ランチョンセミナーのお知らせ

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“Search for the most ‘primitive’ membranes through molecular fossils”

～分子化石からさぐる、生体膜の元祖とは？～

日時：5月15日（金）12：15 -13：00 (You may bring your lunch & drink)
場所：アカプロ棟2F 201号室 （講演は日本語で行われます）

Abstract

‘Geohopanois’ are molecular fossils and a most abundant family of organic substances on Earth. They are significant in geochemistry as well as in the field of petroleum. The identifcation of geohopanoids has exposed their precursors, ‘biohopanoids’, a novel family of bacterial lipids. Biohopanoids are membrane constituents, surrogates of cholesterol of the membranes of higher organisms. On the other hand, ‘kerogene’ is ca. 90% of the organic carbon of sediments and a highly heterogeneous and insoluble polymer. The dissection of a kerogene afforded long chain polyterpanes, which were recognized later as originating from the lipids of Archaea.

It is possible to arrange these membrane terpenoids in a ‘phylogenetic’ sequence. A retrograde analysis led us to propose that polyprenyl phosphates might have been ‘primitive’ membrane constituents and ‘precursors’ of archaeal lipids. By using an optical microscopy, we have observed that polyprenyl phosphates containing 15 to 30 C-atoms from giant vesicles in water in a wide pH range. A ‘prebiotic’ synthesis of C10 and C15 prenols from C5 monoprenols was achieved in the presence of a montmorillonite clay. Hypothetical pathway from C1 or C2 units to ‘primitive’ membranes and that from ‘primitive’ membranes to archaeal lipids are presented.

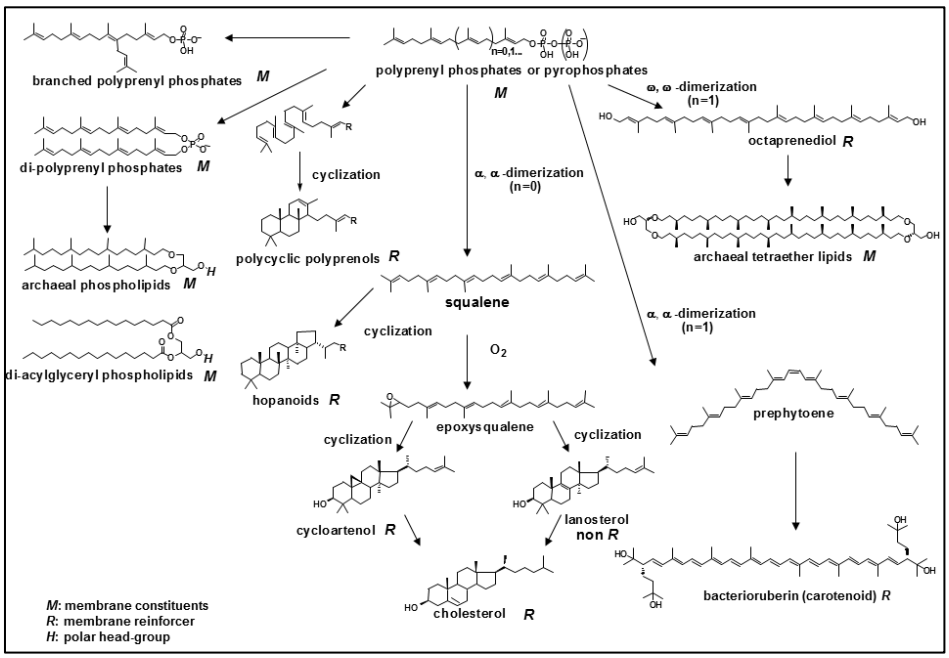

図: 化石中の分子化石(molecular fossils)や現生生物の生体膜中に見出されるテルペノイドの構造を基に、イソプレノイド生合成経路を考慮して作成した膜テルペノイドの“系統樹”(*Chem. Biol.* 1994)

（学生・院生・教職員の来聴歓迎・入場無料・申込み不要）

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