

Abstract Submitted
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RNA Interference Induced by the Cationic Lipid Delivery of siRNA NATHAN BOUXSEIN, CHRISTOPHER MCALLISTER, KAI EWERT, CHARLES SAMUEL, CYRUS SAFINYA, Materials, Physics, and Molecular, Cellular and Developmental Biology Departments, University of California, Santa Barbara California — Recent discoveries demonstrate that the introduction of synthetically prepared duplexes of 19-21 bp short interfering RNAs (siRNA) into mammalian cells results in the cleavage of target mRNA leading to post transcriptional gene silencing [1]. Our work focuses on the cationic-lipid (CL) mediated delivery of siRNA into mammalian cell lines in an approach similar to CL based gene delivery [2]. Co-transfection of a target and a non-target reporter plasmid followed by the CL delivery of a sequence specific siRNA allows us to probe the silencing efficiency (SE) of the target plasmid relative to non-specific silencing of both plasmids. We have created a phase diagram for SE as a function of the complex membrane charge density and as a function of the CL:siRNA charge ratio. X-ray diffraction was performed to probe the structure of the complexes at points along the phase diagram. Funding provided by NIH AI-12520, AI-20611 and GM-59288. [1] Elbashir et. al., Nature, 411 494-498 (2001) [2] Ewert et. al., Curr. Med. Chem. 11 133-149 (2004)

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