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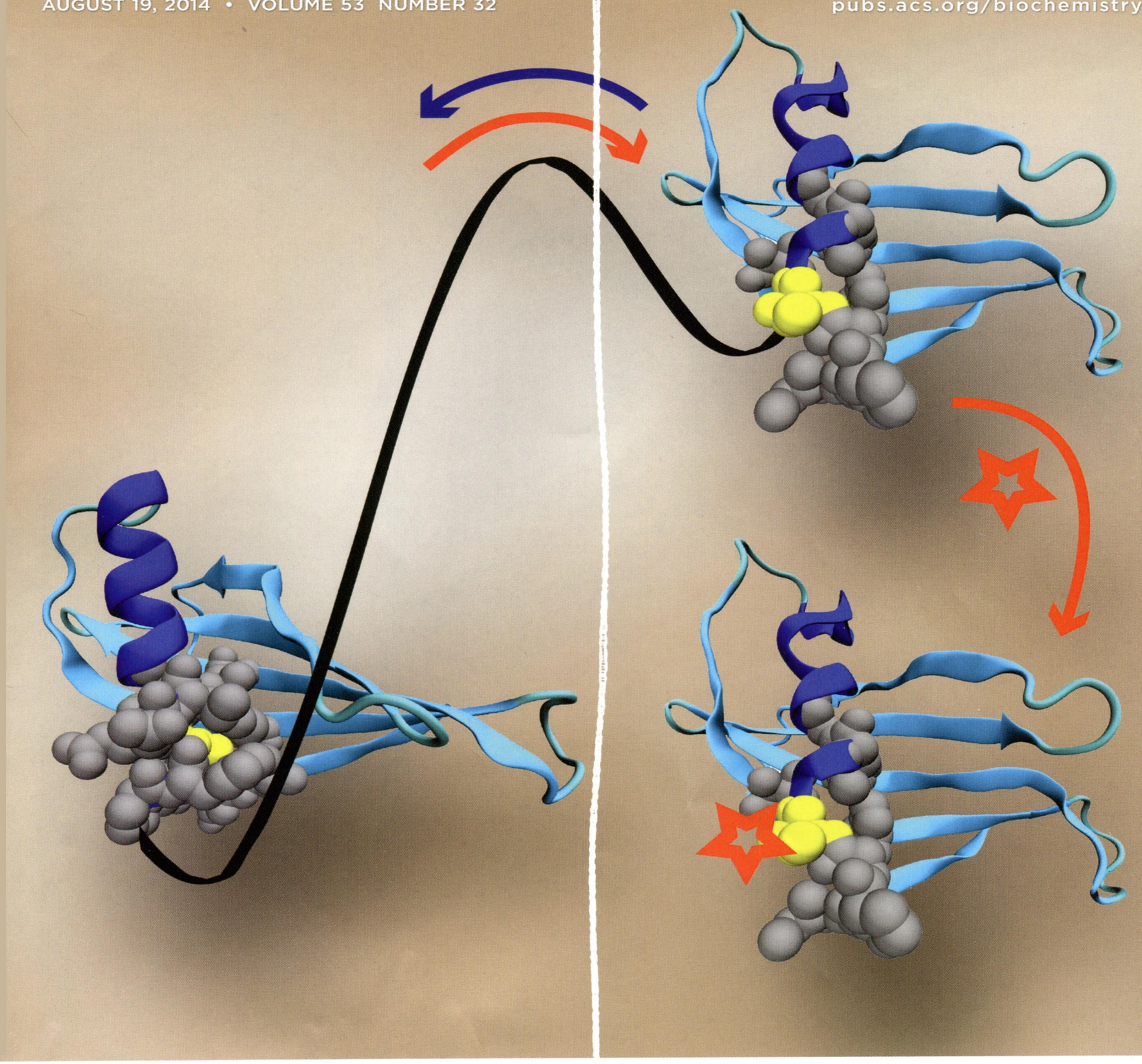

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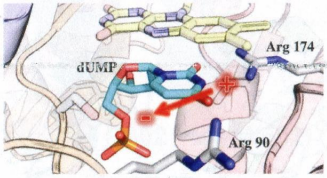
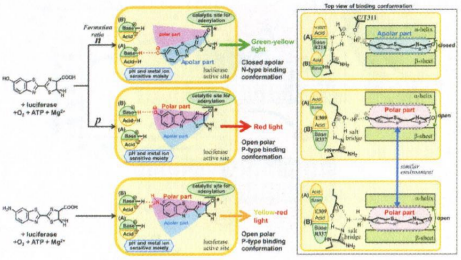
ON THE COVER: Thiol labeling of a single cysteine residue (yellow spheres) has been used to monitor rare unfolding events in a protein under nativelike conditions. The residues (gray spheres) surrounding the buried cysteine move apart, resulting in solvent exposure and hence labeling of the side chain 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]

Accelerated Publications



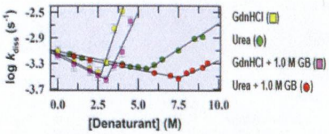
Articles



5221 S dx.doi.org/10.1021/bi500356c

Factor Defining the Effects of Glycine Betaine on the Thermodynamic Stability and Internal Dynamics of Horse Cytochrome *c*

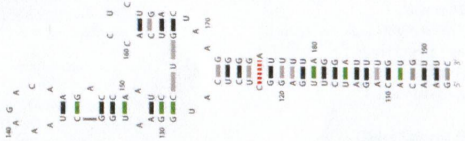
Rishu Jain, Deepak Sharma, Sandeep Kumar, and Rajesh Kumar*



5236 S dx.doi.org/10.1021/bi500611j

Secondary Structure of a Conserved Domain in an Intron of Influenza A M1 mRNA

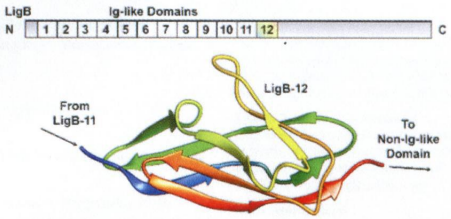
Tian Jiang, Scott D. Kennedy, Walter N. Moss, Elzbieta Kierzek, and Douglas H. Turner*



5249 S dx.doi.org/10.1021/bi500669u

NMR Solution Structure of the Terminal Immunoglobulin-like Domain from the *Leptospira* Host-Interacting Outer Membrane Protein, LigB

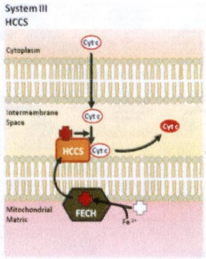
Christopher P. Ptak, Ching-Lin Hsieh, Yi-Pin Lin, Alexander S. Maltsev, Rajeev Raman, Yogendra Sharma, Robert E. Oswald,* and Yung-Fu Chang*



5261 Ⓢ dx.doi.org/10.1021/bi500704p

Conserved Residues of the Human Mitochondrial Holocytochrome c Synthase Mediate Interactions with Heme

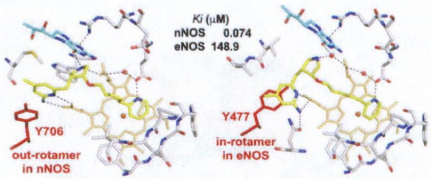
Shalon E. Babbitt, Brian San Francisco, Eric C. Bretsnyder, and Robert G. Kranz*



5272 Ⓢ dx.doi.org/10.1021/bi500561h

The Mobility of a Conserved Tyrosine Residue Controls Isoform-Dependent Enzyme−Inhibitor Interactions in Nitric Oxide Synthases

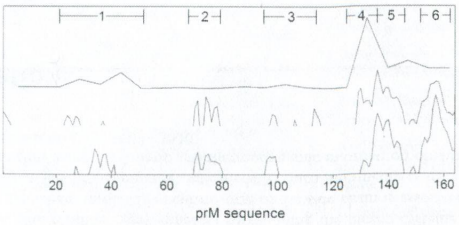
Huiying Li, Joumana Jamal, Silvia Delker, Carla Plaza, Haitao Ji, Qing Jing, He Huang, Soosung Kang, Richard B. Silverman,* and Thomas L. Poulos*



5280 Ⓢ dx.doi.org/10.1021/bi500724k

Membranotropic Regions of the Dengue Virus prM Protein

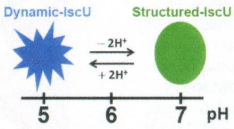
Henrique Nemésio and José Villalaín*



5290 dx.doi.org/10.1021/bi500313t

pH-Induced Conformational Change of IscU at Low pH Correlates with Protonation/Deprotonation of Two Conserved Histidine Residues

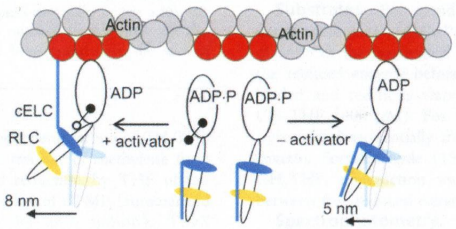
Ziqi Dai, Jin Hae Kim, Marco Tonelli, Ibrahim K. Ali, and John L. Markley*



5298 dx.doi.org/10.1021/bi500730t

Analytical Comparison of Natural and Pharmaceutical Ventricular Myosin Activators

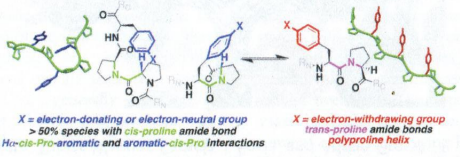
Yihua Wang, Katalin Ajtai, and Thomas P. Burghardt*



5307 dx.doi.org/10.1021/bi500696k

Tunable Control of Polyproline Helix (PPII) Structure via Aromatic Electronic Effects: An Electronic Switch of Polyproline Helix

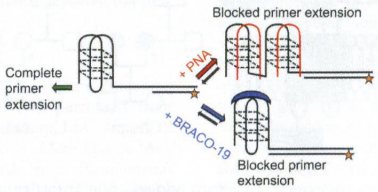
Anil K. Pandey, Krista M. Thomas, Christina R. Forbes, and Neal J. Zondlo*



5315 dx.doi.org/10.1021/bi5006859

Hybridization of G-Quadruplex-Forming Peptide Nucleic Acids to Guanine-Rich DNA Templates Inhibits DNA Polymerase η Extension

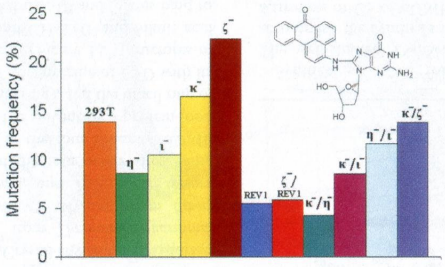
Connor T. Murphy, Anisha Gupta, Bruce A. Armitage, and Patricia L. Opresko*



5323 dx.doi.org/10.1021/bi5007805

Mutational Analysis of the C8-Guanine Adduct of the Environmental Carcinogen 3-Nitrobenzanthrone in Human Cells: Critical Roles of DNA Polymerases η and κ and Rev1 in Error-Prone Translesion Synthesis

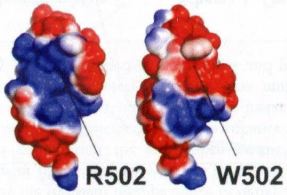
Paritosh Pande, Chanchal K. Malik, Arindam Bose, Vijay P. Jasti, and Ashis K. Basu*



5332 dx.doi.org/10.1021/bi500784g

Structural Characterization of the C3 Domain of Cardiac Myosin Binding Protein C and Its Hypertrophic Cardiomyopathy-Related R502W Mutant

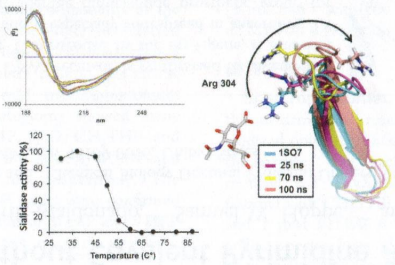
Xiaolu Linda Zhang, Soumya De, Lawrence P. McIntosh,* and Mark Paetzel*



5343 dx.doi.org/10.1021/bi500249r

Looking at Human Cytosolic Sialidase NEU2 Structural Features with an Interdisciplinary Approach

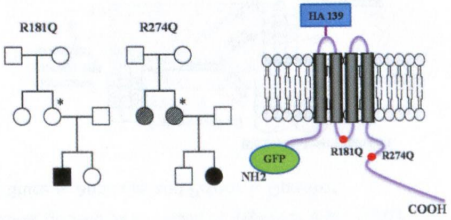
Eugenio Monti,* Giuliana Benaglia, Alessandra Mozzi, Paola Fusi, Giovanna Longhi, Fabrizio Gangemi, Ettore Castiglioni, Robert W. Woody, Sandro L. Fornili, and Sergio Abbate



5356 Ⓢ dx.doi.org/10.1021/bi500400g

Independent Mutations at Arg181 and Arg274 of Vangl Proteins That Are Associated with Neural Tube Defects in Humans Decrease Protein Stability and Impair Membrane Targeting

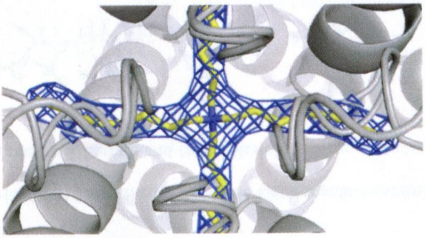
Alexandra Iliescu, Michel Gravel, Cynthia Horth, and Philippe Gros*



5365 dx.doi.org/10.1021/bi500525s

Structures of KcsA in Complex with Symmetrical Quaternary Ammonium Compounds Reveal a Hydrophobic Binding Site

Michael J. Lenaeus, Dylan Burdette, Tobias Wagner, Pamela J. Focia, and Adrian Gross*



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