

# 19<sup>th</sup> ECFS Basic Science Conference

20 – 23 March 2024, Valletta, Malta

## Programme

Chairpersons:

Alexandre Hinzpeter (Paris, FR), Patrick Harrison (Cork, IE) Marie Egan (New Haven, US)

### Wednesday, 20 March 2024 (Day 1)

17:30-18:00	<b>Official Opening of the Conference by the Conference Chairpersons</b>
18:00-19:00	<b>Opening Keynote Lecture</b> <b>CFTR biogenesis and misfolding correction; the role of allosteric domain-domain coupling - Gergely Lukacs (CA)</b>
19:00-19:45	<b>Welcome Reception</b>
19:45-21:30	<i>Dinner</i>

## Thursday, 21 March 2024 (Day 2)

07:30-08:45 *Breakfast*

### 08:45-10:30 **Symposium 1 – CFTR protein structure and function**

**Chairs: Nicoletta Pedemonte (IT) - Gergely Lukacs (CA)**

- 08:45-09:10 CFTR structure, dynamics, and gating through the in silico microscope - Tamás Hegedűs (HU)
- 09:10-09:35 Molecular mechanism of Cl<sup>-</sup> conduction the open state of human CFTR - Régis Pomès (CA)
- 09:35-10:00 CFTR NBD2 folding requires its assembly with TMDs rather than folded NBD1 - Ineke Braakman (NL)
- 10:00-10:10 Abs. 02 - Exploring the activating effects of the inhibitors of type IV ABC transporters on CFTR gating – Paola Vergani (UK)
- 10:10-10:20 Abs. 05 - Mechanism of action and binding site characterization of corrector ARN23765 via Photo-Affinity Labeling (PAL) approach in live cells - Fabio Bertozzi (IT)
- 10:20-10:30 Abs. 04 - Understanding the conformational landscape of NBD1 from CFTR: from normal function to cystic fibrosis - Arina Svoeglazova (BE)

10:30-11:00 *Coffee break & Poster viewing*

### 11:00-12:45 **Symposium 2 – CFTR genetics & CFTR expressing cells**

**Chairs: Anna Cereseto (IT) / Batsheva Kerem (IL)**

- 11:00-11:25 Modulator responsiveness of 656 CFTR variants: from predicting patient treatability to structural insights - Martin Mense (US)
- 11:25-11:50 Single-cell analyses of the human airways in health and respiratory diseases - Laure-Emmanuelle Zaragosi (FR)
- 11:50-12:15 *CFTR* regulation in time and space - Ann Harris (US)
- 12:15-12:25 Abs. 22 - Pre-clinical data demonstrates great promise for AAV gene therapy, one dose of AAV1 or 6-Δ27-264 CFTR successfully ameliorated clinical symptoms in G551D ferrets after 5-weeks. - Liudmila Cebotaru (US)
- 12:25-12:35 Abs. 25 - Novel CFTR+ lung progenitor cells contribute to the dynamic developmental origins of fetal epithelial cell lineages. - Amy Wong (CA)
- 12:35-12:45 Abs. 20 - A modelling framework for epithelial airway fluid and ion transport with multiple cell types: implications for success or failure in gene therapies for cystic fibrosis - Omar Hamed (UK)

12:45-14:30 *Lunch*

**14:30-15:30 Flash Poster Session (even numbers)**

**Chair: Neeraj Sharma (US)**

*15:30-16:00 Coffee break & Poster viewing*

**16:00-17:45 Symposium 3 – Gene editing to correct any CFTR mutation**  
**Chairs: Stephen Hart (UK) / Ann Harris (US)**

16:00-16:25 Modulation of Double Strand Breaks repair to promote Cas9 and PEn dependent DNA insertions - Marcello Maresca (SE)

16:25-16:50 Strategies to correct whole exons in CFTR by gene editing - Patrick Harrison (IE)

16:50-17:15 Identification and evolution of novel CRISPR -Cas systems from the human microbiome - Anna Cereseto (IT)

17:15-17:25 Abs. 28 - Rescuing G542X by Adenine Base Editing: A guide to restore function - Lucia Nicosia (IE)

17:25-17:35 Abs. 33 - Site-specific gene targeting of chromosomal safe harbor and CFTR locus for correcting any CFTR mutation - Jim Hu (CA)

17:35-17:45 Abs. 32 - CRISPR-ABE: a new strategy for the temporospatial control of editing to correct the W1282X mutation in the CFTR gene - Immacolata Zollo (PT)

*19:45-21:30 Dinner*

**21:30-23:00 Evening Poster Session: Posters with Even numbers**

**Friday, 22 March 2024 (Day 3)**

07:30-08:45 *Breakfast*

**08:45-10:30 Symposium 4 – Targeting stop codons and splicing defects**

**Chairs: Jane Davies (UK) / Margarida Amaral (PT)**

- 08:45-09:10 Stabilization of RNA is critical to achieving functional level restoration of nonsense mutations by CFTR modulators - Neeraj Sharma (US)
- 09:10-09:35 Reading through nonsense mutations with engineered tRNAs - Zoya Ignatova (DE)
- 09:35-10:00 Targeting splicing mutations using oligonucleotides - Batsheva Kerem (IL)
- 10:00-10:10 Abs. 43 - Identification of novel pharmacological inhibitors of nonsense-mediated RNA decay to rescue CFTR with premature termination codons - Arianna Venturini (IT)
- 10:10-10:20 Abs. 42 - Upregulation of a nonsense mediated decay (NMD) insensitive CFTR mRNA isoform has therapeutic potential for the treatment of 3' CFTR PTC variants. - Normand Allaire (US)
- 10:20-10:30 Abs. 38 - Comparative study of readthrough molecules - Fabrice Lejeune (FR)

10:30-11:00 *Coffee break & Poster viewing*

**11:00-12:45 Symposium 5 – Gene(tic) therapies: are we ready for clinical research?**

PO initiated symposium on the ECFS basic science meeting

**Chairs: Sylvia Hafkemeyer (DE) + Jeff Beekman (NL)**

- 11:00-11:25 'Statements of people with CF regarding genetic therapies'
- A video on statements will be presented
- 11:25-11:50 Enabling true 'informed' consent by empowering participants - Lorna Allen (UK)
- 11:50-12:15 Delivery: What is feasible according to research and how does it fit to the expectations of people with CF – Stephen Hart (UK)
- 12:15-12:40 Considerations to enhance patient access to genetic therapies - Stefano Zancan (IT)
- 12:40-12:45 Final discussion and concluding remarks

12:45-14:00 *Lunch*

14:00-18:30 **Free Afternoon**

**18:30-19:30 Flash Poster Session (odd numbers)**

**Chair: Ineke Braakman (NL)**

19:45 -21:30 *Dinner*

**21:30-23:00 Evening Poster Session:** Posters with Odd numbers

## Saturday, 23 March 2024 (Day 4)

07:30-08:45 *Breakfast*

### 08:45-10:30 **Symposium 6 – Targeting protein partners and alternative channels**

**Chairs: Alexandre Hinzpeter (FR) / David Sheppard (UK)**

08:45-09:10 Mutant CFTR impacts Insulin-receptor signaling and regulates localization of tight junction - Nael McCarty (US)

09:10-09:35 Targeting ubiquitination to enhance modulator treatments - Nicoletta Pedemonte (IT)

09:35-10:00 Targeting CFTR protein partners and alternative channels - Margarida Amaral (PT)

10:00-10:10 Abs. 46 - Targeting ATP12A proton pump provides new therapeutic opportunities for cystic fibrosis - Giulia Gorrieri (IT)

10:10-10:20 Abs. 58 - Enhancing apical loop currents in airway epithelia carrying CFTR non-sense mutations - Nathalie Baumlin (US)

10:20-10:30 Abs. 47 - SLC26A9 modulators identified through High Throughput Screening (HTS) - Mohsen Esmaeili (CA)

10:30-11:00 *Coffee break & Poster viewing*

### 11:00-12:45 **Symposium 7 – Cell – bacteria relations: infection and inflammation in the era of modulators**

**Chairs: Geneviève Héry-Arnaud (FR) / Dean Madden (US)**

11:00-11:25 Multi-lobe bronchoscopy reveals ETI's effects on regional lung infection and inflammation - Samantha Durfey (US)

11:25-11:50 Effects of CFTR modulators on airway mucus, infection and inflammation in cystic fibrosis - Marcus Mall (DE)

11:50-12:15 A Scottish exploration of the effects of Tez/Iva and Elex/Tez/Iva on systemic and pulmonary inflammation - from bedside to bench. - Nicola Robinson (UK)

12:15-12:25 Abs. 64 - GM1 ganglioside: new insight on its immunomodulatory capacity in CF - Dobi Dorina (IT)

12:25-12:35 Abs. 65 - Exploring the relationship between *Pseudomonas aeruginosa* infection and SLC6A14 in cystic fibrosis - Manon Ruffin (FR)

12:35-12:45 Abs. 69 - Differential effects of CFTR modulators on SARS-CoV-2 infectivity in cultured nasal, bronchial, and intestinal epithelia of people with cystic fibrosis. - Loes den Hertog - Oosterhoff (NL)

12:45-14:15 *Lunch*

<b>14:15-16:00</b>	<b>Symposium 8 – Cell models, organoids in the enhanced life expectancy of patients</b> <b>Chairs: Marie Egan (US) / Patrick Harrison (IE)</b>
14:15-14:40	Functions of the pulmonary ionocyte in the proximal ferret airways - John Engelhardt (US)
14:40-15:05	Intestinal organoids, CFTR function and tissue-specific disease - Jeffrey Beekman (NL)
15:05-15:30	Role of Enteroendocrine Cell Differentiation in the Pathogenesis of CFRD - Daniel Zeve (US)
15:30-15:40	Abs. 85 - Investigation of CFTR function and epithelial barrier properties at single cell resolution using multi-electrode array technology - Marjolein Ensink (BE)
15:40-15:50	Abs. 88 - Endometrium-derived organoids from cystic fibrosis patients to study the endometrial factor in the disease-associated fertility deficiency - Ellen De Pauw (BE)
15:50-16:00	Abs. 79 - Elexacaftor/Tezacaftor/Ivacaftor treatment partially normalizes osteoclasts phenotype in cystic fibrosis-related bone disease - Johan Sergheraert (FR)

**16:00-16:30** *Coffee Break*

**16:30-17:30** **Closing Keynote lecture**  
**Bridging the Gap: scientific discovery to clinical benefit – Jane Davies (UK)**

**20:00** *Dinner / Social Event*