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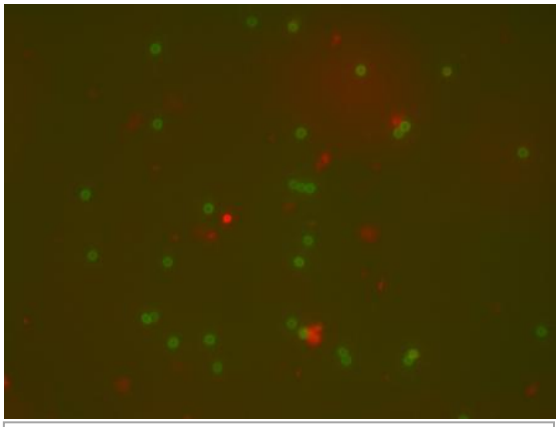
Neonatal Mouse Models for *Cryptosporidium* spp. Oocyst Viability and Infectivity Assay

Background: *Cryptosporidium* spp. are a group of protozoan parasites that infect a wide range of vertebrate hosts. Host specificity is highly variable among *Cryptosporidium* species and genotypes. Experimental mouse infectivity assay is a valuable measure for differentiating host specificity of certain zoonotic species and genotypes. On the other hand, *Cryptosporidium* spp. oocysts are environmental resistant and able to survive for weeks to months in favored conditions. *Cryptosporidium* spp. are major waterborne pathogens that cause outbreaks through contamination of drinking and recreational water. Oocyst viability assay is essential for risk assessment of waterborne outbreaks. Mouse infectivity is considered as 'gold standard' method for oocyst viability assay.

Inbred and outbred neonatal mouse models for *Cryptosporidium* spp. oocyst Viability and Infectivity assay: Female BALB/c (inbred) or CD-1 (outbred) mice with neonatal pups are used for infectivity assay. Neonatal mice at 5-day of age are given oocysts at various doses by using a 24-gauge ball-point feeding needle. *Cryptosporidium* infection is determined by detecting oocysts in intestinal homogenates. At seven days post inoculation mice are euthanized by CO_2 asphyxiation and the entire intestine is collected and homogenized. The homogenates are processed and concentrated to 1 ml by centrifugation. *Cryptosporidium* oocysts in the homogenates are detected by fluorescent microscopy. A mouse is considered infected if any oocyst is detected in the intestinal homogenates. The neonatal mouse models are approved as a sensitive method for evaluating viability and infectivity of *Cryptosporidium* spp. oocysts.



Cryptosporidium oocysts in intestinal homogenates of neonatal mouse