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► **To cite this version:**

Sonia Lacroix-Lamandé, Sandrine Ménard, Ambre Baillou, Isabelle Virlogeux-Payant, Guillaume Salle, et al.. Impact of early-life exposure to *Cryptosporidium parvum* infection on intestinal homeostasis at adulthood. 7. International Giardia and Cryptosporidium Conference, Jun 2019, Rouen, France. 243 p. hal-02736602

HAL Id: hal-02736602

<https://hal.inrae.fr/hal-02736602>

Submitted on 2 Jun 2020

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VIIth International *Giardia* and *Cryptosporidium* Conference



Conference Abstracts on USB Key

June 23-26, 2019



UFR Santé, University of Rouen, France

Impact of early-life exposure to *Cryptosporidium parvum* infection on intestinal homeostasis at adulthood.

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Numerous studies recently describe the relationship between influences during early-life period and later-life health and disease. *Cryptosporidium parvum* is a zoonotic parasite responsible for a diarrheal disease that affects mostly children under 5 and immunocompromised patients (AIDS or organ transplant patients). Epidemiological studies have reported that after resolution of *C. parvum* infection, patients still suffer for abdominal pain. In this context, by using a neonatal mouse model of cryptosporidiosis, we tried to decipher the intestinal consequences at adulthood of the neonatal infection by analyzing the composition of the microbiota, the composition of immune cells in the intestine but also consequences on visceral sensitivity and the susceptibility to an unrelated intestinal infection.

We observed that adult mice infected by *C. parvum* during the neonatal period display a modification of microbiota and of the composition of immune cells. These intestinal modifications were associated with an increased viscerosensitivity and with a higher sensitivity to *Salmonella* infection. Altogether these results clearly demonstrate that an infection by *C. parvum* during the neonatal period induces intestinal imprinting that can be responsible for abdominal pains and increased susceptibility to another intestinal infection, way after the resolution of *C. parvum* infection.