

OVERVIEW

Zebrafish embryos and larvae are transparent so it is possible to see and follow the impact of any genetic mutation or drug treatment. Quite often the introduction of genetic material is performed via microinjection to create transgenic lines of Zebrafish. Sutter Instrument has a suite of microinjection equipment designed specifically to create the ideal Zebrafish embryo microinjection rig.

The Sutter Instrument Digital Microinjector is preferred for Zebrafish due to the built-in compressor, allowing it to be more portable and not attached to an external air source. It is highly efficient providing femtoliter, nanoliter and picoliter accuracy. The robust compressor and reserve pressure allow for fast, accurate and repetitive injections with no delay or wait time.

PREFERRED PIPETTE MORPHOLOGY

Zebrafish microinjection pipettes traditionally have a gradual 6–8mm taper. The ideal pipette should have a very slender inner diameter for the last 1–2mm behind the tip. This taper allows one to be able to break back the tip and still maintain a small opening (4–10 microns) at the end of the pipette.

Please reference the *Pipette Cookbook 2018* available for download at www.sutter.com to learn more about pipette morphology, P-1000 program settings, BRE XenoWorks® Digital Microinjector settings and the injection set

up. Below is a recommended ideal Zebrafish embryo microinjection rig.

SUTTER INSTRUMENT XENOWORKS MICROINJECTION RIG



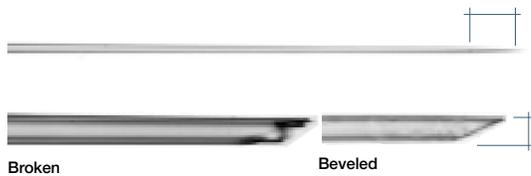
- P-1000 Micropipette Puller
- Sutter Glass Capillary
BF100-78-10 Borosilicate or
AF100-64-10 Aluminosilicate
- XenoWorks® BRE Digital Microinjector
- TRIO-235 Micromanipulator
- MT-81-DOV8 Gantry Stand
(with optional magnetic feet)
- Stereoscope
Leica, Nikon, Olympus or Zeiss

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P-1000
Next Generation Micropipette Puller

HEAT
Ramp +10
PULL
80
VELOCITY
70
DELAY
120
PRESSURE
200



AF100-64-10 or BF100-78-10
Glass Capillary Tubing

TAPER
7–9mm gradual taper
TIP
0.3–0.7 μ initial tip size, then trim back to a
6–10 μ tip

BV-10
Micropipette Beveler

Beveling tip is optional



BRE
XenoWorks® Digital Microinjector

INJECTION MODE
Pulse
INJECTION PRESSURE
4,500 hPa
PULSE WIDTH
0.04 seconds
COMPENSATION PRESSURE
5–10 hPa
RANGE SETTING
(1)



TRIO-235
Three-Axis Micromanipulator System

AVAILABLE RANGE
0–90 degrees
RECOMMENDED ANGLE OF APPROACH
30–45 degree angle