

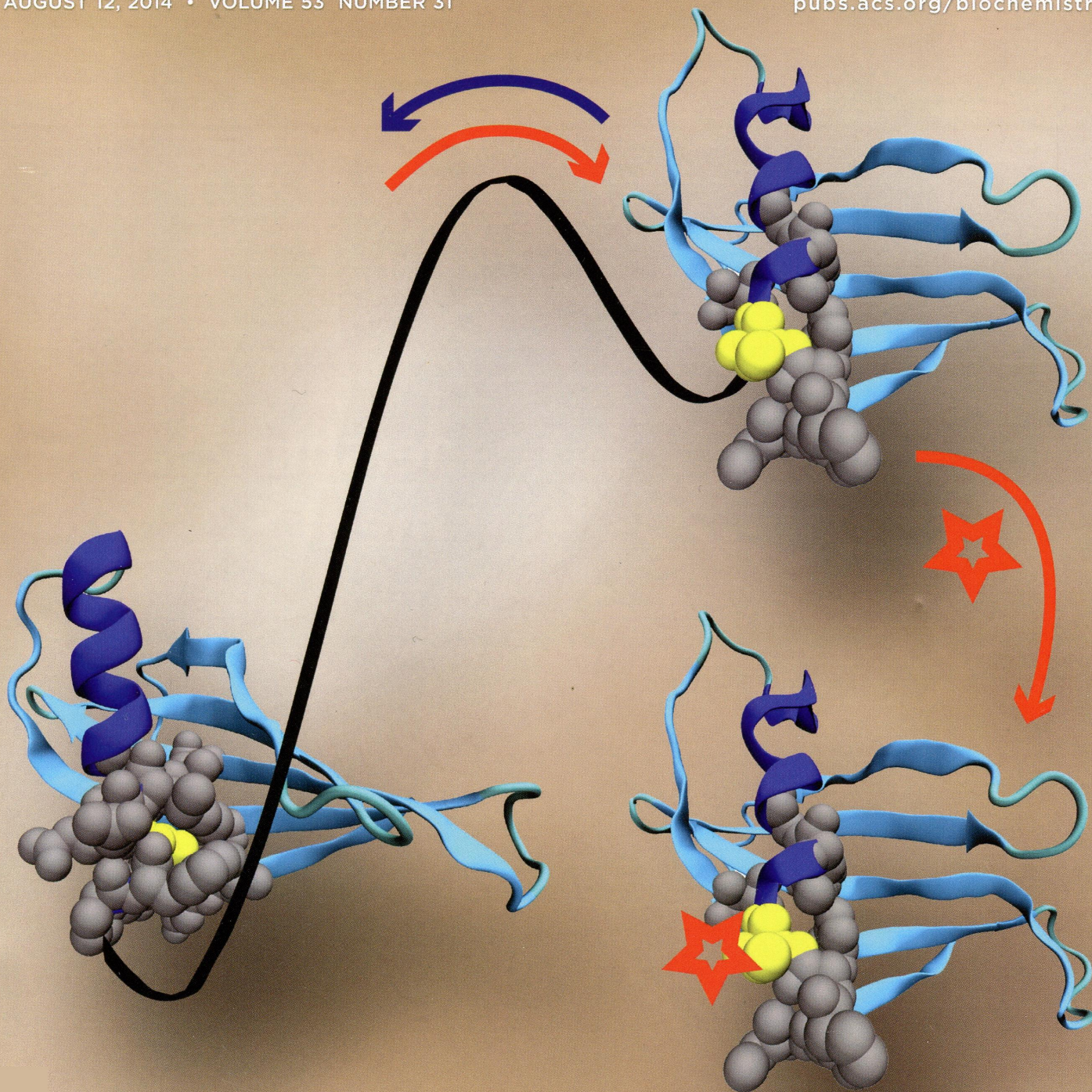
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# BIOCHEMISTRY

including biophysical chemistry & molecular biology

AUGUST 12, 2014 • VOLUME 53 NUMBER 31

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**ON THE COVER:** Thiol labeling of a single cysteine residue (yellow spheres) has been used to monitor rare unfolding events in a protein under natively like conditions. The residues (gray spheres) surrounding the buried cysteine move apart, resulting in solvent exposure and hence labeling of the side chain thiol. This deprotection of the side chain is associated with an energy barrier between the native state and a partially unfolded, labeling-competent intermediate. Such intermediates have been mapped onto the unfolding energy landscape of the protein monellin using the kinetic and thermodynamic information obtained from thiol labeling. [Malhotra, P., and Udgaonkar, J. B. (2014) *Biochemistry* 53, 3608–3620]

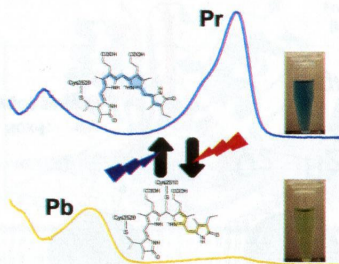
## Articles


5051 

[dx.doi.org/10.1021/bi500376b](https://doi.org/10.1021/bi500376b)

**A New Type of Dual-Cys Cyanobacteriochrome GAF Domain Found in Cyanobacterium *Acaryochloris marina*, Which Has an Unusual Red/Blue Reversible Photoconversion Cycle**

Rei Narikawa,\* Gen Enomoto, Ni-Ni-Win, Keiji Fushimi, and Masahiko Ikeuchi

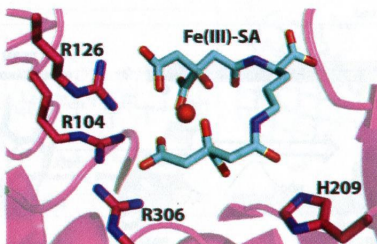


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[dx.doi.org/10.1021/bi500729h](https://doi.org/10.1021/bi500729h)

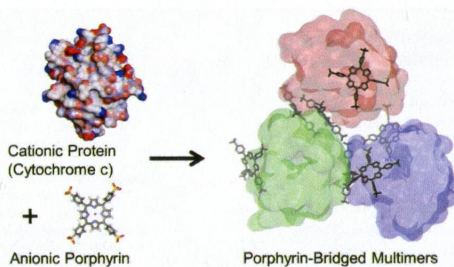
**Identification of a Positively Charged Platform in *Staphylococcus aureus* HtsA That Is Essential for Ferric Staphyloferrin A Transport**

John D. Cooper, MéliSSa Hannauer, Cristina L. Marolda, Lee-Ann K. Briere, and David E. Heinrichs\*

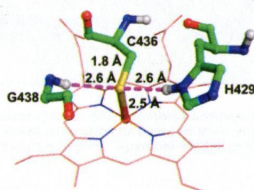


**Multimerization of Solution-State Proteins by Tetrakis(4-sulfonatophenyl)porphyrin**

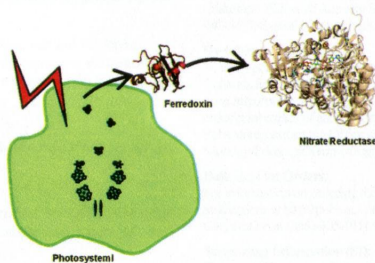
Oleksandr Kokhan, Nina Ponomarenko, P. Raj Pokkuluri, Marianne Schiffer, and David M. Tiede\*

**Structural and Functional Characterization of a Cytochrome P450 2B4 F429H Mutant with an Axial Thiolate–Histidine Hydrogen Bond**

Yuting Yang, Haoming Zhang, Dandamudi Usharani, Weishu Bu, Sangchoul Im, Michael Tarasev, Freeborn Rwere, Naw May Pearl, Jennifer Meagher, Cuthbert Sun, Jeanne Stuckey, Sason Shaik, and Lucy Waskell\*

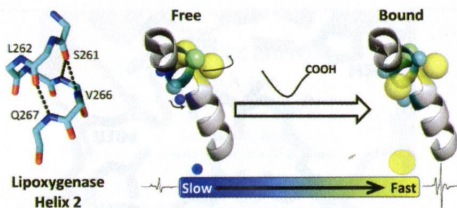
**Kinetic Studies of a Ferredoxin-Dependent Cyanobacterial Nitrate Reductase**

Anurag P. Srivastava, David B. Knaff,\* and Pierre Sétif



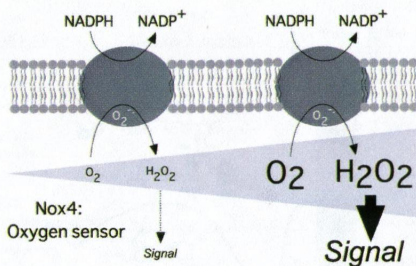
### Fluctuations of an Exposed $\pi$ -Helix Involved in Lipoxygenase Substrate Recognition

Miles D. Bradshaw and Betty J. Gaffney\*



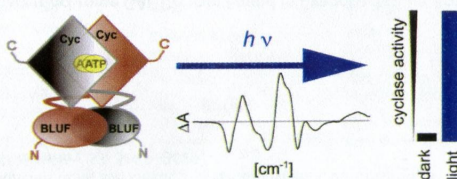
### Nox4: A Hydrogen Peroxide-Generating Oxygen Sensor

Yukio Nisimoto, Becky A. Diebold, Daniela Constantino-Gomes, and J. David Lambeth\*



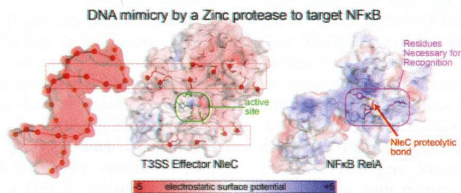
### Key Residues for the Light Regulation of the Blue Light-Activated Adenylyl Cyclase from *Beggiatoa* sp.

Manuela Stierl, Alfons Penzkofer, John T. M. Kennis, Peter Hegemann, and Tilo Mathes\*



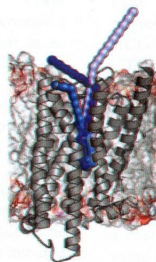
## The Structure and Specificity of the Type III Secretion System Effector NleC Suggest a DNA Mimicry Mechanism of Substrate Recognition

Michelle Marian Turco and Marcelo Carlos Sousa\*



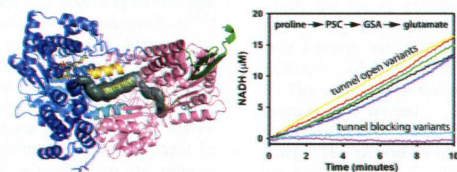
## Mechanistic Insights into the Allosteric Modulation of Opioid Receptors by Sodium Ions

Yi Shang, Valerie LeRouzic, Sebastian Schneider, Paola Bisignano, Gavril W. Pasternak, and Marta Filizola\*



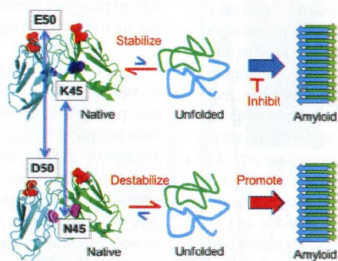
## Kinetic and Structural Characterization of Tunnel-Perturbing Mutants in *Bradyrhizobium japonicum* Proline Utilization A

Benjamin W. Arentson, Min Luo, Travis A. Pemberton, John J. Tanner, and Donald F. Becker\*



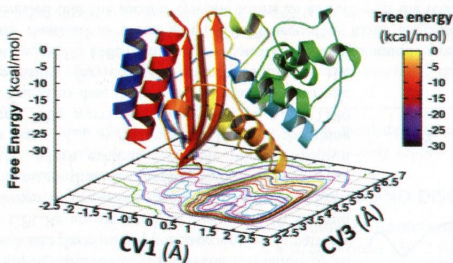
### Decreased Amyloidogenicity Caused by Mutational Modulation of Surface Properties of the Immunoglobulin Light Chain BRE Variable Domain

Yuta Kobayashi, Hirotaka Tsutsumi, Tetsuyuki Abe, Kyohei Ikeda, Yuki Tashiro, Satoru Unzai, Hironari Kamikubo, Mikio Kataoka, Hidekazu Hiroaki, and Daizo Hamada\*



### Inactivation of TEM-1 by Avibactam (NXL-104): Insights from Quantum Mechanics/Molecular Mechanics Metadynamics Simulations

Jacopo Sgrignani, Giovanni Grazioso, Marco De Amici, and Giorgio Colombo\*



### Temperature Dependence of Backbone Dynamics in Human Ileal Bile Acid-Binding Protein: Implications for the Mechanism of Ligand Binding

Gergő Horváth, Orsolya Egyed, and Orsolya Tóke\*

