NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

BIOLOGY COLLOQUIUM

Friday, 17 November 2017 | 4pm | DBS Conference Room 1

Hosted by A/P Christoph Winkler

Role of G9a in skeletal myogenesis and rhabdomyosarcoma

Reshma Taneja got her Ph.D. degree at the Indian Institute of Science in Bangalore. She did her postdoctoral training in Pierre Chambon's laboratory at the IGBMC in France. Her own laboratory, initially at the Mount Sinai School of Medicine in New York, and currently at the National University of Singapore, has a long-standing interest in understanding the epigenetic landscape during skeletal muscle differentiation and its de-regulation in human myopathies. She received a Scholar Award from the Leukemia and Lymphoma Society (USA), as well as a Faculty Research Excellence Award, and NGS Teaching Awards in Singapore.

By **Reshma Taneja**

Associate Professor, Department of Physiology, NUS

Growth and differentiation of muscle precursor cells is essential for the development and regeneration of muscle tissue. Defects in proliferation, differentiation and the regenerative response are apparent in muscular dystrophies, rhabdomyosarcomas, and the ageing-related decline of muscle function. During myogenesis, precursor cells exit the cell cycle to differentiate into multinucleated myotubes that mature to form adult muscle fibers. We have shown that the epigenetic modifier G9a, which mediates repressive histone 3 lysine 9 di-methylation marks, inhibits multiple steps of myogenesis. In addition to promoting proliferation independent of its methyltranferase activity, G9a blocks myogenic differentiation and maturation by inhibiting key transcription factors MyoD and MEF2 in an enzymatic activity dependent manner. I will discuss underlying mechanisms, and the role of G9a in rhabdomyosarcoma, skeletal muscle tumors that exhibit defective myogenic differentiation.

Artwork by Ann Nee, DBS, NUS