
***Bioenergetics and Health***
***In Memory of Frederick L. Crane***

June 21-24, 2018
Faculty House, Columbia University, NYC

# Thursday, June 21

**9.00 – 12.00** Meeting of the Executive Committee

**14.00 – 17.30** Registration *(1st floor lobby)*

**17.45 – 18.30** **Introductory remarks** *(Seminar Room 2nd floor)*

**P. Navas**
**M. Hirano**

**18.35 – 19.00** **In Memory of Professor Frederick Loring Crane**
Plenary Lecture
**Richard Dilley, Purdue University**

**19.15** Welcome reception *(Presidential Room 3rd floor)*

# Friday, June 22

**8.30 – 10.25 Mitochondrial Bioenergetics** *(Seminar Room 2nd floor)*
Chairpersons: **M.L. Genova** and **U. Brandt**

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| 08.30 | **M.L. Genova** | *Overview on the theme of the session* |
| 08.45 | **U. Brandt** | *Mechanism and regulation of mitochondrial complex I* |
| 09.10 | **A. Osyczka** | *New spectroscopic insight into semiquinone of the quinone reduction site of complex III and its mechanistic consequences* |
| 09.35 | **M. Schlame** | *Cardiolipin Remodeling and Assembly of the OXPHOS System* |
| 10.00 | **A. Mourier** | *An unexpected link between mitochondrial dynamics and coenzyme Q* |

10.25 Coffee break *(Presidential Room 3rd floor)*

**10.50 – 13.15 CoQ Biosynthesis** *(Seminar Room 2nd floor)*
Chairpersons**: C. Clarke** and **M. Kawamukai**

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| 10.50 | **M. Kawamukai** | *A novel gene involved in CoQ biosynthesis in fission yeast* |
| 11.15 | **C. Santos Ocaña** | *Ptc7/PPTC7, a post-translational regulator of mitochondrial metabolism in eukaryotic cells* |
| 11.40 | **D. Pagliarini** | *Defining CoQ biosynthesis and regulation through systems biochemistry* |
| 12.05 | **M. Barros** | *Identification of critical amino acids in Coq proteins using networks of co-evolved residues* |
| 12.30 | **A. Ayer** | *Genome-wide screening of S. cerevisiae to identify novel regulators of cellular CoQ content* |
| 12.50 | **F. Pierrel** | *Escherichia coli synthesizes Q thanks to a soluble multiprotein complex* |

13.15 Lunch *(Presidential Room 3rd floor)*

**14.10 – 16.30 CoQ in ROS Signaling** *(Seminar Room 2nd floor)*
Chairpersons: **R. Stocker** and **G. Lenaz**

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| 14.10 | **G. Lenaz** | *Introduction and Overview* |
| 14.25 | **A. Orr** | *Selective suppressors of oxidant formation at the Q- binding sites of complexes I and III* |
| 14.50 | **M. Murphy** | *Role of CoQ and RET in mitochondrial superoxide/H2O2 formation* |
| 15.15 | **P. Pasdois** | *Succinate and reactive oxygen species in reperfusion injury.* |
| 15.40 | **R. Hamalainen** | *mtDNA mutagenesis disturbs stem cell function by altering ROS-mediated signaling* |

16.05 **D. Fazakerley** *Mitochondrial CoQ deficiency is a common driver of oxidative stress and insulin resistance.*

16.30 Coffee break *(Presidential Room 3rd floor)*

**17.00 – 18.40 CoQ Deficiency and Mitochondrial Myopathies** *(Seminar Room 2nd floor)*
Chairpersons: **C. Quinzii** and **L. Salviati**

17.00 **Catarina M Quinzii** *The role of sulfide oxidation impairment in the pathogenesis of CoQ deficiency*
17.25 **Helene Puccio** *Understanding the pathophysiological mechanisms underlying ARCA2, a recessive ataxia due to mutation in COQ8A*
17.50 **Leonardo Salviati** *Genotype-phenotype correlations for primary CoQ deficiency*
18.15 **Luis C Lopez** *Therapeutic approaches in experimental models of CoQ deficiency*

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# Saturday, June 23

**08.10 – 10.00 Cardiovascular Diseases** *(Seminar Room 2nd floor)*
Chairpersons: **P. Langsjoen** and **F. Rosenfeldt**

08.10 **U. Alehagen** *Selenium and coenzyme Q10 - anti-aging substances? What do we know?*
08.45 **Y.Matsuzawa** *Ubiquinol Improves Endothelial Function in Patients with Heart Failure with Reduced Ejection Fraction: A Randomized Double-blind Placebo-controlled Cross-over Study*
09.10 **S.Pepe** *Mitochondria in human systolic heart failure.*
09.35 **F. Rosenfeldt** *Statins and cognitive decline: Coenzyme Q10 as a possible therapeutic strategy*

10.00 Coffee break *(Presidential Room 3rd floor)*

**10.30 – 13.00 CoQ in Healthy Aging** *(Seminar Room 2nd floor)*
Chairpersons: **K. Higuchi** and **G. Lopez-Lluch**

10.30 **R. de Cabo** *Quinone Reductases and Aging; Potential Roles in Metabolism*
10.55 **K. Higuchi** *Coenzyme $Q_{10}$ could improve healthy aging. New findings obtained in mouse models and in vitro studies*
11.20 **M. Takahashi** *An Age-Associated Decline in the Brain Function and Its Amelioration by Water-Solubilized Coenzyme $Q_{10}$ in Mice*

11.45 **F. Sierra** *Geroscience, an alternative venue towards healthy aging*
12.10 **R. Casper** *CoQ10 and Reproductive Aging*
12.35 **G. Lopez-Lluch** *Coenzyme Q in age-related chronic diseases*

13.00 Lunch *(Presidential Room 3rd floor)*

**14.00 – 16.30 Clinical Benefits of CoQ** *(Seminar Room 2nd floor)*
Chairpersons: **P. Navas** and **L. Tiano**

14.00 **L.Tiano** *Impact of Ubiquinol supplementation on endothelial function in healthy subjects with moderate risk of cardiovascular disease development*
14.25 **K.Brismar** *Coenzyme Q10 and diabetes*
14.50 **M. Donnino** *Coenzyme Q10 in critical illness*
15.15 **N. Klimas** *CoQ10 and Gulf War Illness*
15.40 **M. Kaneki** *Protective effects of ubiquinol in burn injury*
16.05 **Y. Watanabe** *Beneficial effects of 12-week Ubiquinol supplementation on fatigue, sleep, and oxidative stress.*

16.30 Coffee break *(Presidential Room 3rd floor)*

**17.00 – 18.40 Gene regulation and Epigenetics** *(Seminar Room 2nd floor)*
Chairpersons: **E. Trevisson** and **D. Fernandez-Ayala**

17.00 **Jaime Carvajal** *New players in the transcriptional regulation of muscle atrophy/hypertrophy*
17.25 **Siegfried Hekimi** *Characterizing the functions of ubiquinone with molecular genetics and new pharmacological tools.*
17.50 **E. Trevisson** *COQ4 joins up and regulates Respiratory Superassemblies in mammalian cells*
18.15 **D. Fernandez-Ayala** *A wide gene expression analysis that predicts the pathogenesis of Coenzyme Q deficiency: severity and target organs.*

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**20.30** Social dinner *(Presidential Room 3rd floor)*

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# Sunday, June 24

**8.30 – 09.30 Young Participant Awards** *(Seminar Room 2nd floor)*
Chairpersons: **G. Dallner** and **F. Beal**

**9.30 – 12.30 CoQ in Cellular Homeostasis** *(Seminar Room 2nd floor)*
Chairpersons**: P. Navas and G. P. Littarru**

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| 9.30 | **G.Lopez-Lluch** | *Study of the variability in bioavailability of different CoQ10 preparations in humans* |
| 9.55 | **A. Straub** | *Cyb5R3, CoQ and Cardiomyocyte function* |
| 10.20 | **D. Ross** | *Redox modulation of NQO1* |
| 10.45 | Coffee break | *(Presidential Room 3rd floor)* |
| 11.15 | **W. Ju** | *Coenzyme Q10 and oxidative stress-induced retinal neurodegeneration* |
| 11.40 | **A. di Francesco** | *Role of NQO1 in insulin signaling and mRNA translation* |
| 12.05 | **T. Blatt** | *Mitochondrial dysfunction in a senescence model of CoQ10 deprived dermal fibroblasts* |

**12.30-12.50 Closing Keynote Lecture: S. DiMauro**

**12.50 –13.10 Concluding remarks**

Lunch *(Presidential Room 3rd floor)*