ACTIN-REGULATING PROTEIN, P66, INDUCED BY SALT STRESS

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SUMMARY

Under high salt conditions, haploid myxoamoebae of a true slime mold, *Physarum polycephalum*, retracted their pseudopodia and changed their shape into disk-shaped form, then they constructed cell wall to form their dormant form, microcysts. These morphological changes were associated with changes of the distribution of actin filaments in the cells. Several proteins were induced under the stress conditions, among which a 66k-protein, p66, was most prominently induced. p66 was co-localized with actin filaments in the short rods observed in disk-shaped cells.

We have purified p66 to a homogeneity and isolated cDNA encoding p66. The open reading frame of the p66 cDNA appeared to contain 601 amino acids, and no homology in amino acid sequence was detected in other known stress proteins.

A 42-k protein, p42, was co-purified with p66, and was found to form a complex with actin and p66 *in vivo*. A double staining of the cells with phalloidin and anti-p42 antibody revealed that a part of p42 co-localized with the actin filaments in the short rods in disc-shaped cells and microcysts.

p42 has been also purified to almost homogeneity and cDNA encoding this protein has been isolated. The amino acid sequence of p42 showed a significant similarity to an actin-binding protein, coronin which was isolated from a cellular slime mold, *Dictyostelium*. p42 might be a *Physarum* homologue of coronine and may act as a mediator of binding of actin and p66.