

Analysis of Sir2 encoded by *Cryptosporidium* parasites

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SUMMARY

Silent information regulator 2 (Sir2) proteins are members of an evolutionarily conserved family of NAD-dependent protein deacetylases. By deacetylating histone and other proteins, Sir2 proteins play important roles in various biological processes, including the regulation of longevity, metabolism, and differentiation. Sir2 proteins encoded by *Cryptosporidium* parasites have no similarity with human Sir2 proteins (SIRT6). Therefore, they are attractive targets for drug therapy against infectious diseases caused by the parasites. Function of ChSir2, Sir2 encoded by *C. hominis*, was analyzed by characterizing a model organism *Dictyostelium discoideum* expressing ChSir2-GFP fusion protein. Fluorescence microscopic analysis revealed that the fusion protein was localized in *D. discoideum* nucleus. Growth of the transformed *D. discoideum* was analyzed using the real-time monitoring system (xCELLigence; Roche Diagnostics, Switzerland). Results obtained from the experiments indicated that *D. discoideum* expressing ChSir2-GFP in the medium reached higher cell density than did *D. discoideum* harboring a control vector. These results suggest that ChSir2 localizes in nucleus and plays important role in growth of *C. hominis*.