

BIOLOGICAL CHEMISTRY

*Founded in 1877 by Felix Hoppe-Seyler as
Zeitschrift für Physiologische Chemie*

Felix Hoppe-Seyler (1825–1895) was a pioneer of biochemistry, remembered not only for his discovery of hemoglobin and his contributions to the chemical characterization of many other biological compounds and processes but also for having been the mentor of Friedrich Miescher and Albrecht Kossel. In his preface to the first issue of *Zeitschrift für Physiologische Chemie*, Felix Hoppe-Seyler coined the term *Biochemistry* ('Biochemie') for the then newly emerging discipline.



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COVER ILLUSTRATION

The Na⁺-translocating NADH:quinone oxidoreductase (Na⁺-NQR) is the first complex in the respiratory chain of the human pathogen *Vibrio cholerae*. This redox-driven pump generates a Na⁺-gradient that is essential for substrate uptake, motility and pathogenicity. Although Na⁺-NQR catalyzes a similar reaction like mitochondrial complex I, it is not related at the molecular level, marking it as an ideal target for new antimicrobial drugs. The crystal structure of Na⁺-NQR was determined recently by the research teams of Julia Steuber and Günter Fritz and revealed a novel architecture for a respiratory complex. The Na⁺-NQR comprises six different subunits and harbors unique cofactors, e.g. covalently bound flavin mononucleotide and riboflavin (shown as yellow van-der-Waals spheres) as well as a Fe center in the midst of the membrane. In the review article by Steuber and colleagues on pp. 1015–1030 in this issue the authors line out a putative mechanism coupling electron transfer with Na⁺ translocation across the membrane.

The image of the structure of *V. cholerae* Na⁺-NQR shown on the cover is courtesy of Günter Fritz, University of Freiburg, Germany.



Contents

Meeting Report — 949

HIGHLIGHT: MEMBRANE TRANSPORT AND COMMUNICATION

Michael Jaehme and Dirk Jan Slotboom

Structure, function, evolution, and application of bacterial Pnu-type vitamin transporters — 955

Tina Zollmann, Christoph Bock, Philipp Graab and Rupert Abele

Team work at its best – TAPL and its two domains — 967

Tobias Stauber

The volume-regulated anion channel is formed by LRRC8 heteromers – molecular identification and roles in membrane transport and physiology — 975

Albert Konijnenberg, Jeroen F. van Dyck, Lyn L. Kailing and Frank Sobott

Extending native mass spectrometry approaches to integral membrane proteins — 991

Marina Diskowski, Vedrana Mikusevic, Charlott Stock and Inga Hänel

Functional diversity of the superfamily of K⁺ transporters to meet various requirements — 1003

Julia Steuber, Georg Vohl, Valentin Muras, Charlotte Toulouse, Björn Claußen, Thomas Vorburger and Günter Fritz

The structure of Na⁺-translocating of NADH:ubiquinone oxidoreductase of *Vibrio cholerae*: implications on coupling between electron transfer and Na⁺ transport — 1015

Karsten Brandt and Volker Müller

Hybrid rotors in F₁F_o ATP synthases: subunit composition, distribution, and physiological significance — 1031

Kristina Puth, Harald F. Hofbauer, James P. Sáenz and Robert Ernst

Homeostatic control of biological membranes by dedicated lipid and membrane packing sensors — 1043

Sabine Eggensperger and Robert Tampé

The transporter associated with antigen processing: a key player in adaptive immunity — 1059

Dijun Du, Jarrod Voss, Zhao Wang, Wah Chiu and Ben F. Luisi

The pseudo-atomic structure of an RND-type tripartite multidrug efflux pump — 1073

Reinke Tobias Müller and Klaas Martinus Pos

The assembly and disassembly of the AcrAB-TolC three-component multidrug efflux pump — 1083

Octavian Călinescu and Klaus Fendler

A universal mechanism for transport and regulation of CPA sodium proton exchangers — 1091

Helmut Merk, Ralf-Bernhardt Rues, Christine Gless, Kerstin Beyer, Fang Dong, Volker Dötsch, Michael Gerrits and Frank Bernhard

Biosynthesis of membrane dependent proteins in insect cell lysates: identification of limiting parameters for folding and processing — 1097

Elena Bühl, Markus Braun, Andrea Lakatos, Clemens Glaubitz and Josef Wachtveitl

Fluorescence and excited state dynamics of the deprotonated Schiff base retinal in proteorhodopsin — 1109

Izabela Wacławska and Christine Ziegler

Regulatory role of charged clusters in the N-terminal domain of BetP from *Corynebacterium glutamicum* — 1117

Phong T. Nguyen, Qi Wen Li, Neena S. Kadaba, Jeffrey Y. Lai, Janet G. Yang and Douglas C. Rees

The contribution of methionine to the stability of the *Escherichia coli* MetNIQ ABC transporter-substrate binding protein complex — 1127

Hundeep Kaur, Andrea Lakatos, Roberta Spadaccini, Ramona Vogel, Christian Hoffmann, Johanna Becker-Baldus, Olivier Ouari, Paul Tordo, Hassane Mchaourab and Clemens Glaubitz

The ABC exporter MsbA probed by solid state NMR – challenges and opportunities — 1135

Yi-Ching Hsueh, Eva-M. Brouwer, Julian Marzi, Oliver Mirus and Enrico Schleiff

Functional properties of LptA and LptD in *Anabaena* sp. PCC 7120 — 1151