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Implication of IRSp53 in cell proliferation by interaction with p107 via NPY motif

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Insulin receptor substrate of 53 kDa (IRSp53) is a scaffold protein which is involved in filopodia formation. Recently, the I-BAR domain of IRSp53 was shown to interact with NPY motif of Enterohaemorrhagic E.coli (EHEC) Tir protein. The record in NCBI EST database showed us that the IRSp53 expression in retinoblastoma is significantly higher than in other tumors. It was also reported that IRSp53 can be involved in cell proliferation through interaction with Eps8 in v-Src-transformed cells. We confirmed that the knockdown of IRSp53 in retinoblastoma cells decreased its proliferation. We then performed MOTIF search to identify the proteins containing NPY motif among all of human proteins. We found a member of the retinoblastoma protein family, p107, contains NPY motif. We performed immunoprecipitation analysis and found that the I-BAR domain of IRSp53 can interact with p107 protein via NPY motif. The endogenous interaction between IRSp53 and p107 was shown by immunoprecipitation using several types of cells. We observed that the expression of IRSp53 oscillated dependent on cell-cycle progression. We also found that p107/IRSp53 complex formation is reduced in the presence of E2F4 transcriptional factor. Therefore, our results suggest the positive role of IRSp53 in cell proliferation possibly through interaction with p107 in retinoblastoma cells.

Biography

Fatemeh Safari has completed her Ph.D. at the age of 35 years from Hokkaido University and Postdoctoral studies from The University of Tokyo. Now, she is Postdoctoral fellow in Nara Institute of Science and Technology (NAIST).

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