

Research variants



# Air Craft

The new Eppendorf microinjectors CellTram® 4r Air and CellTram® 4r Oil for optimal sample control

# CellTram<sup>®</sup> 4r Air

Working with the new generation of CellTrams is like taking a breath of fresh air. Our new manual microinjectors have been designed with special emphasis on excellent ergonomics, ease of use and high precision.

The CellTram 4r Air is a pneumatic microinjector for a broad range of microtransfer techniques. It is ideal for holding of cells or embryos in suspension or for dispensing smallest volumes of liquid.

Due to its improved characteristics the CellTram 4r Air is highly suitable for the **uptake and injection of cells** (e.g., of sperm or ES cells). For this application its performance is comparable to that of oil-filled injectors.

Have you been looking for a solution to work entirely oil-free? With the CellTram 4r Air you can avoid inconveniences when using oil (e.g., spills in the work space) and save time by omitting the filling process.



### Features CellTram 4r Air

- 1 Non-hydraulic system for oil-free manipulation and injection of cells
- 2 Piston position scale allows to set air volume and injection characteristics according to individual needs

### Features CellTram 4r (Air/Oil)

- 3 Coarse and fine drive for precise and intuitive sample control
- 4 Improved rotary knob design for better handling and easier cleaning
- 5 Capillary holder 4 with markings for easier positioning



The CellTram 4r Air features single button aeration. This allows you to quickly equilibrate pressure differences between the cylinder and ambient pressure, thereby speeding up your workflow.

# CellTram<sup>®</sup> 4r Oil

The CellTram 4r Oil is a hydraulic microinjector filled with oil that provides more direct sample control and can generate higher pressures compared to an air system.

The CellTram 4r Oil is the tool of choice for sophisticated applications that demand high resolution and sensitivity (e.g., embryo biopsies or injecting into plant cells). In addition, it addresses the same broad application spectrum as the CellTram 4r Air.

In terms of performance and leakage tightness, our oil-filled microinjectors are unmatched. In addition, the new CellTram 4r Oil is equipped with an improved oil-filling system which enables quick filling without spilling of oil.

Both new CellTram 4r models suit all personal working techniques and offer reliable performance with minimal maintenance.



6 New grip head 4 system for simple capillary change and higher user safety

7 Position indicators and marking for in/out to reduce risk of user errors

8 Stable, nonslip base plate

#### Features CellTram 4r Oil

9 Improved oil-filling system for minimal interruption of the workflow

10 Optimized piston/cylinder system for ultrafine sensitivity

With the new oil-filling system, preparing the CellTram 4r Oil for operation is quick and easy. A special self-closing valve helps to prevent spilling of oil during the filling process.





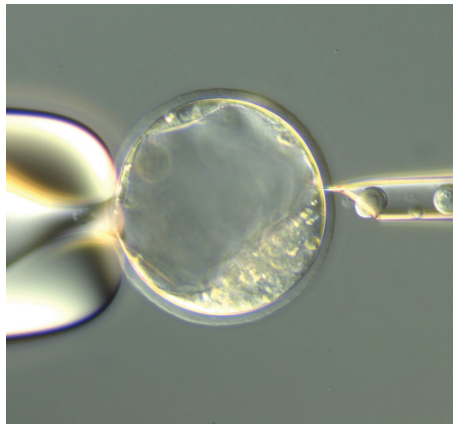


## The right solution for your application



### Intracytoplasmic sperm injection (ICSI)

- > Mouse ICSI
- > ICSI for larger mammals
- > Piezo-assisted ICSI in combination with the Eppendorf PiezoXpert®

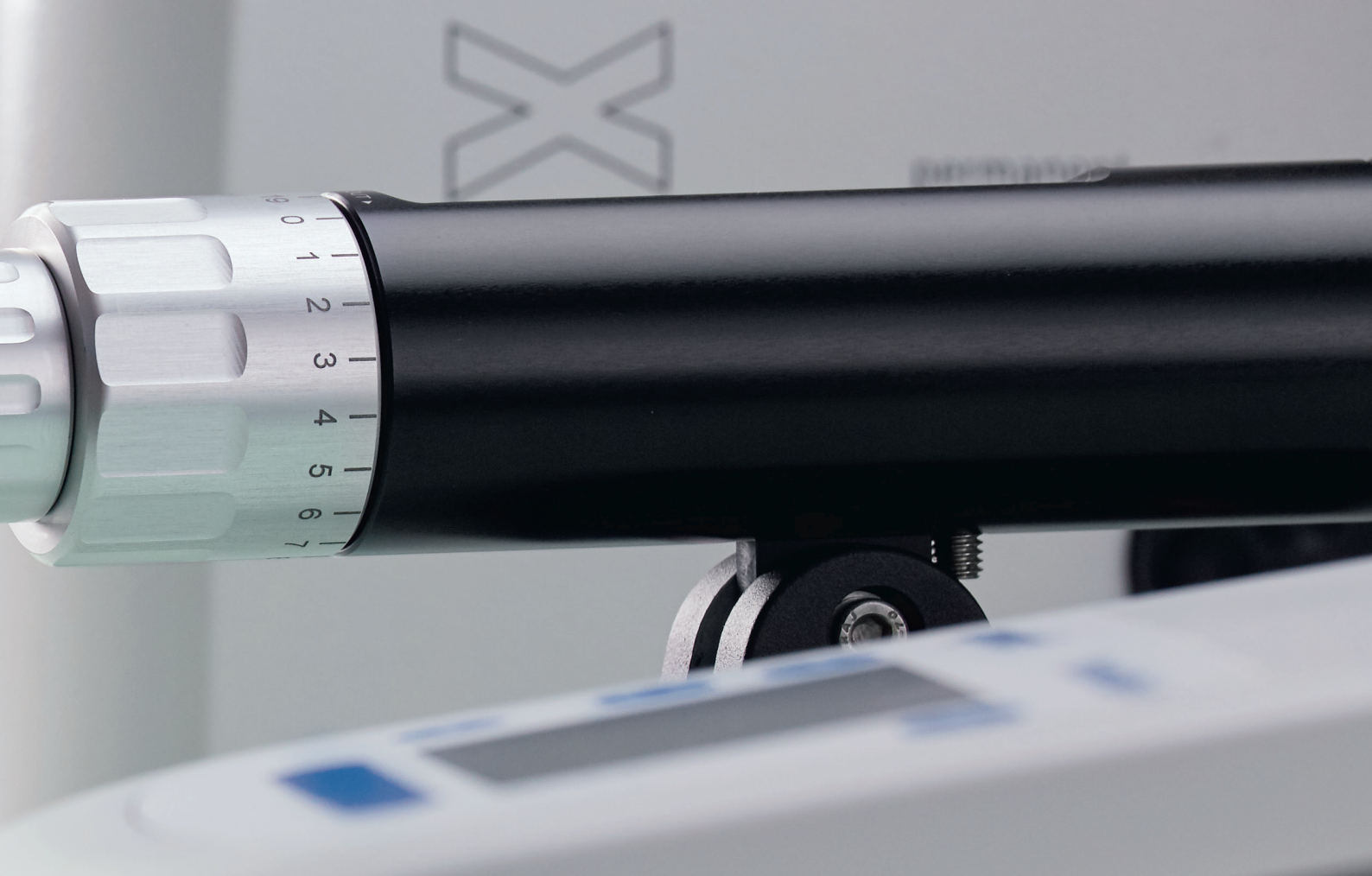


### Transfer of cells or organelles, e.g.

- > ES cell or iPS cell transfer into blastocysts or morulae
- > Enucleation/nucleus transfer
- > Removal or transfer of other organelles
- > (Xeno)transplantations



### Biopsy techniques on animal embryos in research applications



## Gentle treatment for your cells

Minimizing mechanical trauma to your sample is critical for achieving optimal results. The new capillary holder 4 (slim shape) in combination with Eppendorf manipulators allows for injecting with straight capillaries at angles lower than 15°. It can also be used with the FemtoJet 4. This helps to achieve highest survival rates for your developing embryos.



	CellTram® 4r Air	CellTram® 4r Oil
<b>Applications</b>	<ul style="list-style-type: none"> <li>&gt; Gentle holding of cells in suspension (e.g., oocytes or blastocysts)</li> <li>&gt; Aspiration and dispensing of small cells (e.g., sperm)</li> <li>&gt; Manual microinjection and dispensing of aqueous solutions</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Aspiration and dispensing of small cells (e.g., sperm)</li> <li>&gt; Manual microinjection under high pressure (e.g., into plant cells)</li> <li>&gt; Removal of cells (e.g., for embryo biopsies)</li> </ul>
<b>Generation of pressure</b>	Cylinder/piston system, air-filled	Cylinder/piston system, oil-filled
<b>Volume change per revolution</b>	60 µL / 600 µL	1 µL / 10 µL
<b>Cylinder volume</b>	10 mL	1,000 µL
<b>Minimum adjustable volume</b>	<100 nL	<1.5 nL
<b>Maximum pressure</b>	3,000 hPa	20,000 hPa
<b>Injection tube</b>	Fluorinated ethylene propylene (FEP), 1.3 m length, inner diameter 0.5 mm, outer diameter 2 mm	Fluorinated ethylene propylene (FEP), 1.3 m length, inner diameter 1 mm, outer diameter 2 mm



## Ordering information

Description	International Order no.	North America Order no.
<b>CellTram® 4r Air</b> , pneumatic, manual microinjector with gear, with capillary holder 4 and injection tube Air inner diameter = 0.5 mm (white ring mark)	5196 000.013	5196000013
<b>CellTram® 4r Oil</b> , hydraulic, manual microinjector with gear, with capillary holder 4, injection tube Oil inner diameter = 1.0 mm (blue ring mark), mineral oil and Filling and Cleaning set	5196 000.030	5196000030
<b>Accessories for CellTram® 4r Air and CellTram® 4r Oil</b>		
<b>Capillary holder 4</b> for mounting Femtotips®, Femtotip II or grip heads	5196 081.005	5196081005
<b>Grip head set 4 size 0</b> for microcapillaries with outer diameter 1.0 to 1.1 mm	5196 082.001	5196082001
<b>Grip head set 4 size 1</b> for microcapillaries with outer diameter 1.2 to 1.3 mm	5196 083.008	5196083008
<b>Grip head set 4 size 2</b> for microcapillaries with outer diameter 1.4 to 1.5 mm	5196 084.004	5196084004
<b>Grip head set 4 size 3</b> for microcapillaries with outer diameter 0.7 to 0.9 mm	5196 085.000	5196085000
<b>Grip head set 4 (slim shape)</b> , for capillary holder 4 (slim shape) and capillaries with 1.0 mm diameter	5196 063.007	5196063007
<b>O-ring-set 4</b> for grip head sets 4	5196 086.007	5196086007
<b>Capillary holder 4 (slim shape)</b> , for flat angle injections, for microcapillaries with outer diameter 1.0 mm	5196 062.000	5196062000
<b>Injection tube Air</b> , inner diameter = 0.5 mm (white ring mark)	5196 061.004	5196061004
<b>Injection tube Oil</b> , inner diameter = 1.0 mm (blue ring mark)	5196 089.006	5196089006
<b>Filling and Cleaning set</b> for CellTram®	5196 088.000	5196088000
<b>Mineral Oil</b> , for CellTram 4r Oil, 100 mL	5176 859.018	5176859018
<b>Micromanipulators and electronic microinjectors</b>		
<b>TransferMan® 4r</b> , micromanipulator with DualSpeed™ joystick for direct and dynamic movement control	5193 000.012	5193000020
<b>InjectMan® 4</b> , micromanipulator with dynamic movement control	5192 000.019	5192000027
<b>Microscope adapters</b> , for all common microscopes	available upon request	
<b>Eppendorf PiezoXpert®</b> , for piezo-assisted micromanipulation, incl. actuator and foot control	5194 000.016	5194000024
<b>FemtoJet® 4i</b> , programmable microinjector with integrated compressor	5252 000.013	5252000021
<b>FemtoJet® 4x</b> , programmable microinjector for use with an external pressure supply	5253 000.017	5253000025
<b>Consumables</b>		
<b>Eppendorf Microloader™</b> , 2 Racks with 96 tips, 0.5–20 µL, 100 mm	5242 956.003	930001007
<b>VacuTip</b> , holding capillary, 35° tip angle, 15 µm inner diameter, 1 mm flange, sterile, set of 25	5175 108.000	930001015
<b>VacuTip FCH</b> , holding capillary, 25° tip angle, 60 µm inner diameter, 0.5 mm flange, sterile, set of 25	5175 240.006	517524006
<b>Piezo Drill Tip Mouse ICSI</b> , for piezo-assisted mouse ICSI, 25° tip angle, 15 µm inner diameter, 6 mm flange, sterile, set of 25	5175 220.005	930001091
<b>Piezo Drill Tip ES</b> , for piezo-assisted mouse ES cell transfer, 25° tip angle, 15 µm inner diameter, 6 mm flange, sterile, set of 25	5175 250.001	930001104
<b>TransferTip® (ES)</b> , for ES cell transfer, 20° tip angle, 15 µm inner diameter, 1 mm flange, sterile, set of 25	5175 107.004	930001040
<b>Femtotips®</b> , injection capillary, sterile, set of 20	5242 952.008	930000035
<b>Femtotip II</b> , injection capillary, sterile, set of 20	5242 957.000	930000043

The above products are for research use only.

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