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Loading Syringes to Inject into Microfluidics Device

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freeman.lan¹

¹UW Madison



freeman.lan

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Protocol status: Working

We use this protocol and it's working

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Keywords: droplet microfluidic device, microfluidics device protocol, loading syringe, syringes with small amount, liquid sample for injection, liquid sample, injection

Abstract

Protocol for loading syringes with small amounts of liquid sample for injection into droplet microfluidic devices.

Protocol materials

 HFE 7500 Perfluorinated Oil

 PE tubing **Scientific Commodities Catalog #BB31695-PE/2**



Preparing Syringes

5m

1 Take out a syringe

Equipment

Luer Lok Syringe (1mL)

NAME

BD Biosciences

BRAND

309628

SKU

Add 27g needle to the syringe

Equipment

Precisionglide Needle

NAME

BD

BRAND

301629

SKU

2 Use the needle and syringe to draw out approximately 200 μ L of

 HFE 7500 Perfluorinated Oil

3 Cut approximately **20 centimeters** of

 PE tubing **Scientific Commodities Catalog #BB31695-PE/2** with a razor and attach it to the needle tip.

Note

Cutting the tubing at an angle makes for easier insertion into microfluidic device downstream



Loading the Syringe

5m

- 4 Push the syringe so that the HFE7500 oil starts dripping at end of the tubing.

Note

Make sure to keep the syringe pointed up so that the air leaves the syringe first. **There must be no air bubbles in the syringe or needle.**

- 5 Put the tube into the solution that you would like to load, and slowly draw the syringe to pull the solution into the tubing and syringe.

Note

Keep the syringe upright the whole time so that the oil remains on the bottom of the syringe.
Ensure there are no air bubbles in the tubing - if there are, push syringe to clear the air bubbles then pull to draw again.

Interfacing with the Device

5m

- 6 Attach the loaded syringes to the syringe pumps

Note

You may have to keep the syringe pump and syringe upright to keep the oil on the bottom and the solution on top. *This is only necessary for large volumes of sample solution*

Equipment

NE-300 Just Infusion™ Syringe Pump	NAME
Automatic syringe pump	TYPE
New Era Pump Systems, Inc.	BRAND
NE-300	SKU
https://www.syringepump.com/NE-300.php	LINK

- 7 Insert the other end of the tubing into the appropriate hole in the microfluidic device, using a tweezer or by hand.
- 8 Set the appropriate syringe diameter and pump rates into the syringe pump and press start. You may want to begin the pumps with a higher pump rate in order to get the syringes to pressurize more quickly.