

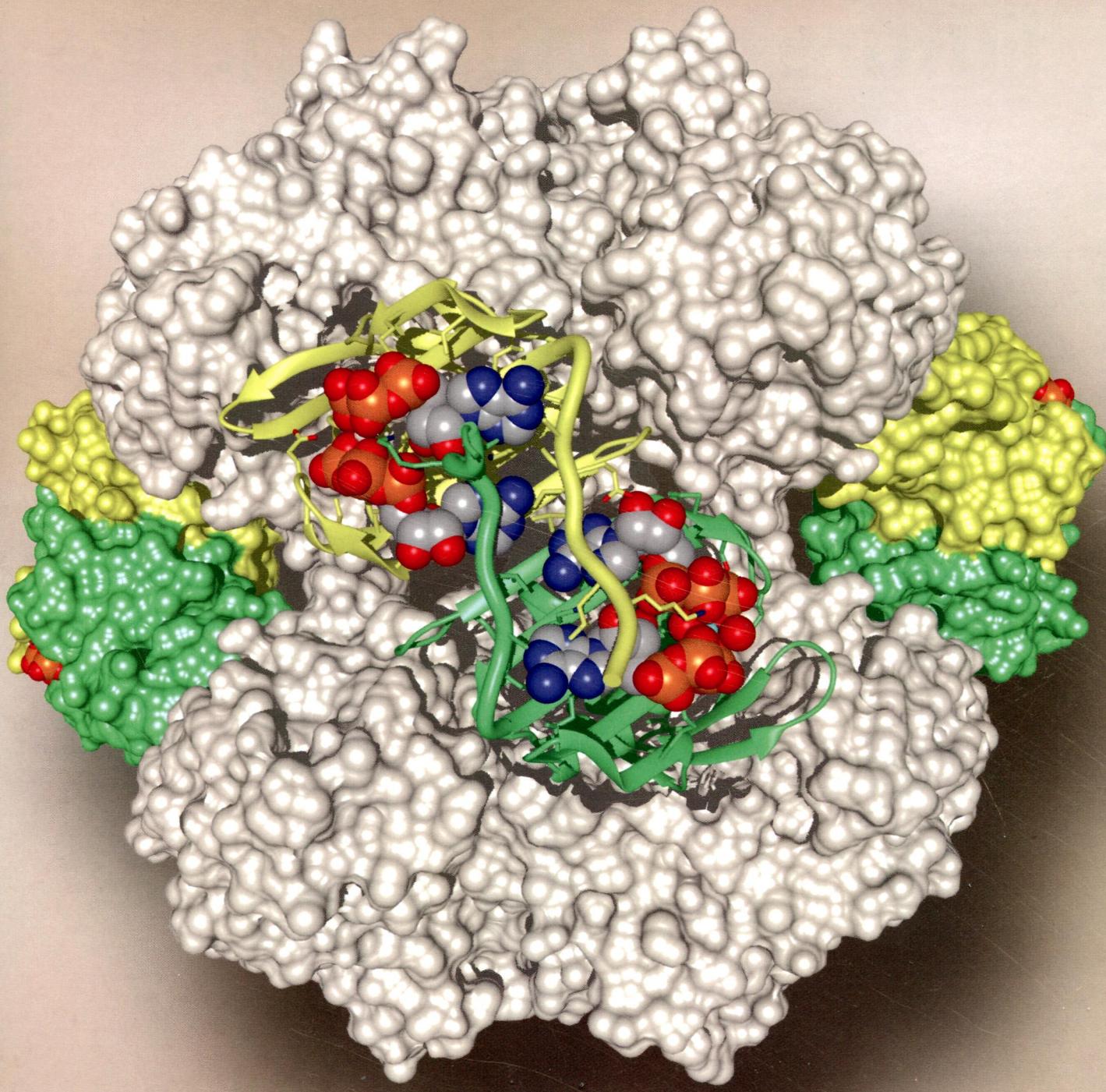
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# BIOCHEMISTRY

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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<sup>2+</sup> 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<sup>2+</sup> 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]

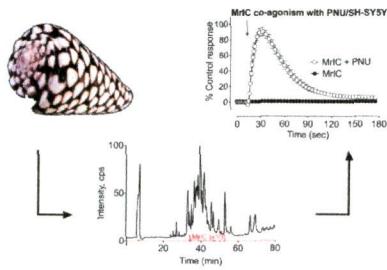
## Rapid Reports

1

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[dx.doi.org/10.1021/bi400882s](https://doi.org/10.1021/bi400882s)

**MrIC, a Novel  $\alpha$ -Conotoxin Agonist in the Presence of PNU at Endogenous  $\alpha 7$  Nicotinic Acetylcholine Receptors**  
Ai-Hua Jin, Irina Vetter, Sébastien Dutertre, Nikita Abraham, Nayara B. Emidio, Marco Inserra, Swetha S. Murali,  
MacDonald J. Christie, Paul F. Alewood, and Richard J. Lewis\*

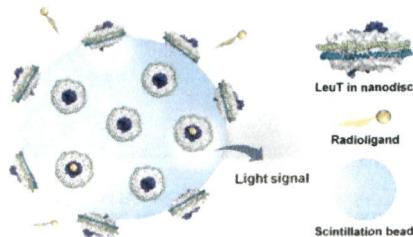


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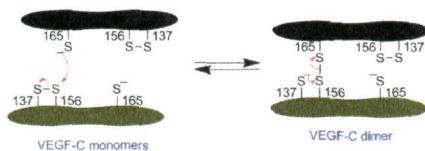
[dx.doi.org/10.1021/bi401412e](https://doi.org/10.1021/bi401412e)

**Radioligand Binding to Nanodisc-Reconstituted Membrane Transporters Assessed by the Scintillation Proximity Assay**  
Mahmoud L. Nasr and Satinder K. Singh\*



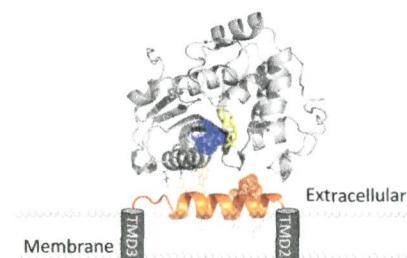
**Mechanism of Dimerization of a Recombinant Mature Vascular Endothelial Growth Factor C**  
Joyce Chiu, Jason W. H. Wong, Michael Gerometta, and Philip J. Hogg\*

[dx.doi.org/10.1021/bi401518b](https://doi.org/10.1021/bi401518b)



**Revealing Cell-Surface Intramolecular Interactions in the BlaR1 Protein of Methicillin-Resistant *Staphylococcus aureus* by NMR Spectroscopy**  
Thomas E. Frederick, Brian D. Wilson, Jooyoung Cha, Shahriar Mobashery, and Jeffrey W. Peng\*

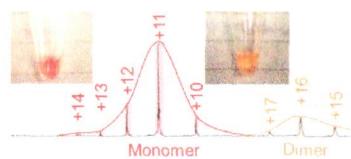
[dx.doi.org/10.1021/bi401552j](https://doi.org/10.1021/bi401552j)



## Accelerated Publications

**Molecular Mechanism of Photoactivation and Structural Location of the Cyanobacterial Orange Carotenoid Protein**  
Hao Zhang, Haijun Liu, Dariusz M. Niedzwiedzki, Mindy Prado, Jing Jiang, Michael L. Gross, and Robert E. Blankenship\*

[dx.doi.org/10.1021/bi401539w](https://doi.org/10.1021/bi401539w)



## Articles

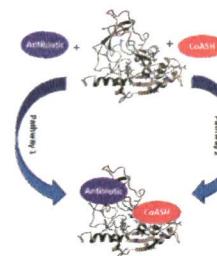
**Structural Parameters Controlling the Fluorescence Properties of Phytochromes**  
Francisco Velazquez Escobar, Thomas Hildebrandt, Tillmann Utesch, Franz Josef Schmitt, Ina Seuffert, Norbert Michael, Claudia Schulz, Maria Andrea Mroginski, Thomas Friedrich, and Peter Hildebrandt\*

[dx.doi.org/10.1021/bi401287u](https://doi.org/10.1021/bi401287u)



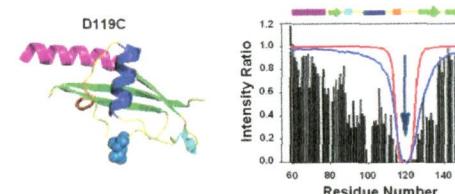
**Protein Dynamics Are Influenced by the Order of Ligand Binding to an Antibiotic Resistance Enzyme**  
Adrianne L. Norris, Jonathan Nickels, Alexei P. Sokolov,\* and Engin H. Serpersu\*

[dx.doi.org/10.1021/bi401635r](https://doi.org/10.1021/bi401635r)

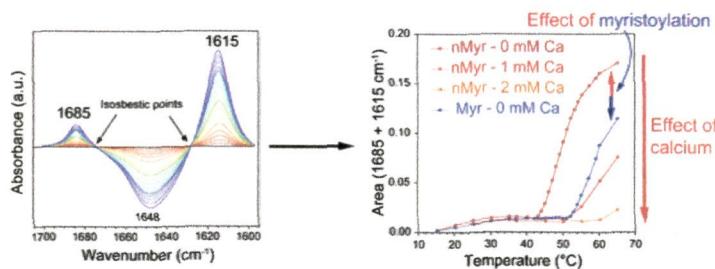


**Denatured State Ensembles with the Same Radii of Gyration Can Form Significantly Different Long-Range Contacts**  
Bowu Luan, Nicholas Lyle, Rohit V. Pappu, and Daniel P. Raleigh\*

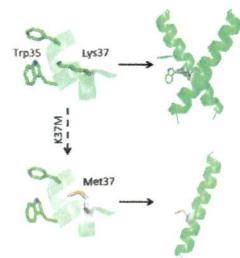
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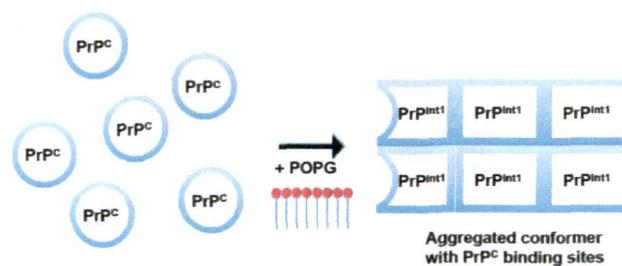
**The Thermal Stability of Recoverin Depends on Calcium Binding and Its Myristoyl Moiety As Revealed by Infrared Spectroscopy**  
Kim Potvin-Fournier, Thierry Lefèvre, Audrey Picard-Lafond, Geneviève Valois-Paillard, Line Cantin, Christian Salesse, and Michèle Auger\*



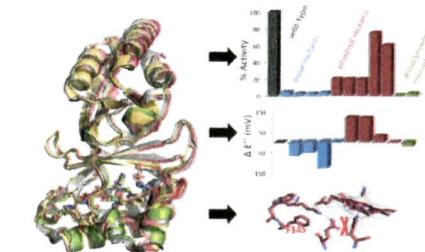
**A Lys-Trp Cation-π Interaction Mediates the Dimerization and Function of the Chloride Intracellular Channel Protein 1 Transmembrane Domain**  
Bradley Peter, Anton A. Polyansky, Sylvia Fanucchi, and Heini W. Dörr\*



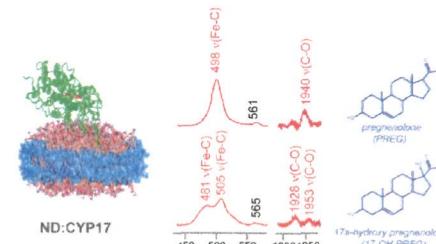
**Prion Nucleation Site Unmasked by Transient Interaction with Phospholipid Cofactor**  
Ashley A. Zurnawel, Daniel J. Walsh, Sean M. Fortier, Tamutenda Chidawanyika, Suvrajit Sengupta, Kurt Zilm,\* and Surachai Supattapone\*



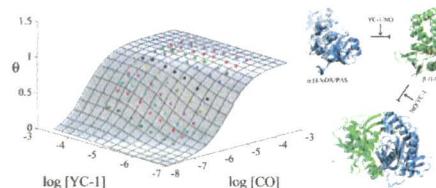
**Manipulating Conserved Heme Cavity Residues of Chlorite Dismutase: Effect on Structure, Redox Chemistry, and Reactivity**  
Stefan Hofbauer, Kira Gysel, Marzia Bellei, Andreas Hagmüller, Irene Schaffner, Georg Mlynek, Julius Kostan, Katharina F. Pirker, Holger Daims, Paul G. Furtmüller, Gianantonio Battistuzzi, Kristina Djinović-Carugo,\* and Christian Obinger\*



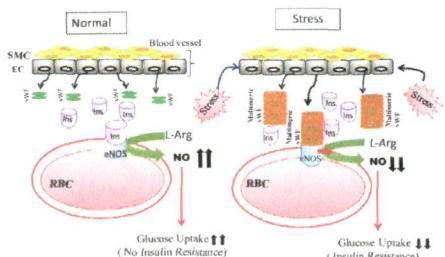
**Resonance Raman Spectroscopy Reveals That Substrate Structure Selectively Impacts the Heme-Bound Diatomic Ligands of CYP17**  
Piotr J. Mak, Michael C. Gregory, Stephen G. Sligar,\* and James R. Kincaid\*



**YC-1 Binding to the β Subunit of Soluble Guanylyl Cyclase Overcomes Allosteric Inhibition by the α Subunit**  
Rahul Purohit, Bradley G. Fritz, Juliana The, Aaron Issaias, Andzej Weichsel, Cynthia L. David, Eric Campbell, Andrew C. Hausrath, Leida Rassouli-Taylor, Elsa D. Garcin, Matthew J. Gage, and William R. Montfort\*

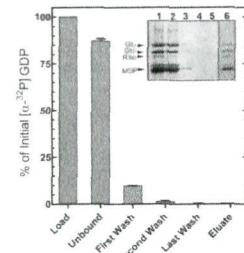


**von Willebrand Factor Antagonizes Nitric Oxide Synthase To Promote Insulin Resistance during Hypoxia**  
Bandana Singh, Indranil Biswas, Iti Garg, Ragumani Sugadev, Abhay K. Singh, Sharmistha Dey, and Gausal A. Khan\*



dx.doi.org/10.1021/bi401061e

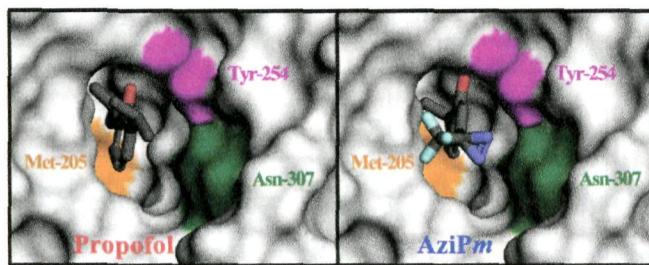
**Assembly of an Activated Rhodopsin–Transducin Complex in Nanoscale Lipid Bilayers**  
Aaron M. D'Antona, Guifu Xie, Stephen G. Sligar, and Daniel D. Oприан\*



dx.doi.org/10.1021/bi4012995

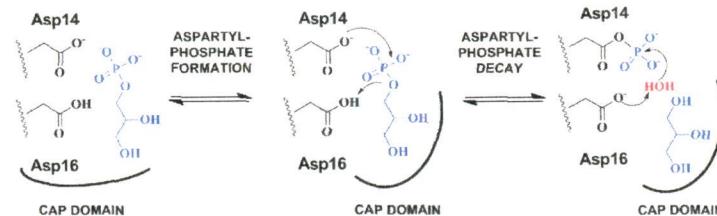
**Photoaffinity Labeling the Propofol Binding Site in GLIC**

David C. Chiara, Jonathan F. Gill, Qiang Chen, Tommy Tillman, William P. Dailey, Roderic G. Eckenhoff, Yan Xu, Pei Tang,\* and Jonathan B. Cohen\*



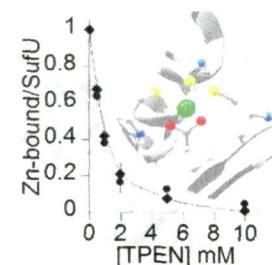
dx.doi.org/10.1021/bi401492k

**Chemical Mechanism of Glycerol 3-Phosphate Phosphatase: pH-Dependent Changes in the Rate-Limiting Step**  
Gérald Larrouy-Maumus, Geoff Kelly, and Luiz Pedro Sório de Carvalho\*



dx.doi.org/10.1021/bi400856y

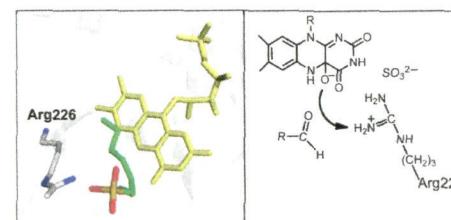
**Fe-S Cluster Biogenesis in Gram-Positive Bacteria: SufU Is a Zinc-Dependent Sulfur Transfer Protein**  
Bruna P. Selbach, Alexander H. Chung, Aubrey D. Scott, Simon J. George, Stephen P. Cramer, and Patricia C. Dos Santos\*



dx.doi.org/10.1021/bi4011978

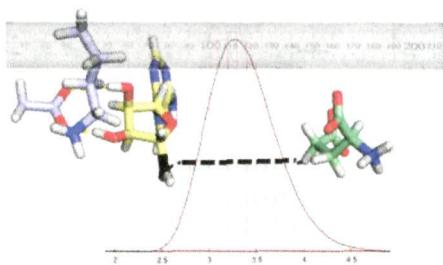
**Steady-State Kinetic Isotope Effects Support a Complex Role of Arg226 in the Proposed Desulfonation Mechanism of Alkanesulfonate Monooxygenase**

John M. Robbins and Holly R. Ellis\*



dx.doi.org/10.1021/bi401234e

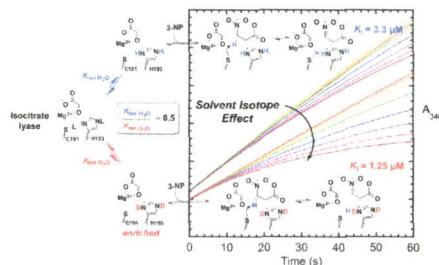
**Role of Active Site Residues in Promoting Cobalt–Carbon Bond Homolysis in Adenosylcobalamin-Dependent Mutases Revealed through Experiment and Computation**  
Gabriel D. Román-Meléndez, Patrick von Glehn, Jeremy N. Harvey, Adrian J. Mulholland,\* and E. Neil G. Marsh\*



dx.doi.org/10.1021/bi4012644

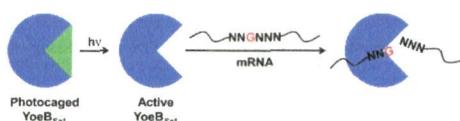
**Cysteine Is the General Base That Serves in Catalysis by Isocitrate Lyase and in Mechanism-Based Inhibition by 3-Nitropropionate**

Margaret M. Moynihan and Andrew S. Murkin\*



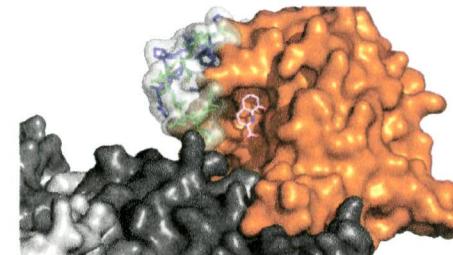
dx.doi.org/10.1021/bi401432t

**Light Activation of *Staphylococcus aureus* Toxin YoeB<sub>Sa1</sub> Reveals Guanosine-Specific Endoribonuclease Activity**  
Amy S. Larson and Paul J. Hergenrother\*



dx.doi.org/10.1021/bi4008098

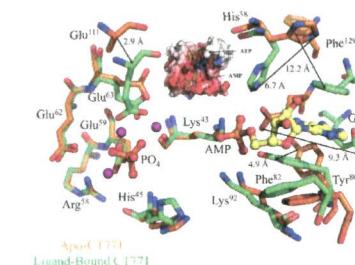
**A Noncompetitive Inhibitor for *Mycobacterium tuberculosis*'s Class IIa Fructose 1,6-Bisphosphate Aldolase**  
Glenn C. Capdagli, Wafik G. Sedhom, Mary Jackson, Kateri A. Ahrendt,\* and Scott D. Pegan\*



dx.doi.org/10.1021/bi401022b

***Chlamydia trachomatis* CT771 (nudH) Is an Asymmetric Ap<sub>4</sub>A Hydrolase**

Michael L. Barta, Scott Lovell, Amy N. Sinclair, Kevin P. Battaile, and P. Scott Hefty\*



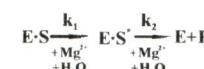
dx.doi.org/10.1021/bi401473e

**Isolated RING2 Domain of Parkin Is Sufficient for E2-Dependent E3 Ligase Activity**  
Carolyn A. Rankin, Nadezhda A. Galeva, KyeongMin Bae, Mirza Nayyar Ahmad, Travis M. Witte, and Mark L. Richter\*



dx.doi.org/10.1021/bi401378p

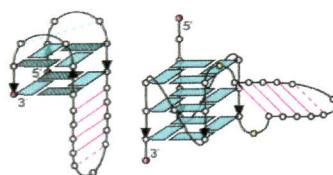
**Using Single-Turnover Kinetics with Osmotic Stress To Characterize the EcoRV Cleavage Reaction**  
Rocco Ferrandino, Nina Sidorova, and Donald Rau\*



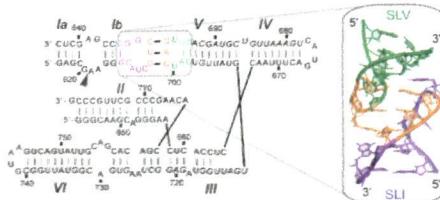
dx.doi.org/10.1021/bi401089y

**Thermal Stability of DNA Quadruplex–Duplex Hybrids**

Kah Wai Lim, Zi Jian Khong, and Anh Tuân Phan\*

[dx.doi.org/10.1021/bi401161a](https://doi.org/10.1021/bi401161a)**Structural Insights Into Substrate Recognition by the *Neurospora* Varkud Satellite Ribozyme: Importance of U-Turns at the Kissing-Loop Junction**

Patricia Bouchard and Pascale Legault\*

[dx.doi.org/10.1021/bi401491g](https://doi.org/10.1021/bi401491g)[dx.doi.org/10.1021/bi401402j](https://doi.org/10.1021/bi401402j)**Allosteric Regulation in Phosphofructokinase from the Extreme Thermophile *Thermus thermophilus***

Maria S. McGresham, Michelle Lovingshimer, and Gregory D. Reinhart\*

