

4th International Conference on **Nanotek & Expo**

December 01-03, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Harnessing RNAi-based nanomedicines for precision medicine

Dan Peer

Tel Aviv University, Israel

RNA interference (RNAi)-based approaches have greatly contributed to better understanding of gene expression and function *in vitro*. The capability to apply these strategies *in vivo* in order to validate the role of specific genes in normal or pathological conditions, and to induce therapeutic gene silencing, opened new avenues for utilizing RNAi as a novel therapeutic modality. However, the translation of RNAi from an effective genomic tool into a novel therapeutic modality has been hindered by the difficulty to deliver RNAi molecules into their target tissues by systemic administration, especially to hematopoietic cells. In this presentation, author will describe some of the challenges and opportunities in modulating leukocytes response using RNAi and discuss adverse effects such as immuno-toxicity. Special emphasize will be made on delivery strategies that target subsets of leukocytes such as the integrin-targeted and stabilized nanoparticles platform and the gagomers and detailed examples from inflammatory bowel diseases, viral infection and blood cancers. Personalized nanomedicine has the power of combining nanomedicine with clinical and molecular biomarkers ("OMICS" data) achieving improve prognosis and disease management as well as individualized drug selection and dosage profiling to ensure maximum efficacy and safety. In this presentation, author will also illustrate the detailed aspects of personalized nanomedicine both from the drug and the carrier standpoint.

Biography

Dan Peer is a Professor that leads an NIH-funded lab in the Faculty of Life Science and the faculty of Engineering at Tel Aviv University (TAU). He is also the director of the Leona M. and Harry B. Helmsley Nanotechnology Research Fund and the director of the Focal Technology Area (FTA) on Nanomedicines for Personalized Theranostics, a national nanotechnology initiative, which includes 12 academic labs and a grant of \$11.5M that support this effort. He has received numerous awards; among them he was recognized by the AAAS excellence in Science program for young investigators and was recently awarded the innovator (2010) and the breakthrough (2011, 2012, 2013) awards from the Kenneth Rainin Foundation on his pioneering work in inflammatory bowel diseases (IBD). He is an editor of several books in the field of nanomedicine and he has more than 50 pending and granted patents. Some of them have been licensed to several pharmaceutical companies and one is under a phase II clinical evaluation. In addition, based on his work, 2 spin-off companies were generated *LeukoBiosciences* in the US and *Quiet Therapeutics* in Israel, aiming to bring nanomedicine into clinical practice.

peer@tauex.tau.ac.il