March 14, 2025

Acuitas' Scientists Co-Author Article in *Molecular Therapy* with Scientists from the Perelman School of Medicine

Vancouver, B.C. – Acuitas' Chief Scientific Officer, Ying Tam, and Senior Research Scientist, Barbara Mui, collaborated with scientists from the Perelman School of Medicine (including Drew Weissman) on an article published by *Molecular Therapy* titled: "CD47 peptide-cloaked lipid nanoparticles promote cell-specific mRNA delivery."

The scientists modified the surface of a previously established antibody-based targeted LNP (tLNP) with CD47 to provide a "don't eat me" signal to phagocytic cells to create a CD47/tLNP platform with reduced phagocytic clearance and off-target effects, and improved efficiency for cell-specific delivery. They showed that CD47 modification decreased macrophage and hepatic uptake both *in vitro* and *in vivo* and importantly, combining this modification with antibodies specific to markers on endothelial cells, T cells, or hematopoietic stem cells (HSCs) increased targeting efficiency to these cells up to three-fold compared to tLNP alone. Enhanced targeting of CD47/tLNP to HSCs with reduced off-targeting enabled the delivery of pro-apoptotic mRNA for HSC depletion as a preconditioning strategy prior to bone marrow transplant. Additionally, CD47-modified LNP showed diminished inflammatory effects on hepatic tissue and an altered protein corona. This CD47/tLNP-mRNA platform, with reduced phagocytic clearance and inflammatory effects, and enhanced targeted delivery, could facilitate the development of *in vivo* mRNA therapeutics.

Please click here to read the publication.

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