

## **Programme**

**COST B22, Working group 1  
Expert Meeting on:**

**‘Energy metabolism of parasitic protozoa as a drug target’**

**and**

**Annual ‘Microsymposium glycosomes, trypanosomatid  
metabolism  
and drug discovery’**

**November 17 – 18, 2005**

**Michel de Visscher Auditorium, Christian de Duve  
Institute of Cellular and Molecular Pathology,  
Avenue Hippocrate 74, level 0,  
B-1200 Brussels,  
Belgium**

**Organizers: Paul A.M. Michels and Fred R. Opperdoes**

## Thursday 17 November

**8:30 Opening and Welcome: Paul Michels**

**8:40-12:30 Glycosome metabolism, chair: Fred Opperdoes**

**8:40** Jurgen Sygush, Université de Montréal, Canada  
Methylglyoxal production by aldolases in mammals and trypanosomatids

**9:10** Barbara Bakker, Vrije Universiteit Amsterdam, The Netherlands (also on behalf of Jurgen Haanstra and Arjen van Tuijl)  
Accumulation of hexose-phosphates in a PEX14 mutant of *Trypanosoma brucei*

**9:40** Fred Opperdoes, ICP Brussels  
Prediction of the glycosomal proteome of trypanosomatids

**10:10-10:40 Coffee break**

**10:40** Claudia Colasente, ZMBH, Heidelberg, Germany  
Comparative proteomics of glycosomes from bloodstream and insect-form *Trypanosoma brucei*

**11:10** Jurgen Haanstra, Vrije Universiteit Amsterdam  
Quantitative understanding and regulation of the phosphoglycerate kinase locus in *Trypanosoma brucei*

**11:40** Paul Michels, ICP, Brussels, Belgium (also on behalf of Cédric Yernaux and Mariana Igoillo-Esteve - ICP and Marc Fransen - Katholieke Universiteit Leuven)  
*Trypanosoma brucei* glycosomal ABC transporters: identification and membrane targeting

**12:10** Daniel Guerra, ICP, Brussels, Belgium  
Experimental and *in silico* studies on the glycosomal redox and ATP balances of the insect stages of Trypanosomatidae.

**12:40-14:00 Lunch**

**14:00 –17:30 General metabolism, chair: Dolores González-Pacanowska**

**14:00** Pascal Mäser, University of Bern, Switzerland  
Uptake, metabolism, and toxicity of adenosine analogues in *Trypanosoma brucei*

**14:30** Dolores González-Pacanowska, Instituto López-Neyra, Granada, Spain  
Multicompartmental localisation of isoprenoid biosynthesis in *Leishmania*

**15:00** Dan Zilberstein, Israel Institute of Technology, Haifa, Israel  
Novel high-affinity arginine transporter from *Leishmania donovani*

**15:30** Michael Boshart, University of Munich, Germany

A new function for aconitase in the cytoplasm of *Trypanosoma brucei*

**16:00** Michael Ginger, University of Oxford, UK

Flagellar energy metabolism in trypanosomes and other eukaryotes: enzyme targeting, function, and an "adenylate kinase-like" gene family

**16:30** Derek Nolan, Trinity College Dublin, Ireland

Preliminary studies on alanine aminotransferase from *Trypanosoma brucei*

**17:00 General discussion followed by a discussion of WG1 members**

**17:30 Drinks**

**19:00 Dinner in town**

## **Friday 18 November**

**8:30-11:00 Mitochondrial metabolism, chair: Louis Tielens**

**8:30** Jan Tachezy, Charles University, Prague

Knock-downs of mitochondrial iron-sulfur cluster assembly proteins IscS and IscU down-regulate the active mitochondrion of procyclic *Trypanosoma brucei*.

**9:00** Louis Tielens, University of Utrecht, The Netherlands

What's so funny about the tryp mitochondrion?

**9:30** Fred Opperdoes, Dept of Biochemistry Université catholique de Louvain, Belgium.

Lateral gene transfer has shaped the trypanosomatid mitochondrion.

**10:00** Frank Voncken, ZMBH, Heidelberg, Germany

Identification and functional characterisation of mitochondrial and glycosomal metabolite carriers of *Trypanosoma brucei*

**10:30** Loic Rivière, Université Victor Segalen, Bordeaux, France

Energy metabolism in procyclic *Trypanosoma brucei*

**11:00-11:30 Coffea break**

**11:30-12:30 Drug targets, chair: Paul Michels**

**11:30** Luis Rivas, Centro de Investigaciones Biológicas, Madrid, Spain

Bioenergetic collapse of *Leishmania* parasites caused by eukaryotic antimicrobial peptides. A new chemotherapeutical target?

**12:00** Linda Gilmore, University of Edinburgh, UK

Trypanosomatid PFK: mechanism and inhibitor discovery

**12:30-13.30 Lunch**

**13:30-18:00 Drug targets, chair: Paul Michels**

**13:30** Barthelemy Nyasse, University of Yaounde I, Cameroon

Isolation and identification of some natural trypanocidal compounds and their effects on three glycolytic enzymes

**14:00** Casimir Blonski, University Paul Sabatier, Toulouse, France

Overview of the work in Toulouse on the development of selective inhibitors of trypanosomatid glycolytic enzymes

**14:30** Véronique Hannaert, ICP, Brussels, Belgium

Is the glycosomal GAPDH of *Trypanosoma brucei* a good target for drug development?

**15:00** Daniel Rigden, University of Liverpool, UK

Structural flexibility in *Trypanosoma brucei* enolase revealed by X-ray crystallography and molecular dynamics

**15:30-16:00 Coffea break (chair: Linda Gilmore)**

**16:00** Malcolm Walkinshaw, University of Edinburgh, UK

The allosteric activation in *Leishmania* pyruvate kinase is driven by a cog mechanism

**16:30** Matt Nowicki, University of Edinburgh, UK

Discovery and optimization of inhibitors of trypanosomatid PFK and PYK

**17:00** Mariana Igoillo-Esteve, ICP, Brussels, Belgium (also on behalf of Artur Cordeiro)

Glucose-6-phosphate dehydrogenase in trypanosomes

**17:30** Véronique Stoven, Institut Pasteur, Paris, France

Structural and functional studies by NMR, X-Ray crystallography and virtual screening of 6-phosphogluconolactonase from *T. brucei*

**18:00 Closure**

SPEAKERS TO BE REIMBURESED BY COST

**UK**

Daniel Rigden, University of Liverpool, UK

Linda Gilmore, University of Edinburgh, UK

**Germany**

Michael Boshart, University of Munich, Germany

Frank Voncken, ZMBH, Heidelberg, Germany

**France**

Véronique Stoven, Institut Pasteur, Paris, France

Casimir Blonski, University Paul Sabatier, Toulouse, France

**The Netherlands**

Barbara Bakker, Vrije Universiteit Amsterdam, The Netherlands

Louis Tielens, University of Utrecht, The Netherlands

**Ireland**

Derek Nolan, Trinity College Dublin, Ireland

**Switzerland**

Pascal Mäser, University of Bern, Switzerland

**Spain**

Dolores González-Pacanowska, Instituto López-Neyra, Granada, Spain

Luis Rivas, Centro de Investigaciones Biológicas (CSIC), E-28040, Madrid, Spain

**Czech Republic**

Jan Tachezy, Charles University, Prague

**Israel**

Dan Zilberstein, Israel Institute of Technology, Haifa, Israel

**Canada**

Jurgen Sygush, Université de Montréal, Canada

**Cameroon**

Barthelemy Nyasse, University of Yaounde I, Cameroon

## SPEAKERS NOT TO BE REIMBURSED

### **UK**

Malcolm Walkinshaw, University of Edinburgh, UK

Matt Nowicki, University of Edinburgh, UK

Michael Ginger, University of Oxford, UK

### **Germany**

Claudia Colasente, ZMBH, Heidelberg, Germany

### **France**

Loic Rivière, Université Victor Segalen, Bordeaux, France

### **The Netherlands**

Jurgen Haanstra, Vrije Universiteit Amsterdam

### **Belgium**

Mariana Igoillo-Esteve, ICP, Brussels, Belgium

Paul Michels, ICP, Brussels, Belgium

Daniel Guerra, ICP, Brussels, Belgium

Véronique Hannaert, ICP, Brussels, Belgium

Fred Opperdoes, Dept of Biochemistry Université catholique de Louvain, Belgium.

### Other Participants without presentation

Jaap van Hellemond (Utrecht)

Koen van Grinsven (Utrecht)

Lu Zhou (Edinburgh)

Arjen van Tuijl (Amsterdam)