

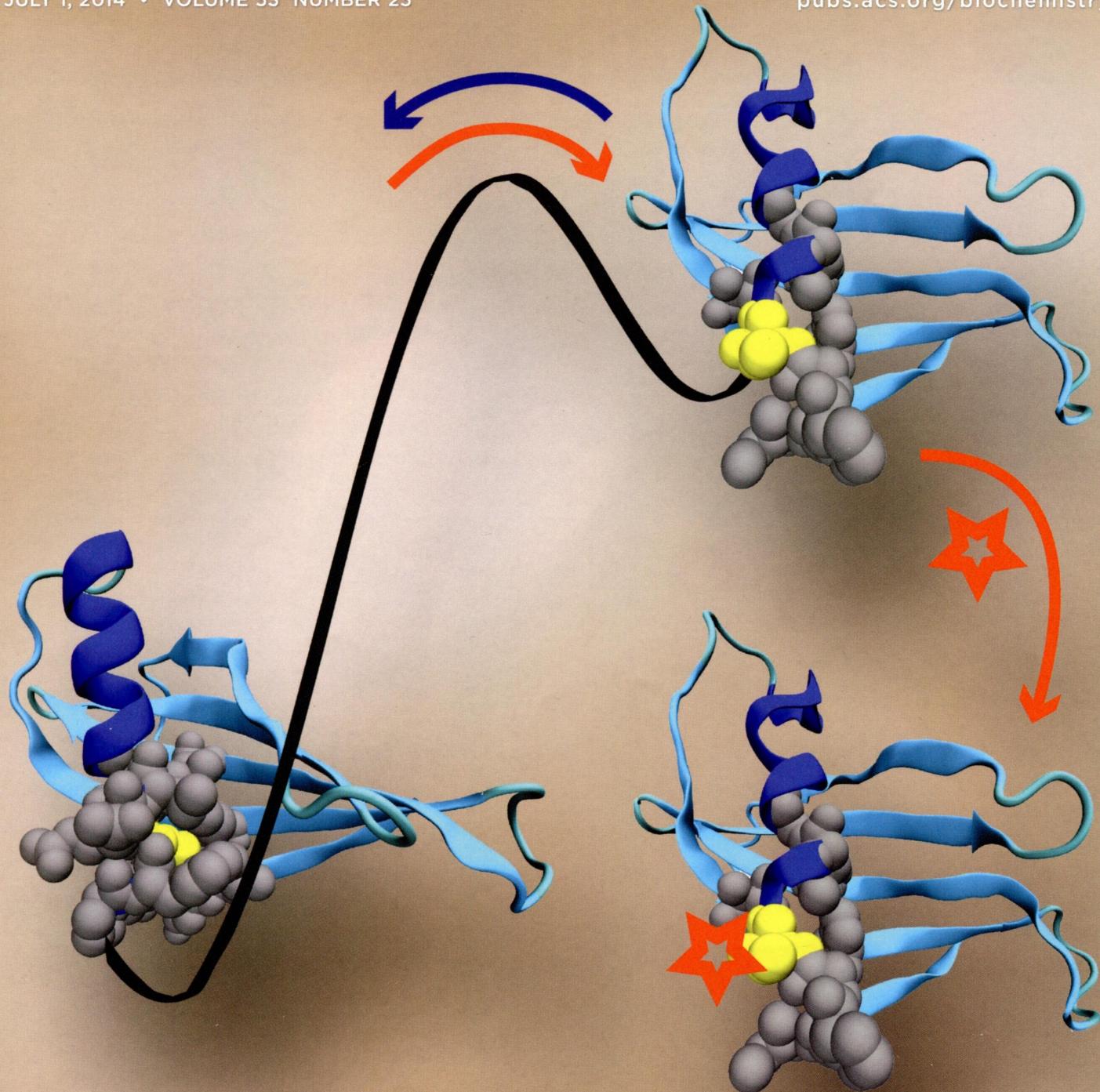
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ON THE COVER: Thiol labeling of a single cysteine residue (yellow spheres) has been used to monitor rare unfolding events in a protein under nativelike conditions. The residues (gray spheres) surrounding the buried cysteine move apart, resulting in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

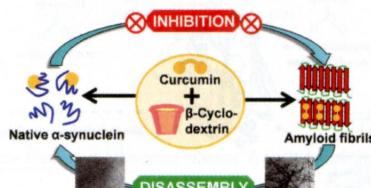
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[dx.doi.org/10.1021/bi500642f](https://doi.org/10.1021/bi500642f)

β -Cyclodextrin and Curcumin, a Potent Cocktail for Disaggregating and/or Inhibiting Amyloids: A Case Study with α -Synuclein

Saurabh Gautam, Sandip Karmakar, Abhik Bose, and Pramit K. Chowdhury*



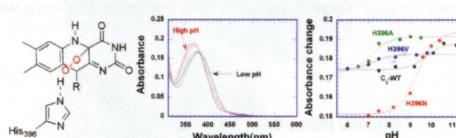
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[dx.doi.org/10.1021/bi500480n](https://doi.org/10.1021/bi500480n)

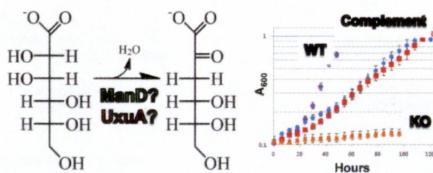
Control of C4a-Hydroperoxyflavin Protonation in the Oxygenase Component of *p*-Hydroxyphenylacetate-3-hydroxylase

Pirom Chenprakhon, Duangtip Trisvirat, Kittisak Thotsaporn, Jeerus Sucharitakul, and Pimchai Chaiyen*



Identification of the *in Vivo* Function of the High-Efficiency D-Mannose Dehydratase in *Caulobacter crescentus* NA1000 from the Enolase Superfamily

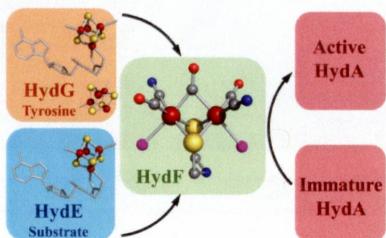
Daniel J. Wichelecki, Dylan C. Graff, Nawar Al-Obaidi, Steven C. Almo, and John A. Gerlt*



Current Topics

[FeFe]-Hydrogenase Maturation

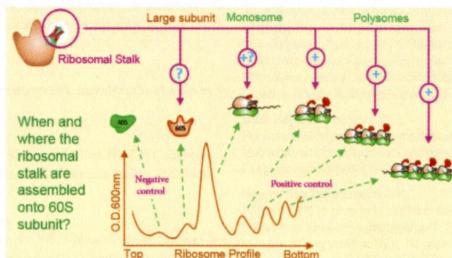
Eric M. Shepard, Florence Mus, Jeremiah N. Betz, Amanda S. Byer, Benjamin R. Duffus, John W. Peters, and Joan B. Broderick*



Articles

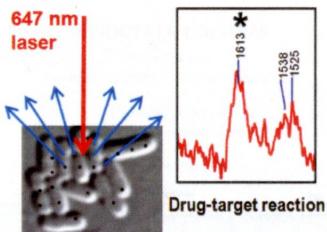
The P1/P2 Protein Heterodimers Assemble to the Ribosomal Stalk at the Moment When the Ribosome Is Committed to Translation but Not to the Native 60S Ribosomal Subunit in *Saccharomyces cerevisiae*

A. Bautista-Santos and S. Zinkler*

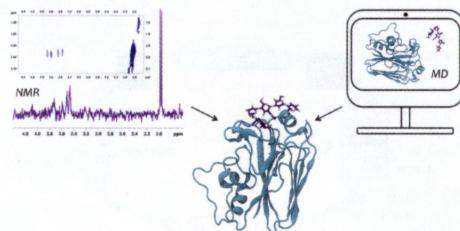


Following Drug Uptake and Reactions inside *Escherichia coli* Cells by Raman Microspectroscopy

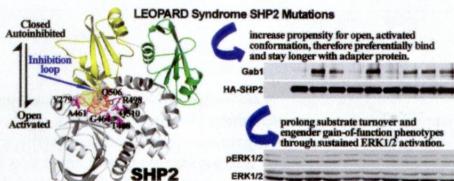
Hossein Heidari Torkabadi, Christopher R. Bethel, Krisztina M. Papp-Wallace, Piet A. J. de Boer, Robert A. Bonomo, and Paul R. Carey*

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

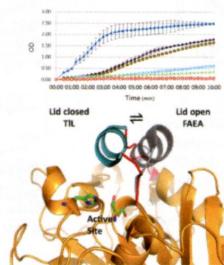
Stefano Elli, Eleonora Macchi, Timothy R. Rudd, Rahul Raman, Guilherme Sasaki, Karthik Viswanathan, Edwin A. Yates, Zachary Shriver, Annamaria Naggi, Giangiacomo Torri, Ram Sasisekharan,* and Marco Guerrini*

**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*

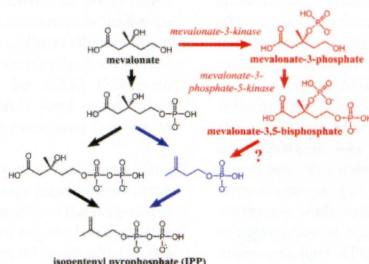


Altering the Activation Mechanism in *Thermomyces lanuginosus* Lipase
Jakob Skjold-Jørgensen, Jesper Vind, Allan Svendsen, and Morten J. Bjerrum*



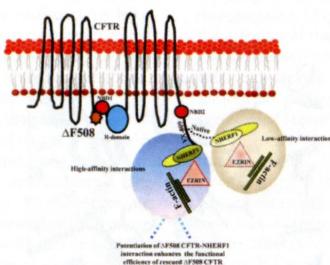
Evidence of a Novel Mevalonate Pathway in Archaea

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



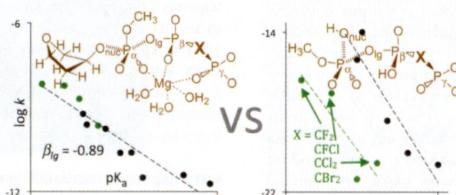
Stabilizing Rescued Surface-Localized Δ F508 CFTR by Potentiation of Its Interaction with Na^+/H^+ Exchanger Regulatory Factor 1

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



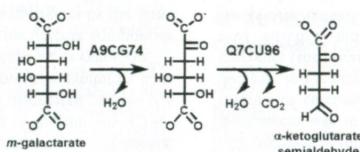
Quantum Mechanical Analysis of Nonenzymatic Nucleotidyl Transfer Reactions: Kinetic and Thermodynamic Effects of β - γ Bridging Groups of dNTP Substrates

Zheng Zhang, Josh Eloge, and Jan Florián*



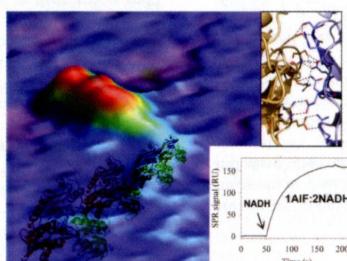
Evolution of Enzymatic Activities in the Enolase Superfamily: Galactarate Dehydratase III from *Agrobacterium tumefaciens* C58

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

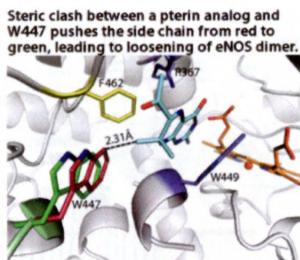


Structural Insights into the Coenzyme Mediated Monomer–Dimer Transition of the Pro-Apoptotic Apoptosis Inducing Factor

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



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*



The tetrahydrobiopterin (THB) binding site in the nitric oxide synthase (NOS) dimer is located in the interface between monomers. It contains the THB-binding domain (TBD), which is composed of two α-helices (α1 and α2) and a β-turn. The THB molecule is bound in a cleft between the two monomers. The THB molecule is coordinated by four amino acid residues: W447, F462, R507, and W449. The side chain of W447 is involved in a steric clash with a pterin analog, which causes it to change its orientation and color from red to green. This change in orientation leads to the loosening of the eNOS dimer. The distance between the pterin analog and W447 is 2.31 Å. The pterin analog is also coordinated by the same four amino acid residues. The overall effect of this communication is the loosening of the eNOS dimer, which is essential for its biological function.

* Supporting Information available via online article