Invited lecture:

Functional proteomics and biochemistry: working together to unravel mitochondrial phenomena of African trypanosomes

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Hour: 1:00 p.m.

Room: Institute of Parasitology, Boardroom

Lecture is organised in frame of MODBIOLIN project (FP7, GA 316304).

You're welcome!

Central to the understanding of how mitochondria control their morphology, communicate with their surroundings and manage exchange of metabolites and transport of biopolymers (proteins, RNAs) is the mitochondrial outer membrane (MOM), as the MOM defines the boundary of the organelle. Recently, we have purified the MOM of the mitochondrial model organism T. brucei and characterized its proteome. Our results show that the trypanosomal MOM proteome consists of 82 proteins. Among these, we identified novel factors required to regulate mitochondrial morphology and the long-elusive protein import machinery of T. brucei. A comparison with the MOM proteome of yeast defines a set of 17 common proteins that are likely present in the mitochondrial outer membrane of all eukaryotes. One of these is the Miro-GTPase Gem1. In yeast, this Ca^{2+}-EF-Hand containing polypeptide is thought to be involved in a protein complex that physically tethers the mitochondrion to the ER. In mammalian cells, a putative tethering complex was linked to the mitochondrial fusion/fission machinery. Thus, the concept of a protein complex-mediated connection seems to be a general and conserved feature. We are currently investigating if such a protein complex exists in T. brucei and if the trypanosomal Gem1 protein is involved.conditions.