

Expression and intracellular localization of TBC1D9, a Rab GTPase-accelerating protein, in mouse testes

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Abstract :

Membrane trafficking in male germ cells contributes to their development via cell morphological changes and acrosome formation. TBC family proteins work as Rab GTPase accelerating proteins (GAPs), which negatively regulate Rab proteins, to mediate membrane trafficking. In this study, we analyzed the expression of a Rab GAP, TBC1D9, in mouse organs and the intracellular localization of the gene products. Tbc1d9 showed abundant expression in adult mice testis. We found that the Tbc1d9 mRNA was expressed in primary and secondary spermatocytes, and that the TBC1D9 protein was expressed in spermatocytes and round spermatids. In 293T cells, TBC1D9-GFP proteins were localized in the endosome and Golgi apparatus. Compartments that were positive for the constitutive active mutants of Rab7 and Rab9 were also positive for TBC1D9 isoform 1. In addition, TBC1D9 proteins were associated with Rab7 and Rab9, respectively. These results indicate that TBC1D9 is expressed mainly in spermatocytes, and suggest that TBC1D9 regulates membrane trafficking pathways related to Rab9- or Rab7-positive vesicles.

Key Word :

Rab7, Rab9, Spermatogenesis, TBC1D9

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