

Participation of Salivary Proteins on Salt Taste Detection

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Summary

Previous studies have shown that aging modifies salt taste sensitivity. However, the factors affecting the changes in salt taste sensitivity remain unclear. Saliva is considered an important regulator of oral health. Recent studies have shown that salivary components, including proteins, affect salt taste sensitivity. Thus, changes in salivary proteins due to aging may influence salt taste sensitivity. However, it is not clear how the composition of saliva changes with aging and how the changes affect salt taste sensitivity. In this study, to clarify the effect of saliva on age-dependent changes in salt taste sensitivity, we investigated the role of saliva in salt taste detection and attempted to identify salivary proteins that change with aging. We prepared mice whose salivary glands had been removed and measured their salt taste sensitivity. We observed the taste sensitivity of mice toward salty solutions and found that the salivary gland removal group showed a significantly higher preference ratio for salty solutions than the sham group. This indicates that the presence of saliva is necessary for normal detection of salty taste. Thereafter, we analyzed whether the salivary protein composition changes with aging. A total of 633 proteins were identified in saliva samples collected from young and old mice. We attempted to determine which among the molecules change with aging. We identified 14 and 9 molecules whose abundance level increased and decreased in old mice, respectively. This result suggests that the composition of salivary protein changes with aging.