

Regulatory mechanisms of cell differentiation with a novel RNA-binding protein Dla1 in cellular slime mold *Dictyostelium discoideum*

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SUMMARY

We identified Dla1 protein, which includes RNA-binding domain highly homologous to metazoan La from the REMI mutant library. The Dla1 null (Dla1⁻) cells show aberrance of growth and differentiation. The prestalk cells of multicellular body increased remarkably. In contrast, prespore cells decrease. Either cAMP or DIF-1 is related with cell differentiation in *Dictyostelium discoideum*. Therefore, we performed a monolayer culture to examine sensibility for cAMP or DIF-1 in Dla1⁻. Results of the monolayer culture show the possibility of acquisition of sensibility to cAMP earlier in Dla1⁻. Therefore, we investigated the expression pattern of cAMP receptor and found that timing and amount of cAMP receptor 4(cAR4)-mRNA expression were considerably earlier and higher than in wild-type cells. These findings suggest that the Dla1 delays timing of cAR4-mRNA expression and represses the expression of prestalk specific genes.