NUS National University of Singapore

Department of Biological Sciences
Faculty of Science

BIOLOGY COLLOQUIUM

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Hosted by Dr Lu Gan

Epigenetic regulation of non-coding DNA in development and diseases



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While the genome encodes the blueprint for mammalian development, it is the epigenome that allows this code to be interpreted uniquely by each cell-type. Deciphering the epigenome will reveal insights into a plethora of biological processes. Our research focuses on epigenetic mechanisms that regulate transcription of non-coding DNA sequence. Using high-throughput genomic techniques, we generated extensive profiles of epigenetic modifications, gene expression, and chromatin conformation for various cell-types. We discovered unique characteristics and roles of non-coding elements in shaping the gene expression networks important for distinct cell-type identity and function. Specifically, we aim to delineate the contributions of endogenous retroviruses, a class of repetitive genomic sequences, in normal developmental programs as well as disease states such as cancer.

Artwork by Ann Nee, DBS, NUS