KEMIJSKI INŠTITUT

Vabilo na Forum40 / Invitation to the Forum40

Dr. Duško Lainšček

D12, Department of Synthetic Biology and Immunology

Četrtek / Thursday, 3.6.2021 ob / at 13.00 / on WEBEX

https://ki-si.webex.com/ki-si/j.php?MTID=m92ba3464dfc3141787f0bef4594abcab

Meeting number (access code): 163 735 9007

Meeting password: jun2021kemijski!

Modification of CRISPR/Cas system for enhanced genome engineering

The CRISPR/Cas system emerged as a powerful and versatile genome engineering tool, revolutionizing numerous areas of biological and biomedical sciences, where DNA editing is desired. Here we present a method to enhance the efficiency of CRISPR/Cas mediated gene disruption based on a concerted action of Cas9 and exonuclease, which can prevent the re-ligation of cleaved DNA. Exonucleases were systematically screened and the most potent improvement was achieved by noncovalent tethering of Cas9 protein to ExoIII via a coiled-coil dimerization (CCExo), with substantially enhanced gene modification demonstrated on several cell lines and DNA targets. Efficient implementation of CCExo on chronic myelogenous leukemia was successfully demonstrated on patient's cells and in an animal model, establishing it as a tool for treating a range of diseases with genetic etiology.

Vljudno vabljeni / Kindly invited