

Sour comes after a lemon has gone

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The research group led by Professor Makoto Tominaga and Research Assistant Professor Hitoshi Inada (National Institute for Physiological Sciences, Okazaki, Japan) found that a sour taste receptor, PKD1L3-PKD2L1 channel complex, could be activated by acid stimulus but opened gate only after the removal of acid stimulus. They call this new type of response as "off-response" of sour taste receptor. They reports their finding in an international journal, EMBO reports, on June 6, 2008.

They investigated the PKD1L3-PKD2L1 channel activity stimulated by acid stimulus with calcium imaging method and electrophysiology. The cultured cells expressing PKD1L3-PKD2L1 channels showed a significant increase in intracellular Ca^{2+} not during the acid stimulation but only after the acid stimulus was washed out. The off-response property was also confirmed by whole cell patch-clamp configuration.

Prof Tominaga and Dr. Inada said "The PKD1L3-PKD2L1 channels exist on the taste bud in the side and the inner part of tongue, where the salivary glands are close. Acidic things such as spoiled foods and harmful solutions are supposed to be dangerous to human body so that they should be quickly removed by saliva. The off-response of PKD1L3-PKD2L1 channels, we found here, helps human to keep sour taste sensation even after acid stimulus has been washed out."

Source: National Institute for Physiological Sciences

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