Curriculum Vitae

Name: Richard Novak

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Education:

2007-present	**UC Berkeley/UC San Francisco, California** Ph.D. Candidate: Joint Graduate Group in Bioengineering
2003-2007	**Emory University, Atlanta, Georgia** B.S. in Biology with Highest Honors; GPA 3.940
1998-2003	**Indian Springs School, Indian Springs, Alabama**

Awards and Honors:

2010	**MicroTAS Young Researcher Poster Award**
2010	**Outstanding Graduate Student Instructor Award**
2009	**Clinton Global Initiative University, Commitment Grant** Funding for Future Scientist science lessons in the Peruvian Amazon
2008	**NSF Biocomplexity Summer School Fellowship** In support of attending "Summer School in Biocomplexity," Istanbul, Turkey
2008-2011	**NSF Graduate Research Fellowship**
2007	**Graduated *summa cum laude***
2007	**Charles Elias Shepard Scholarship** Scholarship for graduate study
2006	**Howard Hughes Medical Institute Summer Fellowship Grant** Funding for travel and living expenses to conduct research at the University of Melbourne, Australia
2006	**Induction into Phi Beta Kappa Honor Society, Gamma of Georgia**
2005	**Scholarly Inquiry and Research at Emory (SIRE) Grant** Support for independent research (Laboratory of John Lucchesi, PhD)
2003-2007	**Robert W. Woodruff Scholar at Emory University** Merit scholarship for four years of tuition, room, and board

Research Experience:

2008-present	**Microsystems for Single Cell Genetic Analysis** Developing microfluidic devices for high-sensitivity genetic analysis of cancer cell mutations (mentor Richard Mathies, PhD, Department of Chemistry, UC Berkeley)

Aug.-Dec. 2007	**Nanosieving Microfluidics for Rapid Immunoassays** Developed novel gel-based gradient membrane for protein concentration and identification (mentor Amy Herr, PhD, Bioengineering Department, UC Berkeley)
2005-2007	**Honors Thesis: Model System for Parasite Dispersal** "Development of a microsphere model system for studying transmission of *Toxoplasma gondii* oocysts" (mentor Christopher Beck, PhD, Department of Biology, Emory University)
May-Aug. 2006	**HHMI Summer Fellowship: Malaria Therapy Development** Examined inhibitory effects of antibiotics and herbicides on *Plasmodium falciparum* and analyzed changes in apicoplast morphology (mentor Geoffrey McFadden, PhD, Department of Botany, University of Melbourne, Melbourne, Australia)
2003-2005	***Drosophila* Chromatin Modification** Investigated the role of nucleosome phosphorylation in gene dosage compensation of the male X chromosome (mentors Arri Eisen, PhD and John Lucchesi, PhD, Department of Biology, Emory University)

Publications:

Novak, R., Zeng, Y., Shuga, J., Venugopalan, G., Fletcher, D.A., Smith, M.T., Mathies, R.A. *Single Cell Multiplex Gene Detection and Sequencing Using Microfluidically-Generated Agarose Emulsions*. Angewandte Chemie, Int. Ed., 2011, 50(2), 390-395.

Novak, R., Zeng, Y., Shuga, J., Venugopalan, G., Fletcher, D.A., Zhang, L., Smith, M.T., Mathies, R.A. *Single copy/cell genetic analysis using microdroplet generator arrays*. Poster at MicroTAS 2010, Groningen, The Netherlands.

Zeng, Y., **Novak, R.**, Shuga, J., Smith, M.T., Mathies, R.A., *High-performance single cell genetic analysis using microfluidic emulsion generator arrays*. Analytical Chemistry, 2010, 82(8), 3183-3190.

Novak, R., Herr, A.E., *Nanosieving for rapid, solution-phase immunoassays*. Poster at Experimental Biology 2008, San Diego, CA.

Novak, R. *Sequencing of the mitochondrial DNA control region in the river cooter (*Pseudemys concinna*).* Turtle and Tortoise Newsletter. July 2006. Issue 9. 15-16.

Novak, R. *Efficient purification of DNA from turtle shells*. QIAGEN News. 2003 e7.

Teaching Experience:

January 2011	**Instructor, "Bay Area Science Project - ACES," Lawrence Hall of Science** Designed and taught hands-on science lessons for developing inquiry-driven education and writing in Bay Area elementary schools
Aug.-Dec. 2009	**Graduate Student Instructor, BIOE 192: "Engineering Design"** Aided in instruction, technical support and training, grading and assessment, and providing assistance to undergraduate product design groups
June 2009	**Instructor, "Bay Area Science Project," Lawrence Hall of Science** Developed and presented lessons from elementary school science curriculum to Bay Area science teachers
2009-present	**Volunteer, Community Resources for Science** Presented hands-on science lessons in Bay Area elementary schools
Jan.-May 2007	**Teaching Assistant, BIO 142: "Introductory Biology Lab"**
Sept.-Dec. 2005	**Teaching Assistant, CHEM 190: "Chemistry of Wine"**
2004-2005	**Tutor, AP Biology, Algebra II, and Trigonometry**

Leadership Positions:

2009-present	**Founder and Director, Future Scientist** Began an organization with the goal of providing sustainable science and engineering education to aid communities in resource-poor regions
2005-2007	**Emory Climbing Wall Manager** Organized climbing competitions and trips, oversaw climber safety, taught classes, and promoted climbing at Emory University

Other Activities:

2006-2007	***Hybrid Vigor*** **Science Magazine Photographer and Illustrator**
May-July 2005	**Veterinary Clinic Assistant** Greg Kelley, DVM, Chelsea Animal Clinic, Chelsea, Alabama
January 2005	**Ambulatory Equine Veterinary Practice Assistant** Scott Owen, DVM, Columbiana, Alabama
2005	***Emory Wheel*** **Staff Photographer** Frequent contributor to the university newspaper
July-August 2003	**Research Station Assistant in the Peruvian Amazon** Trail construction, mapping, and research station maintenance

Languages:

Proficient in Spanish and French, fluent in Czech and English