



CDB SEMINAR

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Wednesday, February 13, 2013

16:00~17:00 A7F Seminar Room

Importin α subtypes determine the differential localization of transcription factors to maintain the undifferentiated state of embryonic stem cell

Summary

Importin α family proteins, receptors of nuclear localization signal, play their role in ES cells by differential nuclear import of the transcription factors. In addition to the conventional role in protein import, we recently found a novel activity of an importin α protein to specifically inhibit a subgroup of transcription factor import. Unless this dominant-negative effect was downregulated upon ES cell differentiation, inappropriate cell death was induced. We propose that although certain transcription factors are necessary for differentiation in ES cells, these factors are retained in the cytoplasm by importin α , thereby preventing transcription factor activity in the nucleus until the cells undergo differentiation. Collectively, importin α family members play their parts in cell fate determination by sorting the transcription factors into the nucleus.

Host:

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