

# Stanford

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## Eric Kool

George A. and Hilda M. Daubert Professor of Chemistry

### CONTACT INFORMATION

- **Administrative Contact**

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### Bio

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#### 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.

Recent research interests include the development of chemical tools for mapping RNA structure and interactions in cells, methods for stabilization and conjugation of RNAs, and the development of probes of DNA repair pathways and their connections to cancer.

#### ACADEMIC APPOINTMENTS

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

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### 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**

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### COURSES

2023-24

- Structure and Reactivity of Organic Molecules: CHEM 33 (Spr)
- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 281 (Win)

#### 2022-23

- Structure and Reactivity of Organic Molecules: CHEM 33 (Spr)
- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 281 (Win)

#### 2021-22

- Structure and Reactivity of Organic Molecules: CHEM 33 (Spr)
- Synthesis and Analysis at the Chemistry-Biology Interface: CHEM 283 (Win)

#### 2020-21

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

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Hayden Anderson, Zach Gentry, Zhijian Li, Owen McAteer

#### Postdoctoral Faculty Sponsor

Linglan Fang, Sheng Feng, Weifeng Lin, Sumon Pratihar, Jinwoo Shin, Pavitra Thacker, Lu Xiao, Wenrui Zhong

#### Doctoral Dissertation Advisor (AC)

Edward Gao

#### Undergraduate Major Advisor

Elizabeth Palafox

### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biophysics (Phd Program)

### Publications

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#### PUBLICATIONS

- **Aqueous Activation of RNA 2'-OH for Conjugation with Amines and Thiols.** *Bioconjugate chemistry*  
Shioi, R., Xiao, L., Kool, E. T.  
2023
- **Efficient post-synthesis incorporation and conjugation of reactive ketones in RNAvia2'-acylation.** *Chemical communications (Cambridge, England)*  
Shioi, R., Xiao, L., Fang, L., Kool, E. T.  
2023
- **Stereoselective RNA reaction with chiral 2'-OH acylating agents.** *Chemical science*  
Shioi, R., Xiao, L., Chatterjee, S., Kool, E. T.  
2023; 14 (45): 13235-13243
- **2'-OH as a universal handle for studying intracellular RNAs.** *Cell chemical biology*  
Xiao, L., Fang, L., Kool, E. T.  
2023
- **Stereoselective RNA reaction with chiral 2#-OH acylating agents** *CHEMICAL SCIENCE*  
Shioi, R., Xiao, L., Chatterjee, S., Kool, E. T.  
2023

- **8-Oxoguanine DNA Glycosylase 1 Inhibition Suppresses Inflammatory Responses in Sickle Cell Disease**  
Le, K., Quezado, Z., Kamimura, S., Smith, M. L., Tahara, Y., Lee, Y., Tumburu, L., Conrey, A., Kool, E. T., Thein, S.  
AMER SOC HEMATOLOGY.2023
- **Reactivity-based RNA profiling for analyzing transcriptome interactions of small molecules in human cells.** *STAR protocols*  
Fang, L., Kool, E. T.  
2023; 4 (4): 102670
- **RNA Infrastructure Profiling Illuminates Transcriptome Structure in Crowded Spaces.** *bioRxiv : the preprint server for biology*  
Xiao, L., Fang, L., Kool, E. T.  
2023
- **Pervasive transcriptome interactions of protein-targeted drugs.** *Nature chemistry*  
Fang, L., Velema, W. A., Lee, Y., Xiao, L., Mohsen, M. G., Kietrys, A. M., Kool, E. T.  
2023
- **Reversible 2'-OH acylation enhances RNA stability.** *Nature chemistry*  
Fang, L., Xiao, L., Jun, Y. W., Onishi, Y., Kool, E. T.  
2023
- **Possible Genetic Risks from Heat-Damaged DNA in Food** *ACS CENTRAL SCIENCE*  
Jun, Y., Kant, M., Coskun, E., Kato, T. A., Jaruga, P., Palafox, E., Dizdaroglu, M., Kool, E. T.  
2023
- **Sulfonylation of RNA 2'-OH groups.** *ACS central science*  
Chatterjee, S., Shioi, R., Kool, E. T.  
2023; 9 (3): 531-539
- **Diverse Reagent Scaffolds Provide Differential Selectivity of 2'-OH Acylation in RNA.** *Journal of the American Chemical Society*  
Xiao, L., Fang, L., Chatterjee, S., Kool, E. T.  
2022
- **Chemical Tools for the Study of DNA Repair.** *Accounts of chemical research*  
Jun, Y. W., Kool, E. T.  
2022
- **Cellular 8-oxodGTPase activity as a novel target in KRAS-driven pancreatic cancer**  
Mateo-Victoriano, B., Zhang, L., Samaranayake, G., Due, C., Troccoli, C., Zaïas, J., Nagathihalli, N., Mohsen, M., Kool, E., Rai, P.  
ELSEVIER SCIENCE INC.2022
- **Efficient DNA fluorescence labeling via base excision trapping.** *Nature communications*  
Jun, Y. W., Harcourt, E. M., Xiao, L., Wilson, D. L., Kool, E. T.  
2022; 13 (1): 5043
- **Enhancing Repair of Oxidative DNA Damage with Small-Molecule Activators of MTH1.** *ACS chemical biology*  
Lee, Y., Onishi, Y., McPherson, L., Kietrys, A. M., Hebenbrock, M., Jun, Y. W., Das, I., Adimoolam, S., Ji, D., Mohsen, M. G., Ford, J. M., Kool, E. T.  
2022
- **Acylation probing of "generic" RNA libraries reveals critical influence of loop constraints on reactivity.** *Cell chemical biology*  
Xiao, L., Fang, L., Kool, E. T.  
2022
- **Mechanism-Based Strategy for Optimizing HaloTag Protein Labeling** *JACS AU*  
Marques, S. M., Slanska, M., Chmelova, K., Chaloupkova, R., Marek, M., Clark, S., Damborsky, J., Kool, E. T., Bodnar, D., Prokop, Z.  
2022; 2 (6): 1324-1337
- **Fluorescent detection of RNA using a base excision reporter.** *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*  
Harcourt, E. M., Jun, Y. W., Wilson, D. L., Ledgerwood, E. D., Kool, E. T.  
2022; 36 Suppl 1

- **Microbial byproducts determine reproductive fitness of free-living and parasitic nematodes.** *Cell host & microbe*  
Venzon, M., Das, R., Luciano, D. J., Burnett, J., Park, H. S., Devlin, J. C., Kool, E. T., Belasco, J. G., Hubbard, E. J., Cadwell, K.  
2022
- **Integrating transcription-factor abundance with chromatin accessibility in human erythroid lineage commitment.** *Cell reports methods*  
Baskar, R., Chen, A. F., Favaro, P., Reynolds, W., Mueller, F., Borges, L., Jiang, S., Park, H. S., Kool, E. T., Greenleaf, W. J., Bendall, S. C.  
2022; 2 (3)
- **Conjugation of RNA via 2'-OH acylation: Mechanisms determining nucleotide reactivity.** *Chemical communications (Cambridge, England)*  
Jash, B., Kool, E. T.  
2022
- **Fluorescence Imaging of Mitochondrial DNA Base Excision Repair Reveals Dynamics of Oxidative Stress Responses.** *Angewandte Chemie (International ed. in English)*  
Jun, Y. W., Albaran, E., Wilson, D. L., Ding, J., Kool, E. T.  
2021
- **Control of RNA with quinone methide reversible acylating reagents.** *Organic & biomolecular chemistry*  
Park, H. S., Jash, B., Xiao, L., Jun, Y. W., Kool, E. T.  
2021
- **Low OGG1 protects against the DNA damage induced by MTH1 inhibition.**  
Lincheta, L., Zhang, L., Samaranayake, G., Sharma, N., Nguyen, D., Tahara, Y., Kool, E., Rai, P.  
AMER ASSOC CANCER RESEARCH.2021
- **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., Samaranayake, G. J., Sharma, N. n., Nguyen, D. M., Tahara, Y. K., Kool, E. T., Rai, P. n.  
2021; 40: 101848
- **DNA tiling enables precise acylation-based labeling and control of mRNA.** *Angewandte Chemie (International ed. in English)*  
Xiao, L., Jun, Y. W., Kool, E. T.  
2021
- **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
- **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
- **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): 3264–3270
- **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
- **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
- **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
- **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. S., Ekebergh, A., Kool, E. T.  
2018; 9 (23): 5252-5259
- **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
- **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
- **Fluorescent nucleobases as tools for studying DNA and RNA.** *Nature chemistry*  
Xu, W., Chan, K. M., Kool, E. T.  
2017; 9 (11): 1043-1055
- **Luminescent Carbon Dot Mimics Assembled on DNA.** *Journal of the American Chemical Society*  
Chan, K. M., Xu, W., Kwon, H., Kietrys, A. M., Kool, E. T.  
2017; 139 (37): 13147-13155
- **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
- **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): 423–424
  - **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., Ehrenschwender, 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., Ehrenschwender, 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
- **In Vitro Fluorogenic Real-Time Assay of the Repair of Oxidative DNA Damage.** *Chembiochem : a European journal of chemical biology*  
Edwards, S. K., Ono, T., Wang, S., Jiang, W., Franzini, R. M., Jung, J. W., Chan, K. M., Kool, E. T.  
2015; 16 (11): 1637-46
- **Pattern-Based Detection of Anion Pollutants in Water with DNA Polyfluorophores.** *Chemical science*  
Kwon, H., Jiang, W., Kool, E. T.  
2015; 6 (4): 2575-2583
- **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.  
2015; 6: 2575-2583
- **Correction: Pattern-based detection of anion pollutants in water with DNA polyfluorophores.** *Chemical science*  
Kwon, H. n., Jiang, W. n., Kool, E. T.  
2015; 6 (8): 5086
- **Pattern-based detection of anion pollutants in water with DNA polyfluorophores** *CHEMICAL SCIENCE*  
Kwon, H., Jiang, W., Kool, E. T.  
2015; 6 (4): 2575-2583
- **Structure and Thermodynamics of N6-Methyladenosine in RNA: A Spring-Loaded Base Modification** *Journal of American Chemical Society*  
Roost, C., Lynch, S. M., Batista, P. J., Qu, K., Chang, H. Y., Kool, E. T.  
2015; 137: 2107-2115
- **RNA structural analysis by evolving SHAPE chemistry** *WILEY INTERDISCIPLINARY REVIEWS-RNA*  
Spitale, R. C., Flynn, R. A., Torre, E. A., Kool, E. T., Chang, H. Y.  
2014; 5 (6): 867-881
- **RNA structural analysis by evolving SHAPE chemistry.** *Wiley interdisciplinary reviews. RNA*  
Spitale, R. C., Flynn, R. A., Torre, E. A., Kool, E. T., Chang, H. Y.

2014; 5 (6): 867-881

● **Large-Scale Detection of Metals with a Small Set of Fluorescent DNA-Like Chemosensors** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Yuen, L. H., Franzini, R. M., Tan, S. S., Kool, E. T.

2014; 136 (41): 14576-14582

● **Molecular basis of transcriptional fidelity and DNA lesion-induced transcriptional mutagenesis**. *DNA repair*

Xu, L., Da, L., Plouffe, S. W., Chong, J., Kool, E., Wang, D.

2014; 19: 71-83

● **Molecular basis of transcriptional fidelity and DNA lesion-induced transcriptional mutagenesis** *DNA REPAIR*

Xu, L., Da, L., Plouffe, S. W., Chong, J., Kool, E., Wang, D.

2014; 19: 71-83

● **Pattern-based detection of toxic metals in surface water with DNA polyfluorophores**. *Angewandte Chemie (International ed. in English)*

Yuen, L. H., Franzini, R. M., Wang, S., Crisalli, P., Singh, V., Jiang, W., Kool, E. T.

2014; 53 (21): 5361-5365

● **Dissecting the chemical interactions and substrate structural signatures governing RNA polymerase II trigger loop closure by synthetic nucleic acid analogues**. *Nucleic acids research*

Xu, L., Butler, K. V., Chong, J., Wengel, J., Kool, E. T., Wang, D.

2014; 42 (9): 5863-5870

● **Fast Alpha Nucleophiles: Structures that Undergo Rapid Hydrazone/Oxime Formation at Neutral pH** *ORGANIC LETTERS*

Kool, E. T., Crisalli, P., Chan, K. M.

2014; 16 (5): 1454-1457

● **Designer bases, base pairs, and genetic sets: biochemical and biological activity**, in *Synthetic Biology: Volume 1, 2014, 1, pp. 1-30 Synthetic Biology*

Harcourt, E. M., Kool, E. T.

Royal Society of Chemistry. 2014: 1–30

● **Designer bases, base pairs, and genetic sets: biochemical and biological activity** *SYNTHETIC BIOLOGY, VOL 1*

Harcourt, E. M., Kool, E. T., Ryadnov, M., Brunsved, L., Suga, H.

2014; 1: 1-30

● **Large-scale Detection of Metals with a Small Number of DNA-like Fluorescent Chemosensors** *Journal of the American Chemical Society*

Yuen, L. H., Franzini, R. M., Tan, S. S., Kool, E. T.

2014

● **Identification of a Selective Polymerase Enables Detection of N-6-Methyladenosine in RNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Harcourt, E. M., Ehrenschwender, T., Batista, P. J., Chang, H. Y., Kool, E. T.

2013; 135 (51): 19079-19082

● **Fast Hydrazone Reactants: Electronic and Acid/Base Effects Strongly Influence Rate at Biological pH** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Kool, E. T., Park, D., Crisalli, P.

2013; 135 (47): 17663-17666

● **Artificial Genetic Sets Composed of Size-Expanded Base Pairs** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*

Winnacker, M., Kool, E. T.

2013; 52 (48): 12498-12508

● **DNA-polyfluorophore Chemosensors for Environmental Remediation: Vapor-phase Identification of Petroleum Products in Contaminated Soil**. *Chemical science (Royal Society of Chemistry : 2010)*

Jiang, W., Wang, S., Yuen, L. H., Kwon, H., Ono, T., Kool, E. T.

2013; 4 (8): 3184-3190

● **Monitoring eukaryotic and bacterial UDG repair activity with DNA-multifluorophore sensors**. *Nucleic acids research*

Ono, T., Edwards, S. K., Wang, S., Jiang, W., Kool, E. T.

2013; 41 (12)

- **Monitoring eukaryotic and bacterial UDG repair activity with DNA-multifluorophore sensors** *NUCLEIC ACIDS RESEARCH*  
Ono, T., Edwards, S. K., Wang, S., Jiang, W., Kool, E. T.  
2013; 41 (12)
- **Genetically encoded multispectral labeling of proteins with polyfluorophores on a DNA backbone.** *Journal of the American Chemical Society*  
Singh, V., Wang, S., Kool, E. T.  
2013; 135 (16): 6184-6191
- **Importance of ortho proton donors in catalysis of hydrazone formation.** *Organic letters*  
Crisalli, P., Kool, E. T.  
2013; 15 (7): 1646-1649
- **Selective Fluorogenic Chemosensors for Distinct Classes of Nucleases** *CHEMBIOCHEM*  
Jung, J., Edwards, S. K., Kool, E. T.  
2013; 14 (4): 440-444
- **Water-Soluble Organocatalysts for Hydrazone and Oxime Formation** *JOURNAL OF ORGANIC CHEMISTRY*  
Crisalli, P., Kool, E. T.  
2013; 78 (3): 1184-1189
- **DNA-polyfluorophore chemosensors for environmental remediation: vapor-phase identification of petroleum products in contaminated soil** *CHEMICAL SCIENCE*  
Jiang, W., Wang, S., Yuen, L. H., Kwon, H., Ono, T., Kool, E. T.  
2013; 4 (8): 3184-3190
- **Chemical fidelity of an RNA polymerase ribozyme** *CHEMICAL SCIENCE*  
Attwater, J., Tagami, S., Kimoto, M., Butler, K., Kool, E. T., Wengel, J., Herdewijn, P., Hirao, I., Holliger, P.  
2013; 4 (7): 2804-2814
- **RNA SHAPE analysis in living cells** *NATURE CHEMICAL BIOLOGY*  
Spitale, R. C., Crisalli, P., Flynn, R. A., Torre, E. A., Kool, E. T., Chang, H. Y.  
2013; 9 (1): 18-?
- **RNA SHAPE analysis in living cells.** *Nature chemical biology*  
Spitale, R. C., Crisalli, P., Flynn, R. A., Torre, E. A., Kool, E. T., Chang, H. Y.  
2013; 9 (1): 18-20
- **Fluorescence Quenchers for Hydrazone and Oxime Orthogonal Bioconjugation** *BIOCONJUGATE CHEMISTRY*  
Crisalli, P., Hernandez, A. R., Kool, E. T.  
2012; 23 (9): 1969-1980
- **Steric Restrictions of RISC in RNA Interference Identified with Size-Expanded RNA Nucleobases** *ACS CHEMICAL BIOLOGY*  
Hernandez, A. R., Peterson, L. W., Kool, E. T.  
2012; 7 (8): 1454-1461
- **DNA-Multichromophore Systems** *CHEMICAL REVIEWS*  
Teo, Y. N., Kool, E. T.  
2012; 112 (7): 4221-4245
- **Dissecting Chemical Interactions Governing RNA Polymerase II Transcriptional Fidelity** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Kellinger, M. W., Ulrich, S., Chong, J., Kool, E. T., Wang, D.  
2012; 134 (19): 8231-8240
- **Amplified microRNA detection by templated chemistry** *NUCLEIC ACIDS RESEARCH*  
Harcourt, E. M., Kool, E. T.  
2012; 40 (9)
- **Nonpolar nucleosides alter RNA Polymerase II NTP specificity by disrupting hydrogen bonding and base stacking** *Experimental Biology Meeting 2012*  
Kellinger, M. W., Ulrich, S., Kool, E. T., Wang, D.  
FEDERATION AMER SOC EXP BIOL.2012

- **Investigating the protein-nucleic acid interactions of RISC using xRNA-containing siRNAs as steric probes in RNA interference**  
Hernandez, A. R., Peterson, L. W., Kool, E. T.  
AMER CHEMICAL SOC.2012
- **Measurement and Theory of Hydrogen Bonding Contribution to Isosteric DNA Base Pairs** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Khakshoor, O., Wheeler, S. E., Houk, K. N., Kool, E. T.  
2012; 134 (6): 3154-3163
- **Surprising Repair Activities of Nonpolar Analogs of 8-oxoG Expose Features of Recognition and Catalysis by BaSe Excision Repair Glycosylases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
McKibbin, P. L., Kobori, A., Taniguchi, Y., Kool, E. T., David, S. S.  
2012; 134 (3): 1653-1661
- **Templated chemistry for monitoring damage and repair directly in duplex DNA** *CHEMICAL COMMUNICATIONS*  
Lee, S. H., Wang, S., Kool, E. T.  
2012; 48 (65): 8069-8071
- **Fluorescent DNAs printed on paper: sensing food spoilage and ripening in the vapor phase** *CHEMICAL SCIENCE*  
Kwon, H., Samain, F., Kool, E. T.  
2012; 3 (8): 2542-2549
- **DNA Polyfluorophores for Real-Time Multicolor Tracking of Dynamic Biological Systems** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Wang, S., Guo, J., Ono, T., Kool, E. T.  
2012; 51 (29): 7176-7180
- **Direct Fluorescence Monitoring of DNA Base Excision Repair** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Ono, T., Wang, S., Koo, C., Engstrom, L., David, S. S., Kool, E. T.  
2012; 51 (7): 1689-1692
- **Importance of Steric Effects on the Efficiency and Fidelity of Transcription by T7 RNA Polymerase** *BIOCHEMISTRY*  
Ulrich, S., Kool, E. T.  
2011; 50 (47): 10343-10349
- **Encoding Phenotype in Bacteria with an Alternative Genetic Set** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Krueger, A. T., Peterson, L. W., Chelliserry, J., Kleinbaum, D. J., Kool, E. T.  
2011; 133 (45): 18447-18451
- **Multi-Path Quenchers: Efficient Quenching of Common Fluorophores** *BIOCONJUGATE CHEMISTRY*  
Crisalli, P., Kool, E. T.  
2011; 22 (11): 2345-2354
- **Improved Templatized Fluorogenic Probes Enhance the Analysis of Closely Related Pathogenic Bacteria by Microscopy and Flow Cytometry** *BIOCONJUGATE CHEMISTRY*  
Franzini, R. M., Kool, E. T.  
2011; 22 (9): 1869-1877
- **Polyfluorophores on a DNA backbone: Expanded spectrum and improved stability with new fluorophores** *242nd National Meeting of the American-Chemical-Society (ACS)*  
Wang, S., Guo, J., Kool, E. T.  
AMER CHEMICAL SOC.2011
- **DNA mimics with biological function**  
Kool, E. T.  
AMER CHEMICAL SOC.2011
- **Differentiating between Fluorescence-Quenching Metal Ions with Polyfluorophore Sensors Built on a DNA Backbone** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Tan, S. S., Kim, S. J., Kool, E. T.  
2011; 133 (8): 2664-2671

- **Fluorescent xDNA nucleotides as efficient substrates for a template-independent polymerase** *NUCLEIC ACIDS RESEARCH*  
Jarchow-Choy, S. K., Krueger, A. T., Liu, H., Gao, J., Kool, E. T.  
2011; 39 (4): 1586-1594
- **Multispectral labeling of antibodies with polyfluorophores on a DNA backbone and application in cellular imaging** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Guo, J., Wang, S., Dai, N., Teo, Y. N., Kool, E. T.  
2011; 108 (9): 3493-3498
- **The Components of xRNA: Synthesis and Fluorescence of a Full Genetic Set of Size-Expanded Ribonucleosides** *ORGANIC LETTERS*  
Hernandez, A. R., Kool, E. T.  
2011; 13 (4): 676-679
- **Two Successive Reactions on a DNA Template: A Strategy for Improving Background Fluorescence and Specificity in Nucleic Acid Detection.** *Chemistry (Weinheim an der Bergstrasse, Germany)*  
Franzini, R. M., Kool, E. T.  
2011
- **Fluorescent DNA chemosensors: identification of bacterial species by their volatile metabolites** *CHEMICAL COMMUNICATIONS*  
Koo, C., Wang, S., Gaur, R. L., Samain, F., Banaei, N., Kool, E. T.  
2011; 47 (41): 11435-11437
- **DNA polyfluorophores as highly diverse chemosensors of toxic gases** *CHEMICAL SCIENCE*  
Koo, C., Samain, F., Dai, N., Kool, E. T.  
2011; 2 (10): 1910-1917
- **Protease Probes Built from DNA: Multispectral Fluorescent DNA-Peptide Conjugates as Caspase Chemosensors** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Dai, N., Guo, J., Teo, Y. N., Kool, E. T.  
2011; 50 (22): 5105-5109
- **Fluorescent DNA-based enzyme sensors** *CHEMICAL SOCIETY REVIEWS*  
Dai, N., Kool, E. T.  
2011; 40 (12): 5756-5770
- **Differentiating a Diverse Range of Volatile Organic Compounds with Polyfluorophore Sensors Built on a DNA Scaffold** *CHEMISTRY-A EUROPEAN JOURNAL*  
Samain, F., Dai, N., Kool, E. T.  
2011; 17 (1): 174-183
- **Two Successive Reactions on a DNA Template: A Strategy for Improving Background Fluorescence and Specificity in Nucleic Acid Detection** *CHEMISTRY-A EUROPEAN JOURNAL*  
Franzini, R. M., Kool, E. T.  
2011; 17 (7): 2168-2175
- **Chemistry of nucleic acids: impacts in multiple fields** *CHEMICAL COMMUNICATIONS*  
Khakshoor, O., Kool, E. T.  
2011; 47 (25): 7018-7024
- **Differentiating a Diverse Range of Volatile Organic Compounds with Polyfluorophore Sensors Built on a DNA Scaffold.** *Chemistry (Weinheim an der Bergstrasse, Germany)*  
Samain, F., Dai, N., Kool, E. T.  
2010
- **Selective Sensor for Silver Ions Built From Polyfluorophores on a DNA Backbone** *ORGANIC LETTERS*  
Tan, S. S., Teo, Y. N., Kool, E. T.  
2010; 12 (21): 4820-4823
- **Templated Chemistry for Sequence-Specific Fluorogenic Detection of Duplex DNA** *CHEMBIOCHEM*  
Li, H., Franzini, R. M., Bruner, C., Kool, E. T.

2010; 11 (15): 2132-2137

● **Nonpolar isosteres of 8-OxoG expose recognition and catalysis of DNA repair glycosylases**

McKibbin, P. L., Kobori, A., Taniguchi, Y., Kool, E. T., David, S. S.  
AMER CHEMICAL SOC.2010

● **Probing the Interaction of Archaeal DNA Polymerases with Deaminated Bases Using X-ray Crystallography and Non-Hydrogen Bonding Isosteric Base Analogues** *BIOCHEMISTRY*

Killelea, T., Ghosh, S., Tan, S. S., Heslop, P., Firbank, S. J., Kool, E. T., Connolly, B. A.  
2010; 49 (27): 5772-5781

● **Toward a designed genetic system with biochemical function: polymerase synthesis of single and multiple size-expanded DNA base pairs** *ORGANIC & BIOMOLECULAR CHEMISTRY*

Lu, H., Krueger, A. T., Gao, J., Liu, H., Kool, E. T.  
2010; 8 (12): 2704-2710

● **Double Displacement: An Improved Bioorthogonal Reaction Strategy for Templated Nucleic Acid Detection** *BIOCONJUGATE CHEMISTRY*

Kleinbaum, D. J., Miller, G. P., Kool, E. T.  
2010; 21 (6): 1115-1120

● **Fluorescent xDNA nucleotides as efficient substrates for a template-independent polymerase**

Jarchow-Choy, S. K., Cho, Y., Krueger, A. T., Kool, E. T.  
AMER CHEMICAL SOC.2010

● **Polyfluorophores on a DNA Backbone: Sensors of Small Molecules in the Vapor Phase** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*

Samain, F., Ghosh, S., Teo, Y. N., Kool, E. T.  
2010; 49 (39): 7025-7029

● **DNA-polyfluorophore excimers as sensitive reporters for esterases and lipases** *CHEMICAL COMMUNICATIONS*

Dai, N., Teo, Y. N., Kool, E. T.  
2010; 46 (8): 1221-1223

● **Sandwich probes: two simultaneous reactions for templated nucleic acid detection** *CHEMICAL COMMUNICATIONS*

Kleinbaum, D. J., Kool, E. T.  
2010; 46 (43): 8154-8156

● **Polyfluorophore Excimers and Exciplexes as FRET Donors in DNA** *BIOCONJUGATE CHEMISTRY*

Teo, Y. N., Kool, E. T.  
2009; 20 (12): 2371-2380

● **Efficient Nucleic Acid Detection by Templated Reductive Quencher Release** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Franzini, R. M., Kool, E. T.  
2009; 131 (44): 16021-?

● **Evolving a Polymerase for Hydrophobic Base Analogs** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Loakes, D., Gallego, J., Pinheiro, V. B., Kool, E. T., Holliger, P.  
2009; 131 (41): 14827-14837

● **Structure and Replication of yDNA: A Novel Genetic Set Widened by Benzo-Homologation** *CHEMBIOCHEM*

Lu, H., Lynch, S. R., Lee, A. H., Kool, E. T.  
2009; 10 (15): 2530-2538

● **Reading chemical and biological information: How errors arise in the recognition of genetic sequence**

Kool, E.  
AMER ASSOC CANCER RESEARCH.2009

● **Nonpolar Nucleoside Mimics as Active Substrates for Human Thymidine Kinases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Jarchow-Choy, S. K., Sjavarsson, E., Sintim, H. O., Eriksson, S., Kool, E. T.  
2009; 131 (15): 5488-5494

● **Redesigning the Architecture of the Base Pair: Toward Biochemical and Biological Function of New Genetic Sets** *CHEMISTRY & BIOLOGY*

- Krueger, A. T., Kool, E. T.  
2009; 16 (3): 242-248
- **Polyfluorophores on a DNA Backbone: A Multicolor Set of Labels Excited at One Wavelength** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Teo, Y. N., Wilson, J. N., Kool, E. T.  
2009; 131 (11): 3923-3933
  - **Designed nucleic acid base replacements: Lessons for basic science**  
Kool, E. T.  
AMER CHEMICAL SOC.2009
  - **Phosphine-triggered alpha-azidoether probes to detect single nucleotide polymorphisms**  
Franzini, R. M., Kool, E. T.  
AMER CHEMICAL SOC.2009: 441
  - **RNA major groove modifications improve siRNA stability and biological activity** *NUCLEIC ACIDS RESEARCH*  
Terrazas, M., Kool, E. T.  
2009; 37 (2): 346-353
  - **Polyfluorophore Labels on DNA: Dramatic Sequence Dependence of Quenching** *CHEMISTRY-A EUROPEAN JOURNAL*  
Teo, Y. N., Wilson, J. N., Kool, E. T.  
2009; 15 (43): 11551-11558
  - **Efficient Replication Bypass of Size-Expanded DNA Base Pairs in Bacterial Cells** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Delaney, J. C., Gao, J., Liu, H., Shrivastav, N., Essigmann, J. M., Kool, E. T.  
2009; 48 (25): 4524-4527
  - **Polymerase Amplification, Cloning, and Gene Expression of Benzo-Homologous "yDNA" Base Pairs** *CHEMBIOCHEM*  
Chelliserrykattil, J., Lu, H., Lee, A. H., Kool, E. T.  
2008; 9 (18): 2976-2980
  - **7-Azidomethoxy-Coumarins as Profluorophores for Templated Nucleic Acid Detection** *CHEMBIOCHEM*  
Franzini, R. M., Kool, E. T.  
2008; 9 (18): 2981-2988
  - **Visualization of Long Human Telomere Mimics by Single-Molecule Fluorescence Imaging** *JOURNAL OF PHYSICAL CHEMISTRY B*  
Pomerantz, A. K., Moerner, W. E., Kool, E. T.  
2008; 112 (42): 13184-13187
  - **ORGN 337-Self-reporting of DNA sequence and structure by size-expanded DNA (xDNA), a fluorescent unnatural genetic set**  
Krueger, A. T., Kool, E. T.  
AMER CHEMICAL SOC.2008
  - **BIOL 209-DNA base replacements with biological function**  
Kool, E. T.  
AMER CHEMICAL SOC.2008
  - **Organometallic activation of a fluorogen for templated nucleic acid detection** *ORGANIC LETTERS*  
Franzini, R. M., Kool, E. T.  
2008; 10 (14): 2935-2938
  - **Importance of hydrogen bonding for efficiency and specificity of the human mitochondrial DNA polymerase** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Lee, H. R., Helquist, S. A., Kool, E. T., Johnson, K. A.  
2008; 283 (21): 14402-14410
  - **Base pair hydrogen bonds are essential for proofreading selectivity by the human mitochondrial DNA polymerase** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Lee, H. R., Helquist, S. A., Kool, E. T., Johnson, K. A.  
2008; 283 (21): 14411-14416

- **Probing the active site steric flexibility of HIV-1 reverse transcriptase: Different constraints for DNA- versus RNA-templated synthetist** *BIOCHEMISTRY*  
Silverman, A. P., Garforth, S. J., Prasad, V. R., Kool, E. T.  
2008; 47 (16): 4800-4807
- **ORGN 39-Fluorescent nucleobase replacements: Building blocks for pi-stacked architectures and fluorophore libraries**  
Wilson, J. N., Teo, Y., Cho, Y., Kool, E. T.  
AMER CHEMICAL SOC.2008
- **Fluorescence of size-expanded DNA bases: Reporting on DNA sequence and structure with an unnatural genetic set** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Krueger, A. T., Kool, E. T.  
2008; 130 (12): 3989-3999
- **Quenching of fluorescent nucleobases by neighboring DNA: The "Insulator" concept** *CHEMBIOCHEM*  
Wilson, J. N., Cho, Y., Tan, S., Cappoletti, A., Kool, E. T.  
2008; 9 (2): 279-285
- **Quenched autoligation probes.** *Methods in molecular biology (Clifton, N.J.)*  
Silverman, A. P., Abe, H., Kool, E. T.  
2008; 429: 161-170
- **Unnatural substrates reveal the importance of 8-oxoguanine for in vivo mismatch repair by MutY** *NATURE CHEMICAL BIOLOGY*  
Livingston, A. L., O'Shea, V. L., Kim, T., Koo, E. T., David, S. S.  
2008; 4 (1): 51-58
- **Studies of oligodeoxyfluorosides (ODFs) as FRET probes for DNA hybridization.** *Nucleic acids symposium series (2004)*  
Teo, Y. N., Kool, E. T.  
2008: 233-234
- **Towards the replication of xDNA, a size-expanded unnatural genetic system.** *Nucleic acids symposium series (2004)*  
Krueger, A. T., Lu, H., Højland, T., Liu, H., Gao, J., Kool, E. T.  
2008: 455-456
- **Steric effects in RNA interference: Probing the influence of nucleobase size and shape** *CHEMISTRY-A EUROPEAN JOURNAL*  
Somoza, A., Silverman, A. P., Miller, R. M., Chelliserrykattil, J., Kool, E. T.  
2008; 14 (26): 7978-7987
- **New, stronger nucleophiles for nucleic acid-templated chemistry: Synthesis and application in fluorescence detection of cellular RNA** *BIOORGANIC & MEDICINAL CHEMISTRY*  
Miller, G. P., Silverman, A. P., Kool, E. T.  
2008; 16 (1): 56-64
- **Efficient quenching of oligomeric fluorophores on a DNA backbone** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Wilson, J. N., Teo, Y. N., Kool, E. T.  
2007; 129 (50): 15426-?
- **Steric and electrostatic effects in DNA synthesis by the SOS-induced DNA polymerases II and IV of Escherichia coli** *BIOCHEMISTRY*  
Silverman, A. P., Jiang, Q., Goodman, M. F., Kool, E. T.  
2007; 46 (48): 13874-13881
- **Model systems for understanding DNA base pairing** *CURRENT OPINION IN CHEMICAL BIOLOGY*  
Krueger, A. T., Kool, E. T.  
2007; 11 (6): 588-594
- **RNA probes of steric effects in active sites: High flexibility of HIV-1 reverse transcriptase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Silverman, A. P., Kool, E. T.  
2007; 129 (35): 10626-?
- **Nonpolar isosteres of damaged DNA bases: Effective mimicry of mutagenic properties of 8-oxopurines** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

- Taniguchi, Y., Kool, E. T.  
2007; 129 (28): 8836-8844
- **Oligodeoxyfluorosides: strong sequence dependence of fluorescence emission** *TETRAHEDRON*  
Wilson, J. N., Gao, J., Kool, E. T.  
2007; 63 (17): 3427-3433
  - **Oligodeoxyfluorosides: Strong Sequence Dependence of Fluorescence Emission.** *Tetrahedron*  
Wilson, J. N., Gao, J., Kool, E. T.  
2007; 63 (17): 3427-3433
  - **RNA base replacements: Studying sequence recognition in RNA interference**  
Kool, E. T.  
AMER CHEMICAL SOC.2007
  - **Mimicking the functions of DNA and RNA**  
Kool, E. T.  
AMER CHEMICAL SOC.2007: 40
  - **Synthesis and properties of size-expanded DNAs: Toward designed, functional genetic systems** *ACCOUNTS OF CHEMICAL RESEARCH*  
Krueger, A. T., Lu, H., Lee, A. H., Kool, E. T.  
2007; 40 (2): 141-150
  - **The model student: what chemical model systems can teach us about biology** *NATURE CHEMICAL BIOLOGY*  
Kool, E. T., Waters, M. L.  
2007; 3 (2): 70-73
  - **Site-directed mutagenesis in the fingers subdomain of HIV-1 reverse transcriptase reveals a specific role for the beta 3-beta 4 hairpin loop in dNTP selection** *JOURNAL OF MOLECULAR BIOLOGY*  
Garforth, S. J., Kim, T. W., Parniak, M. A., Kool, E. T., Prasad, V. R.  
2007; 365 (1): 38-49
  - **Syntheses and properties of low-polarity shape mimics of 8-oxopurines.** *Nucleic acids symposium series (2004)*  
Taniguchi, Y., Kool, E. T.  
2007: 217-218
  - **Oligonucleotide probes for RNA-targeted fluorescence in situ hybridization** *ADVANCES IN CLINICAL CHEMISTRY, VOL 43*  
Silverman, A. P., Kool, E. T.  
2007; 43: 79-115
  - **RNA-templated chemistry in cells: Discrimination of Escherichia, Shigella and Salmonella bacterial strains with a new two-color FRET strategy** *CHEMBIOCHEM*  
Silverman, A. P., Baron, E. J., Kool, E. T.  
2006; 7 (12): 1890-1894
  - **Nonpolar nucleobase analogs illuminate requirements for site-specific DNA cleavage by vaccinia topoisomerase** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Yakovleva, L., Lai, J., Kool, E. T., Shuman, S.  
2006; 281 (47): 35914-35921
  - **Toward a designed, functioning genetic system with expanded-size base pairs: Solution structure of the eight-base xDNA double helix** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Lynch, S. R., Liu, H., Gao, J., Kool, E. T.  
2006; 128 (45): 14704-14711
  - **Detecting RNA and DNA with templated chemical reactions** *CHEMICAL REVIEWS*  
Silverman, A. P., Kool, E. T.  
2006; 106 (9): 3775-3789
  - **Insights on replication of xDNA and yDNA by DNA polymerases**  
Lu, H., Liu, H., Gao, J., Lee, A., Helquist, S. A., Mizukami, S., Kool, E.  
AMER CHEMICAL SOC.2006: 873

- **I. Polyfluors: Highly emissive fluorophore arrays for DNA detection and biosensing II. II. Polyphenyleneethynylanes (PPEs): Conjugated polymers for photonic and sensing applications**  
Wilson, J. N., Bunz, U., Kool, E. T.  
AMER CHEMICAL SOC.2006: 54
- **CHED 310-New ribonucleoside nonpolar isosteres**  
Miller, R. M., Somoza, A., Kool, E. T.  
AMER CHEMICAL SOC.2006
- **ORGN 672-Probing RNA interference with nonpolar isosteres**  
Somoza, A., Chelliserrykattil, J., Kool, E. T.  
AMER CHEMICAL SOC.2006
- **ORGN 585-Combinatorial polyfluors in biomolecular detection**  
Teo, Y., Wilson, J. N., Cho, Y., Kool, E. T.  
AMER CHEMICAL SOC.2006
- **PHYS 476-Progress towards real-time observation of T7 DNA polymerase activity by single-molecule fluorescence spectroscopy**  
Kurtz, A. H., Kool, E. T., Moerner, W. E.  
AMER CHEMICAL SOC.2006
- **Exploring the limits of DNA size: Naphtho-homologated DNA bases and pairs** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Lee, A. H., Kool, E. T.  
2006; 128 (28): 9219-9230
- **Sensing metal ions with DNA building blocks: Fluorescent pyridobenzimidazole nucleosides** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Kim, S. J., Kool, E. T.  
2006; 128 (18): 6164-6171
- **Enzymatic synthesis of fluorescent oligomers assembled on a DNA backbone** *CHEMBIOCHEM*  
Cho, Y. J., Kool, E. T.  
2006; 7 (4): 669-672
- **Varying DNA base-pair size in subangstrom increments: Evidence for a loose, not large, active site in low-fidelity Dpo4 polymerase** *BIOCHEMISTRY*  
Mizukami, S., Kim, T. W., Helquist, S. A., Kool, E. T.  
2006; 45 (9): 2772-2778
- **Dynamics of nucleotide incorporation: Snapshots revealed by 2-aminopurine fluorescence studies** *BIOCHEMISTRY*  
Hariharan, C., Bloom, L. B., Helquist, S. A., Kool, E. T., Reha-Krantz, L. J.  
2006; 45 (9): 2836-2844
- **Functional evidence for a small and rigid active site in a high fidelity DNA polymerase - Probing T7 DNA polymerase with variably sized base pairs** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Kim, T. W., Brieba, L. G., Ellenberger, T., Kool, E. T.  
2006; 281 (4): 2289-2295
- **DNA polymerase catalysis in the absence of Watson-Crick hydrogen bonds: Analysis by single-turnover kinetics** *BIOCHEMISTRY*  
Potapova, O., Chan, C., DeLucia, A. M., Helquist, S. A., Kool, E. T., Grindley, N. D., Joyce, C. M.  
2006; 45 (3): 890-898
- **Enhanced base pairing and replication efficiency of thiothymidines, expanded-size variants of thymidine** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Sintim, H. O., Kool, E. T.  
2006; 128 (2): 396-397
- **Flow cytometric detection of specific RNAs in native human cells with quenched autoligating FRET probes** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Abe, H., Kool, E. T.  
2006; 103 (2): 263-268

- **The roles of hydrogen bonding and sterics in RNA interference** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Somoza, A., Chelliserrykattil, J., Kool, E. T.  
2006; 45 (30): 4994-4997
- **Fluorescent DNA base replacements: reporters and sensors for biological systems** *ORGANIC & BIOMOLECULAR CHEMISTRY*  
Wilson, J. N., Kool, E. T.  
2006; 4 (23): 4265-4274
- **The difluorotoluene debate - a decade later** *CHEMICAL COMMUNICATIONS*  
Kool, E. T., Sintim, H. O.  
2006: 3665-3675
- **New designs for DNA bases: expanded DNAs and oligofluorosides.** *Nucleic acids symposium series (2004)*  
Kool, E. T., Lu, H., Kim, S. J., Tan, S., Wilson, J. N., Gao, J., Liu, H.  
2006: 15-16
- **Remarkable sensitivity to DNA base shape in the DNA polymerase active site** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Sintim, H. O., Kool, E. T.  
2006; 45 (12): 1974-1979
- **Probing the active site tightness of DNA polymerase in subangstrom increments** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Kim, T. W., Delaney, J. C., Essigmann, J. M., Kool, E. T.  
2005; 102 (44): 15803-15808
- **Polymerization of DNA in the absence of hydrogen bonds with terminal deoxynucleotidyl transferase** *230th National Meeting of the American-Chemical Society*  
Cho, Y., Helquist, S. A., Kool, E. T.  
AMER CHEMICAL SOC.2005: U522-U523
- **Guanine-rich DNA nanocircles for the synthesis and characterization of long cytosine-rich telomeric DNAs** *CHEMBIOCHEM*  
Hartig, J. S., Fernandez-Lopez, S., Kool, E. T.  
2005; 6 (8): 1458-1462
- **Evidence for a Watson-Crick hydrogen bonding requirement in DNA synthesis by human DNA polymerase kappa** *MOLECULAR AND CELLULAR BIOLOGY*  
Wolfle, W. T., Washington, M. T., Kool, E. T., Spratt, T. E., Helquist, S. A., Prakash, L., Prakash, S.  
2005; 25 (16): 7137-7143
- **Chemoselective covalent coupling of oligonucleotide probes to self-assembled monolayers** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Devaraj, N. K., Miller, G. P., Ebina, W., Kakaradov, B., Collman, J. P., Kool, E. T., Chidsey, C. E.  
2005; 127 (24): 8600-8601
- **Fluorous base-pairing effects in a DNA polymerase active site** *CHEMISTRY-A EUROPEAN JOURNAL*  
LAI, J. S., Kool, E. T.  
2005; 11 (10): 2966-2971
- **Oligomeric fluorescent labels for DNA** *BIOCONJUGATE CHEMISTRY*  
Cuppoletti, A., Cho, Y. J., Park, J. S., Strassler, C., Kool, E. T.  
2005; 16 (3): 528-534
- **Quenched probes for highly specific detection of cellular RNAs** *TRENDS IN BIOTECHNOLOGY*  
Silverman, A. P., Kool, E. T.  
2005; 23 (5): 225-230
- **A series of nonpolar thymidine analogues of increasing size: DNA base pairing and stacking properties** *JOURNAL OF ORGANIC CHEMISTRY*  
Kim, T. W., Kool, E. T.  
2005; 70 (6): 2048-2053
- **A new four-base genetic helix, yDNA, composed of widened benzopyrimidine-purine pairs** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

- Lee, A. H., Kool, E. T.  
2005; 127 (10): 3332-3338
- **Design of size-expanded genetic systems.**  
Kool, E. T.  
AMER CHEMICAL SOC.2005: U935
  - **Mimicking the structures and functions of DNA.**  
Kool, E. T.  
AMER CHEMICAL SOC.2005: U365
  - **Helix-forming properties of size-expanded DNA, an alternative four-base genetic form** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Liu, H. B., Gao, J. M., Kool, E. T.  
2005; 127 (5): 1396-1402
  - **General method for modification of liposomes for encoded assembly on supported bilayers** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Yoshina-Ishii, C., Miller, G. P., Kraft, M. L., Kool, E. T., Boxer, S. G.  
2005; 127 (5): 1356-1357
  - **Size-expanded analogues of dG and dC: Synthesis and pairing properties in DNA** *JOURNAL OF ORGANIC CHEMISTRY*  
Liu, H. B., Gao, J. M., Kool, E. T.  
2005; 70 (2): 639-647
  - **Novel benzopyrimidines as widened analogues of DNA bases** *JOURNAL OF ORGANIC CHEMISTRY*  
Lee, A. H., Kool, E. T.  
2005; 70 (1): 132-140
  - **Assembly of the complete eight-base artificial genetic helix, xDNA, and its interaction with the natural genetic system** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Gao, J. M., Liu, H. B., Kool, E. T.  
2005; 44 (20): 3118-3122
  - **Quenched autoligation probes allow discrimination of live bacterial species by single nucleotide differences in rRNA** *NUCLEIC ACIDS RESEARCH*  
Silverman, A. P., Kool, E. T.  
2005; 33 (15): 4978-4986
  - **Efficient isothermal expansion of human telomeric and minisatellite repeats by Thermococcus litoralis DNA polymerase** *NUCLEIC ACIDS RESEARCH*  
Hartig, J. S., Kool, E. T.  
2005; 33 (15): 4922-4927
  - **Universal linkers for signal amplification in auto-ligating probes.** *Nucleic acids symposium series (2004)*  
Abe, H., Kool, E. T.  
2005: 37-38
  - **Destabilizing universal linkers for signal amplification in self-ligating probes for RNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Abe, H., Kool, E. T.  
2004; 126 (43): 13980-13986
  - **A set of nonpolar thymidine nucleoside analogues with gradually increasing size** *ORGANIC LETTERS*  
Kim, T. W., Kool, E. T.  
2004; 6 (22): 3949-3952
  - **Modified DNA analogues that sense light exposure with color changes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Gao, J. M., Watanabe, S., Kool, E. T.  
2004; 126 (40): 12748-12749
  - **Expanded-size bases in naturally sized DNA: Evaluation of steric effects in Watson-Crick pairing** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Gao, J. M., Liu, H. B., Kool, E. T.  
2004; 126 (38): 11826-11831

- **Active site tightness: Steric effects in DNA replication and repair**  
Kool, E. T.  
AMER CHEMICAL SOC.2004: U246
- **Replication of nonpolar shape mimics of guanine and cytosine by two A-family DNA polymerases**  
Helquist, S. A., Qu, J., Morales, J. C., Kool, E. T.  
AMER CHEMICAL SOC.2004: U166
- **Solution structure of xDNA: A paired genetic helix with increased diameter** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Liu, H. B., Lynch, S. R., Kool, E. T.  
2004; 126 (22): 6900-6905
- **Hydrolysis of RNA/DNA hybrids containing non-polar pyrimidine isosteres defines regions essential for HIV-1 polypurine tract selection** *Annual Meeting of the American-Society-for-Biochemistry-and-Molecular-Biology/8th Congress of the International-Union-for-Biochemistry-and-Molecular-Biology*  
Rausch, J., Qu, J., Yi-Brunozzi, H. Y., Kool, E., Le Grice, S.  
FEDERATION AMER SOC EXP BIOL.2004: C135-C136
- **Versatile 5'-functionalization of oligonucleotides on solid support: Amines, azides, thiols, and thioethers via phosphorus chemistry** *JOURNAL OF ORGANIC CHEMISTRY*  
Miller, G. P., Kool, E. T.  
2004; 69 (7): 2404-2410
- **Palm mutants in DNA polymerases alpha and eta alter DNA replication fidelity and translesion activity** *MOLECULAR AND CELLULAR BIOLOGY*  
Niimi, A., Limsirichaikul, S., Yoshida, S., Iwai, S., Masutani, C., Hanaoka, F., Kool, E. T., Nishiyama, Y., Suzuki, M.  
2004; 24 (7): 2734-2746
- **Selective pairing of polyfluorinated DNA bases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
LAI, J. S., Kool, E. T.  
2004; 126 (10): 3040-3041
- **Quenched auto-ligating DNAs: Multicolor identification of nucleic acids at single nucleotide resolution** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Sando, S., Abe, H., Kool, E. T.  
2004; 126 (4): 1081-1087
- **Toward a new genetic system with expanded dimensions: Size-expanded analogues of deoxyadenosine and thymidine** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Liu, H. B., Gao, J. M., Maynard, L., Saito, Y. D., Kool, E. T.  
2004; 126 (4): 1102-1109
- **Direct comparison of A- and T-strand minor groove interactions in DNA curvature at a tracts** *BIOCHEMISTRY*  
Maki, A. S., Kim, T. W., Kool, E. T.  
2004; 43 (4): 1102-1110
- **Solid-phase synthesis and screening of macrocyclic nucleotide-hybrid compounds targeted to hepatitis CNS5B** *CHEMISTRY-A EUROPEAN JOURNAL*  
Smietana, M., Johnson, R. B., Wang, Q. M., Kool, E. T.  
2004; 10 (1): 173-181
- **yDNA: A new geometry for size-expanded base pairs** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Lu, H. G., He, K. Z., Kool, E. T.  
2004; 43 (43): 5834-5836
- **Small circular DNAs for synthesis of the human telomere repeat: varied sizes, structures and telomere-encoding activities** *NUCLEIC ACIDS RESEARCH*  
Hartig, J. S., Kool, E. T.  
2004; 32 (19)
- **Probing the requirements for recognition and catalysis in fpg and MutY with nonpolar adenine isosteres** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Francis, A. W., Helquist, S. A., Kool, E. T., David, S. S.  
2003; 125 (52): 16235-16242

- **5'-Iodination of solid-phase-linked oligodeoxyribonucleotides.** *Current protocols in nucleic acid chemistry / edited by Serge L. Beaucage ... [et al.]*  
Kool, E. T., Miller, G. P.  
2003; Chapter 4: Unit 4 19-?
- **A four-base paired genetic helix with expanded size SCIENCE**  
Liu, H. B., Gao, J. M., Lynch, S. R., Saito, Y. D., Maynard, L., Kool, E. T.  
2003; 302 (5646): 868-871
- **Hydrolysis of RNA/DNA hybrids containing nonpolar pyrimidine isosteres defines regions essential for HIV type 1 polypurine tract selection PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA**  
Rausch, J. W., Qu, J., Yi-Brunozzi, H. Y., Kool, E. T., Le Grice, S. F.  
2003; 100 (20): 11279-11284
- **Probing electrostatic factors in DNA stacking with fluorinated aromatic C-deoxyribonucleosides.** *226th National Meeting of the American-Chemical-Society*  
Lai, J. S., Qu, J., Kool, E. T.  
AMER CHEMICAL SOC.2003: U233-U233
- **Yeast Pol eta holds a Cis-Syn thymine dimer loosely in the active site during elongation opposite the 3'-T of the dimer, but tightly opposite the 5'-T BIOCHEMISTRY**  
Sun, L. P., Zhang, K. J., Zhou, L., Hohler, P., Kool, E. T., Yuan, F. H., Wang, Z. G., Taylor, J. S.  
2003; 42 (31): 9431-9437
- **Requirement of Watson-Crick hydrogen bonding for DNA synthesis by yeast DNA polymerase eta** *MOLECULAR AND CELLULAR BIOLOGY*  
Washington, M. T., Helquist, S. A., Kool, E. T., Prakash, L., Prakash, S.  
2003; 23 (14): 5107-5112
- **High-fidelity in vivo replication of DNA base shape mimics without Watson-Crick hydrogen bonds** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Delaney, J. C., Henderson, P. T., Helquist, S. A., Morales, J. C., Essigmann, J. M., Kool, E. T.  
2003; 100 (8): 4469-4473
- **DNA curvature at A tracts containing a non-polar thymine mimic** *NUCLEIC ACIDS RESEARCH*  
Maki, A., Brownewell, F. E., Liu, D., Kool, E. T.  
2003; 31 (3): 1059-1066
- **Kinetics and binding of the thymine-DNA Mig-Mth, with mismatch-containing mismatch glycosylase, DNA substrates** *DNA REPAIR*  
Begley, T. J., Haas, B. J., Morales, J. C., Kool, E. T., Cunningham, R. P.  
2003; 2 (1): 107-120
- **Kinetics and binding of the thymine-DNA mismatch glycosylase, Mig-Mth, with mismatch-containing DNA substrates.** *DNA repair*  
Begley, T. J., Haas, B. J., Morales, J. C., Kool, E. T., Cunningham, R. P.  
2003; 2 (1): 107-120
- **Fluorinated DNA bases as probes of electrostatic effects in DNA base stacking** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
LAI, J. S., Qu, J., Kool, E. T.  
2003; 42 (48): 5973-5977
- **Integrity of duplex structures without hydrogen bonding: DNA with pyrene paired at abasic sites** *NUCLEIC ACIDS RESEARCH*  
Smirnov, S., Matray, T. J., Kool, E. T., de los Santos, C.  
2002; 30 (24): 5561-5569
- **A porphyrin C-nucleoside incorporated into DNA** *ORGANIC LETTERS*  
Morales-Rojas, H., Kool, E. T.  
2002; 4 (25): 4377-4380
- **Artificial human telomeres from DNA nanocircle templates** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Lindstrom, U. M., Chandrasekaran, R. A., Orbai, L., Helquist, S. A., Miller, G. P., Oroudjev, E., HANSMA, H. G., Kool, E. T.  
2002; 99 (25): 15953-15958

- **Replacing the nucleobases in DNA with designer molecules** *ACCOUNTS OF CHEMICAL RESEARCH*  
Kool, E. T.  
2002; 35 (11): 936-943
- **A simple method for electrophilic functionalization of DNA** *ORGANIC LETTERS*  
Miller, G. P., Kool, E. T.  
2002; 4 (21): 3599-3601
- **Libraries of composite polyfluors built from fluorescent deoxyribosides** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Gao, J. M., Strassler, C., Tahmassebi, D., Kool, E. T.  
2002; 124 (39): 11590-11591
- **An orthogonal oligonucleotide protecting group strategy that enables assembly of repetitive or highly structured DNAs** *NUCLEIC ACIDS RESEARCH*  
Lindstrom, U. M., Kool, E. T.  
2002; 30 (19)
- **A highly effective nonpolar isostere of deoxyguanosine: Synthesis, structure, stacking, and base pairing** *JOURNAL OF ORGANIC CHEMISTRY*  
O'Neill, B. M., Ratto, J. E., Good, K. L., Tahmassebi, D. C., Helquist, S. A., Morales, J. C., Kool, E. T.  
2002; 67 (17): 5869-5875
- **Imaging of RNA in bacteria with self-ligating quenched probes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Sando, S., Kool, E. T.  
2002; 124 (33): 9686-9687
- **DNA binding properties of the yeast Msh2-Msh6 and Mlh1-Pms1 heterodimers** *BIOLOGICAL CHEMISTRY*  
Drotschmann, K., Hall, M. C., Shcherbakova, P. V., Wang, H., Erie, D. A., Brownell, F. R., Kool, E. T., Kunkel, T. A.  
2002; 383 (6): 969-975
- **Quencher as leaving group: Efficient detection of DNA-joining reactions** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Sando, S., Kool, E. T.  
2002; 124 (10): 2096-2097
- **Efficient bacterial transcription of DNA nanocircle vectors with optimized single-stranded promoters** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Ohmichi, T., Maki, A., Kool, E. T.  
2002; 99 (1): 54-59
- **Active site tightness and substrate fit in DNA replication** *ANNUAL REVIEW OF BIOCHEMISTRY*  
Kool, E. T.  
2002; 71: 191-219
- **Nonenzymatic DNA ligation in Escherichia coli cells.** *Nucleic acids research. Supplement (2001)*  
Sando, S., Kool, E. T.  
2002: 121-122
- **Efficient and simple solid-phase synthesis of short cyclic oligodeoxynucleotides bearing a phosphorothioate linkage** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Smietana, M., Kool, E. T.  
2002; 41 (19): 3704-3707
- **Asymmetric recognition of DNA local distortion - Structure-based functional studies of eukaryotic Msh2-Msh6** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Drotschmann, K., Yang, W., Brownell, F. E., Kool, E. T., Kunkel, T. A.  
2001; 276 (49): 46225-46229
- **The Phe-X-Glu DNA binding motif of MutS - The role of hydrogen bonding in mismatch recognition** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Schofield, M. J., Brownell, F. E., Nayak, S., Du, C. W., Kool, E. T., Hsieh, P.  
2001; 276 (49): 45505-45508
- **Chemical and enzymatic methods for preparing circular single-stranded DNAs.** *Current protocols in nucleic acid chemistry / edited by Serge L. Beaucage ... [et al.]*

- Diegelman, A. M., Kool, E. T.  
2001; Chapter 5: Unit 5 2-?
- **Significance of nucleobase shape complementarity and hydrogen bonding in the formation and stability of the closed polymerase-DNA complex** *BIOCHEMISTRY*  
Dzantiev, L., Alekseyev, Y. O., Morales, J. C., Kool, E. T., Romano, L. J.  
2001; 40 (10): 3215-3221
  - **Nonenzymatic autoligation in direct three-color detection of RNA and DNA point mutations** *NATURE BIOTECHNOLOGY*  
Xu, Y. Z., Karalkar, N. B., Kool, E. T.  
2001; 19 (2): 148-152
  - **Hydrogen bonding, base stacking, and steric effects in DNA replication** *ANNUAL REVIEW OF BIOPHYSICS AND BIOMOLECULAR STRUCTURE*  
Kool, E. T.  
2001; 30: 1-22
  - **Synthetically modified DNAs as substrates for polymerases** *CURRENT OPINION IN CHEMICAL BIOLOGY*  
Kool, E. T.  
2000; 4 (6): 602-608
  - **Pyrene nucleotide as a mechanistic probe: Evidence for a transient abasic site-like intermediate in the bypass of dipyrimidine photoproducts by T7 DNA polymerase** *BIOCHEMISTRY*  
Sun, L. P., Wang, M., Kool, E. T., Taylor, J. S.  
2000; 39 (47): 14603-14610
  - **Functional hydrogen-bonding map of the minor groove binding tracks of six DNA polymerases** *BIOCHEMISTRY*  
Morales, J. C., Kool, E. T.  
2000; 39 (42): 12979-12988
  - **Rapid and selective selenium-mediated autoligation of DNA strands** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Xu, Y. Z., Kool, E. T.  
2000; 122 (37): 9040-9041
  - **Solution structure of a nonpolar, non-hydrogen-bonded base pair surrogate in DNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Guckian, K. M., Krugh, T. R., Kool, E. T.  
2000; 122 (29): 6841-6847
  - **Factors contributing to aromatic stacking in water: Evaluation in the context of DNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Guckian, K. M., Schweitzer, B. A., Ren, R. X., Sheils, C. J., Tahmassebi, D. C., Kool, E. T.  
2000; 122 (10): 2213-2222
  - **Importance of terminal base pair hydrogen-bonding in 3'-end proofreading by the Klenow fragment of DNA polymerase I** *BIOCHEMISTRY*  
Morales, J. C., Kool, E. T.  
2000; 39 (10): 2626-2632
  - **Varied molecular interactions at the active sites of several DNA polymerases: Nonpolar nucleoside isosteres as probes** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Morales, J. C., Kool, E. T.  
2000; 122 (6): 1001-1007
  - **The virtues of self-binding: high sequence specificity for RNA cleavage by self-processed hammerhead ribozymes** *NUCLEIC ACIDS RESEARCH*  
Ohmichi, T., Kool, E. T.  
2000; 28 (3): 776-783
  - **Roles of Watson-Crick and minor groove hydrogen bonds in DNA replication** *Cold Spring Harbor Symposium on Quantitative Biology*  
Kool, E. T.  
COLD SPRING HARBOR LAB PRESS, PUBLICATIONS DEPT. 2000: 93-102
  - **Mimicking the structure and function of DNA: Insights into DNA stability and replication** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Kool, E. T., Morales, J. C., Guckian, K. M.  
2000; 39 (6): 990-1009

- **Polymerase activities and RNA structures in the atomic force microscope** *JOURNAL OF STRUCTURAL BIOLOGY*  
HANSMA, H. G., Golan, R., Hsieh, W., Daubendiek, S. L., Kool, E. T.  
1999; 127 (3): 240-247
- **Mimicry of the hepatitis delta virus replication cycle mediated by synthetic circular oligodeoxynucleotides** *CHEMISTRY & BIOLOGY*  
Diegelman, A. M., Kool, E. T.  
1999; 6 (8): 569-576
- **Minor groove interactions between polymerase and DNA: More essential to replication than Watson-Crick hydrogen bonds?** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Morales, J. C., Kool, E. T.  
1999; 121 (10): 2323-2324
- **Oriented, active Escherichia coli RNA polymerase: An atomic force microscope study** *BIOPHYSICAL JOURNAL*  
Thomson, N. H., Smith, B. L., Almqvist, N., Schmitt, L., Kashlev, M., Kool, E. T., Hansma, P. K.  
1999; 76 (2): 1024-1033
- **High sequence fidelity in a non-enzymatic DNA autoligation reaction** *NUCLEIC ACIDS RESEARCH*  
Xu, Y. Z., Kool, E. T.  
1999; 27 (3): 875-881
- **Novel nucleoside analogues with fluorophores replacing the DNA base** *HELVETICA CHIMICA ACTA*  
Strassler, C., DAVIS, N. E., Kool, E. T.  
1999; 82 (12): 2160-2171
- **Tightening the belt on polymerases: Evaluating the physical constraints on enzyme substrate size** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Frieden, M., Pedroso, E., Kool, E. T.  
1999; 38 (24): 3654-3657
- **Structure and base pairing properties of a replicable nonpolar isostere for deoxyadenosine** *JOURNAL OF ORGANIC CHEMISTRY*  
Guckian, K. M., Morales, J. C., Kool, E. T.  
1998; 63 (26): 9652-9656
- **Generation of RNA ladders by rolling circle transcription of small circular oligodeoxyribonucleotides** *BIOTECHNIQUES*  
Diegelman, A. M., Daubendiek, S. L., Kool, E. T.  
1998; 25 (5): 754-?
- **Probing DNA sequences in solution with a monomer-excimer fluorescence color change** *NUCLEIC ACIDS RESEARCH*  
Paris, P. L., Langenhan, J. M., Kool, E. T.  
1998; 26 (16): 3789-3793
- **Chemical and enzymatic properties of bridging 5'-S-phosphorothioester linkages in DNA** *NUCLEIC ACIDS RESEARCH*  
Xu, Y. Z., Kool, E. T.  
1998; 26 (13): 3159-3164
- **Generation of circular RNAs and trans-cleaving catalytic RNAs by rolling transcription of circular DNA oligonucleotides encoding hairpin ribozymes** *NUCLEIC ACIDS RESEARCH*  
Diegelman, A. M., Kool, E. T.  
1998; 26 (13): 3235-3241
- **Triplex-directed self-assembly of an artificial sliding clamp on duplex DNA** *CHEMISTRY & BIOLOGY*  
Ryan, K., Kool, E. T.  
1998; 5 (2): 59-67
- **Bi-stranded, multisite replication of a base pair between difluorotoluene and adenine: confirmation by 'inverse' sequencing** *CHEMISTRY & BIOLOGY*  
Liu, D. Y., Moran, S., Kool, E. T.  
1997; 4 (12): 919-926
- **A thymidine triphosphate shape analog lacking Watson-Crick pairing ability is replicated with high sequence selectivity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*

- Moran, S., Ren, R. X., Kool, E. T.  
1997; 94 (20): 10506-10511
- **A novel 5'-iodonucleoside allows efficient nonenzymatic ligation of single-stranded and duplex DNAs** *TETRAHEDRON LETTERS*  
Xu, Y. Z., Kool, E. T.  
1997; 38 (32): 5595-5598
  - **Recognition of RNA by triplex formation: Divergent effects of pyrimidine C-5 methylation** *BIOORGANIC & MEDICINAL CHEMISTRY*  
Wang, S. H., Xu, Y. Z., Kool, E. T.  
1997; 5 (6): 1043-1050
  - **C-nucleosides derived from simple aromatic hydrocarbons** *SYNLETT*  
CHAUDHURI, N. C., Ren, R. X., Kool, E. T.  
1997: 341-?
  - **Generation of catalytic RNAs by rolling transcription of synthetic DNA nanocircles** *NATURE BIOTECHNOLOGY*  
Daubendiek, S. L., Kool, E. T.  
1997; 15 (3): 273-277
  - **Difluorotoluene, a nonpolar isostere for thymine, codes specifically and efficiently for adenine in DNA replication** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Moran, S., Ren, R. X., RUMNEY, S., Kool, E. T.  
1997; 119 (8): 2056-2057
  - **Escherichia coli RNA polymerase activity observed using atomic force microscopy** *BIOCHEMISTRY*  
Kasas, S., Thomson, N. H., Smith, B. L., HANSMA, H. G., Zhu, X. S., Guthold, M., Bustamante, C., Kool, E. T., Kashlev, M., Hansma, P. K.  
1997; 36 (3): 461-468
  - **Highly precise shape mimicry by a difluorotoluene deoxynucleoside, a replication-competent substitute for thymidine** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Guckian, K. M., Kool, E. T.  
1997; 36 (24): 2825-2828
  - **Experimental measurement of aromatic stacking affinities in the context of duplex DNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Guckian, K. M., Schweitzer, B. A., Ren, R. X., Sheils, C. J., Paris, P. L., Tahmassebi, D. C., Kool, E. T.  
1996; 118 (34): 8182-8183
  - **Naphthalene, phenanthrene, and pyrene as DNA base analogues: Synthesis, structure, and fluorescence in DNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Ren, R. X., CHAUDHURI, N. C., Paris, P. L., RUMNEY, S., Kool, E. T.  
1996; 118 (33): 7671-7678
  - **Non-hydrogen bonding 'terminator' nucleosides increase the 3'-end homogeneity of enzymatic RNA and DNA synthesis** *NUCLEIC ACIDS RESEARCH*  
Moran, S., Ren, R. X., Sheils, C. J., RUMNEY, S., Kool, E. T.  
1996; 24 (11): 2044-2052
  - **Formation of stable DNA loops by incorporation of nonpolar, non-hydrogen-bonding nucleoside isosteres** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Ren, X. F., Schweitzer, B. A., Sheils, C. J., Kool, E. T.  
1996; 35 (7): 743-746
  - **Rolling circle DNA synthesis: Small circular oligonucleotides as efficient templates for DNA polymerases** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Liu, D. Y., Daubendiek, S. L., ZILLMAN, M. A., Ryan, K., Kool, E. T.  
1996; 118 (7): 1587-1594
  - **Hydrophobic nucleoside isosteres as biophysical probes of noncovalent interactions: Analysis of structure and electrostatics** *9th Conversation in the Discipline Biomolecular Stereodynamics*  
Schweitzer, B. A., Sheils, C. J., Ren, X. F., CHAUDHURI, N. C., Kool, E. T.  
ADENINE PRESS. 1996: 209-216

- **VERY HIGH-AFFINITY DNA RECOGNITION BY BICYCLIC AND CROSS-LINKED OLIGONUCLEOTIDES** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
CHAUDHURI, N. C., Kool, E. T.  
1995; 117 (42): 10434-10442
- **CONVERGENT DNA-SYNTHESIS - A NONENZYMIC DIMERIZATION APPROACH TO CIRCULAR OLIGODEOXYNUCLEOTIDES** *NUCLEIC ACIDS RESEARCH*  
Rubin, E., RUMNEY, S., Wang, S. H., Kool, E. T.  
1995; 23 (17): 3547-3553
- **STRUCTURAL OPTIMIZATION OF NON-NUCLEOTIDE LOOP REPLACEMENTS FOR DUPLEX AND TRIPLEX DNAs** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
RUMNEY, S., Kool, E. T.  
1995; 117 (21): 5635-5646
- **AN EFFICIENT METHOD FOR THE SYNTHESIS OF AROMATIC C-NUCLEOSIDES** *TETRAHEDRON LETTERS*  
CHAUDHURI, N. C., Kool, E. T.  
1995; 36 (11): 1795-1798
- **HYDROPHOBIC, NON-HYDROGEN-BONDING BASES AND BASE-PAIRS IN DNA** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Schweitzer, B. A., Kool, E. T.  
1995; 117 (7): 1863-1872
- **AROMATIC NONPolar NUCLEOSIDES AS HYDROPHOBIC ISOSTERES OF PYrimidine AND PURine NUCLEOSIDES** *JOURNAL OF ORGANIC CHEMISTRY*  
Schweitzer, B. A., Kool, E. T.  
1994; 59 (24): 7238-7242
- **STRONG, SPECIFIC BINDING OF 6 DIFFERENT DNA-SEQUENCES BY A SINGLE CONFORMATION-SWITCHING DNA MACROCYCLE** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
Rubin, E., Kool, E. T.  
1994; 33 (9): 1004-1007
- **DNA RECOGNITION BY HYBRID OLIGOETHER - OLIGODEOXYNUCLEOTIDE MACROCYCLES** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*  
RUMNEY, S., Kool, E. T.  
1992; 31 (12): 1617-1619