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CRYSTAL PROTEIN EXPRESSION DURING VEGETATIVE GROWTH OF DICTYOSTELIUM

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CRYSTAL PROTEIN EXPRESSION DURING VEGETATIVE GROWTH OF DICTYOSTELIUM

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We are studying interactions between membrane proteins and the cytoskeleton of *Dictyostelium discoideum*. Detergent (Triton X-100) -insoluble cytoskeletons from vegetative (AX2) amebae are enriched in a 70 kDa Concanavalin A (Con A)-binding protein (gp70). An enriched fraction of gp70 was prepared by Con A affinity chromatography of cytoskeletons from axenically-grown cells. N-terminal amino acid sequence of gel-purified gp70 established its identity to a 69 kDa 'crystal protein' previously characterized by Bomblies, *et al.* (1990, J. Cell Biol. 110:669 -679). Enzymatic deglycosylation of gp70 resulted in a 65 kDa product that did not bind Con A, verifying the predicted number of N-glycosylation sites. Bomblies, *et al.* showed crystal protein (gp70) to be developmentally regulated, and with its homology to esterases, suggested to be involved in spore case degradation. We find crystal protein expression to be influenced by growth conditions. As determined by immunoblotting, axenically-grown, vegetative cells express moderate levels of crystal protein. When bacteria are the sole food source for both wild type and over-expressor cell lines grown in suspension, crystal protein levels are reduced significantly in vegetative cells. However, in these same cell lines grown on bacteria, crystal protein is expressed late in development. The differences in crystal protein expression may indicate that it is regulated during vegetative growth and during development.