

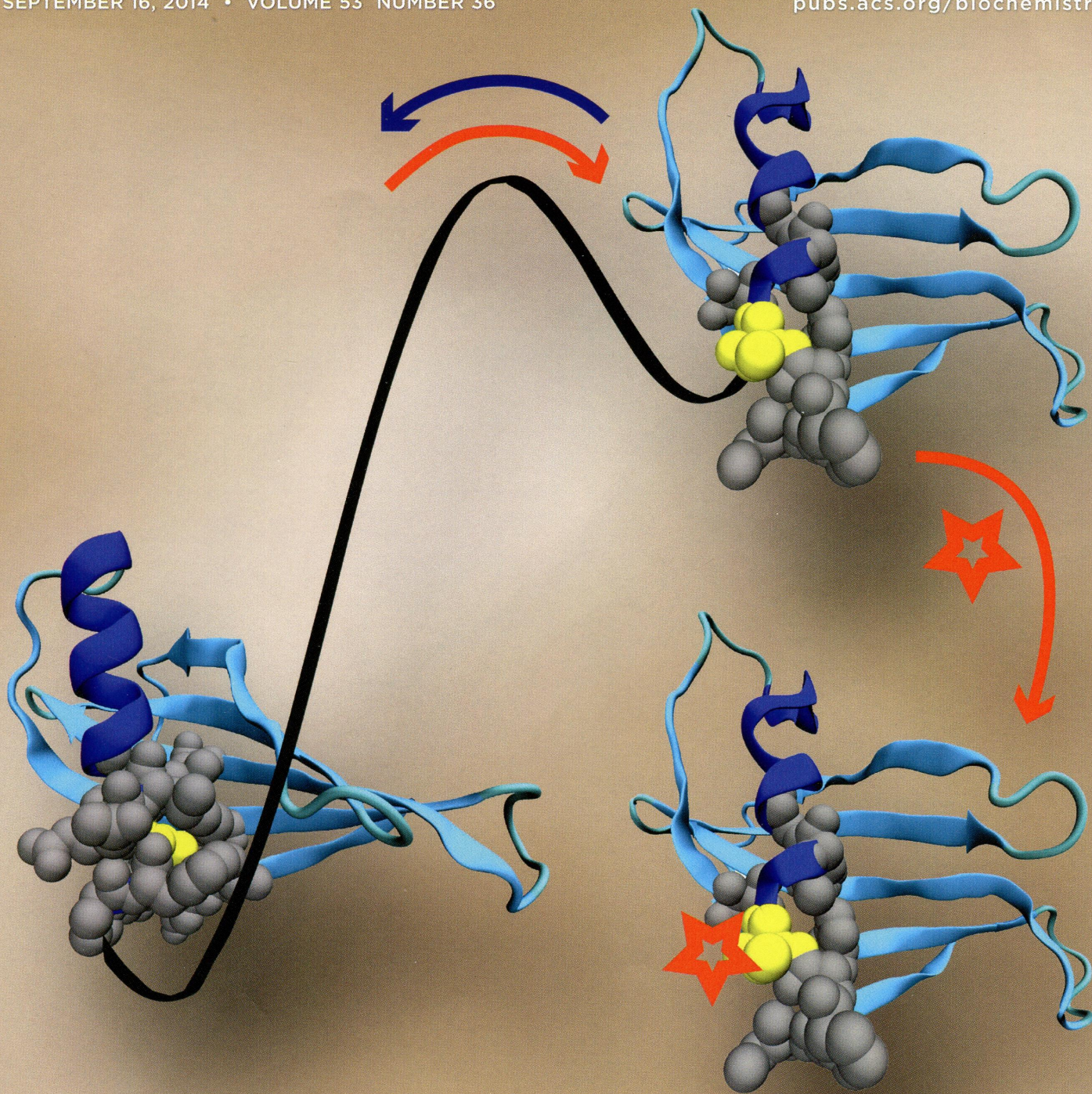
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# BIOCHEMISTRY

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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

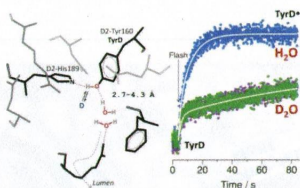
5721



dx.doi.org/10.1021/bi5009672

### Spectroscopic Evidence for a Redox-Controlled Proton Gate at Tyrosine D in Photosystem II

Johannes Sjöholm,\* Fikret Mamedov,\* and Stenbjörn Styring



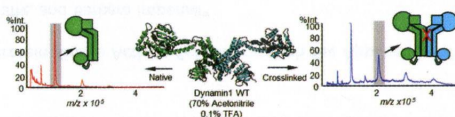
5724



dx.doi.org/10.1021/bi500998s

### Intrapolypeptide Interactions between the GTPase Effector Domain (GED) and the GTPase Domain Form the Bundle Signaling Element in Dynamin Dimers

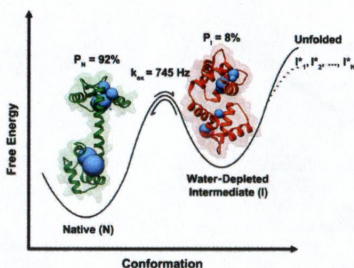
Saipraveen Srinivasan, Juha-Pekka Mattila, and Sandra L. Schmid\*



5727 **S**

dx.doi.org/10.1021/bi500679c

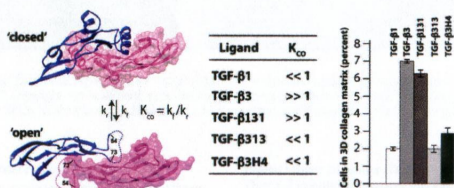
Conformational Selection and Functional Dynamics of Calmodulin: A <sup>19</sup>F Nuclear Magnetic Resonance Study  
 Joshua Hoang and R. Scott Prosser\*



5737 **S**

dx.doi.org/10.1021/bi500647d

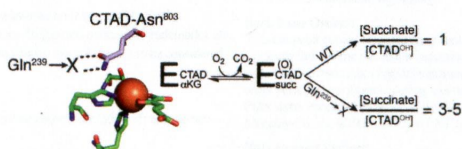
Biological Activity Differences between TGF-β1 and TGF-β3 Correlate with Differences in the Rigidity and Arrangement of Their Component Monomers  
 Tao Huang, Seth L. Schor, and Andrew P. Hinck\*



5750 **S**

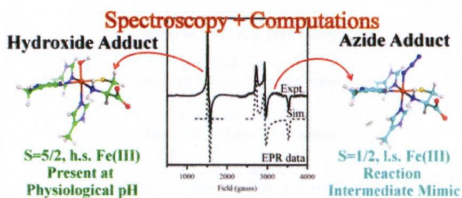
dx.doi.org/10.1021/bi500703s

Substrate Positioning by Gln<sup>239</sup> Stimulates Turnover in Factor Inhibiting HIF, an αKG-Dependent Hydroxylase  
 John A. Hangasky, Geoffrey T. Ivison, and Michael J. Knapp\*



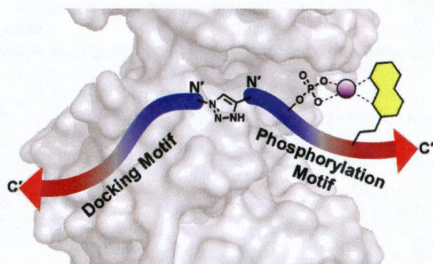
### Spectroscopic and Computational Investigation of Iron(III) Cysteine Dioxygenase: Implications for the Nature of the Putative Superoxo-Fe(III) Intermediate

Elizabeth J. Blaesl, Brian G. Fox, and Thomas C. Brunold\*



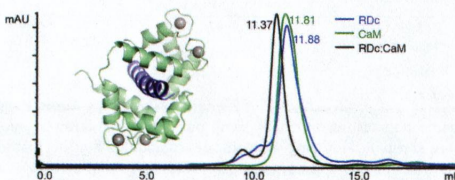
### Selective Mitogen Activated Protein Kinase Activity Sensors through the Application of Directionally Programmable D Domain Motifs

Laura B. Peterson, Michael B. Yaffe, and Barbara Imperiali\*



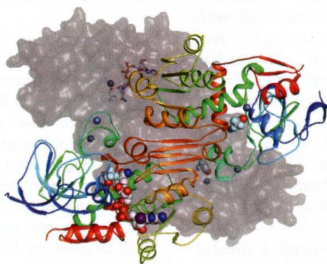
### Stoichiometry of the Calcineurin Regulatory Domain–Calmodulin Complex

Tori B. Dunlap, Hou-Fu Guo, Erik C. Cook, Emily Holbrook, Julie Rumi-Masante, Terrence E. Lester, Christopher L. Colbert, Craig W. Vander Kooi, and Trevor P. Creamer\*



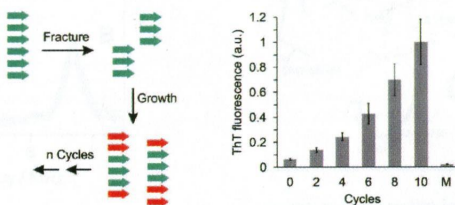
## Yeast Alcohol Dehydrogenase Structure and Catalysis

Savarimuthu Baskar Raj, S. Ramaswamy, and Bryce V. Plapp\*



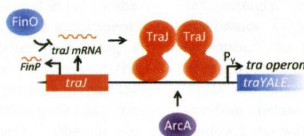
## Amplification of Tau Fibrils from Minute Quantities of Seeds

Virginia Meyer, Paul D. Dinkel, Emily Rickman Hager, and Martin Margittai\*



## Crystal Structures of the F and pSLT Plasmid TraJ N-Terminal Regions Reveal Similar Homodimeric PAS Folds with Functional Interchangeability

Jun Lu, Ruiying Wu, Joshua N. Adkins, Andrzej Joachimiak, and J. N. Mark Glover\*



## The Catalytic Mechanism of Carboxylesterases: A Computational Study

J. Aranda, N. M. F. S. A. Cerqueira, P. A. Fernandes, M. Roca, I. Tuñón,\* and M. J. Ramos\*

