

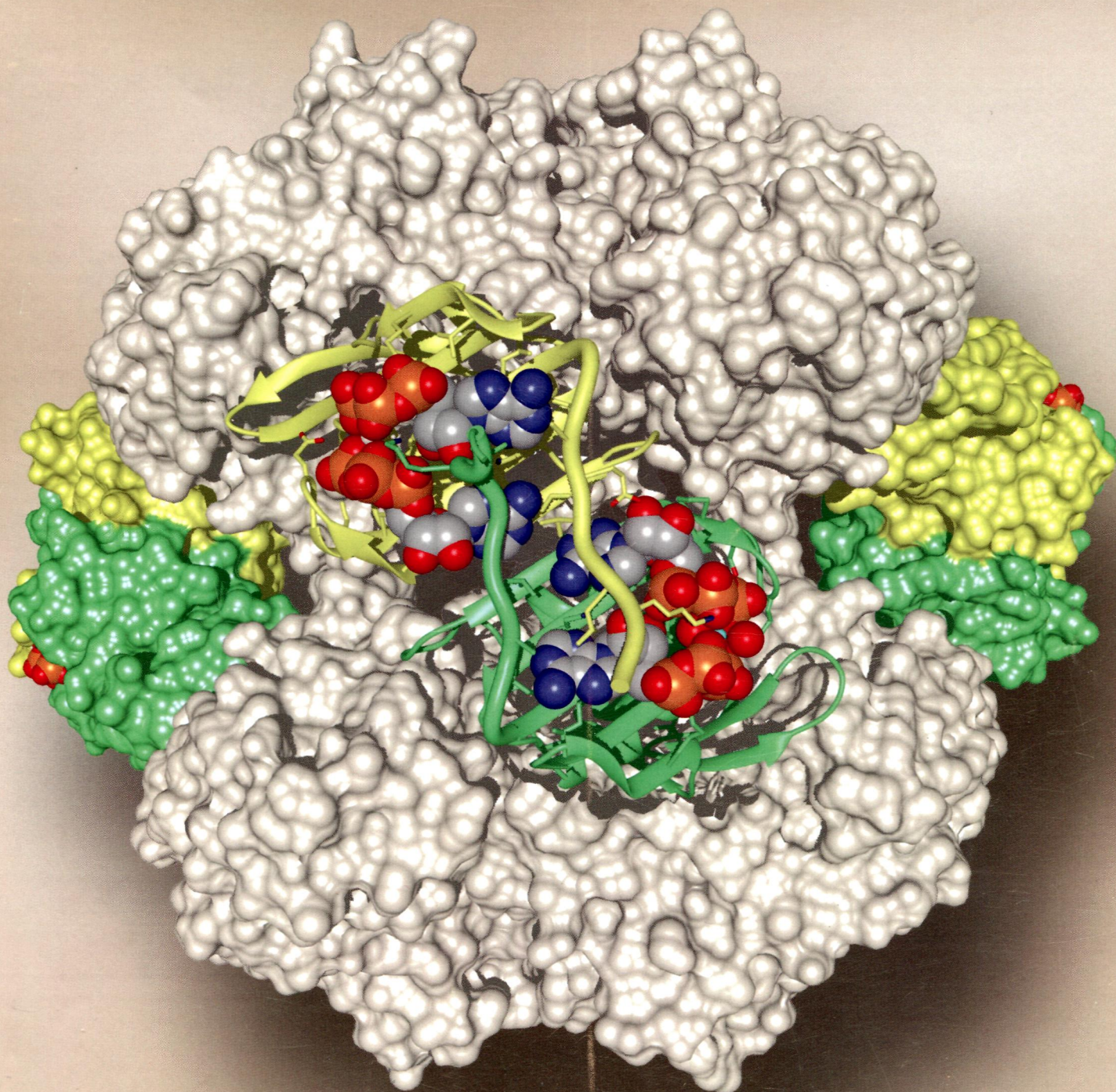
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# BIOCHEMISTRY

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**ON THE COVER:** Three-dimensional structure of the *Escherichia coli* aspartate transcarbamoylase holoenzyme in the R state with two ATP molecules and a  $Mg^{2+}$  cation bound to each regulatory chain. The two catalytic trimers are shown as surface representations (tan). One chain of each of the three regulatory dimers is colored yellow, while the other is colored green. The two regulatory dimers on the sides are shown as surface representations, while the third, in front, is shown as a ribbon trace. The binding of the two ATP molecules and one  $Mg^{2+}$  molecule induces an alteration of the N-termini of the regulatory chains (thick lines), displacing them into the adjacent regulatory chain and thereby strengthening the dimer interface and further stabilizing the R state of the enzyme. This figure was generated using UCSF Chimera. [Cockrell, G. M., et al. (2013) *Biochemistry* 52, 8036–8047]

## Rapid Reports

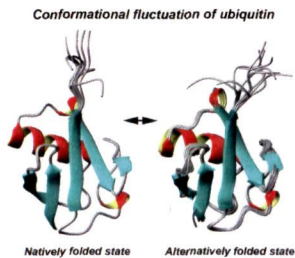
447



[dx.doi.org/10.1021/bi401617n](https://doi.org/10.1021/bi401617n)

### Close Identity between Alternatively Folded State $N_2$ of Ubiquitin and the Conformation of the Protein Bound to the Ubiquitin-Activating Enzyme

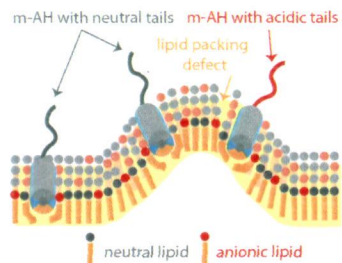
Soichiro Kitazawa, Tomoshi Kameda, Ayumi Kumo, Maho Yagi-Utsumi, Nicola J. Baxter, Koichi Kato, Mike P. Williamson, and Ryo Kitahara\*



450 **5** dx.doi.org/10.1021/bi401457r

The Curvature Sensitivity of a Membrane-Binding Amphipathic Helix Can Be Modulated by the Charge on a Flanking Region

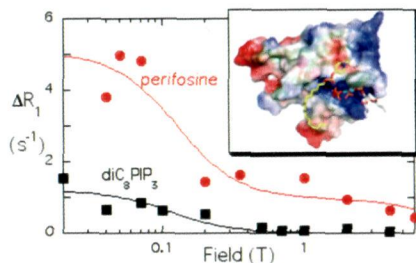
Sharon S. Y. Chong, Svetla G. Taneva, Joseph M. C. Lee, and Rosemary B. Cornell\*



462 dx.doi.org/10.1021/bi401720v

Cytotoxic Amphiphiles and Phosphoinositides Bind to Two Discrete Sites on the Akt1 PH Domain

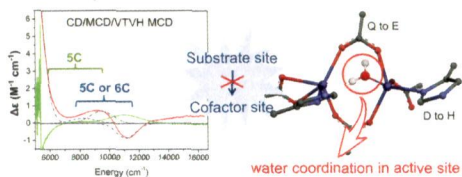
Cheryl S. Gradziel, Yanling Wang, Boguslaw Stec, Alfred G. Redfield, and Mary F. Roberts\*



473 **5** dx.doi.org/10.1021/bi4013726

Spectroscopic Studies of Single and Double Variants of M Ferritin: Lack of Conversion of a Biferrous Substrate Site into a Cofactor Site for O<sub>2</sub> Activation

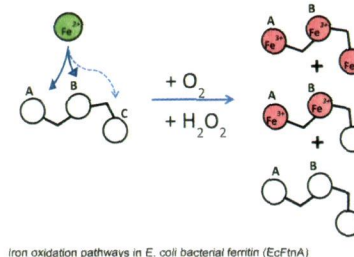
Yeonju Kwak, Jennifer K. Schwartz, Suranjana Haldar, Rabindra K. Behera, Takehiko Tosha, Elizabeth C. Theil,\* and Edward I. Solomon\*



483 **5** dx.doi.org/10.1021/bi401517f

Functionality of the Three-Site Ferroxidase Center of *Escherichia coli* Bacterial Ferritin (EcFtnA)

F. Bou-Abdallah,\* H. Yang, A. Awomolo, B. Cooper, M. R. Woodhall, S. C. Andrews, and N. D. Chasteen

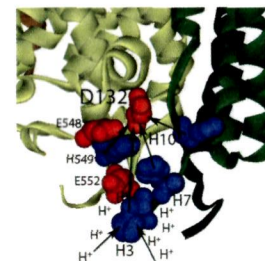


Iron oxidation pathways in *E. coli* bacterial ferritin (EcFtnA)

496 dx.doi.org/10.1021/bi401535q

Role of the N-Terminus of Subunit III in Proton Uptake in Cytochrome c Oxidase of *Rhodobacter sphaeroides*

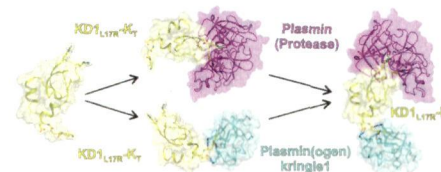
Khadijeh S. Alnajjar, Jonathan Hosler, and Lawrence Prochaska\*



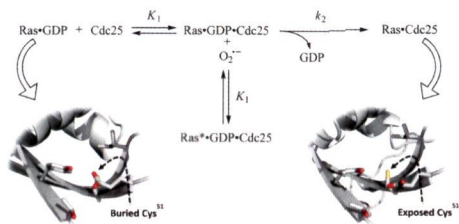
505 **5** dx.doi.org/10.1021/bi401584b

Decoy Plasminogen Receptor Containing a Selective Kunitz-Inhibitory Domain

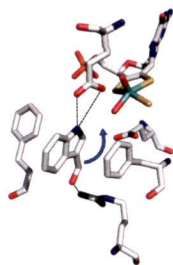
Yogesh Kumar, Kanagasabai Vadivel, Amy E. Schmidt, Godwin I. Ogueli, Sathya M. Ponnuraj, Nalaka Rannulu, Joseph A. Loo, Madhu S. Bajaj, and S. Paul Bajaj\*



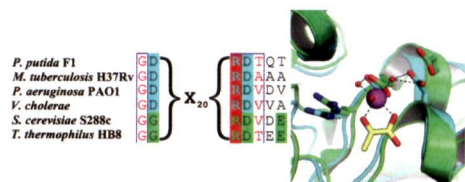
518 [dx.doi.org/10.1021/bi401528n](https://doi.org/10.1021/bi401528n)  
**Superoxide Inhibits Guanine Nucleotide Exchange Factor (GEF) Action on Ras, but not on Rho, through Desensitization of Ras to GEF**  
 Michael Wey, Vinh Phan, Gerardo Yezpez, and Jongyun Heo\*



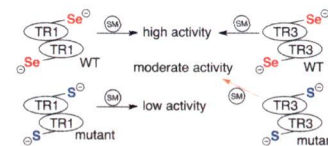
533 [dx.doi.org/10.1021/bi401465u](https://doi.org/10.1021/bi401465u)  
**Substrate Orientation and Specificity in Xanthine Oxidase: Crystal Structures of the Enzyme in Complex with Indole-3-acetaldehyde and Guanine**  
 Hongnan Cao, James Hall, and Russ Hille\*



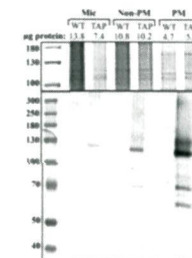
542 [dx.doi.org/10.1021/bi401486g](https://doi.org/10.1021/bi401486g)  
**Biochemical and Structural Analysis of RraA Proteins To Decipher Their Relationships with 4-Hydroxy-4-methyl-2-oxoglutarate/4-Carboxy-4-hydroxy-2-oxoadipate Aldolases**  
 Scott Mazurkewich, Weijun Wang, and Stephen Y. K. Seah\*



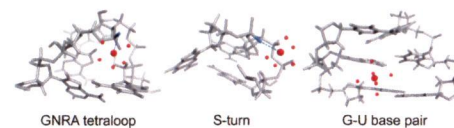
554 [dx.doi.org/10.1021/bi400651x](https://doi.org/10.1021/bi400651x)  
**Why Is Mammalian Thioredoxin Reductase 1 So Dependent upon the Use of Selenium?**  
 Adam P. Lothrop, Gregg W. Snider, Erik L. Ruggles, and Robert J. Hondal\*



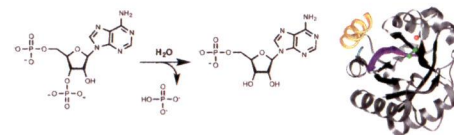
566 [dx.doi.org/10.1021/bi401096m](https://doi.org/10.1021/bi401096m)  
**Expression of a Translationally Fused TAP-Tagged Plasma Membrane Proton Pump in Arabidopsis thaliana**  
 Rachel B. Rodrigues, Gregorz Sabat, Benjamin B. Minkoff, Heather L. Burch, Thao T. Nguyen, and Michael R. Sussman\*



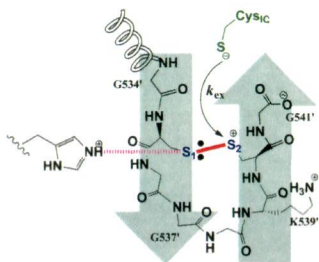
579 [dx.doi.org/10.1021/bi401484a](https://doi.org/10.1021/bi401484a)  
**NMR Localization of Divalent Cations at the Active Site of the Neurospora VS Ribozyme Provides Insights into RNA-Metal-Ion Interactions**  
 Eric Bonneau and Pascale Legault\*



591 [dx.doi.org/10.1021/bi401640r](https://doi.org/10.1021/bi401640r)  
**Prospecting for Unannotated Enzymes: Discovery of a 3',5'-Nucleotide Bisphosphate Phosphatase within the Amidohydrolase Superfamily**  
 Jennifer A. Cummings, Matthew Vetting, Swapnil V. Ghodge, Chengfu Xu, Brandan Hillerich, Ronald D. Seidel, Steven C. Almo,\* and Frank M. Raushel\*



A Mechanistic Investigation of the C-Terminal Redox Motif of Thioredoxin Reductase from *Plasmodium falciparum*  
Gregg W. Snider, Christopher M. Dustin, Erik L. Ruggles, and Robert J. Hondal\*



## Additions and Corrections

Correction to The Action of Cytochrome  $b_5$  on CYP2E1 and CYP2C19 Activities Requires Anionic Residues D58 and D65  
Hwei-Ming Peng and Richard J. Auchus\*