

# 4<sup>th</sup> International Conference on **Nanotek & Expo**

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



## *Fatih M Uckun*

USC Keck School of Medicine, USA

### **Nanoscale liposomal CD22 $\Delta$ E12-siRNA formulation as a potent RNAi therapeutic against B-cell precursor acute lymphoblastic leukemia**

B-cell precursor acute lymphoblastic leukemia (BPL) is the most common form of cancer in children and adolescents. CD22 $\Delta$ E12 has recently been identified as a characteristic genetic defect of therapy-refractory clones in relapsed pediatric BPL. A nanoscale liposomal formulation of CD22 $\Delta$ E12 siRNA using the standard thin film evaporation method and a mixture of the cationic lipid 2,3-dioleoyloxypropyltrimethylammonium chloride (DOTAP) for complexation with the polyanionic siRNA cargo as well as cell membrane penetration and the helper neutral lipid 1,2-dioleoyl-sn-glycerol-3-phosphoethanolamine (DOPE) as a membrane phase inversion inducer capable of facilitating endosomal escape of the internalized siRNA molecules. This nanoformulation caused effective CD22 $\Delta$ E12 depletion in BPL cells and abrogated their clonogenicity. CD22 $\Delta$ E12-siRNA LNF also abrogated the *in vivo* clonogenicity of the leukemia-initiating leukemic cell fraction in recently reported xenograft specimens derived from patients with BPL and exhibited potent *in vivo* anti-leukemic activity in NOD/SCID mouse xenograft models of aggressive BPL.

#### **Biography**

Fatih M Uckun, MD, PhD is a member of the American Society for Clinical Investigation (ASCI), an honor society for physician-scientists, and an active member of several professional organizations, including ASH, ASCO, and AACR. He earned his doctoral degrees at University of Heidelberg and completed his residency training in Pediatrics, fellowship training in Hematology/Oncology/Blood and Bone Marrow Stem Cell Transplantation, as well as postdoctoral research training in Immunology at the University of Minnesota. Currently, he is a Professor in the Department of Pediatrics, Keck School of Medicine, University of Southern California. He is the Head of Translational Research in Leukemia and Lymphoma at the Children's Center for Cancer and Blood Diseases/Children's Hospital Los Angeles. He directs a NIH/NCI-funded Nanomedicine R&D Program at the Children's Hospital Los Angeles. He serves as the Chair of the Biotargeting Working Group as well as a member of the Coordinating and Governance Committee (CGC) of the NCI Alliance for Nanotechnology in Cancer. He has more than 20 years of professional experience in developmental therapeutics and biopharmaceuticals. He has published more than 450 peer-reviewed papers and he has authored numerous review articles and book chapters. He is the Editor-in-Chief of Journal of Nanomedicine and Nanotechnology and has served as a member of several editorial boards and NIH grant review/special emphasis panels.

[fmuckun@chla.usc.edu](mailto:fmuckun@chla.usc.edu)