

Curriculum Vitae

Minkui Luo

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Professional Appointments:

08/08—present Assistant Member, Molecular Pharmacology & Chemistry Program,
Memorial Sloan-Kettering Cancer Center

08/08—present Assistant Professor, Department of Pharmacology, Weill Medical
College of Cornell University

Education:

- Ph.D. in Bioorganic and Bioinorganic Chemistry, Princeton University, Sept. 2005
- B.A. in Organic Chemistry, Fudan University, China, July 1999

Research Experiences

Department of Biochemistry, Albert Einstein College of Medicine

Postdoctoral Research Associate with Professor Vern L. Schramm, 2005 ~ 2008

Characterized the transition state structures of mammalian and bacterial enzymes with essential functions of RNA-editing or purine metabolism. Rationalized potency of transition state analog inhibitors on the basis of the solved transition state structures.

Department of Chemistry, Princeton University, Princeton, NJ

Research Assistant with Professor John T. Groves, 2000 ~ 2005

Synthesized citrate-based siderophores, acinetoferrin, schizokinen, rhizobactin-1201 and their analogs. Studied iron-mobilization and membrane interactions of structurally-diverse siderophores.

Shanghai Institute of Organic Chemistry, Shanghai, China

Undergraduate Thesis with Professor Cheng-ye Yuan, 1998 ~ 1999

Synthesized α - and β -phosphorus-containing ketones and carried out aqueous-phase, yeast-mediated reduction of these ketones to chiral alcohols. Optimized reaction conditions to maximize yields, comparability and ee% values.

Awards and Honors

Outstanding Postdoctoral Research Prize, Albert Einstein College of Medicine, 2007

Best Presentation Award in Third ACS Annual Metropolitan New York Area Poster Program for Graduate Students in the Chemical Sciences, 2003

Graduate with High Honor at Fudan University, 1999

Rohm & Haas Fellowship, Fudan University, 1998

Du Pont Fellowship, Fudan University, 1998

Teaching and Academic Service

Teaching Assistant for Advance Organic Chemistry (senior undergraduate), 1999-2005
Peer Advisor of first-year graduate students, 2001-2004
Judging Committee for the Wyeth Research Graduate Prize, 2003
Teaching Assistant for Physical Organic Chemistry (graduate student), 2001

Professional Memberships

American Chemical Society, 2002-present
The New York Academy of Science, 2005-present

Research Publications

1. Evgeny A. Fadeev, **Minkui Luo**, and John T. Groves, "Synthesis, Structure and Molecular Dynamics of Gallium Complexes of Schizokinen and the Amphiphilic Siderophore Acinetoferrin", *J. Am. Chem. Soc.* **2004**, *126*, 12065-12075.
2. **Minkui Luo**, Evgeny A. Fadeev, and John T. Groves, "Membrane Dynamics of the Amphiphilic Siderophore, Acinetoferrin", *J. Am. Chem. Soc.* **2005**, *127*, 1726-1736.
 - The results were highlighted by *Chemical & Engineer News* in July 4th issue, **2005**, 22-23.
3. Evgeny A. Fadeev, **Minkui Luo**, and John T. Groves, "Synthesis and Structural Modeling of the Amphiphilic Siderophore Rhizobactin-1021 and its Analogs", *Bioorg. Med. Chem. Lett.* **2005**, *15*, 3771-3774.
4. **Minkui Luo**, Evgeny A. Fadeev, and John T. Groves, "Mycobactin-mediated Iron Acquisition within Macrophages", *Nat. Chem. Biol.* **2005**, *1*, 149-153.
 - This paper was featured by the news of *Nat. Chem. Biol.* **2005**, *1*, 127-128.
5. **Minkui Luo**, Hening Lin, Michael A. Fischbach, David R. Liu, Christopher T. Walsh, John T. Groves, "Enzymatic Tailoring of the Bacterial Siderophore Enterobactin Alters Membrane Partitioning and Iron Acquisition", *ACS Chem. Biol.* **2006**, *1*, 29-32.
6. **Minkui Luo**, Vipender Singh, Erika A. Taylor and Vern L. Schramm, "Transition-State Variation in Human, Bovine, and *Plasmodium falciparum* Adenosine Deaminases", *J. Am. Chem. Soc.* **2007**, *129*, 8008-8017.
7. Jemy A. Gutierrez, **Minkui Luo** (*co-first author*), Vipender Singh, Lei Li, Rosemary L. Brown, Gillian E. Norris, Gary B. Evans, Richard H. Furneaux, Peter C. Tyler, Gavin F. Painter, Dirk H. Lenz, and Vern L. Schramm, "Picomolar Inhibitors as Transition State Probes of 5'-Methylthioadenosine Nucleosidases", *ACS Chem. Biol.* **2007**, *2*, 725-734.
 - The paper was featured as the cover and in *Point of View* of the issue of *ACS Chemical Biology*.

8. Vipender Singh, **Minkui Luo**, Rosemary L. Brown, Gillian E. Norris and Vern L. Schramm, "Transition State Structure of *Neisseria meningitidis* 5'-Methylthioadenosine/S-adenosylhomocysteine Nucleosidase", *J. Am. Chem. Soc.* **2007**, *129*, 13831-13833.

9. **Minkui Luo** and Vern L. Schramm, "Transition State Structure of *E. coli* tRNA-specific Adenosine Deaminase", *J. Am. Chem. Soc.* **2008**, *130*, 2649-2655.

- This paper was featured in JACS Select, March 2009.

10. **Minkui Luo**, Lei Li and Vern L. Schramm "Remote Mutations Alter Transition State Structure of Human Purine Nucleoside Phosphorylase", *Biochemistry* **2008**, *47*, 2565-2576.

11. Lei Li, **Minkui Luo**, Mahmoud Ghanem, Erika A. Taylor and Vern L. Schramm, "Residues Remote from Catalytic Sites Contribute to Transition State Structure in Bovine Purine Nucleoside Phosphorylase", *Biochemistry* **2008**, *47*, 2577-2583.

12. **Minkui Luo** and Vern L. Schramm, "Ribosyl Geometry in the Transition State of *Streptococcus pneumoniae* Methylthioadenosine Nucleosidase from the 3'-²H Kinetic Isotope Effect", *J. Am. Chem. Soc.* **2008**, *130*, 11617-11619.

13. María B. Cassera, Keith Z. Hazleton, Paul M. Riegelhaupt, Emilio F. Merino, **Minkui Luo**, Myles H. Akabas and Vern L. Schramm, "Erythrocytic adenosine monophosphate as an alternative purine", *J. Biol. Chem.* **2008**, *283*, 32889-32899.

14. Yong Zhang, **Minkui Luo** and Vern L. Schramm, "Transition State Structures of *Plasmodium falciparum* and Human Orotate Phosphoribosyltransferases", *J. Am. Chem. Soc.* **2009**, *131*, 4685-4694.

- This paper was featured by Today's Science Sparks at MSKCC.

Selected Research Presentations

1. Minkui Luo, "Amphiphilic Siderophores: Membrane Affinity, Molecular Dynamics and Iron-acquisition Strategies", ***Invited Speaker***, *Gordon Research Conference on Graduate Research Seminar: Bioinorganic Chemistry*, Feb. **2003**

2. Minkui Luo, Evgeny A. Fadeev, and John T. Groves, "Rhizobactin-1021, an Asymmetric Amphiphilic Siderophore: Synthesis, Membrane Behavior and Iron-acquisition Strategies", poster presentation, *ACS Third Metropolitan Area Poster Program for Graduate Students in Chemical Sciences*, Feb. **2003**. (***Awarded Poster***)

3. Minkui Luo, "Synthesis, Structure and Membrane Dynamics of Amphiphilic Siderophores", ***Invited Speaker***, *Center for Environmental BioInorganic Chemistry Summer Conference*, Jun. **2003**

4. Minkui Luo, Evgeny A. Fadeev, and John T. Groves, "Structurally related iron acquisition of siderophores with varied hydroxamate subunits", ***Chair-Sponsored Poster***, *Gordon Research Conference on Environmental BioInorganic Chemistry*, May. **2004**

5. Minkui Luo, "Membrane dynamics and iron acquisition of structurally-diverse siderophore amphiphiles", *Invited Speaker, Center for Environmental BioInorganic Chemistry Summer Conference*, Jun. 2005

6. Minkui Luo, Jemy A. Gutierrez, Vipender Singh, Lei Li, Rosemary L. Brown, Gillian E. Norris, Gary B. Evans, Richard H. Furneaux, Peter C. Tyler, Gavin F. Painter, Dirk H. Lenz, and Vern L. Schramm, "Picomolar inhibitors as transition state probes of 5'-methylthioadenosine nucleosidases", *Invited Speaker, Chemical Biology Discussion Group: Special Year End Meeting of the New York Academy of Science*, Jun. 2007