Postdoc position in Arabidopsis Molecular Genetics and Biochemistry to study chloroplast proteolysis

Lab of Klaas van Wijk, Section of Plant Biology, School of Integrative Plant Sciences (SIPS), Cornell University, Ithaca, NY, USA

Chloroplast protein homeostasis (proteostasis) through coordinated action of proteolytic systems in chloroplasts. Chloroplasts contain several thousand different proteins, some with a high number of copies (e.g. Rubisco) and other with very low copy number. Some proteins have a very short half-life of just ~30 min, whereas others are stable for several days. Chloroplasts contain many different protease systems encoded by ~100 genes. Research in the van Wijk lab aims to determine what controls the stability of chloroplast proteins. We are particularly interested to determine the signals/information within proteins that are recognized by different proteases; such signals are called degrons and hold the key to understanding proteolysis. We mainly use Arabidopsis as our experimental system and a variety of proteomics and mass spectrometry techniques (e.g. TAILS) are used to track, identify and quantify N-terminal maturation, proteolytic cleavage events and accumulation of protein degradation products. In planta substrate trapping and affinity enrichment further help to identify substrates and discover protein-protein interactions, e.g. resulting recently in our discovery of a new adaptor ClpF. This project is funded by the National Science Foundation.

This postdoc will use Arabidopsis molecular genetics and biochemical tools to determine the function of several candidate Clp adaptor proteins that are postulated to select specific chloroplast for delivery to the Clp protease system for degradation. The underlying biochemical mechanisms for observed genetic interactions between different chloroplast protease system will also be studied. Salary is competitive and commensurate with background and experience. An attractive fringe benefits package is provided.

Recent relevant publications on Arabidopsis proteolysis from the van Wijk Lab

Qualifications: The applicant must have a PhD degree and a strong background in Arabidopsis molecular biology and protein biochemistry as is evidenced by several publications in International Journals. Experience in chloroplast research would be highly beneficial.

Application Instructions: Submit a letter summarizing your background and qualifications, a statement of research accomplishments and interests (3 pages maximum), a detailed curriculum vitae, and the names of three references by email to kv35@cornell.edu. Klaas J. van Wijk, Professor and Chair, Section of Plant Biology, School of Integrative Plant Sciences (SIPS), Cornell University, Ithaca, NY 14853, USA. For more about the van Wijk lab http://blogs.cornell.edu/vanwijk/. Review of applications will begin immediately and will continue until the position is filled.