UT Southwestern Medical Center

Postdoctoral Scholar Openings in the Program in Genetic Drug Engineering

Multiple postdoctoral training positions are available in the laboratory of Professor Daniel J. Siegwart, Ph.D. in the Department of Biomedical Engineering at the University of Texas Southwestern Medical Center. Dr. Siegwart's laboratory focuses on targeted nanoparticle delivery of genomic medicines. Their efforts led to an understanding of the essential physical and chemical properties of synthetic carriers required for therapeutic delivery of siRNA, miRNA, tRNA, pDNA, mRNA, and gene editors. His lab has been at the forefront in the design of synthetic carriers for gene editing and has applied these technologies for correction of genetic diseases and treatment of cancer. They reported the first non-viral system for *in vivo* CRISPR/Cas gene editing. Recently, they developed Selective ORgan Targeting (SORT) lipid nanoparticles (LNPs), which was the first strategy for predictable tissue specific delivery. Their team aspires to solve key challenges in nanomedicine, gene delivery, cancer, immunology, and genetic disease with the goal of implementing discoveries and solutions into translatable technologies and therapeutics.

Recent publications highlighting these topics include:

- Selective organ targeting (SORT) nanoparticles for tissue-specific mRNA delivery and CRISPR–Cas gene editing. **Nature Nanotechnology**, *15*, 313–320 (2020).
- Membrane-destabilizing ionizable phospholipids for organ-selective mRNA delivery and CRISPR–Cas gene editing. **Nature Materials**, *20*, 701-710 (2021).
- Enhancing CRISPR/Cas gene editing through modulating cellular mechanical properties for cancer therapy. **Nature Nanotechnology**, *17*, 777–787 (2022).
- In situ production and secretion of proteins endow therapeutic benefit against psoriasiform dermatitis and melanoma. **Proceedings of the National Academy of Sciences, U.S.A.**, 120, e2313009120 (2023).

UT Southwestern, one of the nation's premier academic medical centers, integrates pioneering biomedical research with exceptional clinical care and education. The institution's faculty members have received six Nobel Prizes and numerous elections to the National Academies. The faculty of more than 3,100 is responsible for groundbreaking medical advances and committed to translating science-driven research quickly to new clinical treatments. UT Southwestern physicians provide care to more than 120,000 hospitalized patients, more than 360,000 emergency room cases, and oversee nearly 5 million outpatient visits a year. Backed by substantial funding and an operating budget of $3.2 billion, UT Southwestern remains a leader in medical education, research, and patient care.

The Department of Biomedical Engineering combines exceptional faculty, motivated trainees, and robust clinical and engineering infrastructure to drive integration in biomedical engineering and address emerging medical and scientific challenges. The department is housed in the brand new, 150,000 square-foot Texas Instruments Biomedical Engineering and Sciences Building, fostering collaboration and expertise to advance human health and biological understanding. The Program in Genetic Drug Engineering, led by Dr. Siegwart, constitutes a large and diverse team of scientists who work together across disciplines to develop the next generation of genetic medicines.

Applicants with a Ph.D. or M.D./Ph.D. and a strong background in synthetic organic chemistry, materials chemistry, biomedical engineering, and/or non-viral gene delivery with a strong interest in translational research are encouraged to apply. A track record of productivity with publications in well-established journals will be valued. One area of focus will be chemical synthesis of new materials for nucleic acid delivery.

Information on our postdoctoral training program, benefits, and a virtual tour can be found at http://www.utsouthwestern.edu/postdocs

Interested individuals should send a CV, statement of interests, and a list of at least two references (email preferred) to:

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