

# PARASITOLOGY

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## The enterotoxigenic activity of *Sarcocystis fayeri* 15 kDa protein

Akiko Yamazaki

Iwate University, Japan

Genus *Sarcocystis* is a protozoa which has two-host life cycle. Herbivores are main intermediary hosts and genus *Sarcocystis* forms sarcocysts in their muscle tissue. *Sarcocystosis* has been known as a problem of economic loss in cattle but nowadays it is also known as a causative factor of food poisoning. The symptom of sarcocystic food poisoning is mainly gastroenteritis but neurologic manifestation is also found. The pathogenic causing mechanism is not yet investigated in details, but we found a toxic candidate protein of 15 kDa molecular mass from the cysts of *Sarcocystis fayeri*. *S. fayeri* is identified a causative pathogen for food poisoning by eating raw horse meat. Now we tried to examine its function in more detail. First, we determined an amino acid sequence of the 15 kDa size protein and identified it as an actin depolymerizing factor (ADF). Then we synthesized a recombinant ADF protein. It showed an enterotoxigenic activity in a rabbit ileal loop test but did not cause any damages on viability of L929, Raw264 and Caco-2 cells. For further examination of enterotoxigenic activity we tried cytokine assay of recombinant ADF. The culture supernatant of RAW264 cells treated with the recombinant ADF for 24 hours was added into the medium for L929 fibroblast cells which are sensitive to TNF- $\alpha$ . After 24 hour culture, the viability of the L929 cells was found to be dead, suggesting TNF  $\alpha$  production. In this study, we confirmed the enterotoxigenic activity of parasitic toxic candidate protein but further research will be necessary to elucidate the mechanism for neurotoxic aspect.

### Biography

Akiko Yamazaki has completed her PhD in 2011 at Institute of Tropical Medicine, Nagasaki University and worked at National Institute of Health Sciences Japan as a Young Researcher. She is working as an Assistant Professor at Iwate University from 2015. Her major areas of research are veterinary public health, food hygiene and zoonosis.

[ayamazak@iwate-u.ac.jp](mailto:ayamazak@iwate-u.ac.jp)

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