

GEORGIOS TSEROPOULOS

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4998 Moorhead Avenue
Boulder, CO, 80305

EDUCATION

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

HONORS AND AWARDS

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

RESEARCH EXPERIENCE

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

- Engineering SPAAC hydrogels to study transcellular communication via extracellular vesicles for calvarial defect bone regeneration
- Developing platforms for drug testing on the myofibroblast differentiation and calcium deposition of Valvular Interstitial Cells for 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 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. **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.
2. Podder A., **Tseropoulos G.**, Mohamed A. M., Seidman R., 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.
3. 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
4. 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)
5. 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
6. 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.
7. 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.
8. 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
9. **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
10. 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
 11. **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. Khang A., Barmore A. **Tseropoulos G.**, Bera K. Bata, D., Anseth S. K., "*Automated Prediction of Fibroblast Phenotypes Using Mathematical Descriptors of Cellular Features*", under review Nature Communications (July 2024), *BioRxiv*
<https://www.biorxiv.org/content/10.1101/2024.05.15.594418v1>
2. 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*" submitted, the EMBO journal (July 2024), *BioRxiv*
<https://www.biorxiv.org/content/10.1101/2024.06.30.601424v1.article-info>
3. **Tseropoulos G.**, Rao V., Borelli A, Bera K., Khang A., Anseth K. S., "*Engineering Mesenchymal Stromal Cell derived Extracellular Vesicles to regulate Calvarial Defect Bone Regeneration in Osteoporotic rats*", in preparation
4. **Tseropoulos G.**, Khang A., Bera K. Jaschke M., Anseth K. S., "*Substrate Mechanical Properties regulate Mesenchymal Stromal Cell derived Extracellular Vesicles uptake* ", 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

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*

COMMUNITY SERVICE, RESPONSIBLE POSITIONS AND SELECT OUTREACH

University of Colorado Boulder

Postdoctoral Association of Colorado (PAC)
President (2022-23), 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, Tissone Professor, Associate Professor of Surgery
Chemical and Biological Engineering
Biofrontiers Institute
University of Colorado Boulder
Email: Kristi.anseth@colorado.edu
Phone: (303) 492-3147

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

Dr. Sriram Neelamegham, Professor
Chemical and Biological Engineering
SUNY at Buffalo
Email: neel@buffalo.edu
Phone: (716) 645-1200

Dr. Fraser Sim, Professor
Immunology and Toxicology
SUNY at Buffalo
Email: fjsim@buffalo.edu
Phone: (716) 829-2151