

Role of glutaredoxin1 in culmination of Dictyostelium discoideum

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GSH-dependent glutaredoxin1 (Grx1) was characterized in Dictyostelium discoideum. After starvation, the mRNA levels of grx1 gene increased during aggregation, thereafter decreased up to tip formation and increased again during culmination. To investigate the function of Grx1, the protein was overexpressed in D. discoideum using actin15 promoter. The phenotype analysis on Grx1-overexpressed cells showed the maintenance of slug stage for a long period and delayed culmination under dark condition. To corroborate these phenotype by the enzyme, the two mutant forms of Grx1 (C21S and C24S) were overexpressed in D. discoideum. The phenotype of two mutant cells represented no slug formation and the early culmination on dark condition. These results indicate that Grx1 might regulate the transition from slug to culminant in darkness.