

The research group “Synthetic Biochemistry“ of Dr. Michael Lammers at the *Cologne Cluster of Excellence: Cellular Stress Responses in Aging-Associated Diseases* (CECAD) of Cologne University has the following position available:

PhD Student Position (50% German TV-L E13)

Proteomics:

Lysine acylation in cellular regulation, aging and disease

Institution information: Cologne Cluster of Excellence: Cellular Stress Responses in Aging-Associated Diseases (CECAD), CECAD Research Center, University of Cologne, Joseph- Stelzmann-Str. 26, 50931 Cologne, Germany

Location: CECAD is located in the vibrant city of Cologne and forms a focal point of aging research in Europe bringing together international researchers at the University of Cologne with researchers at the Max Planck Institute for Biology of Aging.

Our Group: Our group applies a combined synthetic biological, biochemical, cell biological and biophysical methodology, including X-ray crystallography to unravel how protein function is regulated by post-translational lysine acylation. Lysine acetylation was discovered in 1964 by Vincent Allfrey to occur on histones. Nearly three decades later it turned out that the yeast enzyme Sir2 has an NAD⁺-dependent deacetylase activity. Sirtuins are implicated in regulation of lifespan and healthy aging and do play protective roles in the development of severe diseases such as metabolic and neurodegenerative disorders and cancer.

Thousands of lysine acylation sites have been found in the proteome of diverse organisms by quantitative mass-spectrometry. Notably, less than 1% of these lysine acylation events were functionally characterised so far. One of the major challenges in the acylation research field is to select the biologically important sites. We want to understand how lysine acylation affects protein function in a systemic approach. We will determine the stoichiometry of lysine acylation by mass spectrometry (in CECAD proteomics facility) comparing the proteomes derived from healthy and disease states. These studies will reveal how lysine acylation patterns are altered under disease conditions and how it contributes to disease development. This will enable the development of novel therapeutic approaches.

Qualifications: Candidates should have a solid background in molecular biology and experience in biochemistry and cell biology. Experience in mass spectrometry is desirable but not essential. Applicants should be enthusiastic for scientific research, they should be motivated and creative. We expect good communication skills, fluent English and the ability for teamwork.

The position: Initially available for two years with the possibility to extend.

For more information: <http://lammers.cecad-labs.uni-koeln.de/Home.449.0.html>

How to Apply: Please send your CV, letter of intent, names and addresses of three references as single PDF to michael.lammers@uni-koeln.de