

Departmental Seminar Announcement

Looking Beneath the Surface to Determine and Exploit What Makes DNA Damage Deleterious

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Nucleic acid damage is a double-edged sword. It is involved in aging and plays a role in the etiology of diseases, such as cancer. Yet, DNA is also the target of therapeutic agents, some of which (e.g. hydroxyl radical produced by γ -radiolysis) oxidize the biopolymer indiscriminately. The chemical complexity of DNA damage is increased due to the heterogeneous structure of nucleic acids combined with the wrapping of nuclear DNA around the octameric core of histone proteins in chromatin. Our research group utilizes organic chemistry, biochemistry, and molecular biology to elucidate how nucleic acids are damaged, what the consequences of damage are, and when opportunities arise, exploit what we have learned. More specifically, our research involves simplifying the complex chemistry of DNA oxidation by independently generating the products and reactive intermediates that are produced by damaging agents within naked nucleic acids and nucleosomes. By looking beneath the surface of DNA damage, we gain chemical insight into the source of the cytotoxicity of therapeutic agents. In some instances this knowledge has provided inspiration for designing molecules that possess useful biochemical properties. Recent efforts in this area will be presented.

Date: Friday April 4, 2014

Time: 11:00 am to 12:00 pm

Location: Academic Health Center 3, AHC3-205 – MMC (Live)
Marine Sciences Building Room 105 (MSB-105) – BBC (via Polycom)