Lipid nanoparticles engineered to specifically target pancreas in mouse model

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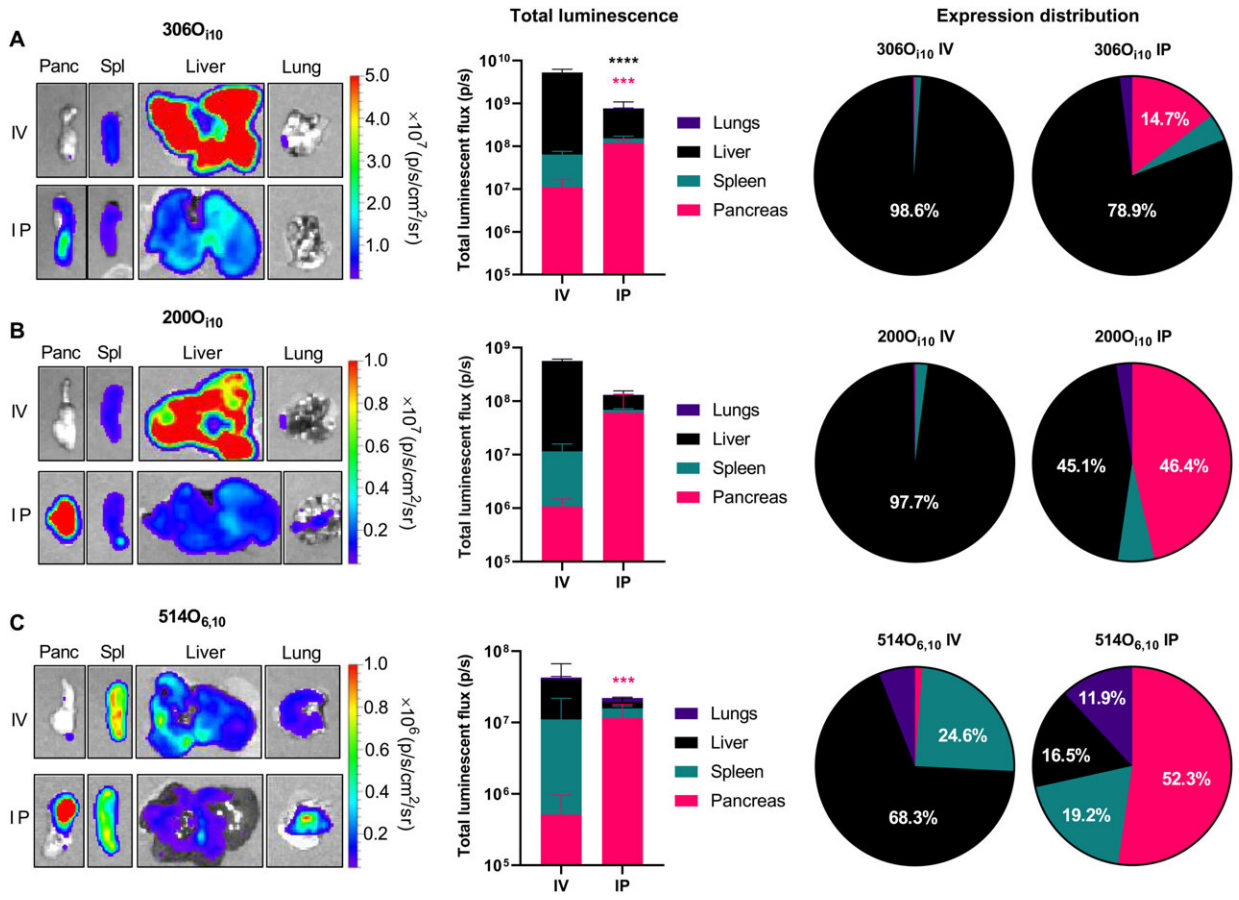

Intraperitoneal administration improves pancreatic mRNA delivery relative to intravenous injection. LNPs containing mLuc were formulated using each of three ionizable lipidoids—(A) 306O$_{i10}$, (B) 200O$_{i10}$, or (C) 514O$_{6,10}$—at a molar ratio of 35% lipidoid/16% DOPE/46.5% cholesterol/2.5% PEG-lipid and administered to C57BL/6 mice (mRNA at a dose of 0.5 mg/kg) (n = 3 mice per group). Three hours later, mice were injected with d-luciferin, euthanized, and dissected for ex vivo luminescence imaging using in vivo imaging system (IVIS).

The left panels depict representative IVIS images of key organs, the middle panels quantify mLuc expression, the right panels illustrate the percentage of protein expression occurring per organ. Compared to intravenous (IV) delivery, intraperitoneal (IP) administration increased mRNA delivery for all formulations. Error bars represent SEM. Student's t tests were used to compare intravenous and intraperitoneal delivery for each organ. ****P