

Hemodynamic Impact of Hydrodynamic Gene Delivery on Liver

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Hydrodynamic gene delivery is a useful method for delivery of small and large DNA fragments to cells in animals. It involves a rapid intra-vascular injection of solution to generate hydrodynamic pressure as the driving force to facilitate intracellular gene transfer. This *in vivo* transfection technique offers a useful tool in gene/protein drug discovery, functional analysis of genetic elements, target validation by siRNA delivery, and establishment of animal models for drug development. Recent progress in the development of a computer-assisted device for hydrodynamic gene delivery in large animals provided direct evidence in support of its application to human gene therapy. This presentation will summarize the basics of the hydrodynamic gene delivery with an emphasis on the effect of hydrodynamic parameters on the hemodynamics, vascular structure, tissue expansion and gene transfer efficiency. Data collected from the livers of mice, pigs, dogs and baboons will be presented.