

## Handling Instructions - 2D Gradient Generator Fluidic 1166



### Create a 2D gradient on a microfluidic chip

In life science, tight control of the chemical environment is the basis for many experiments. A high spatial and timed resolution is key to successful experiments relying on gradients.

For this reason, we introduce the 2D Gradient Generator Fluidic 1166. It enables you to create gradients with up to six different fluids while at the same time allowing high control of flow and diffusion rates.

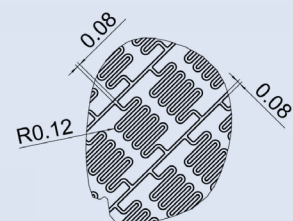
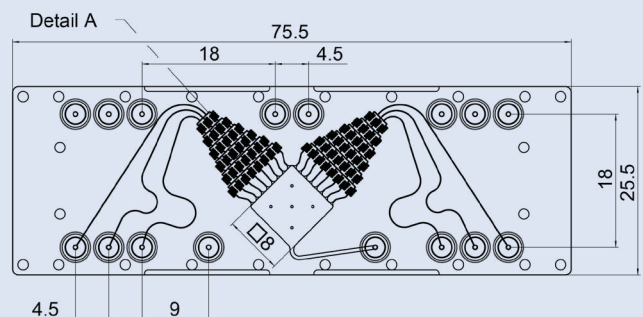
For example, it is the perfect tool to investigate the effect of a continuum of concentrations of an analyte or drug on your cells of interest.

### Chip description

The 2D Gradient Generator Fluidic 1166 has six inlets, divided into two groups. Each group is connected through serpentine channels which create gradients dependent on the flow rate. The serpentine channels lead into the gradient chamber. Bacteria or other cells of interest can be seeded in this chamber. All inlets and the outlet possess Mini Luer format.

Key features of the 2D Gradient Generator chip are:

- Slide format: 75.5 x 25.5 mm<sup>2</sup>
- Six inlets and one outlet
- Channel width of mixing serpentine: 80 μm
- Dimension of chamber: 8 x 8 mm<sup>2</sup>
- Chamber depth: 100 μm



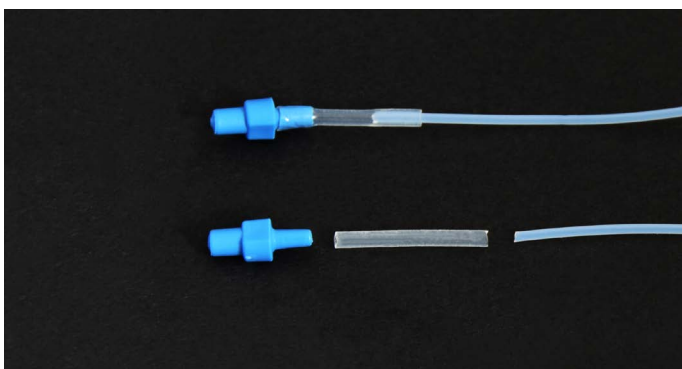
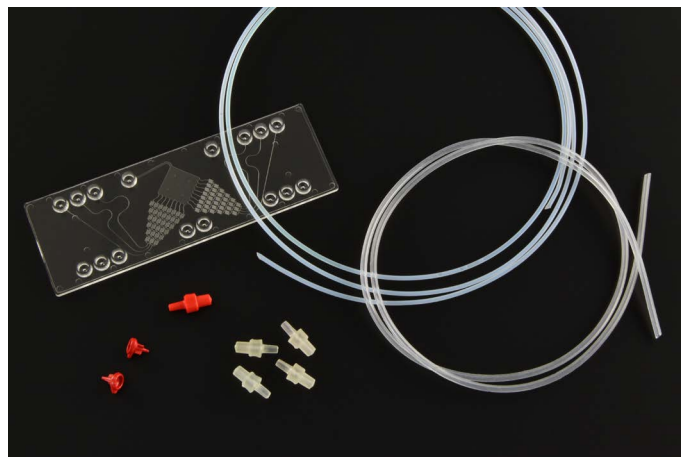
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## Necessary equipment

- 2D Gradient generator chip Fluidic 1166
- Male Mini Luer Fluid connectors
- Male Mini Luer plug - low volume displacement
- Silicon sleeve (cut from silicone tube)
- PTFE tubing
- Pump system of your choice (e.g. pressure-driven pump with at least two channels)

Optional:

- Mini Luer to pipette adapter
- Handling frame

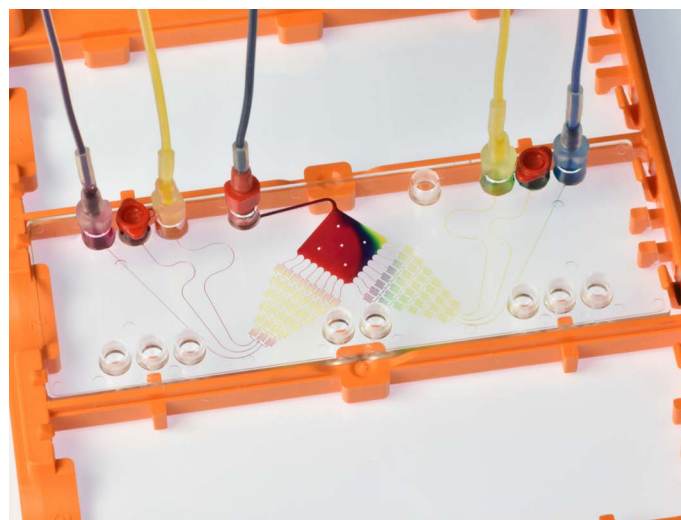


## Assemble setup

- Connect Mini Luer connectors with silicone sleeves
- Insert PTFE tubing into silicone sleeves
- Connect PTFE tubing with pumps
- Place chip in the handling frame
- Connect Mini Luer to pipette adapter with outlet

## Prepare chip

- Pre-fill the chamber and all channels with liquid through the outlet (see following page)
- Outlet: replace pipette adapter with connector and tubing leading to waste container
- Connect tubing to pump of your choice
- Start pumps and wait for a droplet to form at the tip of the connector
- Input: Insert Mini Luer connectors into Mini Luer interfaces
- Close unused Mini Luer ports with Mini Luer plugs



## Create a gradient

- Adjust flow rates according to gradient needed (see following page)



