jobvector

Jobs for Scientists,
Physicians, IT & Engineers

Postdoc Biology, Biotechnology, Biochemistry - Biological Engineering of Gene
Reporters, Electron Microscopy (m/f/d)

More on www.jobvector.eu. Search for jobvector ID 134643

TUT

Postdoc Biology, Biotechnology, Biochemistry - Biological Engineering of Gene Reporters, Electron Microscopy (m/f/d)

Technische Universität München   München

TUM

ERC-funded Postdoc and PhD position on: Biological engineering of gene reporters for Electron Microscopy of brain circuits

Is your mind focused on synthetic biology, and do you want to contribute to unraveling how memories are encoded in brain circuits using molecular imaging at the best imaging resolution?
Then you are likely interested in a recently ERC-funded project of our laboratory (westmeyerlab.org) at the Munich School of Bioengineering (https://www.bioengineering.tum.de/) of TUM, one of the leading technical universities (https://www.tum.de/en/about-tum/).

Project outline

Our team focuses on generating "GFP for Electron Microscopy," i.e., gene reporters for Electron Microscopy (EM) to help unravel how brain activity and neuronal connections are interlocked.
Specifically, we will use encapsulins [references 1,2] as the 'lead structures' for genetically encoded self-assembling nanostructures that can be visualized by high-throughput EM of serial brain sections.
In this way, we can directly overlay molecular information about, e.g., synaptic plasticity onto the brain wiring diagram at EM resolution ("connectome") in loose analogy to how google maps displays traffic information on top of the road map.

This novel reporter technology will accelerate the systematic analysis of function-structure relationships in vertebrate brains with implications for our understanding of neuropsychiatric diseases and inspiration for neuromorphic computing.

Your Profile

- an excellent and recent Master's degree or Ph.D. in synthetic biology, biological engineering, biochemistry, biophysics, neurobiology, biomedical engineering or related academic programs,
- excellent knowledge in molecular biology, advanced cloning, and mammalian cell culture,
- a keen interest in molecular imaging including Electron Microscopy, as well as neurobiology,
- a strong interest in *de novo* protein design,
- the ability to be self-motivated and work with an interdisciplinary team of bioengineers, biochemists, neuroscientists, and data scientists,
- excellent English language and organizational skills.
- an openness and mobility to collaborate with our partners at Max Planck Institutes, MIT, Harvard, Caltech, and University of Washington.

TUM

The Technical University of Munich (TUM) combines top-class facilities for cutting-edge research with unique learning opportunities for students. It is committed to finding solutions to the major challenges facing society as we move forward: Health & Nutrition • Energy & Natural Resources • Environment & Climate • Information & Communications • Mobility & Infrastructure. The university thinks and acts with an entrepreneurial spirit. Its aim: to create lasting value for society. All this combines to make it one of Europe's leading universities.

Applications from disabled persons with essentially the same qualifications will be given preference. TUM strives to raise the proportion of women in its workforce and explicitly encourages applications from qualified women.

Please send your letter of motivation and your complete CV to Prof. Gil Gregor Westmeyer.
gil.westmeyer@tum.de

References:
[1] Sigmund, F., Pettinger, S., Kube, M., Schneider, F., Schifferer, M., Schneider, S., Efremova, M.V., Pujol-Martí, J., Aichler, M., Walch, A., Misgeld, T., Dietz, H., Westmeyer, G.G., 2019. Iron-Sequestering Nanocompartments as Multiplexed Electron Microscopy Gene Reporters. ACS Nano 13, 8114–8123. doi:10.1021/acsnano.9b03140

[2] Sigmund, F., Massner, C., Erdmann, P., Stelzl, A., Rolbieski, H., Desai, M., Bricault, S., Wörner, T.P., Snijder, J., Geerlof, A., Fuchs, H., Hrabe de Angelis, M., Heck, A.J.R., Jasanoff, A., Ntziachristos, V., Plitzko, J., Westmeyer, G.G., 2018. Bacterial encapsulins as orthogonal compartments for mammalian cell engineering. Nat Commun 9, 1990. doi:10.1038/s41467-018-04227-3

As part of your application, you provide personal data to the Technical University of Munich (TUM). Please view our privacy policy on collecting and processing personal data in the course of the application process pursuant to Art. 13 of the General Data Protection Regulation of the European Union (GDPR) at https://portal.mytum.de/kompass/datenschutz/Bewerbung/. By submitting your application you confirm to have read and understood the data protection information provided by TUM.

Find out more about us at www.tum.de.

Vollzeit, Befristete Anstellung   Postdoc   Aktualisiert am 24.06.2020