

Subscribing organizations are encouraged to copy and distribute this table of contents for non-commercial purposes

Independent Meeting

International Hydrogenases Conference 2004

University of Reading, 24–29 August 2004

Edited by R. Cammack (King's College London, U.K.) and F. Sargent (University of East Anglia, Norwich, U.K.)

Sponsored by COST (European Cooperation in the field of Scientific and Technical Research), the European Science Foundation and the European Office of Aerospace Research and Development

Bio-hydrogen: microbes have their own agenda

R. Cammack

1–2

Electrocatalytic proton reduction by dithiolate-bridged diiron carbonyl complexes:
a connection to the H-cluster?

S.J. Borg, M.I. Bondin, S.P. Best, M. Razavet, X. Liu and C.J. Pickett

3–6

EPR experiments to elucidate the structure of the ready and unready states of the
[NiFe] hydrogenase of *Desulfovibrio vulgaris* Miyazaki F

M. van Gastel, C. Fichtner, F. Neese and W. Lubitz

7–11

On the relationship between affinity for molecular hydrogen and the physiological
directionality of hydrogenases

D.J. van Haaster, P.-L. Hagedoorn, J.A. Jongejan and W.R. Hagen

12–14

Treatment of spin-coupled metal-centres in pulsed electron-electron
double-resonance experiments

C. Elsaesser, M. Brecht and R. Bittl

15–19

A semi-empirical molecular orbital scheme to study electron transfer in
iron-sulphur proteins

M. Sundararajan, J.P. McNamara, M. Mohr, I.H. Hillier and H. Wang

20–21

Hydrogen metabolism in the hyperthermophilic bacterium *Aquifex aeolicus*

M. Guiral, C. Aubert and M.-T. Giudici-Ortoni

22–24

Non-standard structures of the Ni-Fe cofactor in the regulatory and the
NAD-reducing hydrogenases from *Ralstonia eutropha*

S. Löscher, T. Burgdorf, T. Bührke, B. Friedrich, H. Dau and M. Haumann

25–27

Transcriptional regulation of the uptake [NiFe]hydrogenase genes in
Rhodobacter capsulatus

P.M. Vignais, S. Elsen and A. Colbeau

28–32

Biodiversity of uptake hydrogenase systems from legume endosymbiotic bacteria

B. Brito, C. Baginsky, J.M. Palacios, E. Cabrera, T. Ruiz-Argüeso and J. Imperial

33–35

Anaerobic regulation of hydrogenase transcription in different bacteria

Á.T. Kovács, G. Rákely, J. Balogh, G. Maróti, A. Fülöp and K.L. Kovács

36–38

The exceptional photofermentative hydrogen metabolism of the green alga <i>Chlamydomonas reinhardtii</i>	39–41
A. Hemschemeier and T. Happe	
Formate and its role in hydrogen production in <i>Escherichia coli</i>	42–46
R.G. Sawers	
Eukaryotic Fe-hydrogenases – old eukaryotic heritage or adaptive acquisitions?	47–50
J.H.P. Hackstein	
Interacting regulatory networks in the facultative photosynthetic bacterium, <i>Rhodobacter sphaeroides</i> 2.4.1	51–55
S. Kaplan, J. Eraso and J.H. Roh	
High-level transcription of large gene regions: a novel T ₇ RNA-polymerase-based system for expression of functional hydrogenases in the phototrophic bacterium <i>Rhodobacter capsulatus</i>	56–58
T. Drepper, S. Arvani, F. Rosenau, S. Wilhelm and K.-E. Jaeger	
Construction of a [NiFe]-hydrogenase deletion mutant of <i>Desulfovibrio vulgaris</i> Hildenborough	59–60
A. Goenka, J.K. Voordouw, W. Lubitz, W. Gärtner and G. Voordouw	
The hydrogenases of <i>Thiocapsa roseopersicina</i>	61–63
K.L. Kovács, Á.T. Kovács, G. Maróti, L.S. Mészáros, J. Balogh, D. Latinovics, A. Fülöp, R. Dávid, E. Dorogházi and G. Rákely	
Molecular characterization of uptake hydrogenase in <i>Frankia</i>	64–66
M. Leul, U. Mattsson and A. Sellstedt	
Uptake hydrogenase in cyanobacteria: novel input from non-heterocystous strains	67–69
P. Tamagnini, E. Leitão and F. Oxelfelt	
Approaches to developing biological H ₂ -photoproducing organisms and processes	70–72
M.L. Ghirardi, P.W. King, M.C. Posewitz, P. Ching Maness, A. Fedorov, K. Kim, J. Cohen, K. Schulten and M. Seibert	
Hydrogenase electrodes for fuel cells	73–75
A.A. Karyakin, S.V. Morozov, E.E. Karyakina, N.A. Zorin, V.V. Perelygin and S. Cosnier	
Applications of bacterial hydrogenases in waste decontamination, manufacture of novel bionanocatalysts and in sustainable energy	76–79
L.E. Macaskie, V.S. Baxter-Plant, N.J. Creamer, A.C. Humphries, I.P. Mikheenko, P.M. Mikheenko, D.W. Penfold and P. Yong	
Molecular dynamics and experimental investigation of H ₂ and O ₂ diffusion in [Fe]-hydrogenase	80–82
J. Cohen, K. Kim, M. Posewitz, M.L. Ghirardi, K. Schulten, M. Seibert and P. King	
Use of molecular hydrogen as an energy substrate by human pathogenic bacteria	83–85
R.J. Maier	
Nar1p, a conserved eukaryotic protein with similarity to Fe-only hydrogenases, functions in cytosolic iron-sulphur protein biogenesis	86–89
J. Balk, A.J. Pierik, D.J. Aguilar Netz, U. Mühlenhoff and R. Lill	

NifU and NifS are required for the maturation of nitrogenase and cannot replace the function of *isc*-gene products in *Azotobacter vinelandii*

D.C. Johnson, P.C. Dos Santos and D.R. Dean

90–93

Genetics and biotechnology of the H₂-uptake [NiFe] hydrogenase from *Rhizobium leguminosarum* bv. *viciae*, a legume endosymbiotic bacterium

J.M. Palacios, H. Manyani, M. Martínez, A.C. Ureta, B. Brito, E. Báscones, L. Rey, J. Imperial and T. Ruiz-Argüeso

94–96

A hydrogen-sensing multiprotein complex controls aerobic hydrogen metabolism in *Ralstonia eutropha*

B. Friedrich, T. Bührke, T. Burgdorf and O. Lenz

97–101

Identification of genes required for hydrogenase activity in *Chlamydomonas reinhardtii*

M.C. Posewitz, P.W. King, S.L. Smolinski, R. Davis Smith II, A.R. Ginley, M.L. Ghirardi and M. Seibert

102–104

Common principles in the biosynthesis of diverse enzymes

R.L. Jack, A. Dubini, T. Palmer and F. Sargent

105–107

[NiFe]-Hydrogenase maturation endopeptidase: structure and function

E. Theodoratou, R. Huber and A. Böck

108–111

Biochemical Society Focused Meetings

The 10th Nitrogen Cycle Meeting 2004

University of East Anglia, Norwich, U.K., 2–4 September 2004

Edited by C.S. Butler (Newcastle upon Tyne, U.K.) and D.J. Richardson (Norwich, U.K.)

Sponsored by the COST (European Cooperation in the field of Scientific and Technical Research) Office and the ESF (European Science Foundation)

The emerging molecular structure of the nitrogen cycle: an introduction to the proceedings of the 10th annual N-cycle meeting

C.S. Butler and D.J. Richardson

113–118

1994–2004: 10 years of research on the anaerobic oxidation of ammonium

M.S.M. Jetten, I. Cirpus, B. Kartal, L. van Niftrik, K.T. van de Pas-Schoonen, O. Sliekers, S. Haaijer, W. van der Star, M. Schmid, J. van de Vossenberg, I. Schmidt, H. Harhangi, M. van Loosdrecht, J. Gijs Kuenen, H. Op den Camp and M. Strous

119–123

Chaperones involved in assembly and export of N-oxide reductases

K. Hatzixanthis, D.J. Richardson and F. Sargent

124–126

Molybdate-dependent expression of the periplasmic nitrate reductase in *Bradyrhizobium japonicum*

N. Bonnard, A. Tresierra-Ayala, E.J. Bedmar and M.J. Delgado

127–129

Membrane-bound denitrification in the Gram-positive bacterium *Bacillus azotoformans*

Suharti and S. de Vries

130–133

Microaerobic denitrification in *Neisseria meningitidis*

J.D. Rock and J.W.B. Moir

134–136

Cytochrome c nitrite reductase: from structural to physicochemical analysis B. Burlat, J.D. Gwyer, S. Pock, T. Clarke, J.A. Cole, A.M. Hemmings, M.R. Cheesman, J.N. Butt and D.J. Richardson	137–140
The complete denitrification pathway of the symbiotic, nitrogen-fixing bacterium <i>Bradyrhizobium japonicum</i> E.J. Bedmar, E.F. Robles and M.J. Delgado	141–144
Complexity and diversity in c-type cytochrome biogenesis systems J.W.A. Allen, M.L. Ginger and S.J. Ferguson	145–146
The enigma of <i>Paracoccus pantotrophus</i> cytochrome <i>cd</i> ₁ activation R.S. Zajicek and S.J. Ferguson	147–148
The role of ResA in type II cytochrome c maturation A. Crow, N.E. Le Brun and A. Oubrie	149–151
Nitrogen fixation: key genetic regulatory mechanisms I. Martinez-Argudo, R. Little, N. Shearer, P. Johnson and R. Dixon	152–156
Plasmid replicons of <i>Rhizobium</i> L.C. Crossman	157–158
Nitrate and nitrite transport in <i>Escherichia coli</i> W. Jia and J.A. Cole	159–161
Function of the <i>Rhizobium etli</i> CFN42 <i>nirK</i> gene in nitrite metabolism E. Bueno, N. Gómez-Hernández, L. Girard, E.J. Bedmar and M.J. Delgado	162–163
Nitrogen assimilation and nitrogen control in cyanobacteria E. Flores and A. Herrero	164–167
Alkaline cyanide biodegradation by <i>Pseudomonas pseudoalcaligenes</i> CECT5344 V.M. Luque-Almagro, R. Blasco, M.J. Huertas, M. Martínez-Luque, C. Moreno-Vivián, F. Castillo and M.D. Roldán	168–169
Complex formation between AmtB and GlnK: an ancestral role in prokaryotic nitrogen control A. Javelle and M. Merrick	170–172
Microbial reduction of selenate and nitrate: common themes and variations C.A. Watts, H. Ridley, E.J. Dridge, J.T. Leaver, A.J. Reilly, D.J. Richardson and C.S. Butler	173–175
Nitric oxide and nitrosative stress tolerance in bacteria R.K. Poole	176–180
DNA binding properties of the <i>Escherichia coli</i> nitric oxide sensor NorR: towards an understanding of the regulation of flavorubredoxin expression N. Tucker, B. D'Autréaux, S. Spiro and R. Dixon	181–183
N-oxide sensing in <i>Pseudomonas aeruginosa</i> : expression and preliminary characterization of DNR, an FNR-CRP type transcriptional regulator S. Rinaldo, G. Giardina, M. Brunori and F. Cutruzzolà	184–186
Purification and characterization of cytochrome <i>c'</i> from <i>Neisseria meningitidis</i> W.M. Huston, E.C. Lowe, C.S. Butler and J.W.B. Moir	187–189

Electron transport through nitrate and nitrite reductases in <i>Campylobacter jejuni</i>	190–192
M.S. Pittman and D.J. Kelly	
Transcriptional regulation of nitric oxide reduction in <i>Ralstonia eutropha</i> H16	193–194
A. Büsch, K. Strube, B. Friedrich and R. Cramm	
Transcriptional regulation of a hybrid cluster (prismane) protein	195–197
N.A. Filenko, D.F. Browning and J.A. Cole	
Detoxification of nitric oxide by the flavorubredoxin of <i>Salmonella enterica</i> serovar Typhimurium	198–199
P.C. Mills, D.J. Richardson, J.C.D. Hinton and S. Spiro	
Tracking nitrate reducers and denitrifiers in the environment	200–204
L. Philippot	
Complete conversion of nitrate into dinitrogen gas in co-cultures of denitrifying bacteria	205–209
K.T. Van de Pas-Schoonen, S. Schalk-Otte, S. Haaijer, M. Schmid, H. Op den Camp, M. Strous, J. Gijs Kuenen and M.S.M. Jetten	
Nitrate respiration in the actinomycete <i>Streptomyces coelicolor</i>	210–212
G. van Keulen, J. Alderson, J. White and R.G. Sawers	

Transporters 2004: International Symposium on Membrane Transport and Transporters
Selwyn College Cambridge, 2–5 September 2004

Edited by S.A. Baldwin (Leeds, U.K.) and P.M. Taylor (Dundee, U.K.)

Transport regulation by the serum- and glucocorticoid-inducible kinase SGK1	213–215
F. Lang, V. Vallon, F. Grahammer, M. Palmada and C. Böhmer	
The concentrative nucleoside transporter family (SLC28): new roles beyond salvage?	216–219
I. Aymerich, S. Duflot, S. Fernández-Veledo, E. Guillén-Gómez, I. Huber-Ruano, F.J. Casado and M. Pastor-Anglada	
Evolution of the bacterial phosphotransferase system: from carriers and enzymes to group translocators	220–224
M.H. Saier, Jr, R.N. Hvorup and R.D. Barabote	
Growth factors regulate cell survival by controlling nutrient transporter expression	225–227
A.L. Edinger	
Thyroid hormone transporters	228–232
E.C.H. Friesema, J. Jansen and T.J. Visser	
Neutral amino acid transport in epithelial cells and its malfunction in Hartnup disorder	233–236
S. Bröer, J.A. Cavanaugh and J.E.J. Rasko	
Biological functions of SLC5A8, a candidate tumour suppressor	237–240
V. Ganapathy, E. Gopal, S. Miyauchi and P.D. Prasad	
ABC transporters in the balance: is there a role in multidrug resistance?	241–245
O. Polgar and S.E. Bates	

Nutrient Sensing through the Plasma Membrane of Eukaryotic Cells

Royal Agricultural College, Cirencester, 25–29 September 2004

Edited by S. Shirazi-Beechey*Sponsored by Flanders Interuniversity Institute for Biotechnology and Nestlé U.K. Ltd.*

Glucose as a hormone: receptor-mediated glucose sensing in the yeast
*Saccharomyces cerevisiae***M. Johnston and J.-H. Kim****247–252**

Nutrient sensing systems for rapid activation of the protein kinase A pathway in yeast

**J.M. Thevelein, R. Geladé, I. Holsbeeks, O. Lagatie, Y. Popova, F. Rolland, F. Stoltz,
S. Van de Velde, P. Van Dijck, P. Vandormael, A. Van Nuland, K. Van Roey,
G. Van Zeebroeck and B. Yan****253–256**Glucose sensing via the protein kinase A pathway in *Schizosaccharomyces pombe***C.S. Hoffman****257–260**

Amino acid sensing by Ssy1

P. Poulsen, B. Wu, R.F. Gaber, K. Ottow, H.A. Andersen and M.C. Kielland-Brandt**261–264**

Glucose sensing through the Hxk2-dependent signalling pathway

F. Moreno, D. Ahuatzi, A. Riera, C.A. Palomino and P. Herrero**265–268**

Sugar sensing and signalling networks in plants

F. Rolland and J. Sheen**269–271**

Sucrose-induced translational repression of plant bZIP-type transcription factors

A. Wiese, N. Elzinga, B. Wobbes and S. Smeekens**272–275**

Trehalose metabolism and glucose sensing in plants

N. Avonce, B. Leyman, J. Thevelein and G. Iturriaga**276–279**The role of trehalose-6-phosphate synthase in *Arabidopsis* embryo development**L.D. Gómez, S. Baud and I.A. Graham****280–282**

Nitrate and glutamate sensing by plant roots

S. Filleur, P. Walch-Liu, Y. Gan and B.G. Forde**283–286**

Development and use of fluorescent nanosensors for metabolite imaging in living cells

M. Fehr, S. Okumoto, K. Deusdle, I. Lager, L.L. Looger, J. Persson, L. Kozhukh, S. Lalonde and W.B. Frommer**287–290**Carbon source induced yeast-to-hypha transition in *Candida albicans* is dependent on the presence of amino acids and on the G-protein-coupled receptor Gpr1**M.M. Maidan, J.M. Thevelein and P. Van Dijck****291–293**

Glucose modulation of cell size in yeast

M. Vanoni, R.L. Rossi, L. Querin, V. Zinzalla and L. Alberghina**294–296**

Acquired glucose sensitivity of k-ras transformed fibroblasts

F. Chiaradonna, C. Magnani, E. Sacco, R. Manzoni, L. Alberghina and M. Vanoni**297–299**

Nutrient sensing in pancreatic β cells suppresses mitochondrial superoxide generation and its contribution to apoptosis G. Martens, Y. Cai, S. Hinke, G. Stangé, M. Van De Castele and D. Pipeleers	300-301
Expression of sweet taste receptors of the T1R family in the intestinal tract and enteroendocrine cells J. Dyer, K.S.H. Salmon, L. Zibrik and S.P. Shirazi-Beechey	302-305
Glucokinase and glucose homeostasis: proven concepts and new ideas D. Zelent, H. Najafi, S. Odili, C. Buettger, H. Weik-Collins, C. Li, N. Doliba, J. Grimsby and F.M. Matschinsky	306-310
CD36-dependent fatty acid uptake regulates expression of peroxisome proliferator activated receptors V.A. Drover and N.A. Abumrad	311-315
The calcium-sensing receptor as a nutrient sensor D. Riccardi and D. Maldonado-Perez	316-320