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上智大学 理工学部 物質生命理工学科 主催
男女共同参画推進室 共催

Deep origins of Dictyostelid morphogenetic signalling in protist encystation and prokaryote biofilm formation

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The Dictyostelid social amoebas represent one of nature's several inventions of multicellularity. Nutrient stress triggers collection of amoebas into colonies that form delicately shaped fruiting structures in which the cells differentiate into spores and up to three cell types to support the spore mass. Cyclic AMP (cAMP) plays a very dominant role in development of the model species *Dictyostelium discoideum* controlling morphogenesis and the differentiation of spore cells. The polyketide DIF-1 was previously proposed to induce the other major pathway of stalk cell differentiation, but studies by Saito and coworkers showed that its role is confined to induction of the basal disk and lower cup that respectively support the stalk and spore mass. By using a combination phylogenetic, genomic and molecular genetic approaches, we seek to find correlations between the evolution of genes involved in developmental signalling in Dictyostelia and the evolution of multicellularity and phenotypic complexity in these organisms. Our work has revealed insight in the trajectory of the evolution of cAMP signaling in Dictyostelia and the first eukaryote role of the prokaryote second messenger c-di-GMP in Dictyostelid stalk formation.

学外の方の聴講歓迎・申込不要・参加無料

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