

ABSTRACT

A PHYLOGENETIC ANALYSIS OF *SARCOCYSTIS* FROM THE SOUTHERN SEA OTTER (*ENHYDRA LUTRIS NEREIS*)

Sarcocystis spp. are Apicomplexan protozoans that encyst in vertebrate tissues, usually muscle or brain. Fatal protozoan meningoencephalitis (PM) has been recognized in Pacific harbor seals and Southern sea otters from Northern California; the causative agent has been identified as *S. neurona*. This study assessed the genetic variability of *Sarcocystis* isolates from Southern sea otters by sequencing the ITS-1 region of nuclear DNA, and a portion of the CO1 region of mitochondrial DNA. The data gathered were used to test several phylogenetic hypotheses, in particular that there is one genetic lineage of *Sarcocystis* present in marine mammals in California. Phylogenetic analyses were conducted using parsimony, likelihood, and Bayesian methods to determine the evolutionary relationships of the isolates. Results indicated that all isolates obtained from sea otters were indistinguishable from previously collected isolates of *S. neurona*. This study may be crucial in deciding future management actions related to the threatened sea otters.

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