

Mindy Levine

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PROFESSIONAL EXPERIENCE

University of Rhode Island

Kingston, RI

Assistant Professor of Chemistry

July 2010

EDUCATION

Massachusetts Institute of Technology

Cambridge, MA

NIH Postdoctoral Research Fellow with Professor Timothy Swager

2008-2010

Columbia University, Graduate School of Arts and Sciences

New York, NY

Ph.D., Chemistry

2008

Doctoral Thesis: Investigating the Origin of Homochirality

Doctoral Advisor: Professor Ronald Breslow

M.A., Chemistry

2005

Columbia University, Columbia College

New York, NY

B.A., Chemistry

2003

AWARDS AND FELLOWSHIPS

NIH Postdoctoral Fellowship

2008-2010

National Postdoctoral Association Travel Award

2010

Pegram Award for Excellence in Research

2008

Women Chemists Committee Eli Lilly Travel Award

2007

Novartis Graduate Fellowship in Organic Chemistry

2005-2006

RESEARCH EXPERIENCE

Massachusetts Institute of Technology, Department of Chemistry, Cambridge, MA

2008-2010

NIH Postdoctoral Research Fellow with Professor Timothy Swager

Developed new sensor systems for potential disease detection. Synthesized near infrared-emitting squaraine dyes, studied the energy transfer between organic polymers and the squaraine dyes in thin films, solutions, and injectable nanoparticles. Resulted in first-author publication published, book chapter accepted that incorporates this work, two oral presentations at national chemistry conferences, departmental presentation to 25 graduate students and postdoctoral fellows.

Columbia University, Department of Chemistry, New York, NY

2004-2008

Graduate Research Assistant with Professor Ronald Breslow

Studied the origin of homochirality on earth. Amplified enantiomeric concentrations of amino acids under credible prebiotic conditions, demonstrated partial transfer of chirality from α -methyl amino acids to proteinogenic amino acids, synthesized enantiopure α -methyl amino acids found on meteorites. Resulted in six publications in peer-reviewed journals, lecture at national chemistry conference, departmental award for excellence in research, four posters, presentation at MIT to 30 students and postdoctoral fellows, presentation

at Columbia University to 25 students, postdoctoral fellows, and faculty. Research publicized in popular science magazines and featured in *Chemical and Engineering News*.

Wyeth Pharmaceutical Company, Pearl River, NY 2003
Undergraduate Intern
Optimized reaction conditions for the ortho-acetylation of anilines using microwave-assisted organic synthesis.

Columbia University, Department of Chemistry, New York, NY 2002
Undergraduate Research Assistant with Professor Dalibor Sames
Researched the fluorescent profile of small molecule probes. Synthesized new probes and tested their reactivity with proteins.

Schneider Children's Hospital, Department of Pediatric Gastroenterology, Queens, NY 1998
Research Intern
Researched trends in presentation and treatment of inflammatory bowel disease. Created and analyzed database of more than 100 patients. Resulted in two publications in peer-reviewed journals.

LEADERSHIP/SERVICE

Northeastern Section of the American Chemical Society (NESACS), MA
Web Coordinator, Board of Publications, NESACS 2010-present
Associate Editor of The Nucleus 2009-present
Assistant Editor of The Nucleus 2008-2009
Developing new ideas for *The Nucleus*, the local publication of the American Chemical Society. Wrote eight articles for *The Nucleus*. Proofread and edited more than 30 articles. Assisting with the layout and structure of the publication.

American Chemical Society, Boston, MA
Conference Session Chair 2010
Chairing a session in the division of polymer chemistry at the 240th ACS National Meeting in Boston, MA.

Graduate Women in Science (GWIS) Fellowships Committee, Boston, MA
Fellowship Coordinator 2010
Managed 16 applications for GWIS fellowships from graduate students, postdoctoral fellows, and junior faculty members. Arranged 48 reviewers from various scientific disciplines, organized the application materials, supervised and coordinated efficient and timely reviewing of the applications.

National Postdoctoral Association (NPA), Philadelphia, PA
Summit Notetaker 2010
Functioned as a notetaker for the 2010 Summit on Gender and the Postdoctorate. Attended sessions related to women scientists in post-doctoral positions. Took detailed notes on the sessions, organized and edited notes for the NPA archives and public availability.

Massachusetts Institute of Technology, Cambridge, MA 2009
Editorial Contributor, Synfacts
Surveyed three journals for outstanding articles on the synthesis of materials and unnatural products. Summarized and highlighted 12 articles in the publication of *Synfacts*.

Department of Chemistry, Columbia University, New York, NY
Organizer, Take a Girl to College Day 2008
Organized event for 30 high school girls to shadow a Columbia College undergraduate for the day. Recruited the participants from various local high schools. Supervised three graduate students who ran experiments and lab tours. Arranged a lunchtime speaker for the high school students. Supervised all other auxiliary functions of the day.

Secretary, Women in Science at Columbia

2006-2007

Recorded minutes during monthly meetings. Organized panel of five female post-doctoral students to give advice to 20 graduate students. Organized panel of six graduate students to give advice to more than 30 undergraduate science majors. Obtained chemistry paraphernalia as prizes for 100 middle school girls at Girls Science Day.

TEACHING EXPERIENCE

Department of Chemistry, Columbia University, New York, NY

2008

Mentor, ACS Project SEED Program

Mentored an underprivileged high school student. Developed a curriculum on chemistry and laboratory safety, studied the effects of electrolytes on the critical micelle concentration of surfactants. Resulted in oral presentation at national chemistry conference, and high school student presenting work at a national chemistry conference.

Stern College, Yeshiva University, New York, NY

2007-2008

Adjunct Professor

Developed curriculum and taught Advanced Chemistry Seminar in Organofluorine Chemistry (6 students); taught General Chemistry Laboratory (20 students); developed curriculum and taught Advanced Chemistry Seminar in Organic Polymer Sensors (3 students).

Department of Chemistry, Columbia University, New York, NY

2004-2008

Graduate and Undergraduate Mentor

Introduced three new graduate students to the theory and practice of HPLC analysis. Directed two undergraduate students in the synthesis of prebiotically relevant amino acids and peptides.

Graduate Teaching Assistant

2004-2005

Taught Organic Chemistry laboratory for two semesters (12 students each semester); led three recitations for General Chemistry lecture (25 students in each recitation section).

Undergraduate Teaching Assistant

2003

Assisted in the teaching and grading of Advanced Organic Chemistry for Freshmen (20 students).

PUBLICATIONS

“Photoluminescent Non-Förster Energy Transfer from Poly(phenyleneethynylene) to a Series of Fluorophores.” **Levine, M.**; Song, I.; Andrew, T. L.; Kooi, S. E.; Swager, T. M. *J. Poly. Sci. A. Poly. Chem.* **2010**, 48, 3382-3391.

“Conjugated Polymer Sensors: Design, Principles, and Biological Applications.” **Levine, M.**; Swager, T. M. in *Functional supramolecular architectures for organic electronics and nanotechnology*. Ed. Franco Cacialli and Paolo Samori. Wiley-VCH. *Book chapter* **2010**, *accepted*.

“Imitating Prebiotic Homochirality on Earth.” Breslow, R.; **Levine, M.**; Cheng, Z.- L. *Orig. Life Evol. Bio.* **2010**, 40, 11-26.

“Synthesis and Catalytic Properties of Diverse Chiral Polyamines.” **Levine, M.**; Kenesky, C. S.; Zheng, S.; Quinn, J.; Breslow, R. *Tetrahedron Lett.* **2008**, 49, 5746-5750.

“Enantioselective Synthesis and Enantiomeric Amplification of Amino Acids under Prebiotic Conditions.” **Levine, M.**; Kenesky, C. S.; Mazori, D.; Breslow, R. *Org. Lett.* **2008**, 10, 2433-2436.

Research featured in *Chemical and Engineering News*, **March 23, 2009, 38-41.

“Water Exclusion and Enantioselectivity in Catalysis.” Breslow, R.; Bandyopadhyay, S.; **Levine, M.**; Zhou, W. *ChemBioChem* **2006**, 10, 1491-1496.

“Amplification of Enantiomeric Concentrations under Credible Prebiotic Conditions.” Breslow, R.; **Levine, M. S.** *Proc. Natl. Acad. Sci. U.S.A.* **2006**, *103*, 12979-12980.

“Partial Transfer of Chirality from α -Methylated Amino Acids, Known to be of Meteoric Origin, into Normal Amino Acids.” Breslow, R.; **Levine, M. S.** *Tetrahedron Lett.* **2006**, *47*, 1809-1812.

“Age and Family History at Presentation of Pediatric Inflammatory Bowel Disease.” Weinstein, T. A.; **Levine, M.**; Pettei, M. J.; Gold, D. M.; Kessler, B. H.; Levine, J. J. *Jour. Pediatr. Gastro. Nutr.*, **2003**, *37*, 609-613.

“The Influence of Age and Family History in the Presentation of Pediatric Inflammatory Bowel Disease.” Weinstein, T. A.; **Levine, M.**; Pettei, M. J.; Gold, D. M.; Kessler, B. H.; Levine, J. J. *Gastroenterology* **2000**, *118*, A66.

PRESENTATIONS

“Conjugated Polymer Nanoparticles as Platforms for Efficient Energy Transfer.” **Levine, M.**; Cordovilla, C.; Swager, T. M. 240th ACS National Meeting, Boston, **2010**, *abstract accepted*.

“A Simple Method to Determine the Effects of Electrolytes on the Critical Micelle Concentration of Sodium-n-dodecylbenzenesulfonate.” **Levine, M.**; Avila, L.; Gani, T. 240th ACS National Meeting, Boston, **2010**, *abstract accepted*.

“Extra-Terrestrial Transaminations.” **Levine, M.**; Breslow, R. *Poster presented*, 33rd Reaction Mechanisms Conference, Amherst, **2010**.

“Polymer-Based Energy Transfer in Nanoparticles and Thin Films.” *Departmental Presentation*, Massachusetts Institute of Technology, **2010**.

“Highly Efficient Energy Transfer from Conjugated Polymers to Near-Infrared Emitting Dyes.” **Levine, M.**; Song, I.; Andrew, T. L.; Swager, T. M. *Oral presentation*, 238th ACS National Meeting, Washington D.C., **2009**.

“New Research Opportunities in Chiral Supramolecular Chemistry.” **Levine, M.**; Swager, T. M. *Poster presented*, 238th ACS National Meeting, Washington D.C., **2009**.

“Extra-Terrestrial Transaminations.” *Departmental Presentation*, Massachusetts Institute of Technology, **2009**.

“Investigating the Origin of Biomolecular Homochirality.” **Levine, M.**; Breslow, R. *Poster presented*, Gordon Research Conference in Bioorganic Chemistry, Andover, **2008**.

“Synthesis and Catalytic Properties of Novel Chiral Polyamines.” **Levine, M.**; Kenesky, C. S.; Zheng, S.; Breslow, R. *Poster presented*, 40th ACS Middle Atlantic Regional Meeting, Queens, **2008**.

“Pauson Khand Reaction.” *Departmental Presentation*, Columbia University, **2008**.

“Mimicking Prebiotic Chemistry.” **Levine, M.**; Breslow, R. *Named lecture*, 235th ACS National Meeting, New Orleans, **2008**.

“Investigating the Origin of Chirality.” *Departmental Presentation*, Columbia University, **2007**.

“Amplification of Enantiomeric Concentrations Under Credible Prebiotic Conditions.” *Poster presented*, 233rd ACS National Meeting, Chicago, **2007**.

“Partial Transfer of Chirality from Meteoritic α -Methylated Amino Acids to Normal Amino Acids, and Amplification of Enantiomeric Concentrations under Credible Prebiotic Conditions.” *Poster presented*, Novartis Science Day, Novartis Pharmaceuticals, Boston, **2006**.

PUBLICITY

“The Origin of Life: Not that Sinister.” Research featured in *The Economist*, April **2008**.

“Meteorites Left “Seeds” of Earth’s Left-Handed Life.” Research featured in *World Science*, April **2008**.

“Meteorites Made Life Left-Handed.” Research featured in *Astrobiology Magazine*, April **2008**.

“Hand Over Hand.” Research featured in *Chemical and Engineering News*, March **2009**.

SKILLS

Applications: Fluent in Microsoft Excel, PowerPoint, and Word; Familiar with KaleidaGraph and Origin

Languages: Fluent in Hebrew and English

Science Skills: Proficient in HPLC analysis and maintenance; highly experienced in multistep synthetic sequences of small molecules and polymers; skilled in photophysical measurements of solutions and thin films.

MEMBERSHIPS

American Chemical Society, Graduate Women in Science, New York Academy of Sciences

REFERENCES

Prof. Ronald Breslow
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Columbia University
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New York, NY 10027
212.854.2170
rb33@columbia.edu

Prof. Timothy Swager
Department of Chemistry
Massachusetts Institute of
Technology
Building 18-597
Cambridge, MA 02139
617.253.4423
tswager@mit.edu

Prof. Lea Blau
Department of Chemistry
Stern College
245 Lexington Ave
New York, NY 10016
212.340.7742
leablau@yu.edu