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SEPTEMBER 30, 2014 • VOLUME 53 NUMBER 38

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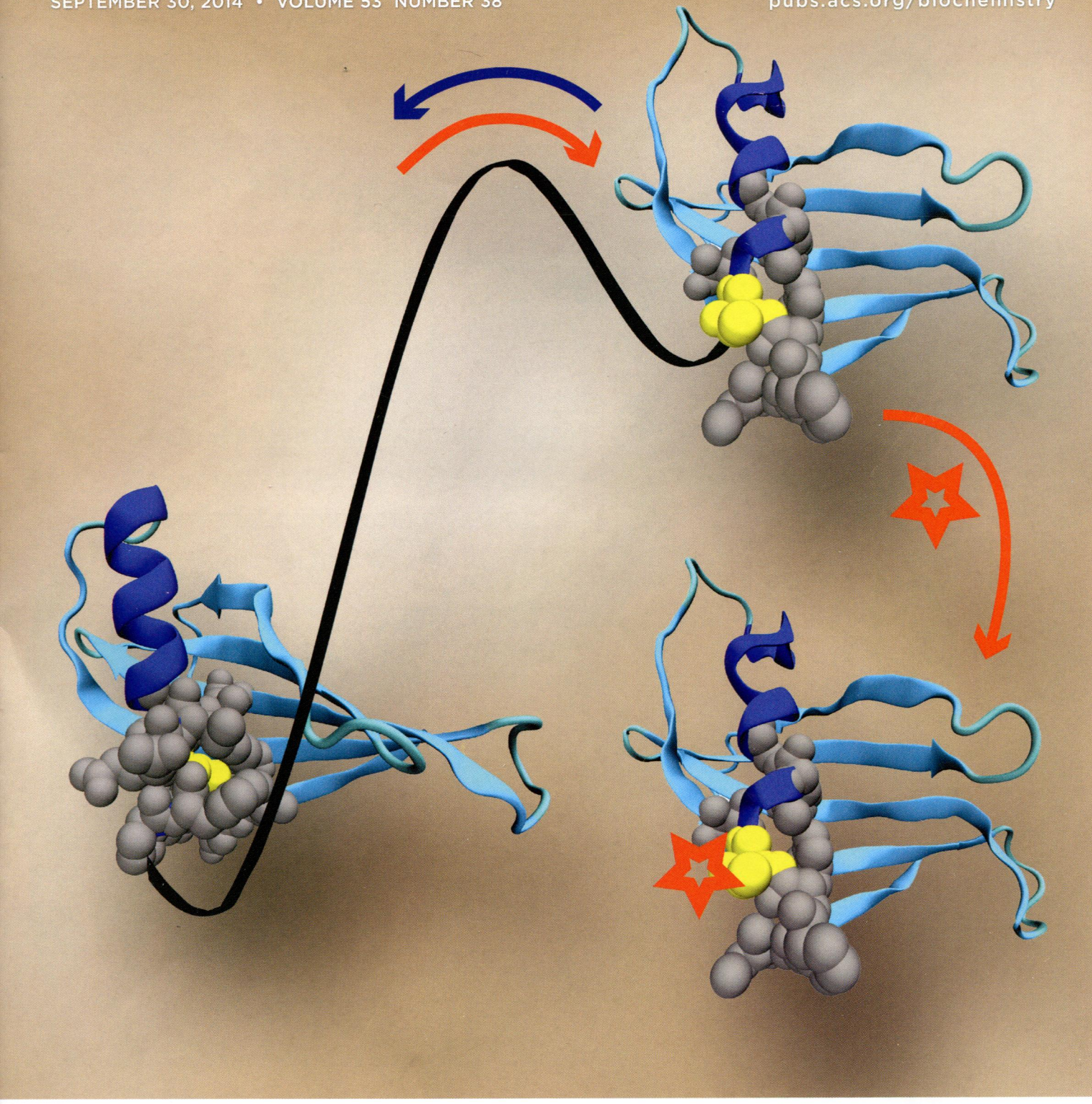

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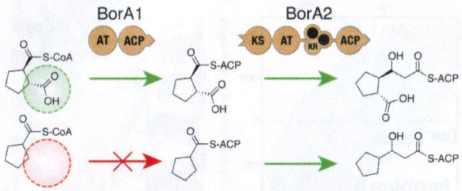
SEPTEMBER 30, 2014
VOLUME 53 ISSUE 38

BICHAW 53(38) 5975–6138 (2014)
ISSN 0006-2960
Registered in the U.S. Patent and Trademark Office

ON THE COVER: Thiol labeling of a single cysteine residue (yellow spheres) has been used to monitor rare unfolding events in a protein under nativelike 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]

Rapid Reports



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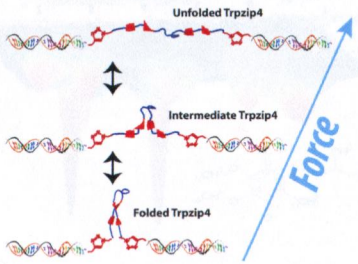
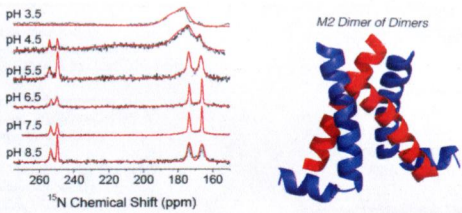


5987 dx.doi.org/10.1021/bi5005393

Proton Association Constants of His 37 in the Influenza-A $M2_{18-60}$ Dimer-of-Dimers

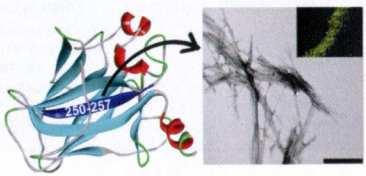
Michael T. Colvin, Loren B. Andreas, James J. Chou, and Robert G. Griffin*



5995 dx.doi.org/10.1021/bi500825d

Investigating the Intrinsic Aggregation Potential of Evolutionarily Conserved Segments in p53

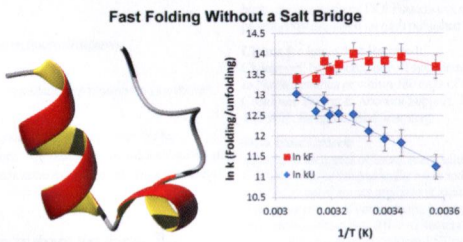
Saikat Ghosh, Dhiman Ghosh, Srivastav Ranganathan, A Anoop, Santosh Kumar P, Narendra Nath Jha, Ranjith Padinhateeri, and Samir K. Maji*



6011 dx.doi.org/10.1021/bi501021r

Folding Dynamics and Pathways of the Trp-Cage Miniproteins

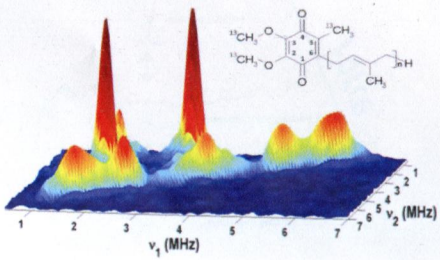
Aimee Byrne, D. Victoria Williams, Bipasha Barua, Stephen J. Hagen, Brandon L. Kier, and Niels H. Andersen*



6022 dx.doi.org/10.1021/bi500654y

The Semiquinone at the Q_i Site of the bc_1 Complex Explored Using HYSCORE Spectroscopy and Specific Isotopic Labeling of Ubiquinone in *Rhodobacter sphaeroides* via ^{13}C Methionine and Construction of a Methionine Auxotroph

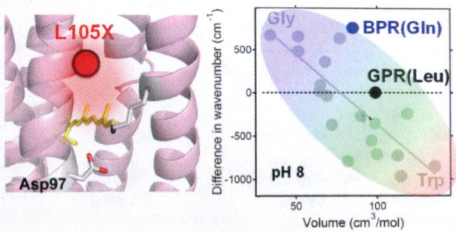
Sangjin Hong, Wagner B. de Almeida, Alexander T. Taguchi, Rimma I. Samoilova, Robert B. Gennis, Patrick J. O'Malley,* Sergei A. Dikanov,* and Antony R. Crofts*



6032 dx.doi.org/10.1021/bi500842w

A Color-Determining Amino Acid Residue of Proteorhodopsin

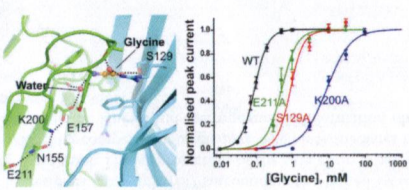
Yuya Ozaki, Takayoshi Kawashima, Rei Abe-Yoshizumi, and Hideki Kandori*



6041 dx.doi.org/10.1021/bi500815f

Agonist and Antagonist Binding in Human Glycine Receptors

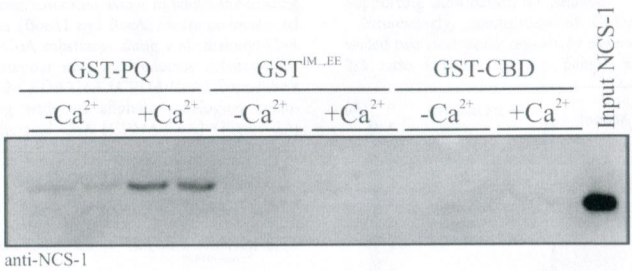
Rilei Yu, Eliott Hurdiss, Timo Greiner, Remigijus Lape, Lucia Sivilotti,* and Philip C. Biggin*



6052 dx.doi.org/10.1021/bi500568v

Demonstration of Binding of Neuronal Calcium Sensor-1 to the $Ca_v2.1$ P/Q-Type Calcium Channel

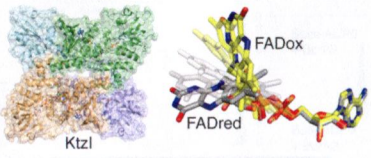
Lu-Yun Lian,* Sravan R. Pandalaneni, Paul A. C. Todd, Victoria M. Martin, Robert D. Burgoyne, and Lee P. Haynes*



6063 dx.doi.org/10.1021/bi500655q

Crystallographic Evidence of Drastic Conformational Changes in the Active Site of a Flavin-Dependent *N*-Hydroxylase

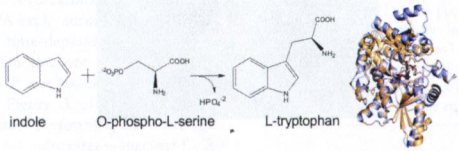
Jeremy W. Setser, John R. Heemstra Jr., Christopher T. Walsh, and Catherine L. Drennan*



6078 dx.doi.org/10.1021/bi500977y

TrpB2 Enzymes are *O*-Phospho-L-serine Dependent Tryptophan Synthases

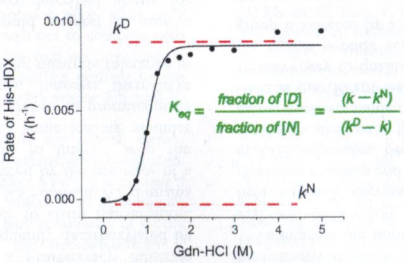
Florian Busch, Chitra Rajendran, Olga Mayans, Patrick Löffler, Rainer Merkl, and Reinhard Sterner*



6084 Ⓢ dx.doi.org/10.1021/bi500718g

Long-Range Stabilization of Anthrax Protective Antigen upon Binding to CMG2

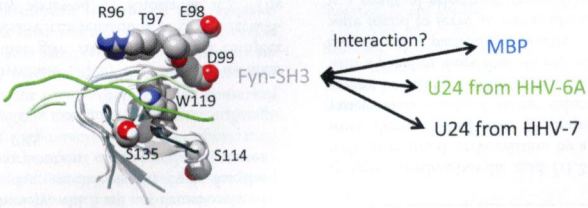
Vennela Mullangi, Sireesha Mamillapalli, David J. Anderson, James G. Bann,* and Masaru Miyagi*



6092 Ⓢ dx.doi.org/10.1021/bi500945x

Probing the Interaction between U24 and the SH3 Domain of Fyn Tyrosine Kinase

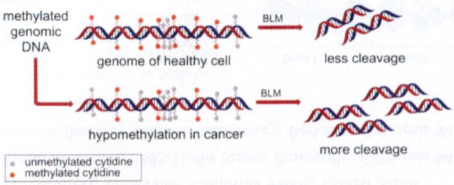
Yurou Sang, Andrew R. Tait, Walter R. P. Scott, A. Louise Creagh, Prashant Kumar, Charles A. Haynes, and Suzana K. Straus*



6103 Ⓢ dx.doi.org/10.1021/bi5010848

DNA Methylation Reduces Binding and Cleavage by Bleomycin

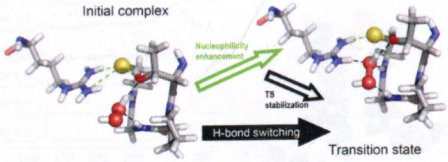
Basab Roy, Chenhong Tang, Mohammad P. Alam, and Sidney M. Hecht*



6113 Ⓢ dx.doi.org/10.1021/bi500389m

Deconstructing the Catalytic Efficiency of Peroxiredoxin-5 Peroxidatic Cysteine

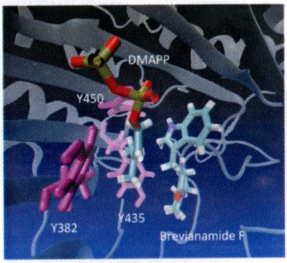
Stephanie Portillo-Ledesma, Florencia Sardi, Bruno Manta, María Victoria Tourn, André Clippe, Bernard Knoops, Beatriz Alvarez, E. Laura Coitiño, and Gerardo Ferrer-Sueta*



6126 Ⓢ dx.doi.org/10.1021/bi500747z

Origin of Product Selectivity in a Prenyl Transfer Reaction from the Same Intermediate: Exploration of Multiple FtmPT1-Catalyzed Prenyl Transfer Pathways

Li-Li Pan, Yue Yang, and Kenneth M. Merz Jr.*



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