

Curriculum Vitae

Rahul M. Kohli, M.D, Ph.D

*Francis C. Wood Associate Professor & Penn Scholar in Molecular Medicine
Division of Infectious Diseases, Department of Medicine
Department of Biochemistry and Biophysics*

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Education:

1998	B.S.	University of Michigan, Biochemistry Research Advisor: Vincent Massey
2004	Ph.D.	Harvard Medical School, Biochemistry & Molecular Pharmacology, Research Advisor: Christopher T. Walsh
2004	M.D.	Harvard Medical School

Postgraduate Training and Fellowship Appointments:

2004-2005	Internship in Medicine, Department of Medicine, Hospital of the University of Pennsylvania
2005-2006	Resident in Internal Medicine, Hospital of the University of Pennsylvania
2006-2010	Postdoctoral Fellow in Infectious Diseases, Johns Hopkins Hospital Postdoctoral Researcher in Pharmacology & Molecular Sciences Research Advisor: James T. Stivers

Faculty Appointments:

07/2010-06/2020	Assistant Professor of Medicine Assistant Professor of Biochemistry and Biophysics (Secondary) University of Pennsylvania School of Medicine
07/2020-present	Associate Professor of Medicine (with Tenure) Associate Professor of Biochemistry and Biophysics (Secondary) University of Pennsylvania School of Medicine
06/2025-present	Francis C. Wood Endowed Chair

Hospital and/or Administrative Appointments:

2010-Present	Attending Physician, Infectious Diseases, Hospital of the University of Pennsylvania
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Other Academic, Non-Academic Appointments (leadership roles bolded):

2010-Present	Member, Graduate Group in Biochemistry and Molecular Biophysics
2010-Present	Member, Graduate Group in Pharmacological Sciences
2010-Present	Member, Graduate Group in Immunology
2010-Present	Member, Graduate Group in Cell and Molecular Biology
2010-Present	Penn Scholar in Molecular Medicine, Department of Medicine
2013-Present	Executive Committee , Biochemistry & Biophysics Graduate Group
2013-Present	Executive Committee , Infectious Diseases Division
2014-Present	Scientific Advisory Board , Department of Medicine
2014-Present	Associate Director , UPenn MD/PhD Program
2019-Present	Scientific Advisory Board , LifeEdit Therapeutics Inc., Durham, NC
2021-2022	Scientific Advisory Board , Cambridge Epigenetix/Biomodal, UK
2022-Present	Co-Director , Penn Measey Scholars in Molecular Medicine Program

Specialty Certification:

2008-2017	Internal Medicine
2009-Present	Infectious Diseases

Licensure:

2009-2010	Medical License - State of Maryland
2010-present	Medical License - State of Pennsylvania

Awards, Honors and Membership in Honorary Societies (national awards bolded):

2006	Resident Teaching Award, University of Pennsylvania
2010	Lehninger Outstanding Postdoctoral Scientist Award, Johns Hopkins
2010	<i>Nature Chem Bio</i> , Grand Challenges in Chem Bio, Award Winner
2011-2017	Rita Allen Foundation Scholar
2012-2016	Doris Duke Clinical Scientist Development Award
2012-2017	NIH Director's New Innovator Award
2012-2017	Edward J. Mallickrodt Jr. Foundation Scholar
2013-2016	Discovery Fast Track Competition Award Winner, GlaxoSmithKline
2014-2016	Harrington Scholar-Innovator , Harrington Discovery Institute
2015-2021	Burroughs Wellcome Fund Investigator in the Pathogenesis of Infectious Disease
2016	Sir William Osler Young Investigator Award, Interurban Clinical Club
2018	Elected to American Society for Clinical Investigators (ASCI)
2020	Pfizer Award in Enzyme Chemistry , American Chemical Society
2022	Dean's Award for Excellence in Basic Science Teaching
2023	American Federation for Medical Research (AFMR), Outstanding Investigator Award
2024	Elected to Interurban Clinical Club (ICC)

Research Focus:

The Kohli laboratory focuses on DNA modifying enzymes and pathways, which provide an added layer of complexity to the genome. These enzymes can purposefully introduce mutations or chemical modifications to the genome, making DNA into a remarkably dynamic entity. Many of these genome-altering processes are at the heart of the battle between the immune system and pathogens, or are central to epigenetics. The lab is now also harnessing an improved mechanistic understanding of DNA modifying enzymes to engineer powerful biotechnological tools to target and control evolution or to characterize and edit the genome.

- Epigenetics: Cytosine Methylation and Demethylation; Novel Epigenomic Sequencing Technologies
- Immunology: The Origins of Antibody Diversity; Engineering Mutators for Targeted Genome Editing
- Infectious Diseases: Targeting Pathogen Pathways that Promote Evolution and Antibiotic Resistance

Trainees:**PhD Trainees:**

Christopher S. Nabel, MD/PhD	2011-2013	Johnson Investigator and Instructor, MIT/MGH/Harvard
Charlie Y. Mo, PhD	2011-2016	Assistant Professor of Bacteriology, Univ of Wisc
Emily K. Schutsky, PhD	2012-2018	Research Scientist, Arrakis Therapeutics
Monica Y. Liu, MD/PhD	2013-2016	Physician-Scientist Instructor in Medicine, Univ of Wisc
Jeffrey M. Kubiak, MD/PhD	2013-2017	Asst Prof of Pathology, Cornell
Jamie E. DeNizio, PhD	2013-2019	Research Scientist, Verve Therapeutics, Cambridge, MA
Zachary M. Hostetler, MD/PhD	2014-2018	Phys/Sci Track Fellow, Infect Diseases, UPenn
Amanda N. Samuels, VMD/PhD	2014-2019	Resident in Internal Medicine, Ohio State Vet Med Center
Kiara N. Berríos, PhD	2017-2022	Postdoctoral Fellow, Harvard/Broad, David Liu Lab
Tong Wang, MD/PhD	2018-2021	Phys/Sci Track Fellow, Pathology, Stanford University
Michael B. Cory, PhD	2018-2023	Postdoctoral Fellow, Harvard, Synthetic Biology Hive
Juan C. Serrano, MD/PhD	2019-2022	Phys/Sci Track Fellow, Radiology, UCSF
Christian E. Loo	2020-pres	PhD Candidate (Biochem & Mol Biophysics)

Christina M. Hurley	2021-pres	PhD Candidate (Biochem & Mol Biophysics)
Noa Ertizki	2022-pres	MD/PhD Candidate (Biochem & Mol Biophysics)
Peter F. Bailer	2022-pres	PhD Candidate (Biochem & Mol Biophysics)
Keisuke Yamada	2023-pres	PhD Candidate (Bioengineering)
Aleksia Barka	2024-pres	MD/PhD Candidate (Biochem & Mol Biophysics)
Matt Schnell	2025-pres	PhD Candidate (Biochem, Biophysics & Chem Biol)
Yuen Ting Chow	2025-pres	MD/PhD Candidate (Biochem, Biophysics & Chem Biol)

Postdoctoral Trainees:

Daniel J. Crawford, PhD	2011-2014	Senior Director, Intellia Therapeutics, Cambridge, MA
Matthew J. Culyba, MD/PhD	2013-2017	Assistant Prof of Medicine, University of Pittsburgh
Uday Ghanty, PhD	2013-2020	Postdoctoral Fellow, Princeton University
Zachary M. Hostetler, MD/PhD	2024-pres	Infectious Diseases Fellow

Grants:

Pending Applications:

Mechanisms of DNA Modifying Enzymes and their Applications to Genome Tailoring, NIH/NIGMS, Role: *Kohli (PI)*, R35-GM161917 (12/2025-11/2030), Pending NIGMS Council Review

Active Support (ordered by end date, earliest to latest):

Engineering Efficient and Controllable Base Editors, NIGMS/NIH, Role: *Kohli (PI)*, **R01-GM138908** (05/2021-03/2026, NCE)

Role of TET1 in Germ Cell Reprogramming and Development, NIH/NIGMS, PI: Bartolomei, Role: *Kohli (Co-I)*, **R01-GM146388** (09/2022-06/2026)

Tuning Evolution and Antibiotic Resistance by Modulating the SOS Pathway, Burroughs Wellcome Foundation, Role: *Kohli (PI)*, **Investigator in the Pathogenesis of Infectious Disease Award** (07/2015-08/2026, NCE)

Medical Scientist Training Program, NIGMS/NIH, PI: Brass, Role: *Kohli (co-PI)*, **T32-GM148377** (07/2023-06/2028)

TET-mediated DNA Demethylation Mechanisms and Epigenome Engineering, NIH/NIGMS, Role: *Kohli (PI)*, **R01-GM158685** (06/2025-04/2029)

Immunoengineering Durable Control of HIV Replication, NIH/NIAID, PI: Riley, Role: *Kohli (Co-I, Core Director)*, **P01-AI191610** (07/2025-05/2030)

Ultra low-input epigenetic sequencing with combined enzymatic and long-read technologies, NIH/NHGRI, Role: *Kohli (lead Co-PI)*, **R01-HG010646-05** (09/2019-06/2030)

Completed Support (ordered by end date, starting with most recent):

Inhibition and Catalytic Degradation of Promutagenic DNA Deaminases, NCI/NIH, Role: *Kohli (PI)*, R21-CA277463 (07/2023-06/2025)

A non-invasive epigenetic diagnostic for active inflammatory bowel disease, Institute for Translational Medicine and Therapeutics (ITMAT), Transdisciplinary Award in Translational Medicine and Therapeutics. Role: *Kohli (PI, contact)* and Bewtra (co-PI), (02/2024-08/2025)

Non-destructive epigenetic sequencing with DNA deaminase enzymes, NHGRI/NIH, Role: *Kohli (PI, contact)* and Wu (co-PI), R01-HG010646 (09/2019-07/2024)

Recruitable and Inducible Tools to Map Protein-RNA Interactions at Scale, NHGRI/NIH, Adams (PI), Role: Kohli (*Sub-PI*) and Yeo (Sub-PI), Subaward 210368-0224-12 on 5U24-HG011735 (03/2023-02/2024)

The Molecular Basis for the Bacterial SOS Signal, NIGMS/NIH, Kohli (PI, contact) and Petersson (co-PI), R01-GM127593 (05/2018-02/2023)

The Mechanism and Modulation of 5-Methylcytosine Oxidation by TET Family Enzymes, Kohli (PI), NIGMS/NIH, R01-GM118501 (01/2017-06/2021)

APOBEC-Coupled Epigenetic Sequencing, NHGRI/NIH, Kohli (PI), R21-HG009545 (09/2017-05/2019)

Inhibiting the Bacterial SOS Response to Prevent Antibiotic Evasion, Kohli (PI), Sanofi Innovation Award (12/2017-12/2018)

The Generality of the RecA-LexA Interface and Acquired Antibiotic Resistance in Pathogenic Bacteria, Kohli (PI), Edward Mallinckrodt, Jr. Foundation Scholar Award, Edward Mallinckrodt, Jr. Foundation (10/2012-09/2017)

Purposeful and Aberrant DNA Modification in Immune Defense, Pluripotency and Oncogenesis, Kohli (PI), Scholar Award, Rita Allen Foundation (09/2011-09/2017)

Combating Bacterial Drug Resistance by Targeting the Enzymes of Evolution, Kohli (PI), New Innovator Award, NIH, DP2-GM-105444 (9/2012-6/2017)

Combating Bacterial Drug Resistance by Inhibiting the SOS Response, Kohli (PI), Harrington Scholar-Innovator Award, Harrington Discovery Institute (1/2014-12/2016)

Targeting Evolution by Inhibition of an Error-Prone Polymerase in Drug-Resistant *P. aeruginosa*, Kohli (PI), Clinical Scientist Development Award, Doris Duke Foundation (7/2012-6/2016)

NRTIs as Antagonists of the TB Polymerase Governing Virulence and Resistance, National Institute of Health, CFAR Supplement (James A Hoxie, PI, Kohli project PI), (7/2012-6/2014)

Confirmation of LexA_{Pa} as a mediator of drug resistance in *P. aeruginosa*, Kohli (PI), Cystic Fibrosis Foundation Pilot Grant, Cystic Fibrosis Foundation (4/2012-3/2014)

Potentiating HIV Defense by Defining APOBEC3G Molecular Interfaces, Kohli (PI), W.W. Smith Charitable Trust, Medical Research Grant (1/2012-1/2013)

Selected Lectures by Invitation:

Mar, 2009	"Acyclovir, the anti-herpes drug, has direct anti-HIV activity and selects for HIV reverse transcriptase mutants", American Chemical Society National Meeting, Salt Lake City, UT
Mar, 2010	"Immune Defense and Local DNA Sequence Targeting by the Mutagenic Cytidine Deaminase Enzymes", Baltimore Area DNA Repair Symposium, Baltimore, MD
Mar, 2010	"Purposeful Mutations by DNA Cytidine Deaminases: A Double-Edged Sword", American Chemical Society National Meeting, San Francisco, CA
May, 2010	"Immune Defense and Local DNA Sequence Targeting by the Mutagenic Cytidine Deaminase Enzymes", Frontiers at the Chemistry Biology Interface, Baltimore, MD
Mar, 2012	"AID/APOBEC Deaminases Discriminate Against 5-substituted Cytosines: Implications for DNA Demethylation", Keystone Symposium, Boston, MA

- May, 2012 "Purposeful Targeted Mutation by AID/APOBEC Enzymes as an Immunological Weapon," NIH, Vaccine Research Center, Bethesda, MD
- Nov, 2012 "The Enzymology of Evolution", Delaware Valley Enzymology Club/Delaware ACS Enzymology Topical Group, Haverford, PA
- Feb, 2013 "Immunologic and Epigenetic Diversity Accessed Through Targeted DNA Modifying Enzymes", University of Minnesota, BMBB Seminar Series, Minneapolis, MN
- Mar, 2013 "Enzymes Driving Evolution at the Host Pathogen Interface", Temple University, Department of Biochemistry Seminar Series, Philadelphia, PA
- Jun, 2013 "DNA Deamination, Oxidation and Repair in DNA Demethylation", Rita Allen Foundation Scholars Meeting, Norwalk, CT
- Sep, 2013 "Targeting LexA to Prevent the Acquisition of Bacterial Drug Resistance", GlaxoSmithKline, Upper Providence, Collegeville. PA
- Jan, 2014 "Why Change is Good: The Dynamic Genome and Evolution at the Host-Pathogen Interface", MD/PhD Grand Rounds Student Invited Speaker
- Jan, 2014 "Lex Marks the Spot: Combating Antibiotic Resistant Bacteria by Targeting the SOS Pathway", GlaxoSmithKline, Upper Providence, PA
- Feb, 2014 "Combating Antibiotic Resistant Bacteria by Targeting the SOS Pathway", American Society of Microbiology Eastern Pennsylvania Branch Monthly Seminar Series, Philadelphia, PA
- Apr, 2014 "Lex Marks the Spot: Combating Antibiotic Resistant Bacteria by Targeting the SOS Pathway", Symposium in Honor of Christopher T. Walsh 2014 Benjamin Franklin Medal in Chemistry, Philadelphia, PA
- May, 2014 "Targeting the Evolution of Bacterial Drug Resistance", Frontiers at the Chemistry-Biology Interface Symposium, Baltimore, MD
- May, 2014 "Targeting the Evolution of Bacterial Drug Resistance", Frontiers at the Chemistry-Biology Interface Symposium, Baltimore, MD
- Jun, 2014 "Combating Antibiotic Resistant Bacteria by Targeting the SOS Pathway", Gordon Research Conference in Bioorganic Chemistry, Andover, NH
- Jun, 2014 "Combating Bacterial Drug Resistance by Inhibiting the SOS Response", Harrington Discovery Institute Scientific Symposium, Cleveland, OH
- Oct, 2014 "The Enzymatic Generation of Genomic and Epigenomic Diversity", Wayne State University, Biochemistry Seminar Series, Department of Chemistry, Detroit, MI
- Feb, 2015 "Genomic and Epigenomic Diversity Accessed Through Purposeful DNA Modification", University of Cincinnati, Chemistry Department Seminar Series, Cincinnati, OH
- Apr, 2015 "Targeting the Evolution of Antibiotic Resistance in Bacteria", Johns Hopkins University, Department of Pharmacology and Molecular Sciences Seminar Series, Baltimore, MD
- Oct, 2015 "Targeting the Evolution of Antibiotic Resistance in Bacteria", Georgetown University, Department of Biochemistry and Molecular & Cellular Biology Seminar Series, Washington DC
- Mar, 2016 "Cytosine Modifying Enzymes and the Dynamic Genome", University of Delaware, Department of Chemistry Seminar Series, Newark, DE
- Jul, 2016 "Revealing the Enigmatic Mechanism of DNA Demethylation", Rita Allen Foundation Anniversary Symposium, Palo Alto, CA
- Sep, 2016 "Cytosine Modifying Enzymes and the Dynamic Genome", University of Minnesota, Epigenetic Consortium Seminar Series, Minneapolis, MN
- Nov, 2016 "Cytosine Modifying Enzymes and the Dynamic Genome", New England Biolabs, Seminar Series, Ipswich, MA
- Nov, 2016 "Mechanisms of Epigenome Tailoring by TET Enzymes", Interurban Clinical Club Meeting, Philadelphia, PA
- Mar, 2017 "Targeting the Bacterial SOS Pathway to Make Antibiotics Great Again", University of Maryland, CMBG Seminar Series, College Park, MD
- Mar, 2017 "Defining and Exploiting APOBEC3A Activity on the "Extended" Epigenome", Gordon Research Conference, RNA Editing, Ventura, CA
- Jun, 2017 "Targeting the SOS Pathway to Combat Acquired Antibiotic Resistance", International Conference in Antibiotic Resistance, Caparica, Portugal

- Sept, 2017 "Mechanisms Governing Stepwise Oxidation of 5-methylcytosine by TET Family Enzymes", Beilstein Enzymology Symposium, Beilstein-Institut, Ruedesheim, Germany
- Oct, 2017 "Targeting the SOS Pathway to Combat Antibiotic Resistance", Keystone Meeting on Antimicrobials and Resistance, Santa Fe, NM
- Dec, 2017 "Decoding and Recoding and the Bacterial SOS Pathway", Molecular & Cell Bio & Genetics Seminar Series, Drexel University, Philadelphia, PA
- Feb, 2018 "The Curious Chemical Biology of Cytosine", Chemistry Seminar Series, University of Illinois, Urbana-Champaign, IL
- Mar, 2018 "Combating Antibiotic Resistance: Lex Marks the Spot", Department of Biology Seminar Series, Villanova University, Villanova, PA
- Mar, 2018 "The Enzymatic Logic of DNA Demethylation", Human Genetics Seminar Series, University of Michigan, Ann Arbor, MI
- May, 2018 "The Enzymatic Logic of DNA Demethylation", Special Seminar Series, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
- Oct, 2018 "Cytosine Modifying Enzymes and the Dynamic Genome", Special Seminar, LifeEDIT Inc, Research Triangle Park, NC
- Feb, 2019 "Capturing TET-mediated DNA Demethylation in Action", Epigenetics Institute Symposium, Awakening and Calming the Epigenome, Philadelphia, PA
- Mar, 2019 "No BS: Enzymes Do It Better", Science at the Chemistry-Biology Interface: A Symposium Honoring Christopher T. Walsh, Harvard Medical School, Boston, MA
- Apr, 2019 "Combating Antibiotic Resistance: Lex Marks the Spot", Microbiology Seminar Series, University of Massachusetts, Amherst, MA
- Apr, 2019 "Capturing TET-mediated DNA Demethylation in Action", Molecular Discovery Seminar Series, National Cancer Institute/NIH, Frederick, MD
- July, 2019 "Disarming the SOS Response to Combat the Evolution of Antibiotic Resistance", Symposium on Gram Negative Bacteria Resistance, Wistar Institute, Philadelphia, PA
- Nov, 2019 "Cytosine Modifying Enzymes Reshaping the Dynamic Genome", Department of Chemistry & Biochemistry Seminar Series, University of the Sciences, Philadelphia, PA
- Nov, 2019 "Cytosine Modifying Enzymes and the Dynamic Genome", Delaware Valley Enzymology Club, Springfield, PA
- Nov, 2019 "Understanding and Exploiting Enzymes that Reshape the Genome", Seminar Series, University of Puerto Rico, Río Pedras, Puerto Rico
- Jan, 2020 "Engineering Efficiency and Control into Base Editors", 1st International Conference on Base Editing Deaminet2020, Palm Springs, CA
- Feb, 2020 "Combating Antibiotic Resistance: Lex Marks the Spot", Microbiology Seminar Series, Infectious Diseases Division, Weill Cornell Medical School, New York, NY
- Aug, 2020 "Understanding and Exploiting Purposeful Genomic Mutation by DNA Deaminase Enzymes", Pfizer Award Lecture, American Chemical Society National Meeting, Virtual Presentation
- Sept, 2020 "The Enzymatic Logic of DNA Demethylation", Coriell Institute Seminar Series, Camden, NJ, Virtual Presentation
- Sept, 2020 "Understanding and Exploiting Purposeful Genomic Mutation by DNA Deaminase Enzymes", American Chemical Society Division of Biological Chemistry, #ChemistsLive National Meeting, Virtual Presentation
- Feb, 2021 "Harnessing Antibody Diversification Machinery for Controllable Genome Editing", Duke Human Vaccine Institute (DHVI) Seminar Series, Duke University, Virtual Presentation
- Feb, 2021 "Cytosine Modifying Enzymes: Insights into Biology and Tools for Biotechnology", Illumina Research and Development Seminar Series, Virtual Presentation
- May, 2021 "Enzymatic Approaches to Profiling Epigenetic DNA Modifications", Advanced Genomic Technology Development Meeting, NHGRI/NIH, Virtual Presentation
- July, 2021 "Controllable Genome Editing with Split-Engineered Base Editors", Chemical and Synthetic Biology Symposium, University of Pittsburgh, Virtual Presentation

Sept, 2021	“Disarming the Bacterial DNA Damage Response to Combat Antibiotic Resistance”, IDWeek 2021, Infectious Diseases Society of America (IDSA), Virtual Presentation
Dec, 2021	“Engineering Efficiency and Control into Genomic Base Editors”, Pacificchem 2021, Virtual Presentation
Dec, 2021	“Engineering Efficient and Controllable Genomic Base Editors”, Biochemistry and Molecular Biology Seminar Series, University of Maryland, Virtual Presentation
Jan, 2022	“Nondestructive Epigenetic Sequencing with DNA Deaminases” 3rd International Conference on Base Editing Deaminet2022, Palm Springs, CA
Oct, 2022	“Non-destructive epigenetic sequencing with DNA modifying enzymes and unnatural DNA modifications”, ACS Western Regional Meeting, Las Vegas, NV
Mar, 2023	“Decoding the Epigenome with DNA Modifying Enzymes”, Gordon Research Conference, RNA Editing, Ventura, CA
June, 2023	“Decoding the Epigenome with DNA Modifying Enzymes”, NIH/NHGRI Advanced Genomic Technology Development Meeting, San Diego, CA
June, 2023	“Engineering Efficiency and Control into Genomic Base Editors”, Pairwise Plants, Durham, NC
Oct, 2023	“Natural Product Assembly Lines”, Christopher T. Walsh Chemical Biology Teach-In, Stanford University, Palo Alto, CA
Oct, 2023	“Evolution of Pathogens and a Physician-Scientist”, Outstanding Investigator Award Lecture, AFMR National Meeting, Reston, VA
Nov, 2023	“Harnessing Purposeful Mutators for Controllable and Efficient Genome Editing”, Genome Maintenance and Cancer Seminar Series, Washington University, St. Louis, MO
Apr, 2024	“Reading and Rewriting the Genome with DNA Modifying Enzymes”, Biochemistry and Molecular Biophysics Seminar Series, Johns Hopkins University, Baltimore, MD
Apr, 2024	“Reading and Rewriting the Genome with DNA Modifying Enzymes”, Department of Chemistry Seminar Series, University of Chicago, Chicago, IL
May, 2024	“The NxtPAGE of CRISPR Genome Engineering”, Yale Innovation Summit, Yale University, virtual presentation
Aug, 2024	“Reading the Epigenome with DNA Modifying Enzymes”, Telluride Workshop on Nucleic Acid Chemistry, Telluride, CO
Jun, 2025	“Reading the Epigenome with DNA Modifying Enzymes”, Gordon Research Conference on Nucleic Acids, Barga, Lucca, Italy

Bibliography:

Research Publications, peer reviewed: (* co-corresponding)

1. Kohli RM: Site-directed mutagenesis using PCR-mediated introduction of silent mutations. Biotechniques 25: 184-188, 1998.
2. Kohli RM, Massey V: The oxidative half-reaction of Old Yellow Enzyme: the role of tyrosine 196. J Biol Chem 273: 32763-32770, 1998.
3. Xu D, Kohli RM, Massey V: The role of threonine 37 in flavin reactivity of the old yellow enzyme. Proc Natl Acad Sci USA 96: 3556-3561, 1999.
4. Trauger JW, Kohli RM, Mootz HD, Marahiel MA, Walsh CT: Peptide cyclization catalysed by the thioesterase domain of tyrocidine synthetase. Nature 407: 215-218, 2000.
5. Kohli RM, Trauger JW, Schwarzer D, Marahiel MA, Walsh CT: Generality of peptide cyclization catalyzed by isolated thioesterase domains of nonribosomal peptide synthetases. Biochemistry 40: 7099-7108, 2001.
6. Trauger JW, Kohli RM, Walsh CT: Cyclization of backbone-substituted peptides catalyzed by the thioesterase domain from the tyrocidine nonribosomal peptide synthetase. Biochemistry 40: 7092-7098, 2001.

7. Bruner SD, Weber T, Kohli RM, Schwarzer D, Marahiel MA, Walsh CT, Stubbs MT: Structural basis for the cyclization of the lipopeptide antibiotic surfactin by the thioesterase domain SrfTE. Structure 10: 301-310, 2002.
8. Kohli RM, Takagi J, Walsh CT: The thioesterase domain from a nonribosomal peptide synthetase as a cyclization catalyst for integrin binding peptides. Proc Natl Acad Sci USA 99: 1247-1252, 2002.
9. Kohli RM, Walsh CT, Burkart MD: Biomimetic synthesis and optimization of cyclic peptide antibiotics. Nature 418: 658-661, 2002.
10. Luo L, Kohli RM, Onishi M, Linne U, Marahiel MA, Walsh CT: Timing of epimerization and condensation reactions in nonribosomal peptide assembly lines: kinetic analysis of phenylalanine activating elongation modules of tyrocidine synthetase B. Biochemistry 41: 9184-9196, 2002.
11. Tseng CC, Bruner SD, Kohli RM, Marahiel MA, Walsh CT, Sieber SA: Characterization of the surfactin synthetase C-terminal thioesterase domain as a cyclic depsipeptide synthase. Biochemistry 41: 13350-13359, 2002.
12. Kohli RM, Burke MD, Tao J, Walsh CT: Chemoenzymatic route to macrocyclic hybrid peptide/polyketide-like molecules. J Am Chem Soc 125: 7160-7161, 2003.
13. Yeh E, Kohli RM, Bruner SD, Walsh CT: TYPE II thioesterase restores activity of a NRPS module stalled with an aminoacyl-S-enzyme that cannot be elongated. ChemBiochem 5: 1290-1293, 2004.
14. Yeh E, Lin H, Clugston SL, Kohli RM, Walsh CT: Enhanced macrocyclizing activity of the thioesterase from tyrocidine synthetase in presence of nonionic detergent. Chem Biol 11: 1573-1582, 2004.
15. McMahon MA, Siliciano JD, Lai L, Liu JO, Stivers JT, Siliciano RF, Kohli RM: The antiherpetic drug acyclovir inhibits HIV replication and selects the V75I reverse transcriptase multidrug resistance mutation. J Biol Chem 283: 31289-31293, 2008.
16. Ho RS, Kohli RM, Maragakis LL: When to think of zebras. Am J Med 122: 424-426, 2009.
17. Kohli RM, Abrams SR, Gajula KS, Maul RW, Gearhart PJ, Stivers JT: A portable hotspot recognition loop transfers sequence preferences from APOBEC family members to activation-induced cytidine deaminase. J Biol Chem 284: 22898-22904, 2009.
18. Kohli RM, Maul RW, Guminski AF, McClure RL, Gajula KS, Saribasak H, McMahon MA, Siliciano RF, Gearhart PJ, Stivers JT.: Local sequence targeting in the AID/APOBEC family differentially impacts retroviral restriction and antibody diversification. J Biol Chem 285(52): 40956-40964, 2010.
19. McMahon MA, Siliciano JD, Kohli RM, Siliciano RF: Sensitivity of V75I HIV-1 reverse transcriptase mutant selected in vitro by acyclovir to anti-HIV drugs. AIDS 24: 319-323, 2010.
20. Nabel CS, Jia H, Ye Y, Shen L, Goldschmidt HL, Stivers JT, Zhang Y*, Kohli RM*: AID/APOBEC deaminases disfavor modified cytosines implicated in DNA demethylation. Nature Chem Biol 8(9): 751-758, 2012.
21. Macmillan AL, Kohli RM, Ross SR: APOBEC3 inhibition of MMTV infection: the role of cytidine deamination versus inhibition of reverse transcription. J Virol 87(9): 4808-17,

2013.

22. Nabel CS, Lee JW, Wang LC, Kohli RM: Nucleic acid determinants for selective deamination of DNA over RNA by activation-induced deaminase. Proc Natl Acad Sci USA 110(35): 14225-30, 2013.
23. Gajula KS, Huwe PJ, Mo CY, Crawford DJ, Stivers JT, Radhakrishnan R, Kohli RM: High-throughput mutagenesis reveals functional determinants for DNA targeting by activation-induced deaminase. Nucleic Acids Res 42: 9964-9975, 2014.
24. Mo CY, Birdwell LD, Kohli RM.: Specificity Determinants for Autoproteolysis of LexA, a Key Regulator of Bacterial SOS Mutagenesis. Biochemistry 53: 3158-68, 2014.
25. Stavrou S, Crawford DJ, Blouch K, Browne EP, Kohli RM and Ross SR: Transgenic mice demonstrate different modes of retrovirus restriction by APOBEC3A and APOBEC3G in vivo. PLOS Pathogens 10: e1004145, 2014.
26. Crawford DJ, Liu MY, Nabel CS, Cao XJ, Garcia BA, Kohli R: Tet2 Catalyzes Stepwise 5-Methylcytosine Oxidation by an Iterative and De Novo Mechanism. J Am Chem Soc 138:730-703, 2016.
27. Mo CY, Manning SA, Roggiani M, Culyba MJ, Samuels AN, Sniegowski PD, Goulian M, Kohli RM. Systematically Altering Bacterial SOS Activity under Stress Reveals Therapeutic Strategies for Potentiating Antibiotics. mSphere 1(4): e00163-16, 2016.
28. Liu MH, Torabifard H, Crawford DJ, DeNizio JE, Cao XJ, Garcia BA, Cisneros GA*, Kohli RM*. Mutations along a TET2 active site scaffold stall oxidation at 5-hydroxymethylcytosine. Nature Chem Biol, 13:181-187, 2017.
29. Sungwienwong I, Hostetler ZM, Blizzard RJ, Porter JJ, Driggers CM, Mbengi LZ, Villegas JA, Speight LC, Saven JG, Perona JJ, Kohli RM, Mehl RA, Petersson EJ. Improving target amino acid selectivity in a permissive aminoacyl tRNA synthetase through counter-selection. Org Biomol Chem 15:3603-3610, 2017.
29. Nabel CS, DeNizio JE, Carroll M, Kohli RM. DNA Methyltransferases Demonstrate Reduced Activity Against Arabinosylcytosine: Implications for Epigenetic Instability in AML. Biochemistry 56:2166-2169, 2017.
30. Schutsky EK, Nabel CS, Davis AKF, DeNizio JE, Kohli RM. APOBEC3A efficiently deaminates methylated, but not TET-oxidized, cytosine bases in DNA. Nucleic Acids Res 45:7655-7665, 2017.
31. Wang F, Zahid OK, Swain BE, Parsonage D, Hollis T, Harvey S, Perrino FW, Kohli RM, Taylor EW, Hall AR. Solid-State Nanopore Analysis of Diverse DNA Base Modifications Using a Modular Enzymatic Labeling Process. Nano Lett 17:7110-7116, 2017
32. Kubiak JM, Culyba MJ, Liu MY, Mo CY, Goulian M, Kohli RM. A small-molecule inducible synthetic circuit for control of the SOS gene network without DNA damage. ACS Synth Biol 6:2067-2076, 2017.
33. Mo CY, Culyba MJ, Selwood T, Kubiak JM, Hostetler ZM, Jurewicz AJ, Keller PM, Pope AJ, Quinn A, Schneck JL, Widdowson KL, Kohli RM. Inhibitors of LexA autoproteolysis and the bacterial SOS response discovered by an academic-industry partnership. ACS Infect Dis 4:349-359, 2018.
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