

3<sup>rd</sup> Global Virtual Symposium on  
**TOXOPLASMOSIS**

January 23-24, 2023

**Time zone:** Eastern Time (US & Canada)

**Symposium Chair:**

Vernon B. Carruthers, University of Michigan Medical School, MI, USA

Sponsor



Exhibitor



## SPONSOR



Epeius pharma is a cell and gene therapy company developing next-generation biological vehicles to deliver therapeutic proteins into the central nervous system (CNS). The lack of efficient CNS delivery methods limits protein replacement therapy and remains one of the greatest unmet needs for neurological disorders treatment. Our technology combining the naturally evolved BBB crossing capabilities of *Toxoplasma gondii* with state-of-the-art genetic manipulation tools to obtain optimal protein delivery. Our off-the-shelf products utilize the toxoplasma secretion machinery to tailor-made the protein expression for the relevant clinical indication — our POC product is designed to help Rett patients.

For more information, please visit: <https://www.futurx.co.il/portfolio/epeius-pharma/>

## EXHIBITOR



Abbexa is a worldwide supplier of biological tools for the life science, pharmaceutical development and biotechnology sectors. The company has branches in the UK, US and The Netherlands to serve customers worldwide. Abbexa provides the scientific community with primary antibodies, secondary antibodies, proteins, ELISA kits and enzymes as well as other kits and tools for use in research. Working with various laboratories across the world, the company aims to develop relevant, high quality, tested products for the biomedical research market, to meet needs at a reasonable price.

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09:00 – 09:10 Welcome & Introduction to **TOXO-2023**

**Symposium Chair: Vernon B. Carruthers**, University of Michigan Medical School, MI, USA

## Session I – Host-Parasite Interactions

**Chair: Mariana Ferreira Silva**, University of Glasgow, United Kingdom

09:10 – 09:35 **Mitochondria-toxoplasma Conflict**

**Lena Pernas**, Max Planck Institute for Biology of Ageing, Germany

09:35 – 10:00 **Toxoplasma Strategically Exploits Host ESCRT for Resource Acquisition**

**Vernon B. Carruthers**, University of Michigan Medical School, MI, USA

10:00 – 10:25 **Toxoplasma Scavenges Mammalian Host Organelles through the Usurpation of Host ESCRT-III and Vps4**

**Isabelle Coppens**, John Hopkins University, MD, USA

10:25 – 10:50 **Avirulent ME49Δgra5 Protecting Hosts against *Toxoplasma gondii* Infection and 4T1 Tumors**

**Hong-Juan Peng**, Southern Medical University, China

10:50 – 11:15 **CRISPR Screens of Clonal and Atypical Toxoplasma Strains Identify Common Virulence Factors *In vivo***

**Francesca Torelli**, The Francis Crick Institute, United Kingdom

11:15 – 11:25 ***Toxoplasma gondii* as a Therapeutic Vehicle for Protein Replacement Therapies**

**Daniel Walsh**, University of Glasgow, United Kingdom on behalf of Epeius Pharma, Israel  
– 10 mins Sponsor's Presentation

11:25 – 11:45 Short Break

## Session II – Organelles and Proteins

**Chair: Francesca Torelli**, The Francis Crick Institute, United Kingdom

11:45 – 12:10 **The Essential Role of Bromodomain Proteins in *Toxoplasma* Tachyzoites**

**Victoria (Vicki) Jeffers**, University of New Hampshire, NH, USA

12:10 – 12:35 **Myosin F and Actin are Required for the Trafficking of Nuclear-Encoded Apicoplast Proteins**

**Aoife T. Heaslip**, University of Connecticut, CT, USA

12:35 – 13:00 **The Apicoplast - An Essential Organelle with Defined Functions?**

**Joachim Kloehn**, University of Geneva, Switzerland

13:00 – 13:25 ***Toxoplasma* Mitochondria Respiratory Complex II - Bigger and Better?**

**Lilach Sheiner**, University of Glasgow, United Kingdom

13:25 – 13:45 Short Break

## Session III – Bradyzoite and Differentiation

**Chair: Patrick Rimple**, University of Michigan Medical School, MI, USA

13:45 – 14:10 **Targeting *Toxoplasma gondii* Bradyzoites**

**Martin Blume**, Robert Koch Institute, Germany

14:10 – 14:35 **Modeling *Toxoplasma* Sexual Development in Mice & Cell Culture**

**Laura Knoll**, University of Wisconsin-Madison, WI, USA

14:35 – 15:00 **Molecular Signals of *Toxoplasma* Differentiation into Latent Forms**  
**Chris Tonkin**, The Walter & Eliza Hall Inst. of Medical Research, Australia

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15:00 – 15:20 Short Break

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## Session IV – Preparing to and Regulating Gliding and Invasion

**Chair: Matthew Martinez**, University of Pennsylvania, PA, USA

15:20 – 15:45 **Phenotypic Screens Identify Hypothetical Proteins Crucial for Actin Dependent Vesicular Transport and Initiation of Gliding Motility**

**Markus Meissner**, Ludwig Maximilian University of Munich, Germany

15:45 – 16:10 ***In situ* Structures and Potential Regulatory Mechanisms of the Rhoptry Secretion System Revealed by Cryo-Electron Tomography**

**Yi-Wei Chang**, University of Pennsylvania, PA, USA

16:10 – 16:35 **The Cortical Microtubules of *Toxoplasma* Facilitate Helical Parasite Movement**

**Ke Hu**, Arizona State University, AZ, USA

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16:35 – 16:45 Concluding Remarks of Day 1

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09:00 – 09:10 Day 2 Opening Remarks

### Session V – Metabolism and Signaling

**Chair: Gabriel R. Cabral**, University of Oklahoma Health Sciences Center, OK, USA

09:10 – 09:35 **A Classic to Contemporary Tale of Phospholipids in *Toxoplasma gondii***  
**Nishith Gupta**, Birla Inst. of Tech. & Science (BITS), Hyderabad, India

09:35 – 10:00 **Mechanisms of Cyclic Nucleotide Signaling in *Toxoplasma gondii***  
**Kevin M. Brown**, University of Oklahoma Health Sciences Center, OK, USA

10:00 – 10:25 **Divergent Calcium Signaling of the Apicomplexan Parasite *Toxoplasma gondii***  
**Silvia NJ Moreno**, University of Georgia, GA, USA

10:25 – 10:50 **Localization and Characterization of O-fucosylated Proteins in Nuclei of *Toxoplasma*, *Cryptosporidium*, *Dictyostelium*, and *Acanthamoeba***  
**John C. Samuelson**, Boston University, MA, USA

10:50 – 11:15 **The Role of Nucleoside Transport and Metabolism in *Toxoplasma*-host Interaction**  
**Bruno Martorelli Di Genevo**, The University of Vermont, VT, USA

11:15 – 11:35 Short Break

### Session VI – Gene Regulation, Cell Cycle and Division

**Chair: Clare Harding**, University of Glasgow, United Kingdom

11:35 – 12:00 **Insights into the Transcriptional Regulation of the *Toxoplasma gondii* Cell Cycle**  
**Mathieu Gissot**, The Pasteur Institute of Lille, France

12:00 – 12:25 **A Twist of the *Toxoplasma* Cell Cycle**  
**Elena S. Suvorova**, University of South Florida, FL, USA

12:25 – 12:50 ***Toxoplasma gondii* Cell Division: Two Buns in the Oven**  
**Marc-Jan Gubbels**, Boston College, MA, USA

12:50 – 13:15 ***Toxoplasma gondii* Subtelomeres: Gene Composition, Adaptation and Non-Coding RNAs**  
**Sergio Oscar Angel**, National Scientific and Technical Research Council, Argentina

13:15 – 13:35 Short Break

### Session VII – Immunity

**Chair: Mateo Murillo-Léon**, University of Freiburg, Germany

13:35 – 14:00 **An Inactivated Vaccine for Protecting Captive Wildlife against Lethal Toxoplasmosis**  
**Angelo Scutto**, R&D Director, Vaxinano, France

14:00 – 14:25 **IFN $\lambda$  Protects Mice from Lethal Oral *T. gondii* Infection**  
**Tobias Steinfeldt**, University of Freiburg, Germany

14:25 – 14:50 **What Mouse Genetics Tells Us About Immunity to *Toxoplasma gondii***  
**Kirk D. C. Jensen**, University of California, Merced, CA, USA

14:50 – 15:15 **Innate Immunity to *Toxoplasma gondii* Infection**  
**Melissa Lodoen**, University of California, Irvine, CA, USA

## Session VIII – Epidemiology and Ecology

**Chair: David Smith**, Moredun Research Institute, United Kingdom

- 15:15 – 15:40 **Outcomes from TOXOSOURCES-project: What Did We Learn from Investigating the Relative Contributions of Different Sources of *Toxoplasma gondii***  
**Pikka Jokelainen**, Statens Serum Institut, Denmark
- 15:40 – 16:05 **Virulent Toxoplasmosis in California Sea Otters - Are Domestic Cats Relevant?**  
**Karen Shapiro**, University of California, Davis, CA, USA
- 16:05 – 16:30 **Assessing and Comparing the Prevalence of *Toxoplasma gondii* in Free-Roaming Cats in East Tennessee**  
**Tania Dawant**, University of Tennessee, TN, USA
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- 16:30 – 16:40 **Concluding Remarks & End of the Symposium**
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