

Seth M. Cohen, Ph.D.

Distinguished Professor (Above Scale) and Chancellor's Distinguished Professor
Department of Chemistry, U.C. San Diego

Co-founder and SAB Member, Cleave Biosciences, Forge Therapeutics, Blacksmith Medicines

Work Address: University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093

Work Phone: 858-822-5596 • E-Mail: scohen@ucsd.edu • Web Address: cohenlab.ucsd.edu

Home Address: 1441 Ninth Ave., Unit 803, San Diego, CA 92101 • iPhone: 619-318-6499

Professional Accomplishments

- **Pioneer in the field of the postsynthetic modification (PSM) of metal-organic frameworks (MOFs).** Demonstrated that PSM can be used to expand the functionality and characteristics of MOFs. Further developed PSM as a versatile synthetic approach to alter MOFs and established PSM as a mainstream methodology that is routinely employed by nearly all scientists working in the field. These studies resulted in dozens of highly cited research publications, research support (NSF, DOE, DOD), and several awards.
- **Made major contributions to the advancement of MOF-polymer composite materials.** Developed MOF-polymer mixed-matrix membranes (MMMs) that combine the plasticity of polymers with the characteristics of MOFs. Invented 'polyMOFs,' the first MOFs that utilize polymers as organic building components. Collectively, these efforts have produced dozens of research publications, many highly cited articles, and substantial research support.
- **Pioneered the use of fragment-based drug discovery (FBDD) to inhibit metalloenzymes.** Created an innovative library of metal-binding pharmacophores (MBPs) that can identify lead compounds against nearly any metalloenzyme of interest. This effort has produced numerous high impact publications, substantial research support (NIH-NIGMS, NIAID, NCI), and several honors and citations. These discoveries provided the core technology for, and led to the founding of, three startup companies working in oncology and antibiotic drug discovery.
- **Co-founded three startup companies based on our expertise in drug discovery.** Developed technology used by startup companies working in oncology and antibiotic drug discovery (utilizing our FBDD platform). I served as a co-founder and scientific advisory board member for these startup companies. Collectively, these startups have raised >\$100M in public and private sector support, resulting in a Phase I clinical trial for a novel oncology therapeutic, with another anticipated Phase I trial (in 2025-2026) for a first-in-class antibiotic.
- **Initiated and directed major federal research programs.** As a Program Manager at the Defense Advanced Research Projects Agency (DARPA), managed a >\$200M portfolio to develop new materials, therapeutics, and prototype devices for a variety of cutting-edge technologies. Technical goals required advancements in the development of novel materials (e.g., MOFs), polymer upcycling, chemical biology, chemical engineering, antivirals, antibiotics, and antitoxins. Worked with a range of stakeholders, including federal employees, military personnel, and researchers in the engineering, government, and academic sectors.
- **Lead a scientific integrity effort for the federal interagency.** As a science policy fellow sponsored by the American Association for the Advancement of Science (AAAS), lead an interagency task force at the White House Office of Science and Technology Policy (OSTP, under the Bush and Obama Administrations) to help develop and standardize scientific integrity policies to protect scientists working in the federal government. Had regular interactions with federal scientific leadership, including the Director of OSTP.
- **Named a "Highly Cited Researcher" from 2017-2021 by Clarivate Analytics.** Based on their independent analysis, this designation indicates that our research ranked among the top 1% most cited works in our field. I was the only member of my department to earn this distinction five years in a row, and the only one named in my department in 2020 and 2021 (>285 peer-reviewed publications, h-index ~99, >3000 citations/year, Google Scholar).

Education

M.I.T. (1999-2001), N.I.H. Postdoctoral Fellow in Biochemistry, Advisor: Prof. S. J. Lippard

U.C. Berkeley (1994-1998), Ph.D. in Inorganic Chemistry, Advisor: K. N. Raymond

Stanford University (1990-1994), B.S. in Chemistry, Advisor: R. M. Waymouth

Stanford University (1990-1994), B.A. in Political Science

Professional Positions

- Chancellor's Distinguished Professorship, UCSD 2024-present
- Distinguished Professor, Chemistry and Biochemistry, UCSD 2024-present
- Professor, Chemistry and Biochemistry, UCSD 2011-2024
- Co-founder and SAB Member, Blacksmith Medicines 2019-present
- Program Manager, Biological Technologies Office, DARPA 2019-2021, 2022-2023
- Science Policy Fellow, Office of Science & Technology Policy 2008-2009
- Associate Prof., Chemistry and Biochemistry, UCSD 2007-2011
- Assistant Prof., Chemistry and Biochemistry, UCSD 2001-2007

Leadership Experience

- Manager, Chemical Society of Washington 2021-2022
- UCSD Campus Representative, UC System Academic Senate 2018-2019
- Council Delegate, Chemistry Section, AAAS 2016-2018
- Co-founder and SAB Member, Forge Therapeutics 2015-2023
- Co-convener, Council of Department Chairs, UCSD 2014-2015
- Chair, Dept. of Chemistry and Biochemistry, UCSD 2012-2015
- Executive Board (Treasurer), Div. of Inorganic Chemistry, ACS 2012-2015
- Chair, Cottrell Scholars Advisory Committee, RCSA 2011-2015
- Co-founder and former SAB Member, Cleave Therapeutics 2011-2023
- Department Representative, Faculty Senate 2010-2012
- Task Force Leader, Scientific Integrity, OSTP 2009

University and Department Service

- Member, Academic Senate Committee on Committees, UCSD 2024-present
- Chair, Academic Senate Chemical Safety Committee, UCSD 2023-present
- Member, Dept. Graduate Affairs Committee 2023-present
- Chair, Dept. Teaching Equity Task Force 2023-present
- Member, Dept. Endowment Management Committee 2015-present
- Member, Faculty Athletics Board of Advisors, UCSD 2010-present
- Campus Representative, UC Wide Academic Senate 2018-2019
- Chair, Dept. Space Committee 2015-2018
- Department Representative, Academic Senate, UCSD 2010-2012
- Member, Warren College Executive Committee, UCSD 2008-2011
- Chair, Dept. Graduate Admissions and Recruitment Committee 2006-2007

Other Professional Activities

- Vice-Chair and Chair, Metals in Medicine GRC 2016, 2018
- Vice-Chair, MOF2016 Conference 2016
- Director for Science Policy Internship Program (SPIP) at UCDC 2010-present
- Vice-Chair and Chair, Bioinorganic GRS Gordon Conference 2000-2001
- Organizer/Session Chair for numerous symposia including GRCs, American Chemical Society meetings, etc. 2001-present

Honors and Awards

- Centenary Award, Royal Society of Chemistry (RSC) 2025
- Humboldt Research Award, Germany 2025
- Hillebrand Award, Chemical Society of Washington (CSW) 2025
- Karcher-Barton Awardee Lecturer (U. Oklahoma) 2025
- DARPA Meritorious Public Service Medal 2023
- Research Corporation IMPACT Award 2022
- Freeman Lectureship (U. Sydney, Australia) 2018
- Research Corporation TREE Award 2017
- U.C. San Diego Sustainability Outstanding Faculty Award 2017
- Chancellor's Award for Excellence in Postdoctoral Mentoring 2016
- Arthur C. Cope Scholar Award, American Chemical Society 2016
- Leslie E. Orgel Faculty Scholar 2015-2018
- Fellow, American Chemical Society (ACS) 2015
- Fellow, Royal Society of Chemistry (RSC, U.K.) 2014
- Fellow, Am. Assoc. for the Advancement of Science (AAAS) 2013
- Member, Defense Science Study Group (DSSG), IDA 2012-2013
- AAAS Roger Revelle Fellow in Global Stewardship 2008-2009
- NSF CAREER Award 2006-2010
- Research Corporation Cottrell Scholar Award 2004
- Hellman Faculty-Scholar Award (Inaugural) 2001-2005

Affiliations/Memberships

- Member, *ACS Central Science* Editorial Board, ACS 2025-present
- Member, *Chemical Communications* Advisory Board, RSC 2012-present
- Affiliated Faculty, Department of Nanoengineering, UCSD 2008-present
- Affiliated Faculty, Moores Cancer Center, UCSD 2002-present
- Member, Society for Bioinorganic Chemistry 2001-present
- Member, American Chemical Society 1995-present
- Member, *Chemical Society Reviews* Editorial Board, RSC 2015-2020
- Member, MOF Council, International Zeolite Association 2012-2016
- Member, *CE&N* Advisory Board, ACS 2011-2015

Teaching Experience (representative examples)

- Science Policy, *University of California Center in DC* 2025
- Chemistry 40A, *Organic Chemistry for Life Science Majors* 2024-2026
- Chemistry 7L, *General Chemistry Laboratory* 2017, 2018
- Chemistry 250, *Research Ethics* 2015
- Chemistry 125/225, *Bioinorganic Chemistry* 2005-2019
- Chemistry 120A, *Inorganic Chemistry* 2010-2011
- Chemistry 6CH, *Honors General Chemistry* 2002-2007, 2009
- Chemistry 87, *History of the American Muscle Car* (Seminar) 2008, 2011
- Chemistry 87, *CSI: Fact vs. Fiction* (Seminar) 2002-2004

Presentation, Funding, and Publication Metrics

- >285 peer-reviewed publications, h-index ~100, >3000 citations/year (Google Scholar)
- >175 Presentations at colleges, universities, as well as national and international meetings
- >\$30M in cumulative funding from both federal (e.g., NIH, NSF, DOE, DTRA, DARPA, etc.) and private/non-profit (e.g., American Heart Association, Research Corporation) sponsors

Publications (select from >285 peer reviewed publications)

Research Articles (*corresponding author)

- 1) David T. Puerta, Jana A. Lewis, and Seth M. Cohen*, "New Beginnings for Matrix Metalloproteinase Inhibitors: Identification of High Affinity Zinc-Binding Groups" *J. Am. Chem. Soc.* **2004**, *126*, 8388-8389.
- 2) Zhenqiang Wang and Seth M. Cohen*, "Postsynthetic Covalent Modification of a Neutral Metal-Organic Framework" *J. Am. Chem. Soc.* **2007**, *129*, 12368-12369.
- 3) Arpita Agrawal, Jamie DeSoto, Jessica L. Fullagar, Kasthuraiah Maddali, Shahrzad Rostami, Douglas D. Richman, Yves Pommier, and Seth M. Cohen*, "Probing chelation motifs in HIV integrase inhibitors" *Proc. Natl. Acad. Sci. USA* **2012**, *109*, 2251-2256.
- 4) Zhenjie Zhang, Ha Thi Hoang Nguyen, Stephen A. Miller, and Seth M. Cohen*, "polyMOFs: A Class of Interconvertible Polymer-MOF Hybrid Materials" *Angew. Chem. Int. Ed.* **2015**, *54*, 6152-6157.
- 5) Mike S. Denny, Jr. and Seth M. Cohen*, "In Situ Modification of Metal-Organic Frameworks in Mixed- Matrix Membranes" *Angew. Chem. Int. Ed.* **2015**, *54*, 9029-9032.
- 6) Benjamin L. Dick, Ashay Patel, and Seth M. Cohen*, "Effect of Heterocycle Content on Metal Binding Isostere Coordination" *Chem. Sci.* **2020**, *11*, 6907-6914.
- 7) Johannes Karges, Mark Kalaj, Milan Gembicky, and Seth M. Cohen*, "Re(I) Tricarbonyl Complexes as Coordinate Covalent Inhibitors for the SARS-CoV-2 Main Cysteine Protease" *Angew. Chem. Intl. Ed.* **2021**, *60*, 10716-10723.
- 8) Ronald E. Sikma and Seth M. Cohen*, "Metal-Organic Frameworks with Zero and Low Valent Metal Nodes Connected by Tetratopic Phosphine Ligands" *Angew. Chem. Int. Ed.* **2022**, *61*, e2021154.
- 9) Austin Wang, Kyle Barcus, and Seth M. Cohen*, "Quantifying Ligand Binding to the Surface of Metal-Organic Frameworks" *J. Am. Chem. Soc.* **2023**, *145*, 16821-16827.
- 10) Minjung Kang, Po-An Lin, Jordan Bunch, Darren Lipomi, Arya Gaurav, and Seth M. Cohen*, "Impact of Grafting Density on the Assembly and Mechanical Properties of Self-Assembled Metal-Organic Framework Monolayers" *J. Am. Chem. Soc.* **2025**, *147*, 6966-6973.