NANYANG TECHNOLOGICAL UNIVERSITY

School of Biological Sciences

SBS Seminar Announcement

Rubisco: an enzyme for all seasons

Dr. Maxim Kapralov
Research School of Biology, The Australian National University

Abstract

The performance of the CO_2-fixing enzyme, Rubisco, is often one of the limiting steps in photosynthesis, and hence can greatly affect crop yield. In addition to the catalytic shortcomings of Rubisco, many modern crop cultivars likely possess sub-optimal enzymes because they are grown in climates different from the ones experienced by their ancestors. This creates the yield-increasing potential for crops that might be realized by transgenic modification of their Rubisco to better fit climates they grow in as well as the future climates to come. Tailored modifications aimed to increase the carboxylation rate of Rubisco could also complement ongoing transgenic attempts to introduce carbon concentrating mechanisms into crops to help to improve resource use efficiency by reducing the costs of photorespiration.

Biography

Born and educated in Ekaterinburg (Russia) I joined the University of Oxford (UK) in 2006 as a postdoc to study adaptation at the molecular level during species radiations on oceanic islands. I stayed in Oxford until 2013 gradually changing the focus of my research towards evolution of CO_2-fixing enzyme, Rubisco, and computational predictions of amino acid replacements that can change its kinetics. In 2013 I moved to the Spencer Whitney's lab at the Australian National University with the aim to test *in planta* my computational predictions made *in silico*. My research at the ANU is a part of the international collaborative project 'Realizing Increased Photosynthetic Efficiency for sustainable increases in crop yield (RIPE)' aimed to improve photosynthesis by changing the limitations experienced by various parts of C_3 photosynthetic pathway.

Wednesday, 03 December 2014 2.00pm to 3.00pm SBS Classroom 2 (SBS-01n-22)

Host: Asst/Prof Oliver Mueller-Cajar

60 Nanyang Drive, Singapore 637551
Tel: +65 6316 2800 Fax: +65 6791 3856
Email: d-sbs@ntu.edu.sg www.ntu.edu.sg/sbs