

## BioSyM Seminar Series 2017

### High-resolution RNA allelotyping along the inactive X chromosome: evidence of RNA polymerase III in regulating chromatin configuration

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**Time** : 4 pm to 5 pm  
**Venue** : Perseverance Room, Level 5, Enterprise Wing



#### **Abstract**

X chromosome inactivation is an epigenetic event, in which one of the two Xs in each female mammalian cell is transcriptionally silenced to balance X-linked gene dosage between males (XY) and females (XX). Recently, we carried out “padlock capture”, a high-resolution RNA allelotyping method, to study X chromosome inactivation (XCI). We examined the gene reactivation pattern along the inactive X (Xi), after *Xist* (X-inactive specific transcript), a prototype long non-coding RNA essential for establishing X chromosome inactivation (XCI) in early embryos, is conditionally deleted from Xi in somatic cells ( $Xi^{\Delta Xist}$ ). We also monitored the behaviors of X-linked non-coding transcripts before and after XCI. Our results suggest that Pol III transcription is involved in chromatin structure re-organization during the onset of XCI and functions as a general mechanism regulating chromatin configuration in mammalian cells.

#### **Short Biography**

Dr. Zhang received his BA degree in Biology from Peking University (China), his Ph.D. degree in Molecular Genetics from Baylor University Medical Center (USA). He carried out his postdoctoral research at Harvard Medical School. He is an Assistant Professor of the School of Biological Sciences at NTU. His current research focuses on X chromosome inactivation, an intriguing epigenetic phenomenon for the topic of non-coding RNA.