

# **Transcriptional formation of DNA:RNA hybrid G-quadruplexes and regulation on transcription in return**

**Professor Zheng Tan**

Institute of Zoology, Chinese Academy of Sciences



## **Abstract**

Guanine-rich nucleic acids can form a four-stranded structure termed as G-quadruplex. Since transcription produces RNA transcripts that have an identical sequence as the DNA template being transcribed, guanine-rich motifs in both the RNA transcripts and the transcribed DNA can jointly form DNA:RNA hybrid G-quadruplex structures. In proportion to transcription activity, the formation of such hybrid G-quadruplexes suppresses transcription in return, creating a negative feedback control to the transcription. Comparing to other regulatory pathways, the regulation by the formation of G-quadruplexes is intrinsic, faster, and more cost-effective.