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Development of New Functional Food Materials based on the PDE Inhibitory Activity

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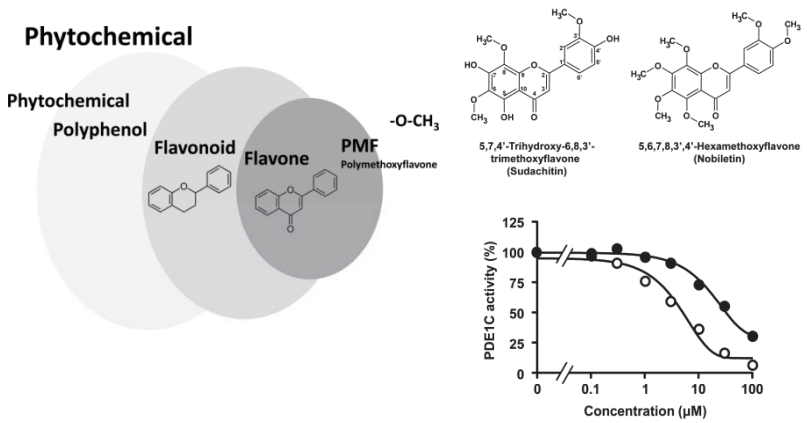
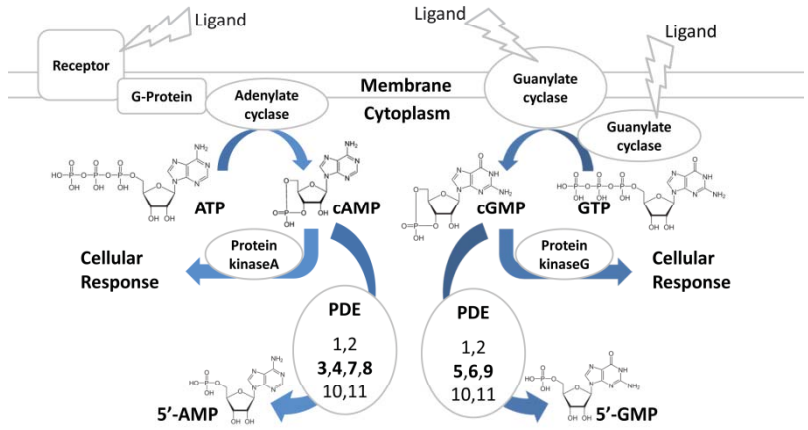


PDE：cyclic nucleotide phosphodiesterase



Content:

Although several thousand polyphenols have been identified in plant, most of them are not effectively used. In the pericarp of *Citrus sudachi*, a well-known fruit in Tokushima Prefecture in Japan, sudachitin is found, but its biological activity has not been analyzed yet. On the other hand, nobiletin, a typical polymethoxyflavone from the pericarp of *Citrus depressa*, possesses a wide range of pharmacological activities. Nobiletin stimulates cAMP signaling through inhibition of cyclic nucleotide phosphodiesterase (PDE), which catalyzes the hydrolysis of cAMP and cGMP. Mammalian PDEs are composed of 21 genes and are closely related to the regulation of numerous physiological functions through alteration of intracellular cyclic nucleotide levels. Therefore, PDE selective inhibitors are expected to be useful for the treatment of various diseases.

We analyze the inhibitory effects of a variety of polyphenols including sudachitin on PDE activities, and are tackling the development of new functional food materials based on the inhibitory activity.

Keywords: polyphenol, functional food material, cyclic nucleotide phosphodiesterase

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