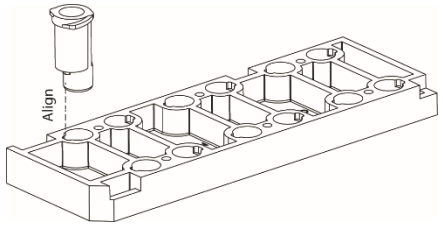
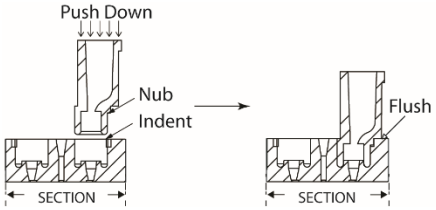
LUC-1 Quick Start Guide

1 Assembling Connectors



- Use a 5 ml luer lock syringe to pick up a connector. Fit the connector into the media inlet by aligning the nub of the connector to the corresponding indent at the port.



- Press the connector down into the AIM chip until the contact area is flush. Carefully release the syringe from the connector. Repeat for all media ports.

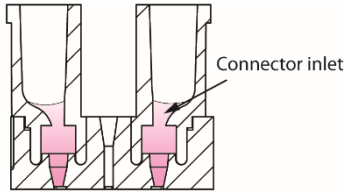
2 Preparing & Filling Gel

- Prepare collagen gel according to the pre-determined collagen gel recipe. You may use any hydrogel relevant to your specific application.
- Fill **10 µl** of collagen solution from either one of the gel inlets and stop near the end of posts. Fill from the other gel inlet until the gel fronts merge.
- Seal the gel inlets immediately with **AIM Inlet Seals** by using tweezers.
- Place the gel-filled chips into a 37 °C incubator and incubate for 30 min.

3 Hydrating & Coating Media Channels

- After incubation, gently inject 15 µl of coating solution into the channel that requires coating. Repeat this step for the other channel. Use culture medium instead if coating is not required.
- Incubate for 1 h or optimized time for other coating solutions in a 37 °C incubator.
- Add **100 µl** of medium into one connector to flush out the coating solution from the opposite connector. Repeat this for the other channel.

4 Seeding Cells



- Prepare cell suspensions with densities ranging from 0.5 to 3 M cells/ml, depending on the applications.
- Remove medium from all connectors by using a micropipette until the medium levels are the same as or slightly above the connector inlets. Do not apply negative pressure directly at the connector inlets to prevent the medium in the media channels from being removed.
- Add 20 µl of cell suspension into one connector. Wait for 2 min and then repeat the same procedure for the opposite connector that is attached to the same media channel.
- Visual inspection under a microscope is recommended. If the cell distribution is not optimal for your application, adjust the density of the cell suspension and repeat the seeding steps.
- If another cell type B is to be seeded in the opposite media channel, incubate the chips for at least 30 min after cell type A has been seeded to allow proper attachment of cell type A on the substrates.

5 Changing Medium

- Remove medium from all connectors. Add 100 µl of fresh medium into one connector to flush out the old medium from the opposite connector. Repeat this for the other channel.

6 Applying Flow

- **Option 1**: Attach auxiliary reservoirs to the connectors to generate pressure differences between media channels. We recommend using 1ml luer slip syringe barrels as auxiliary reservoirs.
- **Option 2**: Attach auxiliary luer adaptors and tubing (that are connected to syringe pumps) to the connectors to control the pressure difference between/within media channels more precisely. We recommend using male luer lock adaptors with 1/16" ID low profile barb and biocompatible tubing. Tubing with sizes ranging from 1/16" (for incompressible tubing) to 1/32" ID (for compressible tubing) may be used. The corresponding needle sizes are 15 and 18 gauge respectively and we recommend using blunt end needles.

Please refer to www.aimbiotech.com/learn for a detailed explanation of the connector-related and application-specific protocols.