

## **PhD student (f/m/d) in protein engineering: focus on development of imaging labels and sensors.**

Are you passionate about science, full of ideas and innovative potential that drive change and enjoy working in an international, fast-paced environment? Are you motivated by the societal impact of research and seek an opportunity to play an instrumental part in the development of emerging technologies for biology, healthcare and environmental applications? Then the **Chair of Biological Imaging (CBI)** at the **Technical University of Munich (TUM)**, Germany, is the ideal environment for you!

CBI is the cornerstone of a rapidly expanding bioengineering ecosystem in the Munich science area; including the Research Center TranslaTUM and the Helmholtz Pioneer Campus, which integrate bioengineering with oncology and metabolic disorders, respectively. CBI scientists develop next-generation imaging and sensing methods to measure previously inaccessible properties of living systems, hence, catalyzing breakthroughs in biology, medicine and the environment. Comprising 11 inter-disciplinary laboratories and scientists from more than 25 countries, CBI offers state-of-the-art infrastructure for innovative research and a perfect environment to accelerate your career. Our research **aims to shift the paradigm of biological discovery and translation to address** major health challenges of our time and develop the medical solutions of tomorrow.

The **research group for Cell Engineering** is one of CBI's 11 inter-disciplinary laboratory and focuses on developing genetically encodable molecular labels and sensors for innovative imaging schemes primarily fluorescence and optoacoustic imaging. We develop labels based on strategies of protein engineering building on our research in photophysics and structure-function relationships. The developed molecular tools are employed on the level of single mammalian cells as well as whole organisms. CBI offers state-of-the-art infrastructure for innovative research and a perfect environment to accelerate your career. Our research aims to shift the paradigm of biological discovery and translation to address major health challenges of our time and develop the medical solutions of tomorrow.

Join our team and be part of our rich and dynamic research culture of enquiry and innovation. CBI researchers come from the top ranks of physics, engineering, chemistry, biomedicine and computer science and our pipeline frequently yields high-impact papers, successful technology spin-offs and commercialization. Our research is regularly featured in major news channels and has received broad recognition including several prestigious awards and considerable research funding from national and international sources.

**We now seek a highly qualified and motivated PhD student (f/m/d) for protein engineering: focus on development of imaging labels and sensors.**

## The Mission:

Genetically encoded sensors are a major tool to unravel the functioning of life on the cellular level. We seek to expand this by visualizing molecular processes on the tissue level with high resolution. The mission is to develop dedicated genetically encoded sensors for optoacoustics measurements. The candidate will focus on engineering chimeric proteins that show a small-molecule binding dependent change of photophysics. One of our main foci for readout are photo-switching proteins. Here the candidate will further explore and exploit their intricate and exciting mechanisms towards driving such proteins towards a use in applications. The workflow will span from protein-engineering and high-throughput screening over photo-physical and structural characterization to mammalian cell culture and eventual *in vivo* application. The work will be conducted in close collaboration with other laboratories of TUM and HMGU that are leading in the respective research areas, e.g. *in vivo* application or protein structure elucidation. Hence, the position is an exciting interface between protein-engineering, basic photophysical research, development of molecular tools as well as imaging.

## Qualification:

The successful applicant must have the following:

- High motivation, curiosity, and commitment to scientific excellence
- Master Degree in Chemistry, Physics, Biochemistry or similar field
- Background in chromophores, photophysics, photochemistry
- Experience in protein engineering
- Experience in high-throughput screening
- Interest in excited state photophysics, and photoisomerization processes will be appreciated as well as understanding of (protein-) environmental effects on the photophysical properties of chromophores
- Interest in optical spectroscopy techniques
- Interest in imaging
- Team player skills and enthusiasm to work in a multi-disciplinary, collaborative environment
- Excellent command of the English language

## Our offer:

We offer you the unique chance to make a difference in future healthcare. At CBI, we strongly believe in scientific excellence and innovation. This is your opportunity to be part of and to advance your career in a world-leading research institute, where bioengineering principles meet today's challenges in biology, medicine and environmental health to develop the solutions of tomorrow. CBI provides a highly international, multi-disciplinary environment with excellent opportunities for professional growth. You will be part of a dynamic, professional and highly motivated team within a stimulating environment and gain international exposure through our partners and collaborators across Europe and the world. TUM offers a wide variety of inspiring and challenging PhD programs, which will supplement your research training with outstanding opportunities for career development, continued education and life-long learning.

Situated on the foothills of the Alps, Munich is consistently ranked as one of the most vibrant and enjoyable cities in the world, with an exceptionally quality of life. Greater Munich is also home to several world-class universities and research institutes, creating a truly inspiring intellectual atmosphere.

The successful applicant will have a 3-year contract. We offer a competitive salary and benefits depending on work experience and seniority in accordance with the public service wage agreement of the Free State of Bavaria (TV-L E13-65%). As an equal opportunity and affirmative action employer, TUM explicitly encourages applications from women as well as from all others who would bring additional diversity dimensions to the university's research and teaching strategies. Preference will be given to disabled candidates with essentially the same qualifications.

**Your application:**

We are looking forward to receiving your comprehensive application including your letter of motivation, CV and academic transcripts of records preferably in English and in a single PDF file, via email to [cbi.recruitment@tum.de](mailto:cbi.recruitment@tum.de). Please indicate "PhD student in protein engineering" in the subject line.

For any questions please contact:

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**Links:**

<https://web.med.tum.de/cbi/research-labs/cellengineering/>

[www.cbi.ei.tum.de](http://www.cbi.ei.tum.de)

[www.pioneercampus.de](http://www.pioneercampus.de)

[www.translatum.tum.de](http://www.translatum.tum.de)

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