WORLD
PRECISION
INSTRUMENTS
Instrumenting scientific ideas

Microinjection System

The basic Zebrafish Injection system includes: ***PZMIII*** *microscope with lighted base,* ***PV820*** *PicoPump,* ***M3301*** *micromanipulator,* ***5430-ALL*** *PicoNozzle Kit,* ***M10*** *magnetic stand,* ***5052*** *steel base plate.*

Zebrafish (*Danio Rerio*) are rapidly gaining in popularity as bio-medical research subjects because of the ability to generate high resolution, *in vivo* images of the embryos. Zebrafish are easy to maintain and produce a large number of offspring. Additionally, the embryos have a nearly transparent skin, making their development easily visible. These fish are used for a variety of disciplines, including neuroscience, genetics and aging studies.

Serving scientist for over 45 years, WPI offers a variety of instruments for microinjection including pumps, pipetters, microscopes and more. One of our most popular pumps for microinjection is the PV820 Pneumatic PicoPump.

The **PV820** and **PV830**, Pneumatic PicoPumps, were designed to simplify intracellular injection. You get repeatable microinjection in volumes ranging from picoliters to nanoliters. **PV820** offers eject and hold pressure. The hold pressure prevents backfilling of the pipette by capillary action. In addition, the **PV830** also has vacuum pressure which allows you to securely hold a cell with one pipette while you inject it with another. The volume injected is controlled by the inside diameter of the glass tip, the pressure and the time.

Recently, WPI introduced its customizable Microinjection System with everything you need to get started. The basic system is shown here. On the next page you will find many options and accessories you may use to customize your system.

The system depicted on the cover and at left includes components often favored by researchers, indicated with ✱ in the list below: ***PV820*** *Pneumatic PicoPump,* ***PUL-1000*** *Micropipette Puller,* ***M10*** *magnetic stand on a* ***5052*** *steel base plate (not shown),* ***M3301L*** *micromanipulator,* ***5430-ALL*** *PicoNozzle Kit with a* ***µTip****,* ***FD35-100*** *Fluorodish,* ***PZMTIII*** *microscope with lighted base and articulating mirror (optional),* ***E210*** *micropipette storage jar,* ***504156*** *Regine tweezers #5,* ***14003*** *Vannas spring scissors, glass capillaries,* ***77020*** *glass tweezers.*

Whatever your needs, WPI offers a range of equipment to fill your requirements

Options for Customizing Your System

INJECTOR

- ✱ **PV820** Pneumatic PicoPump with Hold Pressure
- **PV830** Pneumatic PicoPump with Hold Pressure and Vacuum
- **Nanoliter2010**
- **UMPIII** UltraMicroPump

Designed to simplify intracellular injection and a variety of other microinjection tasks, WPI's ***PicoPumps*** *use carefully regulated air pressures for securing cells and injecting them with fluid. Injected volumes range from picoliters to nanoliters.*

Microprocessor-controlled ***Nanoliter 2010*** *uses direct piston displacement.*

The versatile ***UMP3*** *injector uses microsyringes to deliver picoliter volumes.*

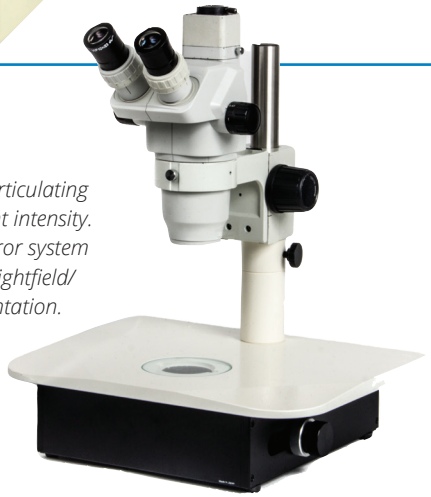
ELECTROPORATOR

- **CUY21-EDIT-11** Electroporator

CUY21-EDIT-II *Electroporator is a combination square wave and exponential wave form generator with single and dual pulse modes. It has single and dual pulse modes for square and decaying pulses. You can set pulses emitting constant current (mA) as well as voltage (V) and generate multiple waveforms. It offers built-in resistance measurement and a measured output recorder.*

MICROSCOPE

- ✱ **PZMIII-MI** Microscope with lighted base and articulating mirror
- **PZMIII** Precision Stereo Zoom Microscope



PZMIII-MI *LED Lighted Microscope Base with articulating mirror and variable light intensity. Dual reflection lens/mirror system provides transmitted brightfield/ psuedo-darkfield illumintation.*

PZMIII *Precision Stereo Zoom Microscope, available in binocular and trinocular (shown).*

For more information, see www.wpiinc.com/microinjection

PULLERS

- **PUL1000** Microprocessor-controlled 4-Step micropipette puller
- **PMP-102** Programmable Multipipette Puller

PUL-1000 *is a microprocessor controlled horizontal puller for making glass micropipettes or microelectrodes used in intracellular recording, microperfusion or microinjection. It offers programmable sequences of up to four steps with heating, force, movement and cooling time. This allows graduated cycles for applications like patch clamp recording.*

MANIPULATOR

- **M3301** Manual Micromanipulator
- **KITE** Manual Micromanipulatorr
- **DC3001** Motorized Micromanipulator
- **SN-PCZ-50** Miniature Piezo Micromanipulator with controller
- **M4C** Microscope Stage Adapter

*Weighing just 550 grams, the **M3301** is a well-built micromanipulator that outsells all others world-wide for high precision experiments where magnification is in the range of up to 250×.*

***M4C** Microscope Stage Adapter*

LIGHTS

- **Z-LITE-186** Fiber optic illuminator with (**500186**) Bifurcated Light Guides
- **ROF-UV** LED ringlight for UV
- **LED-Lite** Modular LED Light Source with Exchangeable LEDS
- **504134** LED Ring light

*The **504134** Ring Light Adapter has 72 LEDs. Max opening: 61mm.*

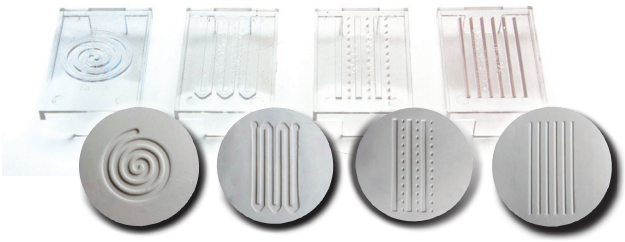
Z-LITE-186

ACCESSORIES

- **Nanofil** Microliter syringes
- **MicroFil** for backfilling glass needles
- Glass capillaries
- Pipetters
- **MicroTip** pre-pulled pipettes
- **E2XX** Micropipette Storage Jar
- **801566/801963** Vacuum Pump for use with the PV830
- **Fluorodish** Optical glass bottom dishes
- **M10** or **M-3** Manipulator base
- **Z-MOLDS** Microinjection and Translplantation Molds
- Many surgical instruments

*Use the **E2XX** jars to store up to 30 micropipettes, filled or unfilled, up to three inches in length.*

***MicroFil** is a flexible and reusable glass needle as small as 36 gauge for backfilling micropipettes.*



***Z-MOLDS** Microinjection and Transplantation Molds (4 per kit) are designed for zebrafish research. The molds are turned up-side down and placed in liquid agarose gel and are easily removed once it has solidified. Pipette the embryos into the grooves. The embryos self-align.*

Microinjection System

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