Leanne Jones, PhD
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Leanne Jones, PhD, is dedicated to identifying the causes of degenerative age-related diseases in order to develop stem cell based regenerative medicine strategies to treat age-onset diseases. Loss of tissue and organ function are characteristics of aging, and these changes have been attributed to decreases in stem cell function. Aging cells are the primary risk factor for many degenerative diseases, metabolic disorders, and cancer. By studying the factors that contribute to decreased stem cell function caused by aging, Jones is seeking changes that could be most easily targeted for treatment.

Jones and her laboratory use fruit flies as a model system to study the control of stem cell behavior. The fruit fly is a good model for this study for several reasons including: approximately 75% of known human disease genes have a recognizable match in the genetic structure of the fruit fly, 50% of fruit fly protein sequences, the basic building blocks of biologic structure, have a matching sequence in humans, the fruit flies grow fast and several generations of flies can be studied within a few weeks, and it is easy to identify and assess gender differences.

The fruit fly model system makes it possible to study stem cells in their normal environment, or niche, without destroying the surrounding tissue, because the fruit fly microenvironment where the stem cells grow is similar to humans. Studying stem cells in a living organism helps answer questions about how the niche controls stem cell self-renewal and survival, and how the relationship between stem cells and the niche evolve during growth and development. It also allows study of the cells’ responses to changes in metabolism that come abruptly or over time and ultimately will give clues about degeneration and the effects of aging. Jones and her colleagues translate the stem cell findings from fruit flies to mouse models and eventually human systems.

Before her arrival at UCLA as an associate professor in January of 2013, Jones was an adjunct assistant professor of cell and developmental biology and assistant professor of laboratory genetics at the Salk Institute for Biological Studies, in La Jolla, CA. She received her doctorate in microbiology and molecular genetics from Harvard Medical School and her undergraduate degree at Washington and Lee University. She is a member of the American Association for the Advancement of Science, the American Association of Cancer Research, American Society for Cell Biology and Women in Cancer Research, among many other professional organizations.

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