

Distinguished Speaker

Thursday, September 27, 12 noon

Onstead Auditorium

Basic Science Research Building 3rd Floor, 6767 Bertner



The Regulation of Stem Cell Self-Renewal

by

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Abstract:

The maintenance of many adult tissues depends upon the persistence of stem cells throughout life. Stem cells are maintained in adult tissues by self-renewal—the process by which stem cells divide to make more stem cells. By better understanding this process we gain insights into how tissues develop and regenerate, how reduced self-renewal can lead to degenerative disease, and how increased self-renewal can lead to tumorigenesis. We have discovered that networks of proto-oncogenes and tumor suppressors that control cancer cell proliferation also regulate stem cell self-renewal. We take forward and reverse genetic approaches to identify new genes that regulate stem cell self-renewal. Our studies demonstrate that the networks of proto-oncogenes and tumor suppressors that regulate stem cell self-renewal change throughout life in response to changing tissue demands and the changing risk of cancer. Imbalances within these networks cause cancer or premature declines in stem cell activity that resemble degenerative disease or premature aging.