UNIVERSITY OF COPENHAGEN

PhD Fellows in Dynamic Molecular Interactions

A number of 3-year PhD scholarships are available at **Center for Dynamic Molecular Interactions (DynaMo)**, a newly appointed Center of Excellence financed by the Danish National Research Foundation. The Center is located at the Department of Plant Biology and Biotechnology, Faculty of Science, University of Copenhagen. The positions start 15 September 2012 or as soon as possible thereafter.

A key question in modern biology is how the multifaceted/intricate interplay between molecular complexes generates a specific phenotype. The supramolecular machines, consisting of proteins, RNA, DNA and metabolites, facilitate a diversity of biological tasks that contain significant interplay between all molecular levels including metabolite feedback to both metabolic and transcriptional networks. How these complexes are assembled within the crowded cellular milieu and how the cellular components are able to find their way to the final destination are important questions that we address in DynaMo.

Our research focus is to study the interconnectivity in dynamic networks by employing the uniquely positioned system of glucosinolate defense compounds in *Arabidopsis thaliana*. We are using this ideal model system for several reasons. Arabidopsis is already a preeminent systems biology model organism with its extensive "omics data, bioinformatics tools, natural variation and mutant collections. Glucosinolates are ideal model metabolites as all biosynthetic genes are known, key regulators have been identified, RNA-mediated regulation is involved, transporters are known and we know that sensing of glucosinolates controls transcription.
Key research areas within DynaMo are:

- to elucidate the **dynamic molecular interactions** of enzymes, regulatory proteins, RNAs and metabolites
- to decipher the entire **transporter complement** of a given metabolite, i.e. identify and characterize all intra- and intercellular transport processes
- to investigate the **dynamics of glucosinolate biosynthesis**, **transport and storage** using, among other techniques, advanced bioimaging (e.g. FRET-FLIM).

The research programme at DynaMo will lead to significant developments in basic knowledge about mechanisms underlying the dynamics of (dis)assembly of supramolecular complexes and about universal principles in how complex networks function in biology, and ultimately to an understanding of how a multicellular organism functions, senses and responds to the environment.

For information on the vacant PhD Scholarships and the online application form, please see dynamo.ku.dk/vacancies/phd/

Application deadline is 3 August 2012.

For further information, contact Head of Center **Professor Barbara Ann Halkier**, bah@life.ku.dk, direct phone: (+45) 3533 3342.