PhD STUDENT POSITION AVAILABLE

(65% German TV-L E13, m/f)
Hoppe Laboratory
Protein Homeostasis in Aging and Disease
CECAD-Cluster of Excellence in Aging Research, University of Cologne

Institution information: CECAD Cologne Cluster of Excellence: Cellular Stress Responses in Aging-Associated Diseases, CECAD Research Center, University of Cologne, Joseph-Stelzmann-Str. 26, D-50931 Cologne, Germany
Location: Cologne is a vibrant city with a highly international academic research environment. CECAD forms a focal point of ageing research in Europe bringing together researchers and clinicians at the University of Cologne with researchers at the new Max Planck Institute for Biology of Aging in a unique research venture.

Background: Aggregation of damaged proteins is associated with age-related neurodegeneration in Alzheimer's and Parkinson's patients. The stability of the cellular proteome (proteostasis) is typically maintained by a balanced coordination between protein translation, folding, and degradation. Turnover of damaged proteins is mediated by the 26S proteasome or the autophagy-lysosome pathway upon attachment of ubiquitin (Ub) proteins (ubiquitylation). An age-related impairment of either of these proteolytic systems could accumulate protein aggregates in the human brain, causing motor and speech deficits.

Using the nematode *Caenorhabditis elegans* and cell culture models, our research team has identified regulatory mechanisms and physiological aspects that coordinate the aging process. We take advantage of fluorescent reporter proteins that allow us to evaluate the activity of both 26S proteasome and autophagy *in vivo*. Our recent results indicate that the dynamics of different proteolytic pathways are controlled by stress-induced signaling mechanisms including Insulin/IGF1 signaling. By manipulating the cellular degradation machinery, we were able to delay the aging process and extend lifespan in *C. elegans*. Our long-term goal is to investigate non-cell-autonomous regulation strategies that integrate physiological requirements with age-related metabolic changes. These findings may be relevant for future therapeutic interventions against degenerative aging-associated diseases, such as Alzheimer's, Huntington's, and Parkinson's disease.
Qualifications: Candidates should have a solid background in molecular biology and experience in cell biology, genetics, or biochemistry. Applicants should have demonstrated outstanding performance through their undergraduate studies. Besides creativity, a strong ability for problem solving through analytical thinking combined with an enthusiasm for scientific research is highly desirable. Additionally, we expect good communication skills, fluent English and the ability for teamwork. The successful applicant will join an enthusiastic and collaborative group where a multidisciplinary approach is pursued.

For more information: **http://www.hoppelab.uni-koeln.de**

How to Apply: Please send your CV, letter of intent, names and addresses of three references to office-hoppe@uni-koeln.de

Selected Publications:

Tawo R., Pokrzywa W., Kevei E., Akyuz M.E., Balaji V., Arian S., Höhfeld J., Hoppe T (2017). The Ubiquitin Ligase CHIP Integrates Proteostasis and Aging by Regulation of Insulin Receptor Turnover. ***Cell*** 169, 470-82.
Kevei E. and Hoppe T. (2014). Ubiquitin sets the timer: impacts on aging and longevity. ***Nat Struct Mol Biol.*** 21, 290-2.
Kuhlbrodt K., Janiesch P.C., Kevei E., Segref A., Barikbin R., and Hoppe T. (2011). The Machado-Joseph disease deubiquitylase ATX-3 couples longevity and proteostasis. ***Nat. Cell Biol.*** 13, 273-81.