



Lena Pernas,
Ph.D.
Cologne, Germany



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Mitochondria restrict growth of the intracellular parasite *Toxoplasma gondii* by limiting its uptake of fatty acids

»To generate energy, mitochondria consume nutrients that invading microbes depend on. This competing interest predicts an inverse relationship between mitochondrial health and microbial fitness. Although several pathogens disrupt host mitochondrial function, it was unknown whether mitochondria act to impede pathogen replication.

*As a PhD student in the lab of Dr. John Boothroyd, I identified the molecule that enable mitochondria to recognize and bind to the human parasite *Toxoplasma gondii*, which infects ~1/3 of the world's human population. The dramatic changes I observed in mitochondrial shape during *Toxoplasma* infection led me to ask if mitochondria actively defend cells against microbes (contrary to the dogma that mitochondria are targets for microbes)? To address this question, I moved to the mitochondrial biology unit of Dr. Luca Scorrano where I discovered that host mitochondria act as nutrient competitors to *Toxoplasma*, and limit the parasite's growth by restricting its access to host lipids. This work showed that mitochondrial metabolism functions as an innate immune-type defense and sheds light on how we can harness metabolism to develop anti-microbial therapies.«*

Dr. Lena Pernas

Max Planck Research Group Leader
Max Planck Institute for Biology of Ageing
Metabolism of Infection · Room CW-040
Joseph Stelzmann Straße 9b · 50931 Köln
E-Mail: pernas@age.mpg.de
www.pernaslab.com

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Dr. Lena Pernas



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