Moyira Osny Aquino Gil et al., J Bacteriol Parasitol 2018, Volume 9
DOI: 10.4172/2155-9597-C2-049

The identification of *toxoplasma gondii* and *Plasmodium falciparum* O-Glcnacylated proteins reinforces the universality of the O-Glcnacome

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Toxoplasma gondii is one of the parasites with the highest infection rate worldwide (one third of the world population), mainly threatening primo-infected pregnant women, infants and immunocompromised patients. On the other hand, malaria tropica caused by *Plasmodium falciparum* is still one of the main causes of death worldwide with major incidence in tropical and subtropical regions. It has been recently described that the dynamic post-translational modification O-GlcNAcylation occurs in both parasites. O-GlcNAcylation is nutrient-dependent and consists in the addition of a single N-acetylglucosamine (GlcNAc) moiety onto serine and threonine residues of cytosolic, nuclear and mitochondrial proteins and is regulated by a couple of enzymes, O-GlcNAc-transferase (OGT), which catalyzes the addition of GlcNAc and O-GlcNAcase (OGA) which removes GlcNAc. The functions managed by O-GlcNAcylation are diverse and include regulation of transcription, replication, protein's fate, trafficking and signaling. Numerous studies have explored the O-GlcNAcome in a wide variety of biological models but very few focused on protists. In the present work, we used enrichment on sWGA-beads and/or immunopurification to identify O-GlcNAcylated proteins in *Toxoplasma gondii* and *Plasmodium falciparum*. Many of the proteins found to be O-GlcNAcylated are originally described in higher eukaryotes and participate in cell shape organization, response to stress, glycolysis, protein synthesis and metabolism. Together, these data show that regardless of proteins strictly specific to organisms, the O-GlcNAcylated proteins are rather similar among living beings.

Biography

Moyira Osny Aquino Gil is in the last year of her PhD in Clinical Research, Technological Innovation and Public Health. This is a collaboration between the University of Sciences and Technologies of Lille, France, the Technological Institute of Oaxaca, Mexico and the Philipps University of Marburg, Germany.

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