

Sarcocystis muris

Prevalence

- Occasionally observed in laboratory-bred mice
- Rats not susceptible to infection with *S. muris*

Significance

- Infected mice unsuitable for research involving immune system:
 - Found to suppress humoral and cell-mediated immune responses to vaccination with unrelated proteins
 - Induce splenomegaly

Disease

- Cats are definitive hosts – mice serve as intermediate host
- Observed in – diaphragm, heart, and skeletal muscle of infected laboratory mice (possibly contaminated by technicians that own cats)
- Mice maintained for toxicology studies – *S. muris* in skeletal muscle
- SCID mice – definitive host for *S. muris* with oocysts shed in faeces
- Clinical signs - difficulty moving (muscle infection)

Transmission

- Infection – oocysts sporulate within carnivore's intestinal tract, infective when released into environment, ingestion of oocysts in cat faeces (cannibalism sustains parasite in populations).

Isolation and Diagnosis

- Histologic examination of skeletal muscle (occasionally observed in myocardium)
 - Often no inflammatory reaction to structures
 - Bradyzoites visible with routine hematoxylin-eosin and periodic acid-Schiff stain

Prevention and Control

- Sporocysts - environmentally resistant and remains infective in faecal flotation solutions
- Sulfaquinoxaline and pyrimethamine has eliminated *S. muris* from livers of infected mice
- Rederivation and clean barrier maintenance recommended

Reading

- S.W. Barthold, S.M. Griffey, & D.H. Percy. Pathology of Laboratory Rodents and Rabbits (Fourth Edition), 2016
- J.G. Fox, S.W. Barthold, M.T. Davisson, C.E. Newcomer, F.W. Quimby, A.L. Smith. The Mouse in Biomedical Research (Second Edition), 2007

- D.G. Baker. Flynn's Parasites of Laboratory Animals (Second Edition), 2007