

## CBC SEMINAR ANNOUNCEMENT



**Professor Eric Kool  
Stanford University**

### Designer Nucleotides for Studying the Repair of DNA Damage

Here I describe the design and discovery of novel and sensitive nucleotide-based chemical probes that act as luminescence reporters of the cellular activities of enzymes that repair DNA damage. This work began in our lab with the development of novel fluorescent DNA bases, and the use of DNA synthesizers to assemble these designer nucleotides into oligomers that have unusual and useful fluorescence properties.

Our new probe molecules are designed to aid in the study of cancer. Many common cancers remain difficult to treat, including lung, colorectal, and pancreatic cancer, which together account for over 200,000 deaths annually in the U.S. These cancers often misregulate the enzymes that combat DNA damage, including MTH1 and OGG1, which remove 8-OG from the nucleotide pool and from DNA itself. We hypothesize that developing approaches to control the activities of these enzymes will provide new and promising strategies for controlling tumor growth. However, until very recently it has been difficult to measure these enzymes' activities.

Our aims are to develop new probes to quantify specific repair activities in tumor cells and tissues; to identify and develop new small-molecule modulators of the enzymes; and to test novel biological hypotheses regarding how altering repair activity may suppress tumor growth. We hope that our new molecular tools will be useful to the cancer research community.

<b>Date:</b>	<b>29th March 2017 (Wednesday)</b>
<b>Time:</b>	<b>2:00pm – 3:30pm</b>
<b>Venue:</b>	<b>SPMS Research &amp; Graduate Studies Office Conference Room</b>
<b>Host:</b>	<b>Assoc Professor Xing Bengang</b>