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*Zhaoyu Li*

*Mayo Clinic, USA*

## FOXA1 defines cancer cell specificity

A transcription factor functions differentially and/or identically in multiple cell types. However, the mechanism for cell-specific regulation of a transcription factor remains to be elucidated. We address how a single transcription factor, forkhead box protein A1 (FOXA1), forms cell-specific genomic signatures and differentially regulates gene expression in four human cancer cell lines (HepG2, LNCaP, MCF7, and T47D). FOXA1 is a pioneer transcription factor in organogenesis and cancer progression. Genomewide mapping of FOXA1 by chromatin immunoprecipitation sequencing annotates that target genes associated with FOXA1 binding are mostly common to these cancer cells. However, most of the functional FOXA1 target genes are specific to cancer cell type. Further investigations using the CRISPR-Cas9 genome editing technology indicate that cell-specific FOXA1 regulation is attributable to unique FOXA1 binding, genetic variations, and/or potential epigenetic regulation. Thus, FOXA1 controls the specificity of cancer cell types. We raise a flower-blooming hypothesis for cell-specific transcriptional regulation from these observations.

### Biography

Zhaoyu Li has completed his PhD from University of Alberta and Post-doctoral studies from University of Pennsylvania School of Medicine. He is an Assistant Professor of Cancer Biology at Mayo Clinic. He has published more than 20 papers in reputed journals and has been serving as an Editorial Board Member of repute.

li.zhaoyu@mayo.edu

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