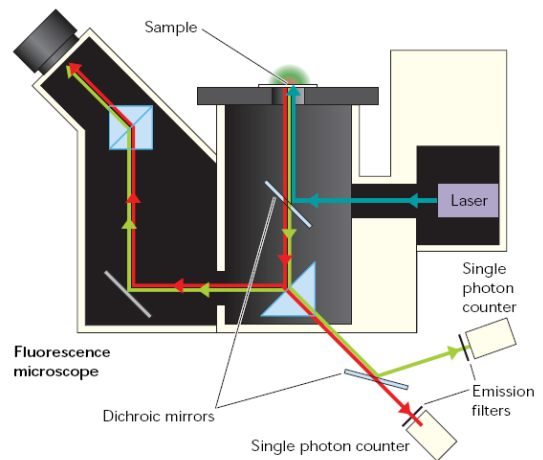


LOV Domain Signaling.

Prof. Carey Johnson

Plants grow toward light in a process called phototropism. The protein responsible, called phototropin, contains two protein LOV (Light-Oxygen-Voltage) signaling domains, LOV1 and LOV2, each of which incorporates a flavin that absorbs blue light. The objective of this project is to understand how conformational changes within LOV domains are transmitted by the protein. An understanding of this process is important for signaling pathways in plants as well as other biological kingdoms. We will use state-of-the-art methods of fluorescence spectroscopy and fluorescence imaging to detect LOV domain dimers, which are known to play a role in signaling. We will detect dimer formation rates and conformations and, using single-molecule fluorescence, we will probe dimer conformations. The results will help identify how LOV dimers contribute to signaling. Students will use a wide range of experimental techniques including fluorescence labeling, laser-induced fluorescence spectroscopy, microscopy, optics, and fluorescence imaging. This interdisciplinary project is a collaboration with researchers at the University of Regensburg, Germany.



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