

# 3 year PhD in Molecular Parasitology

A 3-year PhD studentship, which can be started from November 1<sup>st</sup> 2016, is available in the group of “Biochemistry and Molecular Biology”, at the Department of Chemistry, Biology and Biotechnology of the University of Perugia (Perugia, Italy). The position is fully funded (100%) by a NIH grant.

The focus of our research group is in understanding how the parasite *Toxoplasma gondii* acquires nutrients and internalizes host macromolecules, using a variety of complementary approaches, including molecular genetics, bioinformatics, *in vivo* imaging, functional studies, biochemistry, and structural biology. *T. gondii* is an obligate intracellular protozoan parasite that infects up to a third of the world population. No effective treatments exist for chronic *Toxoplasma* infection, characterized by intracellular cysts in neural tissue. The clinical spectrum of *T. gondii* infections varies from asymptomatic to serious illness affecting lymph nodes, eyes, and central nervous system. Until recently, latent *Toxoplasma* infection was considered harmless for immunocompetent persons. Within the past 10 years, however, many independent studies have shown that this parasitic infection could be indirectly responsible for hundreds of thousands of deaths due to its effects on the rate of traffic and workplace accidents, and also suicides. Moreover, many recent studies have suggested that latent toxoplasmosis is an important risk factor for schizophrenia.

Recent work from our group, in close collaboration with the Carruthers lab at the University of Michigan (USA), has uncovered that a lysosome-like organelle termed Vacuolar Compartment (VAC) is involved in a heterophagic process in *Toxoplasma* (Dou *et al.* mBio, 2014). New unpublished work reveals that disruption of VAC function markedly compromises *Toxoplasma* viability during the persistent cyst stage in culture and in infected mice. Interestingly, these parasites accumulate intracellular structures displaying markers of autophagosomes. Then they die.

These discoveries set the bases for the proposed PhD position, which will be centered on analyzing VAC function and autophagy in *Toxoplasma* bradyzoites contained within tissue cysts.

Applications are invited from highly motivated students from all countries holding the equivalent of a University bachelor degree in Biology or Biotechnology. To apply, please send your CV, reference letters with a brief letter describing your strengths in filling this profile to:

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