

D. discoideum Sir2E shows sequence similarity to *G. lamblia* Sir2

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SUMMARY

Sir2 is an NAD⁺-dependent protein deacetylase, which is conserved in a wide range of organisms, from bacteria to higher eukaryotes. The Sir2 proteins are known to play important roles in the regulation of an organism's longevity, metabolism and differentiation. We found five genes encoding proteins homologous to Sir2 in the *D. discoideum* database. The amino acid sequence in the conserved region of the Sir2E protein is distinct from the sequences of other *D. discoideum* Sir2 homologs, and is homologous to the sequence for the protein produced by *G. lamblia*. *D. discoideum* cells feed on bacteria and grow as free-living amoeboid cells in forest soil. Upon starvation, they aggregate and develop as multicellular organisms that consist of a stalk and spores. Our experiments showed that *sir2E* was constantly expressed throughout the life cycle of *D. discoideum*, and was expressed in the prestalk-cell region in its developmental phase.