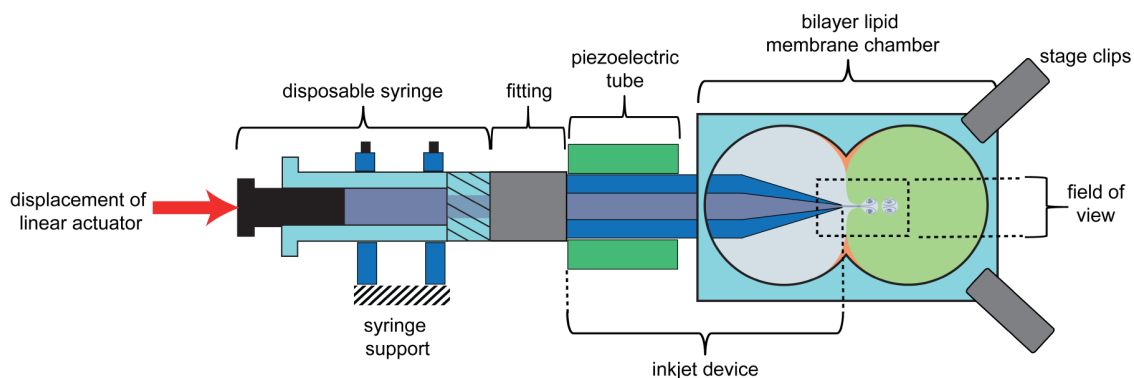




Supplementary Fig. 1. Schematic representation of the inkjet vesicle encapsulation system. A bilayer lipid membrane is formed in the acrylic chamber and placed on the stage of an inverted microscope. A conventional disposable syringe is filled with the fluid to be jetted. A fitting is used to attach the syringe to the inkjet device. The syringe plunger is advanced to fill the inkjet device with fluid. The syringe-inkjet assembly is fixed to a syringe support system. Using a 3-axis linear micrometer system (not shown), the tip of the inkjet device is inserted through a hole in the side of the bilayer chamber. To maintain the concentration of the inkjet fluid, a linear motorized actuator is used to advance the syringe plunger, forcing fluid out of the syringe-inkjet assembly. To form a vesicle, an appropriate set of voltage pulses is applied to the piezoelectric tube of the inkjet device. This voltage pulse causes expansions and contractions of the piezoelectric tube, which propel a fluid jet that impinges upon the bilayer lipid membrane, forming a vesicle.