CDB SEMINAR

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Wednesday, July 29, 2009
16:50~17:40 A7F Seminar Room

Signalling at Tight Junctions and Regulation of Gene Expression in Epithelial Cells

Summary

Tight junctions crucial for the formation of epithelial barriers and recruit signalling proteins that participate in the regulation of cell proliferation and differentiation. These signalling proteins include components that regulate established signalling cascades as well as dual localisation proteins that can associate with junctions as well as travel to the nucleus where they regulate gene expression. The latter class of proteins and their partners participate in various steps of gene expression, ranging from regulation of transcription to mRNA processing. The Y-box transcription factor ZONAB/DbpA is one such protein and interacts with the junctional adaptor ZO-1. ZONAB promotes proliferation, and binding to ZO-1 results in cytoplasmic sequestration and, hence, inactivation of its transcriptional activity and inhibition of proliferation. To understand how ZONAB functions, we employed different approaches to identify interaction partners, regulatory mechanisms and target genes, as well as assays to monitor epithelial proliferation and migration, gene expression and differentiation, as well as responses to different stimuli. Our data point to molecular mechanisms by which the ZONAB pathway contributes to epithelial differentiation, homeostasis and the cellular stress response.

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