



Eric Kool

The George A. and Hilda M. Daubert Professor in Chemistry

CONTACT INFORMATION

- **Administrative Contact**

Teresa Throckmorton - Administrative Associate

Email tsthrock@stanford.edu

Tel (650) 725-9741

Bio

BIO

Eric Kool received his Ph.D. in Chemistry from Columbia University and did postdoctoral work in nucleic acids chemistry at Caltech. He started his career at the University of Rochester before moving to Stanford in 1999, where he is the George and Hilda Daubert Professor of Chemistry. He teaches Organic Chemistry and Chemical Biology to undergraduate and graduate students.

The Kool lab uses the tools of chemistry to study the structures, interactions and biological activities of nucleic acids and the enzymes that process them. Molecular design and synthesis play a major role in this work, followed by analysis of structure and function, both in test tubes and in living systems. These studies are aimed at gaining a better basic understanding of biology, and applying this knowledge to practical applications in biomedicine.

As part of this research, members of the group synthesize designer nucleobases and nucleotides, with unusual properties such as fluorescence, enzyme reactivity, or altered shape and H-bonding ability. We use these as tools to study DNA polymerase enzymes, DNA repair pathways, and RNA modifying enzymes. This work is leading to new probes for diagnosis of cancer, useful fluorescent tags for biology, and fluorescent sensors of many species such as cancer metabolites and toxic metals.

ACADEMIC APPOINTMENTS

- Professor, Chemistry
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Faculty Fellow, Stanford ChEM-H
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Murray Goodman Memorial Prize in Biopolymer Research, American Chemical Society (2021)
- Breslow Award for Achievement in Biomimetic Chemistry, American Chemical Society (2015)
- O. K. Rice Lectureship, University of North Carolina (2015)

- Dean's Award for Distinguished Teaching, Stanford University (2014)
- Frontiers in Chemistry Distinguished Lecturer, Case Western Reserve University (2014)
- Tarrant Distinguished Lectureship, University of Florida (2014)
- O'Malley Lectureship, Boston College (2012)
- Tortellotte Lectureship, Kalamazoo College (2010)
- Hirschmann Lectureship, Oberlin College (2003)
- Novartis Lecturer, Massachusetts Institute of Technology (2003)
- Fellow of the AAAS, American Association for the Advancement of Science (2002)
- Bernard Belleau Memorial Lecturer, McGill University (2001)
- Dean's Award for Distinguished Teaching, Stanford University (2001)
- Arthur C. Cope Scholar Award, American Chemical Society (2000)
- Pfizer Award, American Chemical Society (2000)
- Alfred P. Sloan Foundation Fellow, Alfred P. Sloan Foundation (1994)
- American Cyanamid Faculty Award, American Cyanamid (1994)
- Army Young Investigator Award, Army Research Office (1993)
- Camille and Henry Dreyfus Teacher - Scholar Award, Camille and Henry Dreyfus Foundation (1993)
- Arnold & Mabel Beckman Foundation Young Investigator, Arnold & Mabel Beckman Foundation (1992)
- Office of Naval Research Young Investigator Award, Office of Naval Research (1992)

PROFESSIONAL EDUCATION

- PhD, Columbia University , Organic Chemistry, Biochemistry (1988)

LINKS

- My Lab Site: <https://web.stanford.edu/group/kool/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our lab uses the tools of molecular design and chemical synthesis, combined with modern molecular biology and genomics techniques, to study the biology of nucleic acids. We have a general interest in the design of small-molecule probes and reagents for the study of RNA and DNA in the cell, and of enzymes that modify them. For example, we are designing cell-permeable reagents that can be used to map structure and contacts of RNAs in living systems. We are also developing novel tools for labeling and caging RNAs, and methods for profiling transcriptome interactions. We are using these tools to uncover new knowledge about the functions of noncoding RNAs in the cell, and to study the potential of new anticancer targets in the transcriptome.

Our lab is also studying DNA repair enzymes, with a focus on development of tools that will help us measure, and potentially treat, cancer and inflammation. We design enzyme mechanism-specific fluorescent probes of DNA base excision repair, and employ them in cellular and animal models of disease. We also use these probes to discover and develop small molecule inhibitors of these enzymes, to be used in translational models of disease. We collaborate with biomedical research groups in translational studies to test our hypotheses regarding the connections of DNA repair to disease.

Teaching

COURSES

2020-21

- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 283 (Spr)

2019-20

- Organic Polyfunctional Compounds: CHEM 123 (Aut)
- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 283 (Spr)

2018-19

- Organic Polyfunctional Compounds: CHEM 131 (Aut)
- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 226 (Win)

2017-18

- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 226 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Linglan Fang, Biswarup Jash, Yong Woong Jun, Lu Xiao, Ruyi Zhu

Doctoral Dissertation Advisor (AC)

Martin Acosta Parra, Sayantan Chatterjee, Edward Gao, Yujeong Lee

Undergraduate Major Advisor

Gwyn Uttmark

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biophysics (Phd Program)

Publications

PUBLICATIONS

- **Reimagining high-throughput profiling of reactive cysteines for cell-based screening of large electrophile libraries.** *Nature biotechnology*
Kuljanin, M., Mitchell, D. C., Schweppe, D. K., Gikandi, A. S., Nusinow, D. P., Bulloch, N. J., Vinogradova, E. V., Wilson, D. L., Kool, E. T., Mancias, J. D., Cravatt, B. F., Gygi, S. P.
2021
- **OGG1 co-inhibition antagonizes the tumor-inhibitory effects of targeting MTH1.** *Redox biology*
Zhang, L. n., Misiara, L. n., Samaranyake, G. J., Sharma, N. n., Nguyen, D. M., Tahara, Y. K., Kool, E. T., Rai, P. n.
2021; 40: 101848
- **Inhibition by Tetrahydroquinoline Sulfonamide Derivatives of the Activity of Human 8-Oxoguanine DNA Glycosylase (OGG1) for Several Products of Oxidatively induced DNA Base Lesions.** *ACS chemical biology*
Kant, M., Tahara, Y., Jaruga, P., Coskun, E., Lloyd, R. S., Kool, E. T., Dizdaroglu, M.
2020
- **Small-Molecule Inhibitor of 8-Oxoguanine DNA Glycosylase 1 Regulates Inflammatory Responses during *Pseudomonas aeruginosa* Infection.** *Journal of immunology (Baltimore, Md. : 1950)*
Qin, S., Lin, P., Wu, Q., Pu, Q., Zhou, C., Wang, B., Gao, P., Wang, Z., Gao, A., Overby, M., Yang, J., Jiang, J., Wilson, et al
2020
- **Trapping Transient RNA Complexes by Chemically Reversible Acylation.** *Angewandte Chemie (International ed. in English)*
Velema, W. A., Park, H. S., Kadina, A., Orbai, L., Kool, E. T.
2020
- **Small Substrate or Large? Debate Over the Mechanism of Glycation Adduct Repair by DJ-1.** *Cell chemical biology*
Jun, Y. W., Kool, E. T.

2020

- **Reversible RNA acylation for control of CRISPR-Cas9 gene editing** *CHEMICAL SCIENCE*
Habibian, M., McKinlay, C., Blake, T. R., Kietrys, A. M., Waymouth, R. M., Wender, P. A., Kool, E. T.
2020; 11 (4): 1011–16
- **An Excimer Clamp for Measuring Damaged Base Excision by the DNA Repair Enzyme NTH1.** *Angewandte Chemie (International ed. in English)*
Jun, Y. W., Wilson, D. L., Kietrys, A. M., Lotsof, E. R., Conlon, S. G., David, S. S., Kool, E. T.
2020
- **Designer Fluorescent Adenines Enable Real-Time Monitoring of MUTYH Activity.** *ACS central science*
Zhu, R. Y., Majumdar, C. n., Khuu, C. n., De Rosa, M. n., Opresko, P. L., David, S. S., Kool, E. T.
2020; 6 (10): 1735–42
- **The chemistry and applications of RNA 2'-OH acylation** *NATURE REVIEWS CHEMISTRY*
Velema, W. A., Kool, E. T.
2020; 4 (1): 22–37
- **Site-Selective RNA Functionalization via DNA-Induced Structure.** *Journal of the American Chemical Society*
Xiao, L. n., Habibian, M. n., Kool, E. T.
2020; 142 (38): 16357–63
- **Dual Inhibitors of 8-Oxoguanine Surveillance by OGG1 and NUDT1.** *ACS chemical biology*
Tahara, Y., Kietrys, A. M., Hebenbrock, M., Lee, Y., Wilson, D. L., Kool, E. T.
2019
- **Polymerase synthesis of four-base DNA from two stable dimeric nucleotides.** *Nucleic acids research*
Mohsen, M. G., Ji, D., Kool, E. T.
2019
- **Polyacetate and Polycarbonate RNA: Acylating Reagents and Properties.** *Organic letters*
Habibian, M., Velema, W. A., Kietrys, A. M., Onishi, Y., Kool, E. T.
2019
- **Simple alkanoyl acylating agents for reversible RNA functionalization and control** *CHEMICAL COMMUNICATIONS*
Park, H., Kietrys, A. M., Kool, E. T.
2019; 55 (35): 5135–38
- **Simple alkanoyl acylating agents for reversible RNA functionalization and control.** *Chemical communications (Cambridge, England)*
Park, H. S., Kietrys, A. M., Kool, E. T.
2019
- **RNA structure maps across mammalian cellular compartments** *NATURE STRUCTURAL & MOLECULAR BIOLOGY*
Sun, L., Fazal, F. M., Li, P., Broughton, J. P., Lee, B., Tang, L., Huang, W., Kool, E. T., Chang, H. Y., Zhang, Q.
2019; 26 (4): 322–+
- **Polymerase-amplified release of ATP (POLARA) for detecting single nucleotide variants in RNA and DNA** *CHEMICAL SCIENCE*
Mohsen, M. G., Ji, D., Kool, E. T.
2019; 10 (11): 3264–70
- **RNA structure maps across mammalian cellular compartments.** *Nature structural & molecular biology*
Sun, L., Fazal, F. M., Li, P., Broughton, J. P., Lee, B., Tang, L., Huang, W., Kool, E. T., Chang, H. Y., Zhang, Q. C.
2019
- **Fluorescent reporter assays provide direct, accurate, quantitative measurements of MGMT status in human cells** *PLOS ONE*
Nagel, Z. D., Beharry, A. A., Mazzucato, P., Kitange, G. J., Sarkaria, J. N., Kool, E. T., Samson, L. D.
2019; 14 (2)
- **Increased MTH1-specific 8-oxodGTPase activity is a hallmark of cancer in colon, lung and pancreatic tissue.** *DNA repair*
McPherson, L. A., Troccoli, C. I., Ji, D. n., Bowles, A. E., Gardiner, M. L., Mohsen, M. G., Nagathihalli, N. S., Nguyen, D. M., Robbins, D. J., Merchant, N. B., Kool, E. T., Rai, P. n., Ford, et al

2019; 102644

- **Reversible RNA acylation for control of CRISPR-Cas9 gene editing.** *Chemical science*
Habibian, M., McKinlay, C., Blake, T. R., Kietrys, A. M., Waymouth, R. M., Wender, P. A., Kool, E. T.
2019; 11 (4): 1011-1016
- **A fluorescent hydrazone exchange probe of pyridoxal phosphate for the assessment of vitamin B6 status.** *Chemical communications (Cambridge, England)*
Jun, Y. W., Hebenbrock, M. n., Kool, E. T.
2019
- **The existence of MTH1-independent 8-oxodGTPase activity in cancer cells as a compensatory mechanism against on-target effects of MTH1 inhibitors.** *Molecular cancer therapeutics*
Samaranayake, G. J., Troccoli, C. I., Zhang, L. n., Huynh, M. n., Jayaraj, C. J., Ji, D. n., McPherson, L. n., Onishi, Y. n., Nguyen, D. M., Robbins, D. J., Karbaschi, M. n., Cooke, M. S., Barrientos, et al
2019
- **Polymerase-amplified release of ATP (POLARA) for detecting single nucleotide variants in RNA and DNA.** *Chemical science*
Mohsen, M. G., Ji, D. n., Kool, E. T.
2019; 10 (11): 3264-70
- **Fluorescent reporter assays provide direct, accurate, quantitative measurements of MGMT status in human cells.** *PloS one*
Nagel, Z. D., Beharry, A. A., Mazzucato, P., Kitange, G. J., Sarkaria, J. N., Kool, E. T., Samson, L. D.
2019; 14 (2): e0208341
- **Ultrafast Oxime Formation Enables Efficient Fluorescence Light-up Measurement of DNA Base Excision.** *Journal of the American Chemical Society*
Wilson, D. L., Kool, E. T.
2019
- **Water-Soluble Leaving Group Enables Hydrophobic Functionalization of RNA** *ORGANIC LETTERS*
Velema, W. A., Kool, E. T.
2018; 20 (20): 6587-6590
- **Water-Soluble Leaving Group Enables Hydrophobic Functionalization of RNA.** *Organic letters*
Velema, W. A., Kool, E. T.
2018
- **Fluorescence Probes for ALKBH2 Allow the Measurement of DNA Alkylation Repair and Drug Resistance Responses** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Wilson, D. L., Beharry, A. A., Srivastava, A., O'Connor, T. R., Kool, E. T.
2018; 57 (39): 12896-12900
- **Fluorescence Probes of ALKBH2 Measure DNA Alkylation Repair and Drug Resistance Responses.** *Angewandte Chemie (International ed. in English)*
Wilson, D. L., Beharry, A. A., Srivastava, A., O'Connor, T. R., Kool, E. T.
2018
- **Fluorescent Probes of DNA Repair** *ACS CHEMICAL BIOLOGY*
Wilson, D. L., Kool, E. T.
2018; 13 (7): 1721-33
- **Exceptionally rapid oxime and hydrazone formation promoted by catalytic amine buffers with low toxicity** *CHEMICAL SCIENCE*
Larsen, D., Kietrys, A. M., Clark, S. A., Park, H., Ekebergh, A., Kool, E. T.
2018; 9 (23): 5252-59
- **Aldehyde dehydrogenase 3A1 activation prevents radiation-induced xerostomia by protecting salivary stem cells from toxic aldehydes** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Saiki, J. P., Cao, H., Van Wassenhove, L. D., Viswanathan, V., Bloomstein, J., Nambiar, D. K., Mattingly, A. J., Jiang, D., Chen, C., Stevens, M. C., Simmons, A. L., Park, H., von Eyben, et al
2018; 115 (24): 6279-84
- **Aldehyde dehydrogenase 3A1 activation prevents radiation-induced xerostomia by protecting salivary stem cells from toxic aldehydes.** *Proceedings of the National Academy of Sciences of the United States of America*

Saiki, J. P., Cao, H., Van Wassenhove, L. D., Viswanathan, V., Bloomstein, J., Nambiar, D. K., Mattingly, A. J., Jiang, D., Chen, C., Stevens, M. C., Simmons, A. L., Park, H. S., von Eyben, et al

2018

- **ATP-Linked Chimeric Nucleotide as a Specific Luminescence Reporter of Deoxyuridine Triphosphatase** *BIOCONJUGATE CHEMISTRY*
Ji, D., Kietrys, A. M., Lee, Y., Kool, E. T.
2018; 29 (5): 1614–21
- **Development of highly potent and selective inhibitors of DNA repair by 8-oxoguanine DNA glycosylase (OGG1)**
Tahara, Y., Kool, E.
AMER CHEMICAL SOC.2018
- **RNA Control by Photoreversible Acylation** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Velema, W. A., Kietrys, A. M., Kool, E. T.
2018; 140 (10): 3491–95
- **RNA Cloaking by Reversible Acylation** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Kadina, A., Kietrys, A. M., Kool, E. T.
2018; 57 (12): 3059–63
- **Potent and Selective Inhibitors of 8-Oxoguanine DNA Glycosylase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Tahara, Y., Auld, D., Ji, D., Beharry, A. A., Kietrys, A. M., Wilson, D. L., Jimenez, M., King, D., Nguyen, Z., Kool, E. T.
2018; 140 (6): 2105–14
- **Exceptionally rapid oxime and hydrazone formation promoted by catalytic amine buffers with low toxicity.** *Chemical science*
Larsen, D. n., Kietrys, A. M., Clark, S. A., Park, H. S., Ekebergh, A. n., Kool, E. T.
2018; 9 (23): 5252–59
- **Fluorescent Probes of DNA Repair.** *ACS chemical biology*
Wilson, D. L., Kool, E. T.
2017
- **Fingerprints of Modified RNA Bases from Deep Sequencing Profiles** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Kietrys, A. M., Velema, W. A., Kool, E. T.
2017; 139 (47): 17074–81
- **Measuring deaminated nucleotide surveillance enzyme ITPA activity with an ATP-releasing nucleotide chimera** *NUCLEIC ACIDS RESEARCH*
Ji, D., Stepchenkova, E. I., Cui, J., Menezes, M. R., Pavlov, Y. I., Kool, E. T.
2017; 45 (20): 11515–24
- **Color-Change Photoswitching of an Alkynylpyrene Excimer Dye** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Chan, K. M., Kolmel, D. K., Wang, S., Kool, E. T.
2017; 56 (23): 6497-6501
- **Fluorogenic Templated Reaction Cascades for RNA Detection** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Velema, W. A., Kool, E. T.
2017; 139 (15): 5405-5411
- **Measuring and modulating the repair of DNA damage**
Kool, E.
AMER CHEMICAL SOC.2017
- **Fluorogenic dyes for haloalkane-based protein labeling in vitro and in bacterial cells**
Clark, S., Singh, V., Mendoza, D., Margolin, W., Kool, E.
AMER CHEMICAL SOC.2017
- **Luminescence probes of deaminated nucleotide surveillance enzymes DUT and ITPA**
Ji, D., Pavlov, Y., Kool, E.
AMER CHEMICAL SOC.2017

- **DNA as an environmental sensor: detection and identification of pesticide contaminants in water with fluorescent nucleobases.** *Organic & biomolecular chemistry*
Kwon, H., Chan, K. M., Kool, E. T.
2017; 15 (8): 1801-1809
- **Comparison of SHAPE reagents for mapping RNA structures inside living cells** *RNA*
Lee, B., Flynn, R. A., Kadina, A., Guo, J. K., Kool, E. T., Chang, H. Y.
2017; 23 (2): 169-174
- **Chemical and structural effects of base modifications in messenger RNA.** *Nature*
Harcourt, E. M., Kietrys, A. M., Kool, E. T.
2017; 541 (7637): 339-346
- **Luminescent Carbon Dot Mimics Assembled on DNA** *Journal of the American Chemical Society*
Chan, K., Xu, W., Kwon, H., Kietrys, A. M., Kool, E. T.
2017; 139 (37): 13147-13155
- **DNA as an environmental sensor: detection and identification of pesticide contaminants in water with fluorescent nucleobases** *Organic & Biomolecular Chemistry*
Kwon, H., Chan, K., Kool, E. T.
2017; 15: 1801-1809
- **Luminescent Carbon Dot Mimics Assembled on DNA.** *Journal of the American Chemical Society*
Chan, K. M., Xu, W. n., Kwon, H. n., Kietrys, A. M., Kool, E. T.
2017; 139 (37): 13147-55
- **Fluorescent nucleobases as tools for studying DNA and RNA.** *Nature chemistry*
Xu, W. n., Chan, K. M., Kool, E. T.
2017; 9 (11): 1043-55
- **Oximes and Hydrazones in Bioconjugation: Mechanism and Catalysis.** *Chemical reviews*
Kölmel, D. K., Kool, E. T.
2017; 117 (15): 10358-76
- **Fluorescent nucleobases as tools for studying DNA and RNA** *Nature Chemistry*
Xu, W., Chan, K., Kool, E. T.
2017; 9: 1043-1055
- **Light-Up "Channel Dyes" for Haloalkane-Based Protein Labeling in Vitro and in Bacterial Cells** *BIOCONJUGATE CHEMISTRY*
Clark, S. A., Singh, V., Mendoza, D. V., Margolin, W., Kool, E. T.
2016; 27 (12): 2839-2843
- **DNA polymerase ? specializes in incorporating synthetic expanded-size (xDNA) nucleotides.** *Nucleic acids research*
Kent, T., Rusanov, T. D., Hoang, T. M., Velema, W. A., Krueger, A. T., Copeland, W. C., Kool, E. T., Pomerantz, R. T.
2016; 44 (19): 9381-9392
- **The Discovery of Rolling Circle Amplification and Rolling Circle Transcription.** *Accounts of chemical research*
Mohsen, M. G., Kool, E. T.
2016: -?
- **Designer DNA bases with biological function**
Kool, E.
AMER CHEMICAL SOC.2016
- **Dark Hydrazone Fluorescence Labeling Agents Enable Imaging of Cellular Aldehydic Load.** *ACS chemical biology*
Yuen, L. H., Saxena, N. S., Park, H. S., Weinberg, K., Kool, E. T.
2016; 11 (8): 2312-2319
- **A Chimeric ATP-Linked Nucleotide Enables Luminescence Signaling of Damage Surveillance by MTH1, a Cancer Target.** *Journal of the American Chemical Society*

- Ji, D., Beharry, A. A., Ford, J. M., Kool, E. T.
2016; 138 (29): 9005-9008
- **Efficient synthesis of fluorescent alkynyl C-nucleosides via Sonogashira coupling for the preparation of DNA-based polyfluorophores.** *Organic & biomolecular chemistry*
Kölmel, D. K., Barandun, L. J., Kool, E. T.
2016; 14 (27): 6407-6412
 - **Functional interplay between NTP leaving group and base pair recognition during RNA polymerase II nucleotide incorporation revealed by methylene substitution** *NUCLEIC ACIDS RESEARCH*
Hwang, C. S., Xu, L., Wang, W., Ulrich, S., Zhang, L., Chong, J., Shin, J. h., Huang, X., Kool, E. T., McKenna, C. E., Wang, D.
2016; 44 (8): 3820-3828
 - **Kinetic selection vs. free energy of DNA base pairing in control of polymerase fidelity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Oertell, K., Harcourt, E. M., Mohsen, M. G., Petruska, J., Kool, E. T., Goodman, M. F.
2016; 113 (16): E2277-E2285
 - **Fluorogenic Real-Time Reporters of DNA Repair by MGMT, a Clinical Predictor of Antitumor Drug Response** *PLOS ONE*
Beharry, A. A., Nagel, Z. D., Samson, L. D., Kool, E. T.
2016; 11 (4)
 - **Fluorescence Monitoring of the Oxidative Repair of DNA Alkylation Damage by ALKBH3, a Prostate Cancer Marker** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Beharry, A. A., Lacoste, S., O'Connor, T. R., Kool, E. T.
2016; 138 (11): 3647-3650
 - **Fluorescence Monitoring of the Oxidative Repair of DNA Alkylation Damage by ALKBH3, a Prostate Cancer Marker.** *Journal of the American Chemical Society*
Beharry, A. A., Lacoste, S., O'Connor, T. R., Kool, E. T.
2016; 138 (11): 3647-3650
 - **Small-molecule strategies for mapping RNA structure and sequence**
Kool, E.
AMER CHEMICAL SOC.2016
 - **7SK-BAF axis controls pervasive transcription at enhancers.** *Nature structural & molecular biology*
Flynn, R. A., Do, B. T., Rubin, A. J., Calo, E., Lee, B., Kuchelmeister, H., Rale, M., Chu, C., Kool, E. T., Wysocka, J., Khavari, P. A., Chang, H. Y.
2016; 23 (3): 231-238
 - **ATP-Releasing Nucleotides: Linking DNA Synthesis to Luciferase Signaling.** *Angewandte Chemie (International ed. in English)*
Ji, D., Mohsen, M. G., Harcourt, E. M., Kool, E. T.
2016; 55 (6): 2087-2091
 - **Fluorogenic Real-Time Reporters of DNA Repair by MGMT, a Clinical Predictor of Antitumor Drug Response.** *PloS one*
Beharry, A. A., Nagel, Z. D., Samson, L. D., Kool, E. T.
2016; 11 (4)
 - **Epigenetics: A new methyl mark on messengers.** *Nature*
Kietrys, A. M., Kool, E. T.
2016; 530 (7591): 423-24
 - **Organocatalytic removal of formaldehyde adducts from RNA and DNA bases (vol 7, pg 752, 2015)** *NATURE CHEMISTRY*
Karmakar, S., Harcourt, E. M., Hewings, D. S., Scherer, F., Lovejoy, A. F., Kurtz, D. M., Ehrenschrwender, T., Barandun, L. J., Roost, C., Alizadeh, A. A., Kool, E. T.
2015; 7 (12): 1033
 - **Organocatalytic removal of formaldehyde adducts from RNA and DNA bases** *NATURE CHEMISTRY*
Karmakar, S., Harcourt, E. M., Hewings, D. S., Lovejoy, A. F., Kurtz, D. M., Ehrenschrwender, T., Barandun, L. J., Roost, C., Alizadeh, A. A., Kool, E. T.
2015; 7 (9): 752-758

- **Organocatalytic removal of formaldehyde adducts from RNA and DNA bases.** *Nature chemistry*
Karmakar, S., Harcourt, E. M., Hewings, D. S., Scherer, F., Lovejoy, A. F., Kurtz, D. M., Ehrenschwender, T., Barandun, L. J., Roost, C., Alizadeh, A. A., Kool, E. T.
2015; 7 (9): 752-758
- **Fluorescent chemosensors for monitoring the activity of O6-methylguanine DNA methyltransferase**
Beharry, A., Kool, E.
AMER CHEMICAL SOC.2015
- **In Vitro Fluorogenic Real-Time Assay of the Repair of Oxidative DNA Damage** *CHEMBIOCHEM*
Edwards, S. K., Ono, T., Wang, S., Jiang, W., Franzini, R. M., Jung, J. W., Chan, K. M., Kool, E. T.
2015; 16 (11): 1637-1646
- **Structural imprints in vivo decode RNA regulatory mechanisms.** *Nature*
Spitale, R. C., Flynn, R. A., Zhang, Q. C., Crisalli, P., Lee, B., Jung, J., Kuchelmeister, H. Y., Batista, P. J., Torre, E. A., Kool, E. T., Chang, H. Y.
2015; 519 (7544): 486-490
- **Structural imprints in vivo decode RNA regulatory mechanisms** *NATURE*
Spitale, R. C., Flynn, R. A., Zhang, Q. C., Crisalli, P., Lee, B., Jung, J., Kuchelmeister, H. Y., Batista, P. J., Torre, E. A., Kool, E. T., Chang, H. Y.
2015; 519 (7544): 486-?
- **Award Address (Ronald Breslow Award for Achievement in Biomimetic Chemistry sponsored by the Ronald Breslow Award Endowment). Designer DNA bases: Probing molecules and mechanisms in biology**
Kool, E.
AMER CHEMICAL SOC.2015
- **Structure and Thermodynamics of N-6-Methyladenosine in RNA: A Spring-Loaded Base Modification** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Roost, C., Lynch, S. R., Batista, P. J., Qu, K., Chang, H. Y., Kool, E. T.
2015; 137 (5): 2107-2115
- **New Organocatalyst Scaffolds with High Activity in Promoting Hydrazone and Oxime Formation at Neutral pH.** *Organic letters*
Larsen, D., Pittelkow, M., Karmakar, S., Kool, E. T.
2015; 17 (2): 274-277
- **Pattern-Based Detection of Anion Pollutants in Water with DNA Polyfluorophores** *CHEMICAL SCIENCE*
Kwon, H., Jei, W., Kool, E. T.
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