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## Early Career Research Award



Regulation of autophagy by mTOR-dependent and mTOR-independent pathways: autophagy dysfunction in neurodegenerative diseases and therapeutic application of autophagy enhancers

**Sovan Sarkar**

**1103–1130**

## Biochemical Society/Protein Society Focused Meeting

### Protein Engineering: New Approaches and Applications

University of Chester, U.K., 10–12 April 2013

**Edited by Ross Anderson (Bristol, U.K.) and Dafydd Jones (Cardiff, U.K.).**

NextGen protein design

**Nicholas Sawyer, Elizabeth B. Speltz and Lynne Regan**

**1131–1136**

Engineering chimaeric proteins from fold fragments: ‘hopeful monsters’ in protein design

**Birte Höcker**

**1137–1140**

Using anchoring motifs for the computational design of protein–protein interactions

**Timothy M. Jacobs and Brian Kuhlman**

**1141–1145**

Opportunities for bioprocess monitoring using FRET biosensors

**Antony Constantinou and Karen M. Polizzi**

**1146–1151**

### Selected oral communications

Repeat protein engineering: creating functional nanostructures/biomaterials from modular building blocks

**Ewan R.G. Main, Jonathan J. Phillips and Charlotte Millership**

**1152–1158**

Evolving protocells to prototissues: rational design of a missing link

**Shiksha Mantri and K. Tanuj Sapra**

**1159–1165**

Predicting affinity- and specificity-enhancing mutations at protein–protein interfaces

**Oz Sharabi, Jason Shirian and Julia M. Shifman**

**1166–1169**

The antiviral lectin cyanovirin-N: probing multivalency and glycan recognition through experimental and computational approaches

**Brian W. Woodrum, Jason D. Maxwell, Ashini Bolia, S. Banu Ozkan and Giovanna Ghirlanda**

**1170–1176**

Genetically encoding phenyl azide chemistry: new uses and ideas for classical biochemistry

**Samuel Reddington, Peter Watson, Pierre Rizkallah, Eric Tippmann and D. Dafydd Jones**



**1177–1182**

Optobiology: optical control of biological processes via protein engineering

**Benjamin Kim and Michael Z. Lin**

**1183–1188**

ProxiMAX randomization: a new technology for non-degenerate saturation mutagenesis of contiguous codons

**Mohammed Ashraf, Laura Frigotto, Matthew E. Smith, Seema Patel, Marcus D. Hughes, Andrew J. Poole, Husam R.M. Hebaishi, Christopher G. Ullman and Anna V. Hine**



**1189–1194**

Rewiring cell signalling through chimaeric regulatory protein engineering

**Baojun Wang, Mauricio Barahona, Martin Buck and Jörg Schumacher**

**1195–1200**

Rational design of FRET sensor proteins based on mutually exclusive domain interactions

**Maarten Merkx, Misha V. Golynskiy, Laurens H. Lindenburg and Jan L. Vinkenborg**

**1201–1205**

## Biochemical Society Focused Meeting

### Bioenergetics in Mitochondria, Bacteria and Chloroplasts

Schloss Rauschholzhausen, Ebsdorfergrund, Germany, 10–13 April 2013

**Edited by Fraser MacMillan (University of East Anglia, Norwich, U.K.) and Thomas Meier (Max Planck Institute of Biophysics, Frankfurt am Main, Germany).**

Half a century of molecular bioenergetics

**Wolfgang Junge**

**1207–1218**

Spotlighting motors and controls of single  $F_0F_1$ -ATP synthase

**Michael Börsch and Thomas M. Duncan**

**1219–1226**

Role of cryo-ET in membrane bioenergetics research

**Karen M. Davies and Bertram Daum**

**1227–1234**

Methods to analyse composition and dynamics of macromolecular complexes

**Heinrich Heide and Ilka Wittig**

**1235–1241**

IR signatures of the metal centres of bovine cytochrome *c* oxidase: assignments and redox-linkage

**Raksha Dodia, Amandine Maréchal, Simona Bettini, Masayo Iwaki and Peter R. Rich**



**1242–1248**

Electrode assemblies composed of redox cascades from microbial respiratory electron transfer chains

**Andrew J. Gates, Sophie J. Marritt, Justin M. Bradley, Liang Shi, Duncan G.G. McMillan, Lars J.C. Jeukens, David J. Richardson and Julea N. Butt**

**1249–1253**

Metabolic engineering of cyanobacteria for the production of hydrogen from water

**Matthias Rögner**

**1254–1259**

Dynamic structural science: recent developments in time-resolved spectroscopy and X-ray crystallography

**Jose Trincao, Michelle L. Hamilton, Jeppe Christensen and Arwen R. Pearson**

**1260–1264**

A long road towards the structure of respiratory complex I, a giant molecular proton pump

**Leonid A. Sazanov, Rozbeh Baradaran, Rouslan G. Efremov, John M. Berrisford and Gurdeep Minhas**

**1265–1271**

Accessory subunits of mitochondrial complex I

**Katarzyna Kmita and Volker Zickermann**

**1272–1279**

Cation transport by the respiratory NADH:quinone oxidoreductase (complex I): facts and hypotheses

**Wojtek Steffen and Julia Steuber**



**1280–1287**

### Selected oral communications

Assembly of the *Escherichia coli* F<sub>o</sub>F<sub>1</sub> ATP synthase involves distinct subcomplex formation

**Gabriele Deckers-Hebestreit**

**1288–1293**

GAPDH: the missing link between glycolysis and mitochondrial oxidative phosphorylation?

**Rabia Ramzan, Petra Weber, Uwe Linne and Sebastian Vogt**

**1294–1297**

Mitochondrial genome function and maternal inheritance

**John F. Allen and Wilson B.M. de Paula**

**1298–1304**

The alternative oxidases: simple oxidoreductase proteins with complex functions

**Luke Young, Tomoo Shiba, Shigeharu Harada, Kiyoshi Kita, Mary S. Albury and Anthony L. Moore**

**1305–1311**

Sulfide inhibition of and metabolism by cytochrome c oxidase

**Peter Nicholls, Doug C. Marshall, Chris E. Cooper and Mike T. Wilson**

**1312–1316**

Microbial hydrogen splitting in the presence of oxygen

**Matthias Stein and Sandeep Kaur-Ghumaan**

**1317–1324**

Molecular mechanism and physiological role of active-deactive transition of mitochondrial complex I

**Marion Babot and Alexander Galkin**

**1325–1330**

Improvement of mitochondrial function and dynamics by the metabolic enhancer piracetam

**Carola Stockburger, Christopher Kurz, Konrad A. Koch, Schamim H. Eckert, Kristina Leuner and Walter E. Müller**

**1331–1334**

The superfamily of mitochondrial Complex1\_LYR motif-containing (LYRM) proteins

**Heike Angerer**

**1335–1341**