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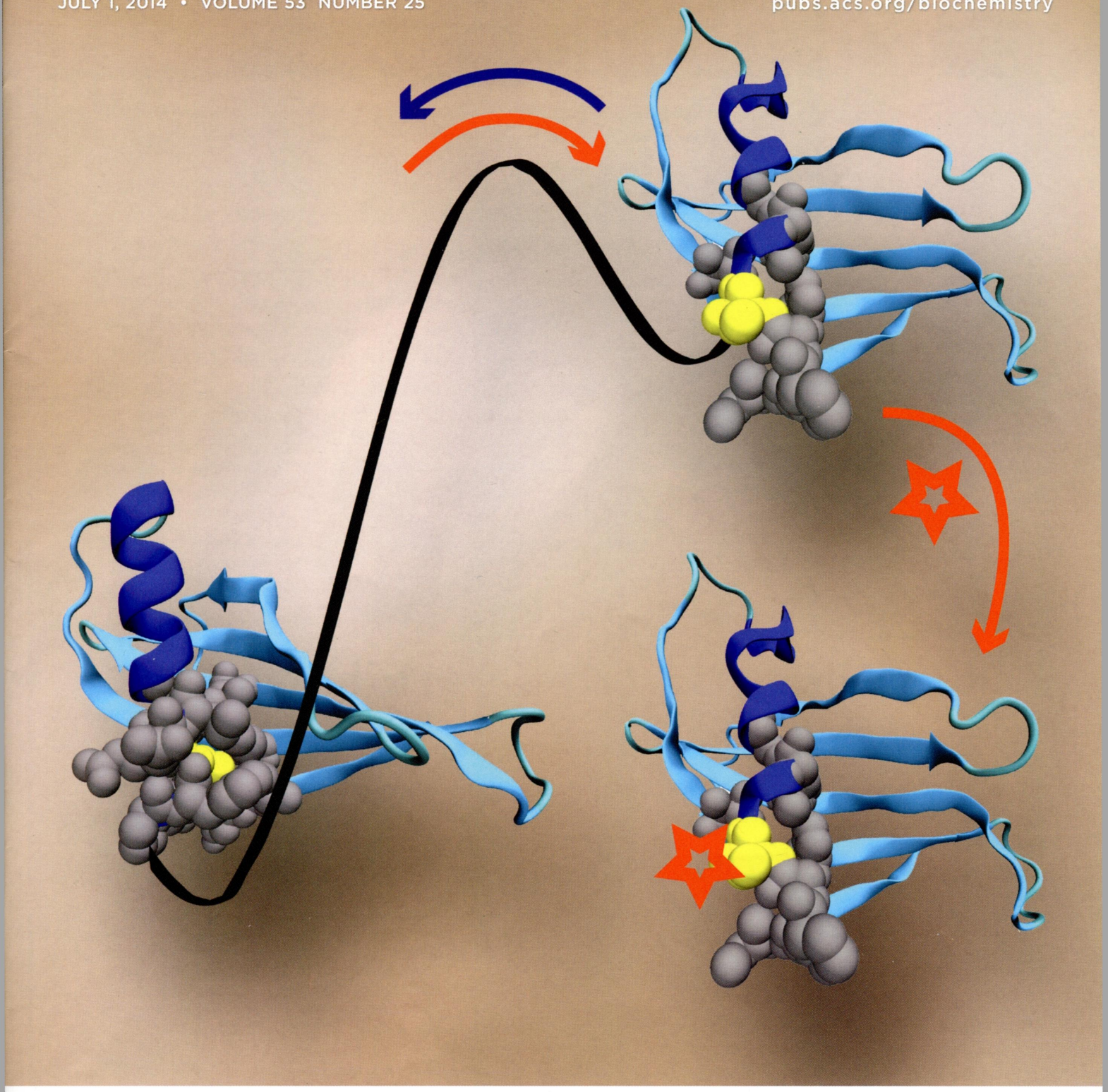

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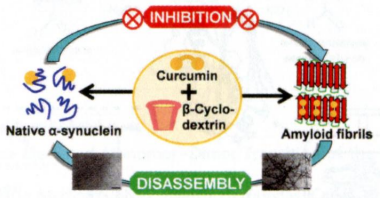
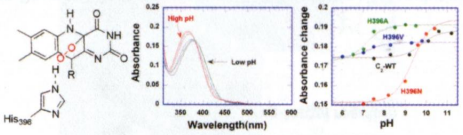
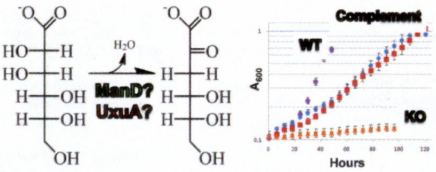
ON THE COVER: Thiol labeling of a single cysteine residue (yellow spheres) has been used to monitor rare unfolding events in a protein under nativelike conditions. The residues (gray spheres) surrounding the buried cysteine move apart, resulting in solvent exposure and hence labeling of the side chain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

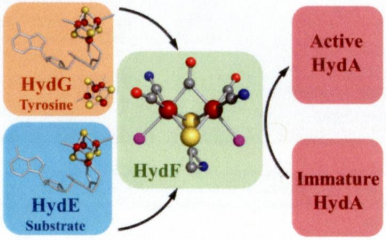
Rapid Reports



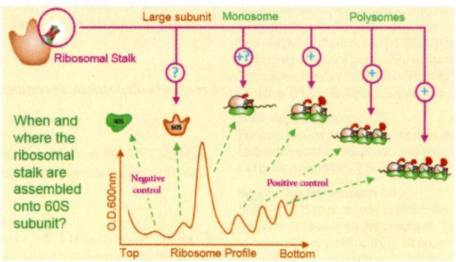




Current Topics



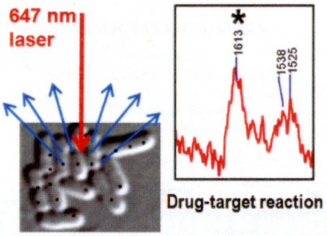
Articles



4113 Ⓢ dx.doi.org/10.1021/bi500529c

Following Drug Uptake and Reactions inside *Escherichia coli* Cells by Raman Microspectroscopy

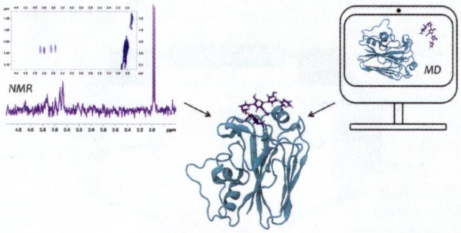
Hossein Heidari Torkabadi, Christopher R. Bethel, Krisztina M. Papp-Wallace, Piet A. J. de Boer, Robert A. Bonomo, and Paul R. Carey*



4122 Ⓢ dx.doi.org/10.1021/bi500338r

Insights into the Human Glycan Receptor Conformation of 1918 Pandemic Hemagglutinin–Glycan Complexes Derived from Nuclear Magnetic Resonance and Molecular Dynamics Studies

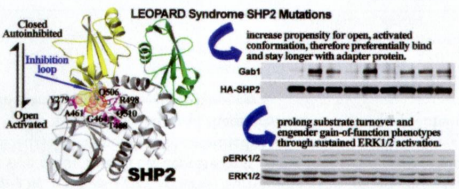
Stefano Elli, Eleonora Macchi, Timothy R. Rudd, Rahul Raman, Guillherme Sassaki, Karthik Viswanathan, Edwin A. Yates, Zachary Shriver, Annamaria Naggi, Giangiacomo Torri, Ram Sasisekharan,* and Marco Guerrini*



4136 dx.doi.org/10.1021/bi5002695

Molecular Basis of Gain-of-Function LEOPARD Syndrome-Associated SHP2 Mutations

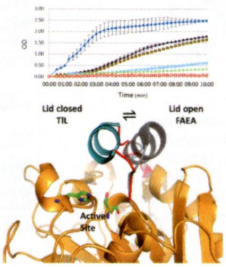
Zhi-Hong Yu, Ruo-Yu Zhang, Chad D. Walls, Lan Chen, Sheng Zhang, Li Wu, Sijiu Liu, and Zhong-Yin Zhang*



4152 S dx.doi.org/10.1021/bi500233h

Altering the Activation Mechanism in *Thermomyces lanuginosus* Lipase

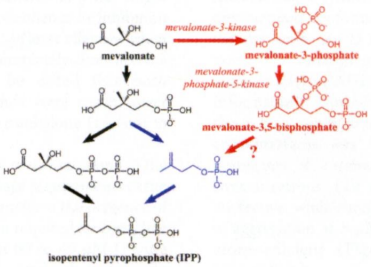
Jakob Skjold-Jørgensen, Jesper Vind, Allan Svendsen, and Morten J. Bjerrum*



4161 S dx.doi.org/10.1021/bi500566q

Evidence of a Novel Mevalonate Pathway in Archaea

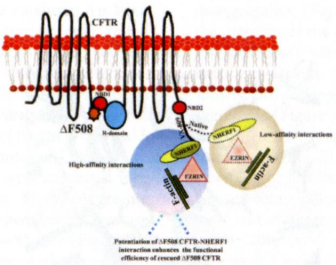
Jeffrey M. Vinokur, Tyler P. Korman, Zheng Cao, and James U. Bowie*



4169 S dx.doi.org/10.1021/bi401263h

Stabilizing Rescued Surface-Localized ΔF508 CFTR by Potentiation of Its Interaction with Na^+/H^+ Exchanger Regulatory Factor 1

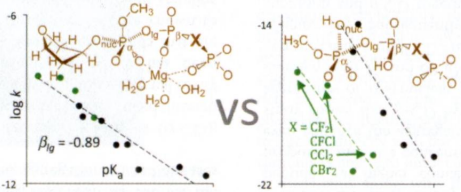
Kavisha Arora, Changsuk Moon, Weiqiang Zhang, Sunitha Yarlagadda, Himabindu Penmatsa, Aixia Ren, Chandrima Sinha, and Anjaparavanda P. Naren*



4180 dx.doi.org/10.1021/bi5003713

Quantum Mechanical Analysis of Nonenzymatic Nucleotidyl Transfer Reactions: Kinetic and Thermodynamic Effects of $\beta-\gamma$ Bridging Groups of dNTP Substrates

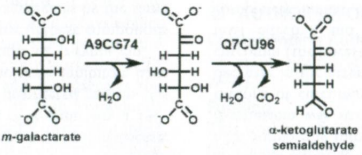
Zheng Zhang, Josh Eloge, and Jan Florián*



4192 dx.doi.org/10.1021/bi5005377

Evolution of Enzymatic Activities in the Enolase Superfamily: Galactarate Dehydratase III from *Agrobacterium tumefaciens* C58

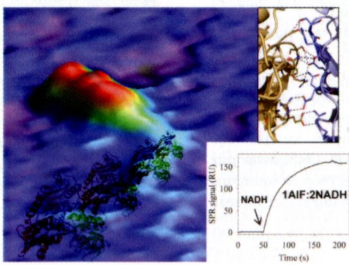
Fiona P. Groninger-Poe, Jason T. Bouvier, Matthew W. Vetting, Chakrapani Kalyanaraman, Ritesh Kumar, Steven C. Almo, Matthew P. Jacobson, and John A. Gerlt*



4204 dx.doi.org/10.1021/bi500343r

Structural Insights into the Coenzyme Mediated Monomer−Dimer Transition of the Pro-Apoptotic Apoptosis Inducing Factor

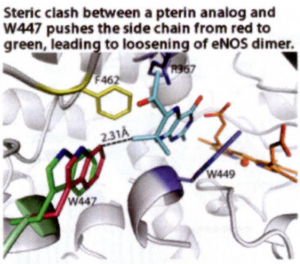
Patricia Ferreira, Raquel Villanueva, Marta Martínez-Júlvez, Beatriz Herguedas, Carlos Marcuello, Patricio Fernandez-Silva, Lauriane Cabon, Juan A. Hermoso, Anabel Lostao, Santos A. Susin, and Milagros Medina*



dx.doi.org/10.1021/bi5003986

Communication between the Zinc and Tetrahydrobiopterin Binding Sites in Nitric Oxide Synthase

Georges Chreifi, Huiying Li, Craig R. McInnes, Colin L. Gibson, Colin J. Suckling, and Thomas L. Poulos*



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