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Elucidation of the Role of Aquaporins in the Regulation of the Osmolality of Gastrointestinal Contents

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Summary

The salt in the body fluid is related to various activities of the body, and has the mechanism that strictly adjusts the osmolality. One of the main mechanisms is the absorption from the taken food. The adjustment of the salt level in digest is assumed to be performed mainly in the stomach. However, the mechanism of the adjustment is not clear.

In the stomach, it is suggested that aquaporins are related to the adjustment of the salt level of the digest. However, in the stomach, even the expression of aquaporins remains unknown. Then, we aimed to clarify the participation of aquaporins in the adjustment of the salt level of the digest in stomach.

RT-PCR experiments were performed using total RNA extracted from the murine stomach. As a result, the fragment of ten subtypes (*Aqp1*, *Aqp2*, *Aqp3*, *Aqp4*, *Aqp5*, *Aqp7*, *Aqp8*, *Aqp9*, and *Aqp11* and *Aqp12*) was amplified. *In situ* hybridization revealed the expression of *Aqp3* in the epithelial cell in the gastric body and the pyloric portion. Semi-quantitative RT-PCR revealed suggested that the expressions of *Aqp3* and *Aqp5* were decreased and that of *Aqp4* was increased in the fasting state.