

OR213*Molecular studies of termite-gut protists on cellulose utilization***Moriya Ohkuma**

Symbiotic digestion of gut protists in lower termites is well known but only limited information is available because of the difficulty of cultivation of them, their uniqueness in nature, and their presence in a complex microbial community. Recent advance in meta-transcriptomic studies of the gut community of protists discloses genes for enzymes of cellulose degradation and the following metabolisms. Identification of organismal origins of these genes is of particular interest in order to understand the difference in the abilities and roles among protists species as well as their evolution. Indeed, the organismal identifications of certain genes and biochemical studies of encoding enzymes reveal similarity and difference of degradation systems and metabolisms of cellulose depending on protisit species. Lateral gene transfers between protist species and from bacteria have had great impacts on their evolution and adaptation by acquiring efficient cellulose utilization systems and likely have caused differentiations of their roles in symbiotic digestion in the gut.