

SETH M. RUBIN

Department of Chemistry and Biochemistry
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Education:

Ph.D. University of California, Berkeley CA, Chemistry, Sept. 1998 - May 2003

B.A. Columbia University, New York NY, Chemistry, Sept. 1994 - May 1998, *Summa Cum Laude*

Research and Professional Experience

Assistant Professor, Department of Chemistry and Biochemistry, University of California, Santa Cruz (July 2006-present)

Damon Runyon Cancer Research Foundation Fellow, Memorial Sloan-Kettering Cancer Center, Nikola Pavletich Sponsor (2003-2006)

Graduate Student, University of California, Berkeley, David Wemmer Advisor, Alex Pines Co-Advisor (1998-2003)

Undergraduate Research Assistant, Columbia University, George Flynn Advisor (1996-1998)

Awards and Fellowships

Pew Scholar in the Biomedical Sciences	2008-2012
Damon Runyon Cancer Research Foundation Fellowship Award	2003-2006
National Science Foundation Predoctoral Fellow	1998-2001
Brian E. Bent Undergraduate Teaching Award	1998
Elected to Phi Beta Kappa	1997
National Barry M. Goldwater Scholar	1996-1998
I.I. Rabi Scholar, Columbia University	1996-1998

Current Research Support

National Cancer Institute, National Institute of Health	07/08-06/13
1R01CA132685 Rubin (PI)	\$210,000 annual direct
Molecular mechanisms regulating the retinoblastoma protein	

Pew Charitable Trusts, Pew Scholars Program in the Biomedical Sciences	07/08-06/12
Molecular Mechanisms of Cell Cycle Regulation	\$60,000 annual direct

Publications

Rubin, S.M., Gall, A.-L., Zheng, N., & Pavletich, N.P. Structure of the Rb C-terminal Domain Bound to an E2F1-DP1 Heterodimer: A Mechanism for Phosphorylation-Induced E2F Release. *Cell*, **2005**, **123**(6), 1093-1106.

Lowery, T.J., Doucleff, M., Ruiz, E.J., Rubin, S.M., Pines, A., & Wemmer, D. E. Distinguishing Multiple Chemotaxis Y Protein Conformations with Laser-Polarized ¹²⁹Xe NMR. *Protein Science*, **2005**, **14**(4), 848-855.

Lowery, T.J., Rubin, S.M., Ruiz, E.J., Pines, A., & Wemmer, D. E. Design of a Conformation-Sensitive Xenon-Binding Cavity in the Ribose-Binding Protein. *Angewandte Chemie*, **2004**, **43**, 6320-6322.

Spence, M. M., Ruiz, E.J., Rubin, S.M., Lowery, T.J., Winssinger, N., Schultz, P.G., Wemmer, D. E., & Pines, A. Development of a Functionalized Xenon Biosensor. *Journal of the American Chemical Society*, **2004**, **126**(46), 15287-15294.

Rubin, S.M., Pelton, J.G., Yokota, H., Kim, R., Wemmer, D. E. Solution Structure of a Putative Ribosome Binding Protein from *Mycoplasma pneumonia* and Comparison to a Distant Homolog. *Journal of Structural and Functional Genomics*, **2003**, **4** (4), 235-243.

Lowery, T.J., Rubin, S.M., Ruiz, E.J., Spence, M. M., Winssinger, N., Schultz, P.G., Pines, A., & Wemmer, D. E. Applications of Laser-polarized Xe-129 to Biomolecular Assays. *Magnetic Resonance Imaging*, **2003**, **21** (10), 1235-1239.

Rubin, S.M., Lee, S.-Y., Ruiz, E.J., Pines, A., & Wemmer, D. E. Detection and Characterization of Xenon Binding Sites in Proteins by ¹²⁹Xe NMR Spectroscopy. *Journal of Molecular Biology*, **2002**, **322**, 425-440.

Rubin, S. M., Spence, M. M., Dimitrov, I. E., Ruiz, E. J., Pines, A. & Wemmer, D. E. Detection of a Conformational Change in Maltose Binding Protein by ¹²⁹Xe NMR Spectroscopy. *Journal of the American Chemical Society*, **2001**, **123**(35), 8616-8617.

Rubin, S. M., Spence, M. M., Pines, A. & Wemmer, D. E. (2001). Characterization of the Effects of Nonspecific Xenon-Protein Interactions on ¹²⁹Xe Chemical Shifts in Aqueous Solution: Further Development of Xenon as a Biomolecular Probe. *Journal of Magnetic Resonance*, **2001**, **152**(1), 79-86.

Spence, M. M., Rubin, S. M., Dimitrov, I. E., Ruiz, E. J., Wemmer, D. E., Pines, A., Yao, S. Q., Tian, F. & Schultz, P. G. Functionalized Xenon as a Biosensor. *Proceedings of the National Academy of Science USA*, **2001**, **98**(19), 10654-10657.

Rubin, S. M., Spence, M. M., Goodson, B. M., Wemmer, D. E. & Pines, A. Evidence of Nonspecific Surface Interactions Between Laser-Polarized Xenon and Myoglobin in Solution. *Proceedings of the National Academy of Science USA*, 2000, 97(17), 9472-9475.

Sevy, E.T., Rubin, S.M., Lin, Z. & Flynn, G.W. Translational and Rotational Excitation of the CO₂(00⁰) Vibrationless State in the Collisional Quenching of Vibrationally Excited 2-Methylpyrazine: Kinetics and Dynamics of Large Energy Transfers. *Journal of Chemical Physics*, 2000, 113(12), 4912-4932.

Sevy, E.T., Muyskens, M.A., Rubin, S.M., Flynn, G.W. & Muckerman, J.T. Competition between Photochemistry and Energy Transfer in Ultraviolet-Excited Diazabenzene. I. Photofragmentation Studies of Pyrazine at 248 nm and 266 nm. *Journal of Chemical Physics*, 2000, 112(13), 5829-5842.

Giancarlo, L.C., Fang, H.B., Rubin, S.M., Bront, A.A. & Flynn, G.W. Influence of the Substrate on Order and Image Contrast for Physisorbed Self-Assembled Molecular Monolayers: STM Studies of Functionalized Hydrocarbons on Graphite and MO₂. *Journal of Physical Chemistry B*, 1998, 102(50), 10255-10263.

Patents

Pines, A., Wemmer, D.E., Spence, M.M. & Rubin, S.M. Functionalized Active-Nucleus Complex Sensor, 2003, U.S. patent No. 6652883

Pines, A., Wemmer, D.E., Spence, M.M., Rubin, S.M., Ruiz, E.J., Dimitrov, I.E., Xenon Sensor of Biomolecular Conformations and Binding, U.S. patent pending