

# Bacterial Electron Transfer

6-8 March 2024 Alicante, Spain

Organized by  European Federation of biotechnology



## Preliminary programme

### Wednesday, 6 March 2024

13:00 – 14:00 *Registration*

14:00 -14:15 Opening and Welcome

**Rosa Martinez-Espinosa**, University of Alicante, Spain

#### Opening Session

Chair: **David Richardson**, University of East Anglia, United Kingdom

14:15 – 15:00 **Opening lecture:** Electron Transfer to the microbe mineral interface

**Tom Clarke**, University of East Anglia, United Kingdom

#### Session 1: Extracellular and Direct Interspecies Electron Transfer

15:00 – 15:20 Interaction of living cable bacteria with carbon electrodes in bioelectrochemical systems

**Kartik Aiyer**, Aarhus University, Denmark

15:20 – 15:50 *Coffee break*

15:50 – 16:10 New insights into the mechanism of centimeter-scale electron transport in cable

**Filip Meysman**, University of Antwerp, Belgium

16:10 – 16:30 Evolution, Distribution and Engineering Extracellular Electron Transfer in Bacteria

**Jeffrey Gralnick**, University of Minnesota, USA

16:30 – 16:50 Periplasmic electron flux is coupled to proton translocation from the cytoplasm onto an extracellular halogenated electron acceptor in *Dehalococcoides mccartyi*

**Lorenz Adrian**, Helmholtz Centre for Environmental Research-UFZ, Germany

16:50 – 17:10 Microbial heme-tethered redox strings - a new class of cytochromes revealed by PgcA from *Geobacter sulfurreducens*

**Leonor Morgado**, UCIBIO, i4HB-Institute for Health and Bioeconomy, Portugal

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- 17:10 – 17:30 Conductive cytoplasm membrane nanotubes in *Lysinibacillus varians* GY32  
**Jong Gang Yang**, Guangdong Institute of Microbiology, China
- 17:30 – 17:50 Characterization of electron transfer chains in *Geobacter sulfurreducens*  
**Americo G. Duarte**, Universidade NOVA de Lisboa, Portugal
- 17:50 – 18:10 The structure and properties of the *G. sulfurreducens* multiheme cytochrome PgcA  
**Benjamin Nash**, University East Anglia, United Kingdom
- 18:10 – 18:25 [Flash poster presentations](#)
- 18:25 – 22:00 *Dinner and Poster exhibition*

## Thursday, 7 March 2024

### Session 2: Electron Transfer Processes in Biogeochemical Cycles (I)

- 9:00 – 9:20 Electron bifurcating complexes in energy metabolism and aromatic compound degradation in *Geobacter* sp  
**Matthias Boll**, Albert Ludwig University of Freiburg, Germany
- 9:20 – 9:40 Dual control of the *Bradyrhizobium diazoefficiens* RegSR regulatory system on norCBQD gene expression in response to oxygen  
**María Jesús Delgado**, CSIC, Spain
- 9:40 – 10:00 The amazing microbiology of the biogeochemical chlorine cycle  
**John Coates**, University of California, Berkeley, USA
- 10:00 – 10:20 Interpreting the MopB molybdoenzyme superfamily in the genomic era  
**Daan Speth**, University of Vienna, Austria
- 10:20 – 10:40 sNOR does not function as nitric oxide reductase in ammonia-oxidizing bacteria  
**Petra Pjevac**, University of Vienna, Austria
- 10:40 – 10:55 [Flash poster presentations](#)
- 10:55 – 11:30 *Coffee break*
- 11:30 – 11:50 Is your favorite sulfate reducer capable of sulfide oxidation?  
**Lea Emile Plum-Jensen**, Aarhus University, Denmark

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11:50 – 12:10 Electron competition between reduction pathways in denitrifying bacteria carrying N<sub>2</sub>O

**Alicia Caro-Pascual/Asa Frostegard**, Norwegian University of Life Sciences, Norway

12:10 – 12:30 Architecture of the NADH:ferredoxin oxidoreductase RNF1 from *Azotobacter vinelandii* that drives Biological Nitrogen Fixation

**Lin Zhang**, Albert-Ludwigs-Universität Freiburg, Germany

12:30 – 13:30 *Lunch and Poster exhibition*

## Session 3: Electron Transfer Processes in Biogeochemical Cycles (II)

13:30 – 13:50 *Streptomyces coelicolor* Spore-Specific Nitrate Reductase 1 Depends on the Oxygen-Respiring bcc-aa3-Supercomplex for its activity

**Gary Sawers**, Martin-Luther University Halle-Wittenberg, Germany

13:50 – 14:10 Molecular basis for the oxygen tolerance of the *Desulfovibrio vulgaris* FdhAB formate dehydrogenase

**Inês Cardoso Pereira**, ITQB NOVA, Portugal

14:10 – 14:30 TBA

**Axel Magalon**, Institut de Microbiologie de la Méditerranée, France

14:30 – 14:50 Architecture of bacterial electron transport chains terminated by clade II nitrous oxide reductases

**Jörg Simon**, TU Darmstadt, Germany

14:50 – 15:10 TBA

**Sofia Pauleta**, Nova University Lisbon, Portugal

15:10 – 15:25 *Flash poster presentations*

15:25 – 16:00 *Coffee break*

## Session 4: Handling Stress and Reactive Oxygen and Nitrogen Species (I)

16:00 – 16:20 The mosaicity of flavodiiron proteins: the role of the multiple domains in the intramolecular electron transfer and enzymatic activity

**Filipe Folgosa**, ITQB- Universidade Nova de Lisboa, Portugal

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- 16:20 – 16:40 Transmembrane signaling by fumarate sensor kinase DcuS: a piston-driven cytoplasmic PASC hinge  
**Gottfried Uden**, Johannes Gutenberg University Mainz, Germany
- 16:40 – 17:00 Multiple roles for the electron transport chains of the enteric pathogen *Campylobacter jejuni* in respiration and detoxification  
**David Kelly**, University of Sheffield, United Kingdom
- 17:00 – 17:20 RsuR, from the alpha-proteobacterium *Zymomonas mobilis*, regulates Fe-S cluster biogenesis  
**Isabel Askenasy**, University of Wisconsin-Madison, USA
- 17:20 – 17:40 No Oxygen, No Stress? Exploring Oxidative Stress in Anaerobic Environments  
**Benjamin Ezraty**, Institut de Microbiologie de la Méditerranée, France
- 17:40 – 18:00 Anaerobic biosynthesis of ubiquinone and O<sub>2</sub>-independent hydroxylation  
**Rodrigo Arias Cartin**, Institut Pasteur, Université Paris-Cité, France
- 18:00 – 18:20 Presentation TBA  
**Frédéric Barras**, Institut Pasteur, France
- 18:20 – 19:30 *Poster exhibition*
- 20:00 – 22:30 *Gala dinner and networking evening*

## Friday, 8 March 2024

### Session 5: Dehydrogenases, Oxidases and Quinones

- 9:00 – 9:20 Energy coupling in *Escherichia coli* complex I  
**Luca Mérono**, Albert-Ludwigs-University, Germany
- 9:20 – 9:40 Function of the isolated CIV from the obligate respiratory supercomplex (CIII<sub>2</sub>CIV<sub>2</sub>SOD<sub>2</sub>) from *Mycobacterium smegmatis*  
**Jóhanna Vilhjálmssdóttir**, Stockholm University, Sweden
- 9:40 – 10:00 Structure, cofactor composition and mechanism of electron and Na<sup>+</sup> transport of the Rnf complex from *Acetobacterium woodii*  
**Jennifer Roth**, Goethe-Universität Frankfurt, Germany

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- 10:00 – 10:20 Diversity of Quinones in Pseudomonadota: Focus on Ubiquinone biosynthesis and physiology of under anaerobic conditions  
**Fabien Pierrel**, CNRS-Université Grenoble Alpes, France
- 10:20 – 10:40 Cytochrome c-dependent nitric oxide reductase is activated by a pair of chaperone proteins  
**Sofia Appelgren**, Stockholm University, Sweden
- 10:40 – 11:00 Characterization and comparison of the oxidoreductase activity of cytochrome bd-I and bd-II oxidases from *Mycobacterium smegmatis*  
**Mateusz Janczak**, Stockholm University, Sweden
- 11:00 – 11:30 *Coffee break*

## Session 6: Handling Stress and Reactive Oxygen and Nitrogen Species (II)

- 11:30 – 11:50 Transcription circuits that respond to electron transfer stress  
**Timothy Donohue**, University of Wisconsin-Madison, USA
- 11:50 – 12:10 L-arginine sensing reprograms the energy metabolism of *P. putida*  
**Simone Angeli**, Sapienza University of Rome, Italy
- 12:10 – 12:30 Interactions between G-quadruplex DNA and hemin structures induce *Staphylococcal* biofilm tolerance to hemin toxicity and electroactivity  
**Obinna Ajnuwa**, Aarhus University, Denmark

## Closing Session

Chair: **Jeff Cole**, University of Birmingham, United Kingdom

- 12:30 – 13:15 **Closing lecture:** Sulphur metabolism in phototrophic sulfur bacteria.  
**Christiane Dahl**, University of Bonn, Germany
- 13:15 – 13:30 Closing words  
**Rosa María Martínez-Espinosa**, University of Alicante, Spain