

Interspecific compatibility of early developmental factor in *Dictyostelium*

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SUMMARY

Upon starvation, free-living cells of the social amoeba *Dictyostelium discoideum* secrete an 80-kDa glycoprotein called CMF (Conditioned Medium Factor), which is required for the initiation of aggregation and later multicellular development. *D. discoideum* belongs to the most derived taxonomic group (Group 4) of the social amoeba. Species of Group 4 utilize cyclic AMP as the chemoattractant for aggregation. In this study, we investigated interspecific compatibility of density sensing factor(s) among various species of social amoebae. Starvation buffer that had been conditioned by cells of all Group 4 species examined accelerated the development of *D. discoideum* cells plated at high cell density and allowed the initiation of development even at low cell density where *D. discoideum* cells can hardly aggregate by themselves. This suggests that for combinations of *Dictyostelium* species within Group 4, coexistence may be benefit for each other in early development. The activity was not heat-stable, and recovered in the high molecular-weight fraction after ultra-filtration (10 kDa cut-off), ruling out the possibility that cAMP is itself an active component of the conditioned medium. As CMF is well conserved throughout the social amoeba phylogeny, we are now trying to test the possibility of CMF orthologues being involved in this interspecific density sensing.