

# **Molecular regulation of skeletal muscle stem cell aging**

## **Abstract**

Age-associated impairments in adult stem cell function correlate with a decline in the somatic tissue regeneration capacity during aging. Recent technological advances have enabled biologists to measure these changes and derive new interpretations of different cell states. Our laboratory has a long-standing interest in understanding the molecular pathways that control adult stem cell functions. Using a multi-omics approach, our studies have focused on understanding how quiescent skeletal stem cells respond to extrinsic stimuli for rapid activation in acute muscle injury. In addition, we found evidence that aged muscle stem cells have a defect in mitochondrial metabolism and enter a pre-senescent state. A better understanding of the molecular regulation of these cell states will allow us to devise new interventions to promote healthy longevity.