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RESEARCH INTERESTS

We strive to combat diseases such as cancer by probing mechanistic questions at the intersection of biochemistry, molecular biophysics, and cell biology. We explore how altered enzyme activity impacts human health using kinetic, structure/function, and cellular studies coupled with collaborative efforts employing metabolomic and lipidomic technologies. By understanding the molecular mechanisms of enzyme dysfunction, we can illuminate structure-function relationships, probe global cellular consequences of mutations, identify new drug targets, and develop platforms for targeted therapy.

EDUCATION

Postdoctoral Fellow, Pharmacology, Yale University, New Haven, CT	2010-2015
Ph.D., Biochemistry, Vanderbilt University, Nashville, TN	2005-2010
B.S., <i>summa cum laude</i> , Biochemistry, University of Oklahoma, Norman, OK	2000-2005

PROFESSIONAL EXPERIENCE

Member Cancer Biology and Signaling Program, Moores Cancer Center, UC San Diego, San Diego, CA	2016-present
Assistant Professor Department of Chemistry and Biochemistry, San Diego State University, San Diego, CA	2015-present
Postdoctoral Fellowship with Professor Karen S. Anderson Pharmacology Department, Yale University School of Medicine, New Haven, CT	2010-2015
Dissertation Research with Professor F. Peter Guengerich Biochemistry Department, Vanderbilt University School of Medicine, Nashville, TN Dissertation: "Kinetic analysis of the multi-step cytochrome P450 1A2 and 19A1 enzymes."	2005-2010
Undergraduate Research with Professor George B. Richter-Addo Chemistry Department, University of Oklahoma, Norman, OK Honors Thesis: "Synthesis and characterization of C-nitroso compounds of iron porphyrins and the relevance to biology."	2002-2005

GRANTS

Current funding (direct + indirect)

- 1) **133484-RSG-19-075-01-TBE**: "Mechanisms of isocitrate dehydrogenase variants in cancer." American Cancer Society Research Scholar Grant. Role: PI. \$792,000 7/1/2019-6/30/2023
- 2) **SDSU/UCSD Cancer Center Comprehensive Partnership research grant program**: "The role of metabolic dehydrogenases in driving non-small-cell lung cancer." NIH U54 (NCI). Role: Lead PI (with collaborator Christian Metallo, UCSD). \$200,000 9/1/2018-8/31/2020

Previous funding (direct + indirect)

- 1) **R00CA187594**: "The molecular mechanism of isocitrate dehydrogenase (IDH) 7/1/2015-8/31/2018

- mutations in cancer." NIH R00 (NCI). Role: PI. \$692,926
- 2) **Summer Undergraduate Research Program:** "The role of IDH in driving reductive metabolism in the cancer environment." San Diego State University. Role: PI. \$6,000 5/1/2018-8/17/2018
 - 3) **CSUPERB Faculty Travel Grant.** The California State University CSUPERB. Role: PI. \$1,500 1/2018
 - 4) **CSUPERB New Investigator Grant:** "Navigating genotoxicity: mechanistic studies with pol epsilon in carcinogenic environments." The California State University CSUPERB. Role: PI. \$15,000 6/1/2016-11/30/2017
 - 5) **University Grants Program (UGP):** "The many paths to genome instability: multiple mechanisms of pol ε infidelity. San Diego State University." Role: PI. \$9,858 2/1/2016-6/30/2017
 - 6) **Cancer Biology and Signaling Program Pilot Grant:** "Altered lipid metabolism in IDH1-driven glioma." UCSD Moores Cancer Center. Role: PI. \$2,254 4/2017
 - 7) **Research and Creative Endeavors Proposal:** "The role of TEK kinase in Vascular abnormalities and cancer." San Diego State University. Role: PI. \$11,893 3/1/2016-2/28/2017
 - 8) **Summer Undergraduate Research Program:** "The role of IDH in cancer." San Diego State University. Role: PI. \$6,000 5/23/2016-8/19/2016
 - 9) **K99CA187594:** "The molecular mechanism of isocitrate dehydrogenase (IDH) mutations in cancer." NIH K99 (NCI). Role: PI (Yale University). \$113,932 7/7/2014-8/31/2015
 - 10) **F32GM992892:** "Kinetics of DNA polymerase γ upon mutation and nucleoside analog exposure." NIH F32 (NIGMS). Role: PI (Yale University). \$147,516 9/1/2011-7/6/2014
 - 11) **T32ES007028:** "Training program in environmental toxicology." NIH T32 (NIEHS). Role: TA (Vanderbilt University). 2006-2009

HONORS AND AWARDS

Outstanding Faculty member, Chemistry Department, SDSU	2017
GREW Fellow, SDSU	2015
Women in Cancer Research (WICR) Scholar Award	2015
Poster Presentation 1 st prize, Yale University Pharmacology Retreat	2011
Cunningham Award, Vanderbilt University	2008
American Society of Biochemistry and Molecular Biology Travel Award grant	2008
Vanderbilt University Director's Award Scholarship	2005-2006
Yamanouchi Pharma, Inc. Scholarship	2004
Outstanding Senior Award, Dept. Chemistry and Biochemistry, University of Oklahoma	2004
Goldwater Scholarship Honorable Mention	2004
Outstanding Junior Award, Dept. Chemistry and Biochemistry, University of Oklahoma	2003
Phi Kappa Phi Award, University of Oklahoma	2003
Honors Scholar Scholarship, University of Oklahoma	2000-2004

MEDIA INTERVIEWS

- 1) "Suds & Science: An evening of thinking and drinking." News8 Morning show. 10 July 2017. http://www.cbs8.com/story/35850624/suds-science-an-evening-of-thinking-and-drinking?utm_source=dlvr.it&utm_medium=twitter
- 2) "Cutting Edge of Discovery: New hire Christal Sohl is bringing world-class research -- and student research opportunities -- to SDSU." *SDSU NewsCenter*. 4 March 2016. http://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=76062
- 3) "Spotlight on Scientists: Profiles in Cancer Research." *NIH National Cancer Institute*. 22 December 2015. <http://www.cancer.gov/research/nci-role/spotlight/profiles/christal-sohl>

TEACHING

Course Instructor, CHEM 365, Biochemistry, Cell & Molecular Biology, SDSU	Spring 2019
Course Instructor, CHEM 100: Introduction to Chemistry, SDSU	Fall 2018
<i>Assessment:</i> mean 3.58, median 4.00 (scores out of 5.00, 337/470 responses)	
Course Instructor, CHEM 365: Biochemistry, Cell & Molecular Biology, SDSU	Spring 2018
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Assessment: mean 4.50, median 5.00 (scores out of 5.00, 141/169 responses)	
Course Instructor, CHEM 695: Graduate Education in Chemistry, SDSU. Assessment: mean 4.94, median 5.00 (scores out of 5.00, 8/12 responses)	Fall 2017
Course Instructor, CHEM 765: Molecular Mechanisms of Human Disease, SDSU (new course developed). Assessment: mean 4.95, median 5.00 (scores out of 5.00, 12/17 responses)	Fall 2017
Course Instructor, CHEM 763/750: Cell Regulation and Bioanalytical Methods, SDSU (course significantly modified). Assessment: mean 4.95, median 5.00 (scores out of 5, 12/17 responses)	Spring 2017
Course Instructor, CHEM 365: Biochemistry, Cell & Molecular Biology, SDSU. Assessment: mean 4.22, median 5.00 (scores out of 5.00, 147/182 responses)	Fall 2016
Course Instructor, CHEM 365: Biochemistry, Cell & Molecular Biology, SDSU (course significantly modified). Assessment: mean 4.29, median 5.00 (scores out of 5, 141/195 responses)	Fall 2015
National Academies Education Fellow in the Sciences, 2015 National Academies Summer Institute on Undergraduate Education	2015
Teaching Assistant, MCDB 630: Biochemical and Biophysical Approaches and Cellular Biology, Yale University	2013-2015
Teaching Assistant, IMED 680: Topics in Human Investigation, Yale University	2011-2015

STUDENT MENTORING

Graduate Students

Jade Ngoc Huynh, SDSU M.S. student	2018-present
Joi Weeks, SDSU Ph.D. student	2018-present
Grace Wells, SDSU Ph.D. student	2018-present
Zeqing Ruth Xu, SDSU master's student	2017-present
Grace Wells, M.S., SDSU	2016-2018
Lucas Luna, SDSU Ph.D. student	2015-present
Diego Avellaneda Matteo, SDSU Ph.D. student	2015-present
Adam Grunseth, SDSU master's student	2016-2018
Anna Uvarova, MS, SDSU	2015-2017

Undergraduate Students and Post-Baccalaureates

Sati Alexander, SDSU undergraduate	2018-present
Michelle Nguyen, SDSU undergraduate	2018-present
Michelle Scott, SDSU undergraduate	2018-present
Elan Zora, SDSU undergraduate	2018
Dania Meza-Acosta, SDSU undergraduate	2018
Esteban Delgado, SDSU undergraduate	2018
Viraj Upadhye, SDSU undergraduate	2017-present
Giovanni Quichocho, SDSU undergraduate	2017-present
Jeon Erik Fonbon, SDSU undergraduate	2017-2018
Zach Leseq, SDSU undergraduate	2017-2018
Madison Kennedy, SDSU undergraduate	2015-2018
Celene Anaya, SDSU undergraduate	2017
Precious Moman, SDSU undergraduate	2016-2017
Anup Sarakki, SDSU post-bac	2016
Jorge Sandoval, SDSU undergraduate	2016
Andrea Ruiz, SDSU undergraduate	2016
Carlos Bobadilla, SDSU undergraduate	2016
Yunjing Wu, SDSU post-bac	2016
Stacy Anselmo, SDSU undergraduate	2015-2017
Eric Gonzalez, SDSU undergraduate	2015-2017

STUDENT RESEARCH FELLOWSHIPS/PROGRAMS

Sati Alexander; UCSD/SDSU Partnership Scholars Program	2018-present
Viraj Upadhye; SDSU MARC (Maximizing Access to Research Careers) Program	2018-present
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Giovanni Quichocho, SDSU IMSD (Initiative for Maximizing Student Development) Program	2018-present
Michelle Scott, SDSU IMSD Program	2018-present
Dania Meza-Acosta; NIH NCI U54 Cancer Disparities Summer Research Program	2018
Madison Kennedy; NSF GRFP (Graduate Research Fellowship Program)	2018
Esteban Delgado, SDSU IMSD Program	2018
Madison Kennedy; SDSU MARC Program	2016-2018
Giovanni Quichocho; NIH NCI U54 Cancer Disparities Summer Research Program	2017
Stacy Anselmo; NSF California State University Louis Stokes Alliance for Minority Participation (CSU-LSAMP)	2017
Eric Gonzalez; NSF GRFP (Graduate Research Fellowship Program)	2017
Precious Moman, UCSD/SDSU Partnership Scholars Program	2016-2017
Jorge Sandoval; NIH NCI U54 Cancer Disparities Summer Research Program	2016
Andrea Ruiz; NIH NCI U54 Cancer Disparities Summer Research Program	2016
Eric Gonzalez; SDSU MARC (Maximizing Access to Research Careers) Program	2015-2017

SERVICE

Professional Service

Early Career Reviewer (ECR), NIH Scientific Review Group MFSA (Macromolecular Structure and Function A)	2/7/19-2/8/19
Ad Hoc grant reviewer, Oklahoma Center for the Advancement of Science and Technology (OCAST)	2018
Grant reviewer, CSUPERB (Cal State System)	2017-2018
Ad Hoc grant reviewer, Veni (Netherlands)	4/2018
Ad Hoc grant reviewer, Breast Cancer Now (UK)	10/14/2016
Early Career Reviewer (ECR), NIH Scientific Review Group CE (Cancer Etiology)	5/26/16-5/27/16
Ad Hoc grant reviewer, NSF	3/10/2016
Manuscript reviewer for journals including: <i>Oncotarget</i> ; <i>Analytica Chimica Acta</i> ; <i>Biochemical Journal</i> ; <i>Virus Genes</i> ; <i>Reproduction</i> ; <i>International Journal of Molecular Sciences</i> ; <i>MDPI Biology</i> ; <i>Bioscience Reports</i> , <i>Computational Biology and Chemistry</i>	2015-present

University Service

SDSU Presidential Transition Team, member	2018
SDSU Cancer Research and Prevention Planning Committee, Committee member	2018-present
SDSU IMSD Advisory Board Committee, Committee member	2018-present
Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Faculty Co-Advisor, SDSU	2017-present
Women in Science seminar series Steering Committee, SDSU	2017-present
Irwin Zahn Spirit of Innovation Award Committee, SDSU	2017-present
Coordinator and Mentor, SDSU MINDSET (Maximizing INclusion and Diversity in Science Engineering, and Technology)	2016-present
Radiation Safety Committee, SDSU	2016-present
ACSESS (Applied Computational Science and Engineering Student Support) Event, judge for student poster presentations, Computational Science Research Center, SDSU	4/21/2017
Cancer Biology Faculty Search Committee, Dept. Biology, SDSU	2017
Mentor, Creating Scientists to Reduce Cancer Disparities Program, SDSU	2016-present
Mentor, Partnerships Scholars Program, SDSU/UCSD	2016-present
Analytical Chemistry Faculty Search Committee, Dept. Chemistry/Biochemistry, SDSU	2016-2017
Student Research Symposium Poster Session Judge, SDSU	2016, 2017, 2019
Undergraduate Research Symposium Oral Presentation Judge, SDSU	10/23/2016
Career Development Peer Groups (CDPG) Program Co-Administrator, Yale University	2013-2015
Mentor, Women in Science at Yale, Yale University	2010-2015
Board Member, Women in Science at Yale, Yale University	2011-2014
Committee Member, Yale School of Medicine Sustainability Committee, Yale University	2011-2012
Core Member, Graduate Honor Council, Vanderbilt University	2008-2010

Student Committees

Dissertation Committee member for Eric Rogers, SDSU Chemistry	2019-present
Masters Committee member for David Ebeid, SDSU Biology	2019-present
Masters Committee chair for Jade Ngoc Huynh	2018-present
Dissertation Committee chair for Joi Weeks, SDSU Biology	2018-present
Dissertation Committee member for Esteban Vazquez-Hidalgo, SDSU Engineering	2018-present
Dissertation Committee chair for Grace Wells, SDSU Chemistry/Biochemistry	2018-present
Masters Committee member for Joy Nader, SDSU Biology	2018
Masters Committee member for Eduardo Zepeda, SDSU Engineering	2018
Honors Thesis Committee for Celeste Romero, SDSU Biology	2018
Masters Committee member for Alexandria Casillas, SDSU Biology	2018-present
Masters Committee chair for ZeQing Ruth Xu, SDSU Chemistry/Biochemistry	2017-present
Masters Committee member for Sarah Fernandes, SDSU Biology	2017-2018
Doctoral Committee member for Joi Weeks, SDSU Biology	2017-2018
Masters Committee member for Anup Sarakki, SDSU Biology	2017-2018
Doctoral Committee member for Ryne Holmberg, SDSU Chemistry/Biochemistry	2017-present
Doctoral Committee member for Cathrine Aivati, SDSU Biology	2017-2018
Masters Committee member for Zibah Mirzakhel, SDSU Engineering	2017-2018
Masters Committee member for Dillon Burns, SDSU Chemistry/Biochemistry	2016-2018
Masters Committee member for Kelli Ilves, SDSU Biology	2016-2018
Masters Committee member for Rebecca De Wardt, SDSU Biology	2016-2018
Dissertation Committee member for Samantha-Joy Natividad Cohen, SDSU Chemistry	2016-present
Masters Committee chair for Grace Wells, SDSU Chemistry/Biochemistry	2016-2018
Dissertation Committee chair for Lucas Luna, SDSU Chemistry/Biochemistry	2016-present
Dissertation Committee chair for Diego Avellaneda Matteo, SDSU Chemistry/Biochemistry	2016-present
Masters Committee chair for Anna Uvarova, SDSU Chemistry/Biochemistry	2015-2017
Masters Committee chair for Adam Grunseth, SDSU Chemistry/Biochemistry	2016-2018
Masters Committee member for Yunjin Sheri Wu, SDSU Chemistry/Biochemistry	2017-2018
Masters Committee member for Shivsmriti Kaul, SDSU Biology	2017-2018
Masters Committee member for Robert Huff, SDSU Biology	2017-2018
Masters Committee member for Aishani Prem, SDSU Bioinformatics	2016-2017
Masters Committee member for Raymond Lee, SDSU Chemistry/Biochemistry	2016-2017
Dissertation Committee member for Brian Maniaci, SDSU Chemistry/Biochemistry	2015-present
Masters Committee member for Peter Suon, SDSU Chemistry/Biochemistry	2015-2017
Outside reader for Masters of Research Thesis, Ivan de Jesus Salazar Estrada, Macquarie University, Sydney, Australia	2015

Community Service

High School STEM Exploration Day presenter, SDSU, San Diego, CA. Presenter	3/15/2019
“The Science of Cocktails”, San Diego Fleet Science Center Museum, San Diego, CA. Speaker	3/10/2018
“Understanding how proteins drive cancer”, High Tech High School, Chula Vista, CA Lecturer	2/20/2018
“Latest in Cancer Research”, Suds & Science: An evening of thinking and drinking series from the San Diego Fleet Science Center Museum, San Diego, CA. Lecturer	7/10/2018
“Ask a Scientist: Two scientists walk into a pizza parlor”, SDSU Stem Cell Outreach, Speaker	9/7/2016

CURRENT PROFESSIONAL MEMBERSHIPS

Association for Women in Science (AWIS)	2016-present
Women in Cancer Research (WICR)	2014-present
American Association for Cancer Research (AACR)	2012-present
American Society for Biochemistry and Molecular Biology (ASBMB)	2008-present
Phi Beta Kappa	2005-present

INVITED TALKS

- 1) University of Oregon Biochemistry Department Seminar Series (17 May 2019). “The role of catalysis and
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- environmental regulation in IDH1-driven cancers.”
- 2) Rhode Island College Physical Sciences Department Seminar Series (5 Apr. 2019, Providence, RI). “Exploring the role of metabolic dehydrogenases in oncogenesis using a mechanistic lens.”
 - 3) UC Riverside Biochemistry Dept. seminar series (22 Jan. 2019, Riverside, CA). “The role of catalysis and environmental regulation in IDH1-driven cancers.”
 - 4) 31st Annual CSU Biotechnology Symposium (3-5 Jan. 2019, Garden Grove, CA). “The role of catalysis and environmental regulation in IDH1-driven cancers.”
 - 5) University of Oklahoma Dept. of Chemistry and Biochemistry (19 Oct. 2018, Norman, OK). “Exploring the role of metabolic dehydrogenases in oncogenesis using a mechanistic lens.”
 - 6) SDSU Biomath meeting (27 April 2018, SDSU). “The role of dehydrogenases in reductive metabolism.”
 - 7) SDSU/UCSD IRACDA Research Symposium (11 April 2018, SDSU). “Enzymes running in reverse: mechanisms of IDH-driven cancers.”
 - 8) SWC Chemistry Club Talks (13 April 2018, Southwestern College). “Molecular mechanisms of cancer.”
 - 9) Department of Chemistry and Biochemistry Seminar Series (2 Nov. 2017, University of San Diego). “Mutational variants of metabolic dehydrogenases as drivers of cancer.”
 - 10) Biomedical Technology Students Association (BTSA) Seminar Series (25 Oct. 2017, SDSU). “Mechanisms of IDH1-driven cancers.”
 - 11) Chemistry Seminar Series (5 Oct. 2017, Southwestern College). “The molecular mechanisms of metabolic enzymes driving cancer.”
 - 12) Fleet Science Center Suds & Science Series (10 July 2017, Chula Vista, CA). “The latest in cancer research.”
 - 13) The School of MBEPS Science Seminar Series (25 April 2017, San Diego Miramar College). “Molecular mechanisms of altered metabolism in cancer.”
 - 14) Center for Human Dynamics in the Mobile Age (HDMA) seminar (24 March 2017, SDSU). “Molecular mechanisms of cancer.”
 - 15) IMSD/MARC Ph.D. Panel Discussion (3 March 2017, SDSU). Panelist.
 - 16) Computational Sciences seminar (10 Feb. 2017, SDSU). “Molecular mechanisms of cancer.”
 - 17) Sanford Burnham Prebys Office of Education, Training & International Services panel discussion on obtaining an academic position (9 Nov. 2016, SBP). Panelist.
 - 18) SDSU/UCSD Partnership Retreat featured presentation (2 Sept. 2016, UCSD). “Molecular mechanisms of disease: using structure/function studies to probe tumorigenesis.”
 - 19) Molecular Biology Institute Seminar (22 Sept. 2016, SDSU). “Probing molecular mechanisms of cancer.”
 - 20) PI Lecture Series (16 Sept. 2016, SDSU). “Molecular mechanisms of disease: using structure/function studies to probe tumorigenesis.”
 - 21) WISAY (Women in Science at Yale) Obtaining a Faculty Position Panel (18 April 2016, Yale University). Tele-panelist.
 - 22) Annual WISAY (Women in Science at Yale) Career Panel (28 May 2015, Yale University). Panelist.
 - 23) Translational Lung Cancer Meeting (27 May 2015, Yale University). “Molecular mechanisms of inhibitor resistance by the FGFR1 gatekeeper mutation: the Achilles’ heel of targeted therapy.”
 - 24) Academic Jobs Panel Discussion (19 March 2015, Yale University). Panelist.
 - 25) Biochemistry Seminar (3 February 2015, San Diego State University). “Using transient kinetics and structural methods to illuminate the molecular mechanisms of disease.”
 - 26) Signal Transduction Meeting (21 November 2014, Yale University). “Molecular mechanisms of inhibitor resistance by the FGFR1 gatekeeper mutation.”
 - 27) Cancer Metabolism Interest Group Seminar (15 October 2014, Yale University). “Enzymes running in reverse: molecular mechanisms of IDH mutations in cancer.”
 - 28) Pol Club Seminar (8 February 2012, Yale University). “Molecular mechanism of inhibition of DNA pol γ and HIV-1 RT by novel nucleotide analogs.”
 - 29) Postdoc Brown Bag Lunch Series (15 November 2011, Yale University). “Obtaining postdoctoral funding: NIH F32.”
 - 30) Cunningham Lecture Series (8 June 2010, Vanderbilt University). “Kinetic analysis of the multi-step cytochrome P450s 1A2 and 1A1 enzymes.”

REVIEWS

- 1) Sohl, C. D.*, Ray, S., and Sweasy, J. B. (2015) *Proc Natl Acad Sci USA* 112, 5864-5. "Pools and pols: mechanism of a mutator phenotype. (*co-first author). [PMC4434749](#).
- 2) Guengerich, F. P., Sohl, C. D., and Chowdhury, G. (2011) *Arch Biochem Biophys* 507, 126-34. "Multi-step oxidations catalyzed by cytochrome P450 enzymes: processive vs. distributive kinetics and the issue of carbonyl oxidation in chemical mechanisms." [PMC3010332](#).

REFEREED PUBLICATIONS

- 1) Bernatchez, J. A.; Coste, M.; Beck, S.; Wells, G. S.; Luna, L. A.; Clark, A. E.; Zhu, Z.; Sohl, C. D.*; Purse, B. W.*; Siqueira-Neto, J. L.* (2019) *Viruses* (accepted pending minor revision). "Activity of selected nucleoside analogue ProTides against Zika virus in human neural stem cells." (*corresponding author).
- 2) Kennedy, M. A.; Xu, Z.; Wu, Y.; and Sohl, C.* (2019) *Biochem Biophys Res Commun* 509, 898-902. "A Tie2 kinase mutation causing venous malformations increases phosphorylation rates and enhances cooperativity." (*corresponding author).
- 3) Ryan, M. R.; Sohl, C. D.; Luo, B.; and Anderson, K. A. (2019) *Mol Cancer Res* 17, 532-543. "The FGFR1 V561M gatekeeper mutation drives AZD4547 resistance through STAT3 activation and EMT." [PMID30257990](#).
- 4) Matteo, D. A.; Wells, G. A.; Luna, L. A.; Grunseth, A. J.; Zagnitko, O.; Scott, D. A.; Hoang, A.; Luthra, A.; Swairjo, M. A.; Schiffer, J. A.*; and Sohl, C. D.* (2018) *Biochem J* 475, 3221-3238. "Inhibitor potency varies widely among tumor relevant human isocitrate dehydrogenase 1 mutants." (*corresponding author). [PMID30257990](#).
- 5) Bernatchez, J. A., Coste, Yang, Z., Coste, M., Li, J., Beck, S., Liu, Y., Clark, A. E., Zhu, Z., Luna, L. A., Sohl, C. D., Purse, B. W., Li, R., and Siqueira-Neto, J. L. (2018) *Antimicrob Agents Chemother* 62, e00725-18. "Development of a phenotypic high-content imaging assay for assessing the antiviral activity of small-molecule inhibitors targeting the Zika virus." [PMID30257990](#).
- 6) Matteo, D. M., Grunseth, A. J., Gonzalez, E. R., Anselmo, S. L., Kennedy, M. A., Moman, P., Scott, D. A., Hoang, A., and Sohl, C. D.* (2017) *J Biol Chem* 292, 7971-83. "Molecular mechanisms of isocitrate dehydrogenase 1 (IDH1) mutations identified in tumors: the role of size and hydrophobicity at residue 132 on catalytic efficiency." (*corresponding author). [PMC5427274](#).
- 7) Sohl, C. D.*, Szymanski, M. R.*, Mislak, A. C., Shumate, C. K., Amiralaei, S., Schinazi, R. F., Anderson, K. S., and Yin, Y. W. (2015) *Proc Natl Acad Sci USA* 112, 8596-601. "Probing the structural and molecular basis of nucleotide selectivity by human mitochondrial DNA polymerase γ ." (*co-first author). [PMC4507203](#).
- 8) Sohl, C. D., Ryan, M. R., Luo, B., Frey, K. M., and Anderson, K. S. (2015) *ACS Chem Biol* 10, 1319-29. "Illuminating the molecular mechanism of tyrosine kinase inhibitor resistance for the FGFR1 gatekeeper mutation: the Achilles' heel of targeted therapy." [PMC4533833](#).
- 9) Towle-Weicksel, J. B., Dalal, S., Sohl, C. D., Doubleie, S., Anderson, K. S., Sweasy, J. B. (2014) *J Biol Chem* 289, 16541-50. "Fluorescence resonance energy transfer studies of DNA polymerase β : the critical role of fingers domain movements and a novel non-covalent step during nucleotide selection." [PMC4047420](#).
- 10) Muftuoglu, Y.*, Sohl, C. D.*, Mislak, A. C., Mitsuya, H., Sarafianos, S. G., and Anderson, K. S. (2014) *Antiviral Res* 106, 1-4. "Probing the molecular mechanism of action of the HIV-1 reverse transcriptase inhibitor 4'-ethynyl-2-fluoro-2'-deoxyadenosine (EFdA) using pre-steady-state kinetics." (*co-first author). [PMC4020981](#).
- 11) Sohl, C. D., Kasiviswanathan, R., Copeland, W. C., and Anderson, K. S. (2013) *Hum Mol Genet* 22, 1074-85. "Mutations in human DNA polymerase γ confer unique mechanisms of catalytic deficiency that mirror the disease severity in mitochondrial disorder patients." [PMC3578408](#).
- 12) Cheng, Q., Sohl, C. D., Yoshimoto, F. K., and Guengerich, F. P. (2012) *J Biol Chem* 287, 59554-67. "Oxidation of dihydrotestosterone by human cytochromes P450s 19A1 and 3A4." [PMC3436178](#).
- 13) Sohl, C. D., Kasiviswanathan, R., Kim, J., Pradere, U., Schinazi, R. F., Copeland, W. C., Mitsuya, H., Baba, M., and Anderson, K. (2012) *Mol Pharmacol* 82, 125-33. "Balancing antiviral potency and host toxicity: identifying a nucleotide inhibitor with an optimal kinetic phenotype for HIV-1 reverse transcriptase." [PMC3382833](#).

- 14) Sohl, C. D., Singh, K., Kasiviswanathan, R., Copeland, W. C., Mitsuya, H., Sarafianos, S., and Anderson, K. (2012) *Antimicrob Agents Chemother* 56, 1630-4. "Mechanism of interaction of human mitochondrial DNA polymerase γ with the novel nucleoside reverse transcriptase inhibitor 4'-ethynyl-2-fluoro-2'-deoxyadenosine indicates a low potential for host toxicity." [PMC3294915](#).
- 15) Sohl, C. D., and Guengerich, F. P. (2010) *J Biol Chem* 285, 17734-17743. "Kinetic analysis of the three-step steroid aromatase reaction of human cytochrome P450 19A1." [PMC2878537](#).
- 16) Cheng, Q., Sohl, C. D., and Guengerich, F. P., (2009) *Nat Protoc* 4, 1258-61. "High-throughput fluorescence assay of cytochrome P450 3A4." [PMC3843962](#).
- 17) Sohl, C. D., Cheng, Q., and Guengerich, F. P. (2009) *Nat Protoc* 4, 1252-7. "Chromatographic assays of drug oxidation by human cytochrome P450 3A4." [PMC3883453](#).
- 18) Guengerich, F. P., Martin, M. V., Sohl, C. D., and Cheng, Q. (2009) *Nat Protoc* 4, 1245-51. "Measurement of cytochrome P450 and NADPH-cytochrome P450 reductase." [PMC3843963](#).
- 19) Sohl, C. D., Isin, E. M., Eoff, R. L., Marsch, G. A., Stec, D. F., and Guengerich, F. P. (2008) *J Biol Chem* 283, 7293-7308. "Cooperativity in oxidation reactions catalyzed by cytochrome P450 1A2. Highly cooperative pyrene hydroxylation and multiphasic kinetics of ligand binding." [PMC4662254](#).
- 20) Isin, E. M.*, Sohl, C. D.*, Eoff, R. L., and Guengerich, F. P. (2008) *Arch Biochem Biophys* 473, 69-75. "Cooperativity of cytochrome P450 1A2: interaction of 1,4-phenylene diisocyanide and 1-alkoxy-4-nitrobenzenes." [PMID18187423](#)
- 21) Wu, Z-L., Sohl, C. D., Shimada, T., and Guengerich, F. P. (2006) *Mol Pharmacol* 69, 2007-2014. "Recombinant enzymes over-expressed in bacteria show broad catalytic specificity of human cytochrome P450 2W1 and limited activity of human cytochrome P450 2S1." [PMID16551781](#).
- 22) Sohl, C. D., Lee, J., Alguindigue, S. S., Khan, M. A., and Richter-Addo, G. B. (2004) *J Inorg Biochem* 98, 1238-46. "Synthesis and solid-state molecular structures of nitrosoalkane complexes of iron porphyrins containing methanol, pyridine, and 1-methylimidazole ligands." [PMID15219991](#).