# Daniel Gallego-Perez, Ph.D.

Founder and Principal Scientific Advisor, DGP Nanomed LLC

## Education and appointments

Ph.D., Biomedical Engineering, The Ohio State University (2006–2011). B.S., Biomedical Engineering, Antioquia School of Engineering (1999–2003).

Professor, Biomedical Engineering and Surgery (2024–present). Edgar C. Hendrickson Designated Chair in Biomedical Engineering (2023–present). Director, Center for Advanced Nanotherapeutics, Gene Therapy Institute (2023–present).

Ohio State appointments include Associate Professor (2021–2024), Assistant Professor (2015–2021), postdoctoral researcher and Ohio Nanotech West associate staff (2011–2015). Previously a research associate at Antioquia School of Engineering (2004–2005).

## Inventions, patents & licensing

Co-inventor on six technology families exclusively licensed for commercial development.

Dr. Gallego-Perez is the lead inventor of Tissue Nano-Transfection (TNT). His issued U.S. patents span nanochannel delivery devices, fluid handling, cell reprogramming, engineered therapeutic cells, and nanocarriers.

The six licensed families cover tissue-tropic extracellular vesicles, delivery to muscle cells and Schwann cells, brain-homing vesicles, and targeting of tumor-associated macrophages and myeloid-derived suppressor cells.

As of July 22, 2026, his academic portfolio comprised 120 jurisdictional patent assets: 7 issued and 1 allowed U.S. patent, 24 issued and 3 allowed foreign patents, 16 pending U.S. applications, and 69 pending foreign or international applications. Approximately 20 assets across the six families were exclusively licensed.

## Research publications

75+ journal publications and eight book chapters. Research spans nonviral gene delivery, cellular reprogramming, extracellular vesicles, single-cell measurement, and biomedical micro/nanotechnology. View publications on Google Scholar.

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Research programs and publications

## Research programs & funding

Led or co-led preclinical research in nerve repair, nonviral delivery, and cardiometabolic disease.

Peripheral nerve repair · PI with Amy Moore as MPI on a $3.12 million Department of Defense project (2022–2027). The team's 2026 Science Advances study examined functional recovery after peripheral nerve injury.

Tissue reprogramming · PI on the $2.3 million NIH Director's New Innovator Award (2018–2023). Cardiometabolic signaling · MPI with Kristin Stanford as PI on a $1.9 million NIH R01 studying skin-mediated oxylipin release (2023–2027).

His research also spans microfabricated assays for studying migration and treatment resistance in individual glioma cell clones, experimental cell and vesicle therapies for cancer, stroke and limb ischemia, and preclinical research in diabetes and Alzheimer's disease.

## Additional selected research support

Gilbert Family Foundation project on extracellular-vesicle nanocarriers for NF1 (MPI, $2 million, 2022–2026). NIH/NINDS project on induced endothelium for ischemic disorders (PI, $425,000, 2016–2019).

NIH/NIDDK project on cutaneous tissue plasticity and diabetes (PI, $736,639, 2020–2022). NIH/NIA supplement on vasculogenic cell therapies for Alzheimer's disease (PI, $390,000, 2022–2023).

## Selected journal articles

Gallego-Perez et al. On-chip clonal analysis of glioma stem cell motility and therapy resistance. *Nano Letters*, 2016.

Gallego-Perez et al. Topical tissue nano-transfection mediates non-viral stroma reprogramming and rescue. *Nature Nanotechnology*, 2017.

Lemmerman et al. Nanotransfection-based vasculogenic cell reprogramming drives functional recovery in a mouse model of ischemic stroke. *Science Advances*, 2021.

Nirengi et al. 12,13-diHOME protects against the age-related decline in cardiovascular function via attenuation of CaMKII. *Nature Communications*, 2025.

Salazar-Puerta et al. Vasculogenic tissue nanotransfection accelerates functional recovery after peripheral nerve injury. *Science Advances*, 2026.

# Daniel Gallego-Perez, Ph.D.

Service, education and recognition

## Scientific review & professional service

Standing NIH Biomaterials and Biointerfaces Study Section member, 2022–2026.

Reviewed for NIH panels in gene and drug delivery, nanotechnology, and bioengineering. Reviewed multiple American Heart Association competitions, including Collaborative Sciences, Bridge Collaborative Sciences, and Transformational Project awards.

Other assignments include KidneyX, the Maryland Industrial Partnerships Program, NSF Graduate Research Fellowships, Cancer Research Wales, New Zealand's Maurice and Phyllis Paykel Trust, and research funding review in Colombia.

Editorial boards include Cellular and Molecular Bioengineering, Micromachines, and Coatings. He co-chaired AIMBE's Committee for the Underrepresented and Marginalized and served as an ad hoc member of its Board of Directors (2024–2026).

## Teaching, mentoring & academic leadership

Recipient of the Harrison Faculty Award for Excellence in Engineering Education and CAMELOT Mentor of the Year Award.

His teaching spans graduate cellular plasticity, biomedical micro/nanotechnology, and laboratory instruction. His mentoring record includes 14 Ph.D. students, five postdoctoral researchers or research scientists, three master's students, five visiting scholars or faculty, and more than 70 undergraduate researchers.

He directs the Center for Advanced Nanotherapeutics at Ohio State's Gene Therapy Institute. His governance experience includes chairing the University Senate Intellectual Property, Patents and Copyright Committee (2020–2022), and service on graduate studies, research, and appointments, promotion and tenure committees.

## Selected honors & invited talks

Elected Fellow of AIMBE, the Biomedical Engineering Society, and the American Heart Association.

Selected honors include the NIH Director's New Innovator Award (2018), Charles Webb Innovator of the Year (2025), and Ohio State's Lumley Interdisciplinary Research Award (2017 and 2026).

Invited presentations include the NIH High-Risk, High-Reward Research Symposium and a BMES Biomaterials Track keynote (2023), the International Conference on Biomedical Engineering in Singapore (2024), and the Controlled Release Society and American Association for Extracellular Vesicles annual meetings (2025).