

Project #09R: **Ying Luo** and **Niren Murthy**: *Multifunctional Proflavine-Hyaluronic Acid Conjugate (PHC): A new siRNA delivery vehicle for treating lung cancer*

siRNA is emerging as the next generation of targeted therapies for lung cancer treatment. In advancing siRNA into clinical trials, safe and effective delivery systems must be developed. In this application, we propose to develop a multifunctional polymeric delivery vehicle, termed Proflavine-Hyaluronic Acid Conjugate (PHC), which can deliver siRNA to lung cancer cells and treat lung cancer. PHC is composed of hyaluronic acid conjugated to proflavine through an acid labile hydrazone linker. PHC is designed to protect siRNA from serum nucleases, target cancer cells and release siRNA into the cell cytoplasm. In this proposal, we will investigate the ability of PHC to deliver siRNA to lung cancer cells and inhibit EGFR expression. As EGFR is a clinical drug target in lung cancer treatment, the EGFR siRNA delivery vehicle proposed here has the potential to significantly impact the development of new cancer therapeutics. This new technology will also find numerous other applications in siRNA delivery.