

S01-3 Molecular basis of natural rubber biosynthetic complex in latex, a plant defense system

○Satoshi YAMASHITA¹, Haruhiko YAMAGUCHI², Seiji TAKAHASHI³

¹Kanazawa Univ. Sch. of Nat. Sci. and Tech., ²Sumitomo Rubber Industries Co.,Ltd., ³Tohoku Univ. Grad. Sch. of Tech.

Plant exclude saps from the points of plant damage which is caused mechanically, and the saps are termed as latex if those are from laticifer tissues. Although more than 20,000 species are known to produce latex, the significance is not well understood. Recently, some proteins and compounds from *Ficus* and *Morus* species are found to protect plant from insect herbivory. Thus, latex is now focused on its function as a host defense system. Because the studies of latex are mainly on explorations of novel compounds, the biosynthetic pathways of the bioactive compounds and biogenesis of the proteins in latex are poorly understood.

Natural rubber (NR) is a polymer produced by plant, and its chemical structure is polyisoprenoid with high molecular weight ($> C_{1500}$). NR is synthesized in latex and exists as a rubber particle which contains NR inside and surrounded by a lipid monolayer. We study the biosynthetic mechanism of the NR and its regulator in latex of the Para rubber tree. We focus on the NR biosynthetic enzyme and its membrane receptor which is a homolog of human Nogo-B receptor (NgBR), while Nogo-B is involved in a lipid homeostasis in endothelial dysfunction. We propose the role of the NgBR homolog from the Para rubber tree in NR biosynthesis and host defense.