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Analysis of a glycoprotein and extrusomes in the feeding behavior of the heliozoon *Actinophrys sol*

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The heliozoon *Actinophrys sol* captures prey organisms with its axopodia. Extrusomes are known to be located beneath the cell membrane of axopodia and to discharge their contents when prey organisms make contact with the axopodia. It has been suggested that a 40-kDa glycoprotein (gp40) that is secreted from the extrusomes is involved in prey capture, especially in prey adhesion (Sakaguchi et al, 2001). In this study, we investigated the effects of inhibitors on prey capture by *A. sol*. It was found that concanavalin A, which binds to gp40, inhibited prey adhesion. This inhibition was relieved by the addition of mannoside. In addition, prey adhesion was inhibited by removing calcium ions from the extracellular medium. This inhibition was relieved by the addition of calcium ions. Consistent with this observation, calcium ion channel blockers (nifedipine, verapamil and lanthanum) and a calmodulin antagonist (w-7) inhibited prey adhesion. These results indicate that the presence of some glycoconjugates and calcium influx into the cell are necessary for prey capture.