

Analysis of the Modification of Salty Taste Response by Salivary Proteins

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Summary

Aging induces a change in salty taste sensitivity. However, the mechanism is still unknown. Saliva dissolves food components and facilitates contact between food components and taste organs. Although saliva consists of mostly water, it contains various proteins. A study investigating the relationship between aging and saliva suggests that the amount of saliva secreted can change with age. On the other hand, the amount of some kinds of salivary proteins correlates with salty taste sensitivity. Based on these findings, we hypothesized that changes in salivary protein composition with age affect salty taste sensitivity. To investigate this hypothesis, we used saliva collected from old and young mice to identify proteins that drastically change with age. We succeeded in identifying multiple proteins that drastically change with age. In this study, we investigated whether these proteins modify the salty taste response using cells that express salty taste receptor ENaC. We used two proteins, serotransferin (TF), whose levels increased with age, and seminal vesicle secretory protein 4 (SVS4), whose levels decreased with age. The application of SVS4 to ENaC-expressing cells did not significantly affect membrane potential. On the other hand, a significant increase in membrane potential was observed by TF application. These results suggest that salivary proteins can affect salty taste sensitivity and that TF can be one of the causative factors.