

P006 Nebulizer-Assisted Chemical Transfection
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Chemical transfection of mammalian cells using lipoplexes and polyplexes is the most widely used method of DNA and RNAi delivery into cells. This process requires microgram quantities of genetic material and transfection reagent which makes every assay expensive as well as not guaranteeing good transfection efficiency; an important issue when thousands of wells of cells need to be transfected. To address these issues a new transfection methodology has been developed based on the nebulization of lipoplex solutions, whereby an ultrasonic atomizer was used to spray pre-formed lipoplexes onto HEK-293 cells attached on a microarray format. A collection of cationic lipids (commercially available effectene and several materials synthesised in-house) were tested. The method was highly effective (~100% of cells transfected) while requiring less than 100ng of DNA and cationic lipid per slide, and is suitable for slides and both 96 and 384 well plates.