Ian Bass Seiple

Curriculum Vitae

Appointment

Assistant Professor
University of California, San Francisco
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San Francisco, CA 94158

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Personal

Place / Date of Birth: Chapel Hill, North Carolina, United States, January 26, 1984
Citizenship: United States

Education

2011 – 2015 NIH Postdoctoral Fellow
Adviser: Professor Andrew G. Myers
Harvard University, Cambridge, Massachusetts

2006 – 2011 Ph.D. in Chemistry
Adviser: Professor Phil S. Baran
The Scripps Research Institute, La Jolla, California

2002 – 2006 B.S. with Honors in Chemistry
Adviser: Professor Dirk Trauner
University of California at Berkeley, Berkeley, California

1998 – 2002 Full International Baccalaureate Diploma
Newbury Park High School, Newbury Park, California

Research Experience

2015 – Present **University of California, San Francisco** (Assistant Professor, see seiplegroup.ucsf.edu)

2011 – 2015 **Harvard University** (Postdoctoral Fellow)
Developed a highly convergent, practical platform for the synthesis of macrolide antibiotics in Professor Myers' laboratory. This platform has enabled the synthesis of over 350 novel antibiotic candidates, the formation of the company Macrolide Pharmaceuticals, four patents, and has led to the discovery of a unique glycine aldol reaction.

2006 – 2011 **The Scripps Research Institute** (Graduate Student)
Developed an asymmetric route to the dimeric pyrrole-imidazole alkaloids, enabling the first total syntheses of palau'amine, the massadines, and the axinellamines. This research led to several ancillary discoveries involving radical arylation and trifluoromethylation of heterocycles.

2005 – 2006	**University of California at Berkeley** (Undergraduate Research Associate) Completed total syntheses of natural products in the aureothin and taiwaniaquinoid families.
2005	**Amgen** (Undergraduate Summer Intern) Investigated intramolecular migration of nitriles under radical conditions.
2002	**Rockwell Science Center** (High School Student Intern) Designed the visual interface of a logistic probability modeling software.

Teaching

2020 – present	Instructor for Antimicrobial Drug Design, Infectious Disease Theme, UCSF School of Pharmacy
2018 – present	Founder and Instructor of CCB 219: Advanced Organic Synthesis, UCSF Chemistry and Chemical Biology Graduate Program
2016 – present	Founder and Organizer of Synthesis Journal Club, UCSF
2016 – 2019	Co-instructor for Pharmacology 131, Antibiotics and Anticancer Drugs, UCSF (**2019 recipient of the UCSF Apple Award for Teaching**)
2016 – present	Co-instructor for Chemistry 244, UCSF Chemistry and Chemical Biology Graduate Program.
2013	Invited speaker for Chemistry 135, the advanced undergraduate organic chemistry laboratory course at Harvard (April 22, 2013).
2012 – 2015	Resident Tutor at Harvard University *Description*: In-house chemistry tutor for ~400 undergraduate students who reside in Lowell House. Weekly group study and individual tutoring for students in lower- and upper-division chemistry courses.
2009 – 2010	Graduate Teaching Assistant for Prof. Phil Baran at The Scripps Research Institute. *Courses*: Classics in Total Synthesis II Heterocyclic Chemistry

Honors and Awards

Independent Career

01/2020	Apple Award for Teaching, UCSF School of Pharmacy
06/2019	Catalyst Award for Translational Research, UCSF
01/2019	Program for Breakthroughs in Biomedical Research NFR Award, UCSF (Joint w/ Fraser)
01/2019	Thieme Chemistry Journals Awardee
09/2018	**Packard Fellowship for Science and Engineering**
07/2018	**Maximizing Individual Research Award (MIRA R35), NIH NIGMS**
06/2018	**Beckman Young Investigator Award**
01/2018	American Cancer Society Individual Research Award, UCSF
01/2017	Cancer Research Coordinating Committee Award, University of California
03/2016	Catalyst Award for Translational Research, UCSF
02/2016	Program for Breakthroughs in Biomedical Research NFR Award, UCSF

Pre-UCSF

09/2011	National Institutes of Health F-32 Postdoctoral Fellowship

04/2010	Bristol-Myers Squibb Graduate Fellowship
07/2009	Japan Global Center of Excellence Conference: Featured Speaker
04/2009	Roche Symposium: Excellence in Chemistry Award
09/2008	Scripps Graduate Student Symposium Award: Best Chemistry Talk
09/2008	National Science Foundation Pre-Doctoral Fellowship
07/2006	Scripps Dean's Fellowship
05/2006	Merck Index Award for Undergraduate Research
08/2002	UC Berkeley Dean's List
05/2002	Robert C. Byrd Undergraduate Fellowship
06/2002	Valedictorian of 2002 Graduating Class, Newbury Park High School

Funding

Total grant funding awarded to-date (direct): **$3,430,000**

Active awards 2020:

Mechanism	**Funds**	**Period**
NIH NIGMS R35 MIRA Award	$1,250,000	08/2018 – 07/2023
Beckman Young Investigator Award	$875,000	09/2018 – 08/2022
Packard Fellowship for Science & Engineering	$875,000	11/2018 – 10/2023
PBBR New Frontiers Research (Co PI)	$150,000	05/2019 – 06/2020
UCSF Catalyst (Co PI)	$74,000	06/2019 – 05/2020

Publications (see also: seiplegroup.ucsf.edu)

Independent Career

27. Li Q, Pellegrino J, Lee DJ, Tran AT, Chaires HA, Wang, Park JE, Ji K, Chow D, Zhang N, Brilot AF, Biel JT, van Zundert G, Borrelli K, Shinabarger D, Wolfe C, Murray B, Mülle E, Chesneau O, Jacobson MP, Fraser JS, **Seiple IB**. Synthesis of Group A Streptogramin Antibiotics that Overcome Vat Resistance. *Nature* **2020**, *in press.* For a preprint of this article, see: https://doi.org/10.26434/chemrxiv.8346107.v2.

26. Boyce J, Dang B, Ary B, Edmondson Q, Craik C, DeGrado WF, **Seiple IB**. Platform to Discover Protease-Activated Antibiotics and Application to Siderophore-Antibiotic Conjugates. ChemRXiv **2020** https://doi.org/10.26434/chemrxiv.12809603.v1.

25. Cotton AD, **Seiple IB**. Examining Gender Imbalance in Chemistry Authorship. *BioRXiv* **2020**, https://doi.org/10.1101/2020.07.08.194035.

24. Cai L, Yao Y, Yeon SK, **Seiple IB**. Modular Approaches to Lankacidin Antibiotics. *J. Am. Chem. Soc.* **2020**, *in press*, https://doi.org/10.1021/jacs.0c06648

23. Liu J, Cai L, Sun W, Cheng R, Wang N, Jin L, Rozovsky S, **Seiple IB**, Wang L. Photocaged Quinone Methide Cross-linkers for Light-controlled Chemical Cross-linking of Protein-protein and Protein-DNA Complexes. *Angew. Chem. Int. Ed Engl.* **2019**, *58*, 18839–18843.

22. Shi X, Li Q, Dai Z, Tran A, Feng S, Ramirez AS, Lin Z, Wang X, Chow TT, **Seiple IB**, Huang B. Label-retention expansion microscopy. *BioRXiv* **2019**, https://doi.org/10.1101/687954

21. Li Q, **Seiple IB**. A concise route to virigniamycin M2 *Tetrahedron* **2019**, *75*, 3309–3318. *Ryan Shenvi Young Investigator Award Special Issue*

20. Yao Y, Cai L, **Seiple IB**. Synthesis, Structural Reassignment, and Antibacterial Evaluation of 2,18-*Seco*-Lankacidinol B *Angew. Chem. Int. Ed.* **2018**, *57*, 13551–13554.

19. Li Q, **Seiple IB**. Modular, Scalable Synthesis of Group A Streptogramin Antibiotics *J. Am. Chem. Soc.* **2017**, *139*, 13304–13307.

Pre-UCSF

18. **Seiple IB**, Zhang Z, Jakubec P, Langlois-Mercier A, Wright PM, Hog DT, Yabu K, Allu SR, Fukuzaki T, Carlsen PN, Kitamura Y, Zhou X, Condakes ML, Szczypinski FT, Green WD, Myers AG. A Platform for the Discovery of New Macrolide Antibiotics. *Nature* **2016**, *533*, 338–345.

17. **Seiple IB**, Hog DT, Myers AG. Practical Protocols for the Preparation of Highly Enantioenriched Silyl Ethers of (*R*)-3-Hydroxybutan-2-one, Building Blocks for the Synthesis of Macrolide Antibiotics. *Synlett* **2015**, *27*, 57–60.

16. Wright PM, **Seiple IB**, Myers AG. The Evolving Role of Chemical Synthesis in Antibacterial Drug Discovery. *Angew. Chem. Int. Ed.* **2014**, *53*, 8840–8869.

15. **Seiple IB**, Mercer JAM, Sussman RJ, Myers AG. Stereocontrolled Synthesis of *Syn*-β-Hydroxy-α-Amino Acids by Direct Aldolization of Pseudoephenamine Glycinamide. *Angew. Chem. Int. Ed.* **2014**, *53*, 4642–4647.

14. **Seiple IB**. Silver(II) Picolinate. *Encyclopedia of Reagents in Organic Synthesis* **2012**, DOI: 10.1002/047084289X.rn01408.

13. Lansdell TA, Hewlett NM, Skoumbourdis AP, Fodor MD, **Seiple IB**, Su S, Baran PS, Feldman KS, Tepe JJ Palau'amine and Related Oroidin-Alkaloids Dibromophakellin and Dibromophakellstatin Inhibit the Human 20S Proteasome. *J. Nat. Prod.* **2012**, *75*, 980–985.

12. Köck M, Schmidt G, **Seiple IB**, Baran PS. Configurational Analysis of Tetracyclic Dimeric Pyrrole–Imidazole Alkaloids using a Floating Chirality Approach. *J. Nat. Prod.* **2012**, *75*, 127–130.

11. **Seiple IB**, Su S, Young IS, Nakamura A, Yamaguchi J, Jørgensen L, Rodriguez RA, O'Malley DP, Gaich T, Köck M, Baran PS Enantioselective Total Syntheses of (–)-Palau'amine, (–)-Axinellamines, and (–)-Massadines. *J. Am. Chem. Soc.* **2011**, *133*, 14710–14726.

10. Ji Y, Brueckl T, Baxter RD, Fujiwara Y, **Seiple IB**, Su S, Blackmond DG, Baran PS. Innate C–H Trifluoromethylation of Heterocycles. *Proc. Nat. Acad. Sci.* **2011**, *108*, 14411–14415.

9. Fujiwara Y, Domingo V, **Seiple IB**, Gianatassio R, Del Bel M, Baran PS. Practical C–H Functionalization of Quinones with Boronic Acids. *J. Am. Chem. Soc.* **2011**, *133*, 3292–3295.

8. **Seiple IB**, Su S, Rodriguez RA, Gianatassio R, Fujiwara Y, Sobel AL, Baran PS. Direct C–H Arylation of Electron-Deficient Heterocycles with Arylboronic Acids. *J. Am. Chem. Soc.* **2010**, *132*, 13194–13196. *Most read JACS article in October 2010.*

7. **Seiple IB**, Su S, Young IS, Lewis CA, Yamaguchi J, Baran PS. Total Synthesis of (±)-Palau'amine. *Angew. Chem. Int. Ed.* **2010**, *49*, 1095–1098. *Featured on the cover of the issue.*

6. Su S, **Seiple IB**, Young IS, Baran PS. Total Synthesis of (±)-Massadine and Massadine Chloride. *J. Am. Chem. Soc.* **2008**, *130*, 16490–16491.

5. O'Malley DP, Yamaguchi J, Young IS, **Seiple IB**, Baran PS. Total Synthesis of (±)-Axinellamines A and B. *Angew. Chem. Int. Ed.* **2008**, *47*, 3581–3583. *Featured on the inside cover of the issue.*

4. Yamaguchi J, **Seiple IB**, Young IS, O'Malley DP, Maue M, Baran PS. Synthesis of 1,9-Dideoxy-Pre-Axinellamine. *Angew. Chem. Int. Ed.* **2008**, *47*, 3578–3580.

3. Köck M, Grube A, **Seiple IB**, Baran PS. The Pursuit of Palau'amine. *Angew. Chem. Int. Ed.* **2007**, *46*, 6586–6594.

2. Liang G, Xu Y, **Seiple IB**, Trauner D. Synthesis of Taiwaniaquinoids via Nazarov Triflation. *J. Am. Chem. Soc.* **2006**, *128*, 11022–11023.

1. Liang G, **Seiple IB**, Trauner D. Stereoselective Syntheses of the Bioactive Polypropionates Aureothin, N-Acetylaureothamine, and Aureonitrile. *Org. Lett.* **2005**, *7*, 2837–2839.

Patents

6. **Seiple IB**, Li Q, Pellegrino J, Fraser JA. Streptogramin Compositions and The Use Thereof. 62/859614. Filed June 10, 2019.

5. **Seiple IB**, Li Q. Methods of Making Streptogramin Compositions and Uses Thereof. WO/2019/028084. Filed July 7, 2018.

4. Myers AG, **Seiple IB**, Zhang Z. Macrolides with Modified Desosamine Sugars and Uses Thereof. WO/2016/154591A1. Filed March 25, 2016.

3. Myers AG, **Seiple IB**, Zhang Z. 14-Membered Ketolides and Methods of their Preparation and Use. WO/2016/057798A1. Filed October 8, 2015.

2. Myers AG, **Seiple IB**, Sussman RJ. Monobactams and Methods of their Synthesis and Use. WO/2015/103583A1. Filed January 6, 2015.

1. Myers AG, **Seiple IB**, Zhang Z. Macrolides and Methods of their Preparation and Use. WO/2014/165792A3. Filed April 4, 2014.