conferenceseries.com

Nayef Jarrous et al., J Stem Cell Res Ther 2017, 7:3(Suppl)
http://dx.doi.org/10.4172/2157-7633.C1.023

WRN helicase inhibition and induced mitotic catastrophe for selective cancer therapy

Nayef Jarrous, Natalie Orlovetskie and **Raphael Serruya**
The Hebrew University - Hadassah Medical School, Israel

WRN helicase has multiple roles in genome maintenance, such as replication, excision repair, DNA damage response and transcription. These processes are often found upregulated in human cancers, many of which display increased levels of WRN. Therefore, directed inhibition of this helicase, which belongs to a family of conserved RecQ helicases, could be beneficial to selective cancer therapy. Targeted inhibition of WRN is feasible by the use of the EGS/RNase P system in cultured human cell lines. Remarkably, EGS-directed WRN depletion leads to a marked decrease in cell viability due to mitotic catastrophe, associated with cessation of cell proliferation and replication induced by DNA repair failure and fork progression arrest. Moreover, we present new evidence that helicase depletion results in early changes of RNA polymerase III and RNase P activities, thus implicating two chromatin-bound tRNA enzymes in WRN-related stress response. Together with recent discovery of new roles of RecQ helicases in cancer, present data back the prospect of targeting of these genome guardians in cancers, in an attempt to develop clinical phases meant to diminish adaptive resistance to present-day targeted therapies.

Biography

Nayef Jarrous is currently working at The Hebrew University of Jerusalem, Israel. His research interest is based on Human nuclear RNase P ribonucleoprotein in tRNA processing. He has published many articles in reputed journals.

jarrous@md.huji.ac.il

Notes: