

Title: Biochemistry and Genetics of Aging

The long-term goal of our research is to gain a detailed mechanistic understanding of organismal aging. In particular, we are interested in identifying factors that can be targeted therapeutically to slow down aging and/or treat or prevent age-related diseases. Our model system is the nematode *Caenorhabditis elegans*, which already has yielded key insights into the biology of aging in the past. Indeed, *C. elegans* has numerous convenient experimental features for aging studies. These include a short lifespan of approximately three weeks, genetic tractability and a transparent body, which allows for easy visualization of organs, tissues, cells and fluorescent proteins in the context of the living organism. Beyond “classical” cell biological and genetic approaches, we have adapted biochemical methods to *C. elegans* to decipher aging-related signal transduction pathways and to assess posttranslational protein modifications. These studies not only provide important information on biochemical and biological activities of proteins but also allow us to identify cellular targets and upstream regulators of specific signaling pathways. Currently, we are applying these methods along with state-of-the-art genome editing technologies to elucidate how signals from the reproductive tissues modulate the lifespan of a multicellular organism.