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2023-Present	Assistant Professor	Department of Chemistry, **KAIST**
2019-2023	Postdoc	Department of Chemistry, **Stanford University**
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Research Interests:
DNA Damage and Repair, mRNA Therapeutics, Chemical Biology, Fluorescence imaging

Selected Publications:

1. **Y. W. Jun**, M. Kant, E. Coskun, P. Jaruga, M. Dizdaroglu, E. T. Kool* Genetic risks from heat-damaged AND in Food, ***ACS Cent. Sci.,* 2023**, 9, 1170

2. **Y. W. Jun**, E. M. Harcourt, L. Xia, D. L. Wilson, E. T. Kool***,*** Efficient DNA fluorescence labeling via base excision trapping, ***Nature Commun*, 2022**, 13, 5043

3. **Y. W. Jun**, E. Albarran, D. L. Wilson, J. Ding, E. T. Kool*, Fluorescence imaging of mitochondrial DNA base excision repair reveals dynamics of oxidative stress responses, ***Angew. Chem. Int. Ed.*, 2022**, 61, e202111829

4. **Y. W. Jun**, D. L. Wilson, A. M. Kietrys, E. R. Lotsof, S. G. Colon, S. S. David, E. T. Kool*,, An excimer clamp for measuring damaged base excision by the DNA repair enzyme, NTH1, ***Angew Chem. Int. Ed.*, 2020**, 132, 7520

5. **Y. W. Jun**, T. Wang, S. Hwang, D. Kim, D. Ma, K. H. Kim, S. Kim, J. Jung, K. H. Ahn*, A ratiometric two-photon fluorescent probe for tracking the lysosomal ATP: direct in cellulo observation of lysosomal membrame fusion processes, ***Angew. Chem. Int. Ed.*, 2018**, 57, 10142

Damaged DNA in Food Finds Its Way to Human Genome

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Abstract

The integrity of genomic DNA is continuously challenged by varied DNA damaging events, requiring robust DNA repair systems to maintain the genomic integrity. Not surprisingly, deficiencies in DNA repair activity, whether due to aging or genetic disorders, are closely associated with cancer, inflammation, and neurodegenerative diseases. Despite the critical importance of monitoring DNA repair systems in cellular context, this task remains a significant challenge.

We have developed biochemical tools to monitor DNA damage and repair processes within cells where all the essential components for DNA repair exist. Delineating DNA damaging pathway and their corresponding repair mechanisms are of profound public health interest, as it offers insights into reducing the accumulation of the damage in our genome. Our recent findings highlight the potential health risks of consuming food cooked at high temperatures. We demonstrate that DNA in food can be damaged during the cooking processes at high-temperature, and upon the consumption, this damaged DNA may integrate into human genome, presenting new concerns for dietary-induced genomic instability.

1. **Y. W. Jun**, M. Kant, E. Coskun, P. Jaruga, M. Dizdaroglu, E. T. Kool* Genetic risks from heat-damaged AND in Food, ***ACS Cent. Sci.,* 2023**, 9, 1170

2. **Y. W. Jun**, E. Albarran, D. L. Wilson, J. Ding, E. T. Kool*, Fluorescence imaging of mitochondrial DNA base excision repair reveals dynamics of oxidative stress responses, ***Angew. Chem. Int. Ed.*, 2022**, 61, e202111829