

# **Modelling *Cryptosporidium* infection in human small intestinal and lung organoids**

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## **Abstract**

Stem-cell-derived organoids recapitulate in vivo physiology of their original tissues, representing valuable systems to model medical disorders such as infectious diseases. *Cryptosporidium*, a protozoan parasite, is a leading cause of diarrhoea and a major cause of child mortality worldwide. Drug development requires detailed knowledge of the pathophysiology of *Cryptosporidium*, but experimental approaches have been hindered by the lack of an optimal in vitro culture system. Here, we show that *Cryptosporidium* can infect epithelial organoids derived from human small intestine and lung. The parasite propagates within the organoids and completes its complex life cycle. Temporal analysis of the *Cryptosporidium* transcriptome during organoid infection reveals dynamic regulation of transcripts related to its life cycle. Our study presents organoids as a physiologically relevant in vitro model system to study *Cryptosporidium* infection.

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## **Biography**

Dr. Heo received her B.S. from Seoul National Univ. Her PhD research resulted in 10 peer-reviewed articles and she then moved to the lab of Prof. Hans Clevers (Hubrecht Institute), in Netherlands, and acquired knowledge in adult stem cell biology and 3 dimensional in vitro stem cell cultures (organoids). During her post-doc, she was awarded two European fellowships (Marie-Curie and EMBO). She joined Pharmaceutical company of Johnson & Johnson, and is currently a Senior Scientist at Janssen R&D.