cells as a Cell Source for Neurodegenerative Disease Therapeutics*”, 2019, Biomedical Engineering Society (BMES), Philadelphia, PA
2. Tseropoulos G., Boroujeni S. M., Polanco J., Bajpai V., Gao N., Gunawan R., Sim F., Andreadis S.T., “*From Skin to Nervous System: Epidermal Neural Crest Stem Cells, an Autologous, Multipotent Cell Source for Demyelinating Disorders*”, 2019, New York Science Technology and Mathematics (NYSTEM), Stem Cells in Regenerative Medicine (SCiRM) Symposium, **Best Poster Award**

3. Tseropoulos G., Boroujeni S. M., Bajpai V., Andreadis S. T., “*From Skin to Nervous System: Epidermal Neural Crest Stem Cells and Their Schwann Cell Derivatives*”, 2017, International Society for Stem Cell Research (ISSCR), Boston, MA

HONORS AND AWARDS

Gerontelis Graduate Student Award	2019
Stem Cells in Regenerative Medicine (SCiRM-NYSTEM) poster award	2019
TA award (Thermodynamics CE203)	2016

MENTORING EXPERIENCE

Graduate Students

Morgan Klaus Scheuerman, currently *Postdoc at CU Boulder*
 Edgart Flores, currently *Postdoc at CU Boulder*
 Ekaterina Landgren, currently *Postdoc at CU Boulder*
 Matthew Jaschke, currently *Ph.D. student at CU Boulder*
 Ali Borelli, currently *Postdoc at CU Anschutz*
 Dilara Batan, currently *Scientist II at Genentech*
 Pihu Mehrotra, currently *Postdoc at Princeton*
 Ashis Kumar Podder, *PhD Graduate student SUNY UB*
 Samaneh Moghadasi Boroujeni, *M.S. Graduate student SUNY UB (2019)*
 Anna Bystran, *M.S. Graduate student SUNY UB (2018)*
 Surya Selvam, *M.Eng. Graduate student SUNY UB (2017)*

Undergraduate Students

Deven Lemercier, currently *Undergraduate Student at CU Boulder*
 Carrie Bishop, currently *Graduate Student at UCSD*
 Jack Grossman, currently *Graduate Student University of Tokyo, Japan*
 Aydia Gatto, currently *Highschool student at Boulder High*

COMMUNITY SERVICE, LEADERSHIP POSITIONS AND SELECT OUTREACH

University of Colorado Boulder

Postdoctoral Association of Colorado (PAC)
President (2022-23, 2025-2026)
Secretary (2023-24)

American Institute of Chemical Engineering

AICHE 2024

Session Chair “Engineered Biomimetic Tissue Models I: Engineering Vascularization and Cardiovascular Models”

Nature reviews Molecular Cell Biology

Reviewer

SUNY at Buffalo

Mark Diamond Research Foundation Committee member (2017-2019)

Hellenic Graduate Student Association

President (2017-2020)

Vice President (2015-2016)

University of Patras

Chemical Engineering Department Curriculum Committee

Member (2010-2012)

Outreach

- University of Boulder Colorado
 - Science Community Outreach Program and Education (2022)
- SUNY at Buffalo
 - Science is Elementary (2015-2020)

LANGUAGES

Greek: Native Language

English: Full Professional Proficiency

German: Professional Working Proficiency

French: Limited Working Proficiency

REFERENCES

Dr. Kristi S. Anseth, Distinguished Professor, Tisone Professor
Chemical and Biological Engineering, BioFrontiers Institute
University of Colorado Boulder
Email: kristi.anseth@colorado.edu
Phone: (303) 492-3147

Dr. Stelios T. Andreadis, Distinguished Professor
Chemical and Biological Engineering
SUNY at Buffalo
Email: sandread@buffalo.edu
Phone: (716) 645-1202

Dr. Jason A. Burdick, Bowman Endowed Professor
Chemical and Biological Engineering
University of Colorado, Boulder
Email: jason.burdick@colorado.edu