

The Role of CD13 in Alpha Klotho-Dependent Mineral Metabolism

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Summary

Alpha Klotho mediates mineral homeostasis by regulating both PTH secretion and active vitamin D synthesis. In order to understand how alpha Klotho drives the systems, we attempted to analyze alpha Klotho-expressing cells of choroid plexus, kidney tubules and parathyroid glands. By immunization using mouse choroid plexus, we established a number of monoclonal antibodies recognizing these three organs. Antigen of an antibody, named Rx116, was revealed as CD13. Although CD13 has been credited as a membrane-bound alanyl-aminopeptidase, we hypothesized that CD13 may contribute to mineral regulation. We found the correlation between the expression levels of CD13 and alpha Klotho in genetic manipulated mice with mineral impairments. Moreover, CD13 binds alpha Klotho in kidney. Therefore, CD13 is now emerging component of mineral metabolism. To elucidate the physiological role of CD13 in mineral homeostasis, we have established CD13 knockout line recently.