Grape seed proanthocyanidins extract promotes bone formation in a rat's mandibular condyle

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We studied the effects of dietary therapy with grape seed proanthocyanidins extract (GSPE) along with a high level of calcium on mandibular condyle bone debility, which was induced by a low-calcium diet. Forty Wistar male rats, 5-weeks old, were randomly divided into control (Co), low-calcium diet (LC), low-calcium/high-calcium diet (LCH), and low-calcium/high-calcium with supplementary GSPE diet (LCHG) groups for 6 weeks. Bone formation of the mandibular condyle was measured using peripheral quantitative computed tomography (pQCT). We concluded that dietary therapy with GSPE and high calcium intake led to recovery from mandibular condyle bone debility in rats.

2. ラット味覚乳頭の味蕾におけるシナプトタグミン1の発現

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哺乳類の味蕾はⅠ型, Ⅱ型, Ⅲ型および基底細胞に分類され, Ⅲ型細胞は味神経と求心性シナプスを形成している. synaptotagmin 1 はシナプス小胞関連蛋白質の一種で, シナプス小胞での開口分泌の制御を行っている. しかしながらⅢ型細胞での発現および機能は不明である. 本研究は synaptotagmin 1 の味蕾での機能を明らかにすることを目的として, synaptotagmin 1 の味蕾での発現様式の解明を試みた. RT-PCR 法によりラット有郭乳頭に synaptotagmin 1 mRNA 発現が認められた. さらに蛍光免疫組織化学染色により, 有郭, 葉状および茸状乳頭の約 10 % の味蕾細胞および味蕾内や味蕾直下の神経線維での synaptotagmin 1 の発現が観察された. 次に二重免疫染色により synaptotagmin 1 陽性細胞は, Ⅱ型細胞のマーカー (gustducin, PLC β 2) などを共発現しないが, Ⅲ型細胞のマーカー (PGP9.5, NCAM) を共発現することが明らかとなった. これらの結果から, synaptotagmin 1 はⅢ型細胞でのシナプス小胞の開口分泌を制御することが示唆されるとともに, Ⅲ型細胞を同定する新たなマーカー蛋白質となりうることを示された.

Expression of synaptotagmin 1 in the taste buds of rat gustatory papillae

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Synapses between taste receptor cells and primary sensory afferent fibers transmit the output signal from taste buds to the central nervous system. Many kinds of synaptic vesicle proteins participate in synaptic vesicle cycles. One of them, synaptotagmin 1 binds Ca²⁺ phospholipids with high affinity and has a central role in Ca²⁺ regulated neurotransmitter release in the central and peripheral nervous system. However, the expression patterns of synaptotagmin 1, in rat taste tissues have not been revealed. Therefore, we examined the expression patterns of synaptotagmin 1 and several cell specific markers of type II and III cells in rat taste buds. RT-PCR assay showed that synaptotagmin 1 mRNA expressed in circumvallate papillae. In fungiform, foliate and circumvallate papillae, the antibody against synaptotagmin 1 gave labelling of a subset of taste bud cells and intra- and subgemmal nerve processes. Double-labelled experiments showed that synaptotagmin 1 positive cells co-expressed type III cell markers, PGP9.5 and NCAM. Intragemmal nerve processes positive for synaptotagmin 1 co-expressed PGP9.5. However, no synaptotagmin 1-expressing cells co-expressed type II cell markers, PLC β 2 or gustducin. These results show that synaptotagmin 1 may play some regulatory roles in vesicle membrane fusion events with the plasma membrane at synapses of type III cells in rat taste buds.