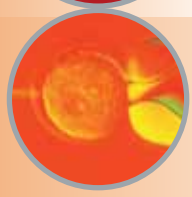
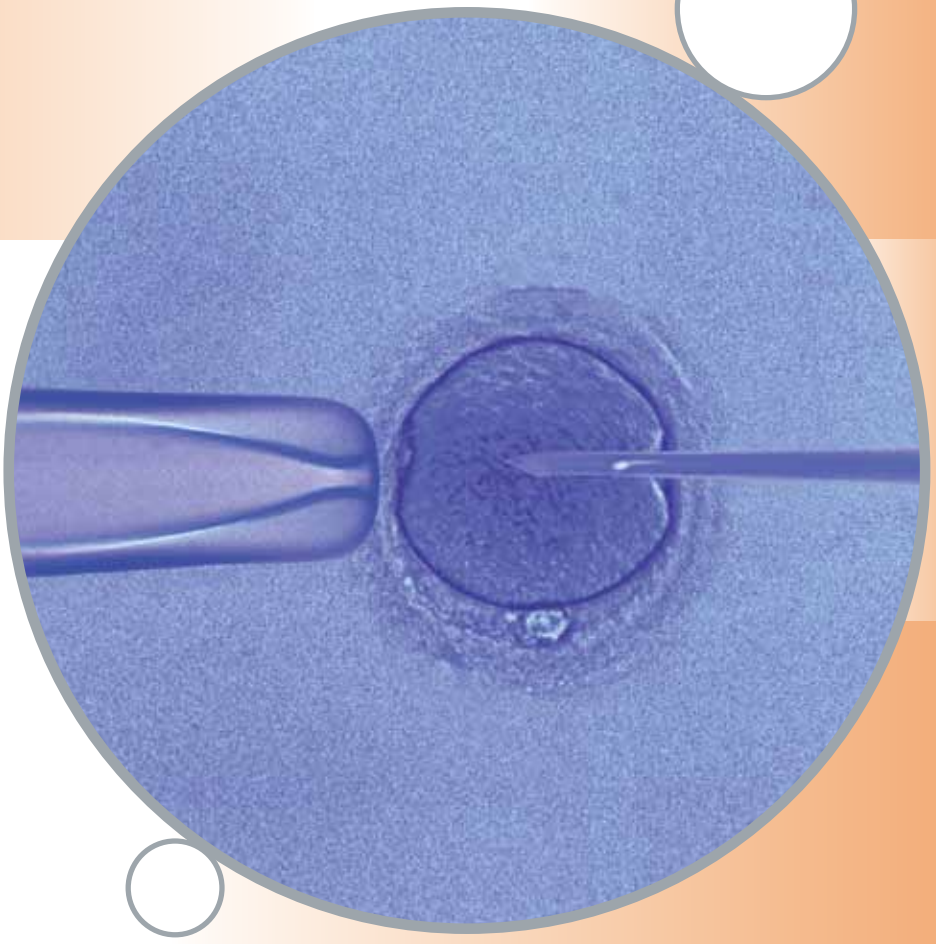
- Mouse intracytoplasmic sperm injection (ICSI)

- Adherent cell injection

- Embryonic stem cell transfer into a blastocyst



- Pronuclear injection



The many faces of Eppendorf® microcapillaries

Capillaries for micromanipulation and microinjection

eppendorf

Cell biology specialists

Eppendorf Microcapillaries

Correct handling of sensitive samples such as living cells, nucleic acids or other cell components is essential in cell and molecular biology and successful experiments begin with top quality instruments, reagents, and consumables. With this in mind, Eppendorf offers a large selection of microcapillaries for a wide spectrum of applications.

Eppendorf capillaries were developed in close cooperation with the scientists who use them so that functionality and precision needs are met. These capillaries open up a virtually unlimited range of applications for micromanipulation.

Expensive and time-consuming devices for manufacturing and monitoring self-drawn capillaries are no longer necessary. In addition, fluctuations in quality and specifications that may compromise experiments have been eliminated. Precisely defined specifications, stringent quality control and effective sterilization methods ensure that Eppendorf microcapillaries provide exceptional reproducibility.

Capillary Selection Guide

Application	Holding side	Injection side	Alternatives/Comments
Microinjection into adherent cells	— for injections into cytoplasm or the nucleus	Femtotips® I/II:	Femtotips I: rigid, larger outer diameter Femtotips II: flexible, smaller outer diameter
Transgenic animals: microinjection into the pronuclei of fertilized oocytes (pronucleus stage)	VacuTip	Femtotips II	—
Transgenic animals: transfer of embryonic stem (ES) cells into blastocysts	VacuTip	TransferTip® (ES) Piezo Drill (ES)	—
Developmental biology: microinjection into eggs and fish and reptile embryos	VacuTip	Femtotips II	—
IVF: ICSI—human	VacuTip	TransferTip-R (ICSI) or TransferTip-F (ICSI)	TransferTip-RP (ICSI)
IVF: ICSI—mouse	VacuTip	Piezo Drill (ICSI)	—

Microcapillaries for cell injection

Application

- Microinjection into adherent and suspension cells

Product features

- Microcapillaries for adherent and suspension cells
- Sterile
- Each tip is individually tested
- Defined opening
- Screw thread for rapid mounting

Eppendorf Femtotips and Microloaders enable rapid, precise and highly reproducible microinjection; stringent quality-controlled manufacturing procedures ensure the best possible performance. The combination of InjectMan® NI 2, FemtoJet* and Femtotips provides precise results for high-throughput applications. The combination of TransferMan® NK 2, FemtoJet® and Femtotips II provides precise results for the creation of transgenic animals (by pronuclear injection techniques).

*U.S. Pat. 4,836,244

Femtotips I

- Microinjection capillary for reproducible injection into adherent cells
- Defined opening with 0.5 µm inner diameter and 1.0 µm outer diameter (±0.2 µm)
- Screw thread for rapid mounting
- Precise length accuracy
- Each Femtotip is individually tested using a flow parameter

Femtotips II

- Microinjection capillary for reproducible injection into adherent and suspension cells
- Defined opening with 0.5 µm inner diameter and 0.7 µm outer diameter (±0.1 µm)
- Screw thread for rapid mounting
- Precise length accuracy
- Each Femtotip is individually tested using a flow parameter

Microloader

- Pipette tip for filling microinjection capillaries
- Rack package can be sterilized
- Ideal for recovering surplus solution from the capillary

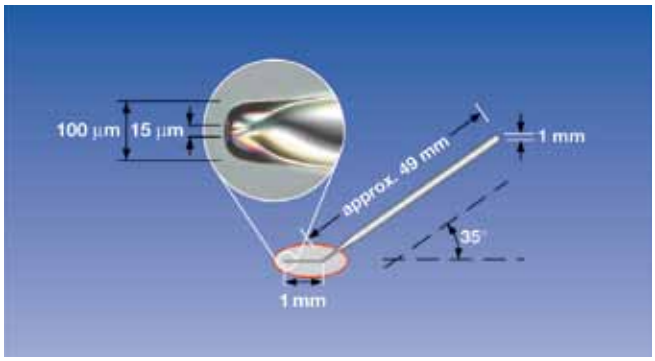
Microcapillaries for ICSI (intracytoplasmic sperm injection)

Applications

- TransferTips mouse (ICSI) for injection of sperm into the cytoplasm
- VacuTip for holding oocytes or blastocysts, e.g., for mouse ICSI or horse preimplantation genetic diagnosis (PGD)

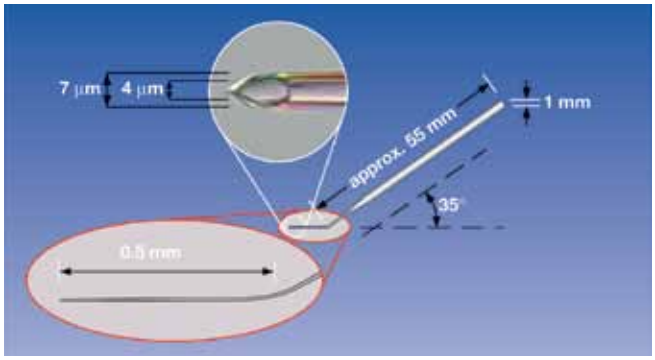
Product features

- Sterilized by validated gamma irradiation
- Noncytotoxic, as proven by mouse embryo development test
- Validated manufacturing procedures with stringent, ongoing monitoring
- Rigorous quality control process
- Capillary Safe for optimal protection of capillaries



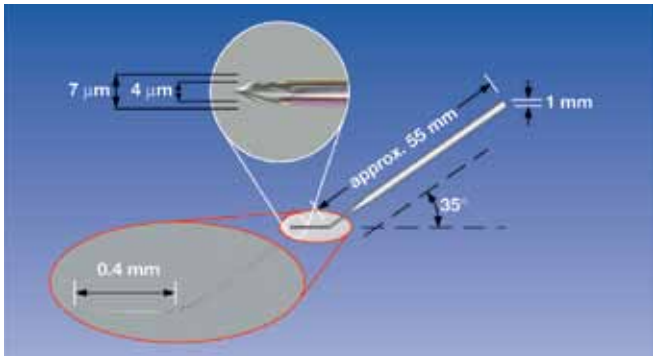
VacuTip Holding Capillary

- Glass microcapillary for holding suspension cells (e.g., oocytes, blastocysts and similar large cells)
- 15 µm inner diameter
- 100 µm outer diameter
- 35° capillary angle
- 1 mm flange



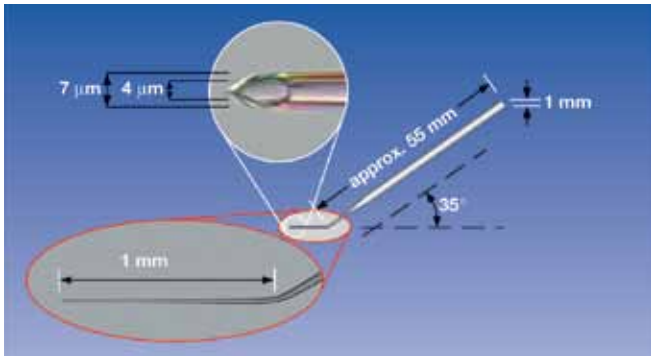
TransferTip-RP (ICSI)

- Glass microcapillary for injecting sperm
- 4 µm inner diameter
- 7 µm outer diameter
- 35° capillary angle
- Rigid 0.5 mm parallel flange
- Heat-formed spike facilitates penetration of oocytes



TransferTip-F (ICSI)

- Glass microcapillary for injecting sperm
- 4 µm inner diameter
- 7 µm outer diameter
- 35° capillary angle
- Flexible 0.4 mm flange
- Heat-formed spike facilitates penetration of oocytes



TransferTip-R (ICSI)

- Glass microcapillary for injecting sperm
- 4 µm inner diameter
- 7 µm outer diameter
- 35° capillary angle
- Rigid 1.0 mm flange
- Heat-formed spike facilitates penetration of oocytes

Microcapillaries for transferring embryonic stem (ES) cells

Transferring ES cells into blastocysts is a leading method for producing transgenic animals. Working with sensitive ES cells and blastocysts requires high quality transfer capillaries with clearly defined tips. TransferTips (ES) are high quality capillaries manufactured under stringent product standards and quality control procedures.

Application for TransferTips (ES)

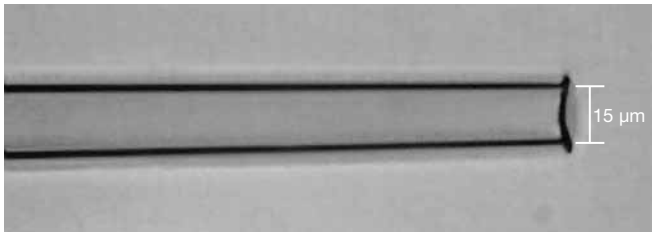
- Transfer of ES cells into blastocysts

Product features

- Sterilized by validated gamma irradiation
- Noncytotoxic, as proven by the mouse embryo development test
- Capillary Safe for optimal protection
- 15 µm inner diameter
- 20 µm outer diameter
- 20° capillary angle
- Rigid 1 mm flange
- Heat-formed spike eases penetration

Piezo Drill microcapillary for mouse ES cell transfer

Transferring ES cells into blastocysts is a leading method for producing transgenic animals. Working with sensitive ES cells and blastocysts requires high quality transfer capillaries with clearly defined tips. Our piezo drill tips are manufactured under the strictest quality control procedures to meet these high quality requirements.



Application

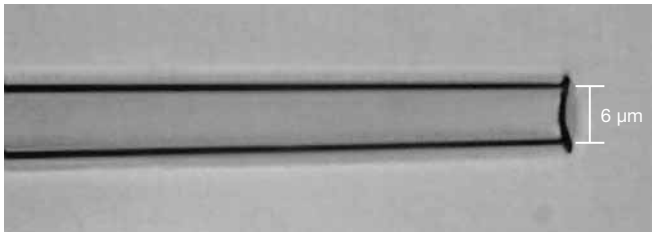
- Transfer of ES cells into blastocysts using a Piezo Drill

Product features

- Sterilized by validated gamma irradiation for utmost purity
- Noncytotoxic, as proven by the mouse embryo development test
- Capillary Safe for optimal protection
- Jagged, non-polished end
- 15 µm inner diameter
- 25° capillary angle
- Rigid 6 mm flange

Piezo Drill microcapillary for mouse ICSI

One of the leading methods for producing transgenic animals is the transfer of mouse sperm heads into the cytoplasm of unfertilized mouse eggs. Working with sensitive sperm heads and eggs requires high quality transfer capillaries with clearly defined tips. Our piezo drill tips are manufactured under the strictest quality control procedures to meet these high quality requirements.



Application

- Transfer of mouse sperm heads into the cytoplasm of unfertilized mouse eggs using a Piezo Drill

Product features

- Sterilized by validated gamma irradiation for utmost purity
- Noncytotoxic, as proven by the mouse embryo development test
- Capillary Safe for optimal protection
- Jagged, non-polished end
- 6 µm inner diameter
- 25° capillary angle
- Rigid 6 mm flange

Capillary Safe

Eppendorf Capillary Safe provides ideal protection for all Eppendorf capillaries. The capillaries can be removed safely and easily, even when wearing gloves. Different-colored Capillary Safes and color-coded packaging make identification easy.

- Capillary Safe protects the capillary until it is used

Eppendorf Microcapillaries

Ordering information

Product	Description	Catalog No.
Femtotip I	Set of 20 microinjection capillaries for adherent cells, with screw head; 0.5 µm inner diameter, 1 µm outer diameter	930000035
Femtotip II	Set of 20 sterile microinjection capillaries for adherent and suspension cells, with screw head; 0.5 µm inner diameter, 0.7 µm outer diameter	930000043
Microloader	2 sets of 96 pcs., for filling Femtotips, autoclavable	930001007
VacuTip	Set of 25 microcapillaries for holding suspension cells, 35° angle; 15 µm inner diameter, 100 µm outer diameter	930001015
TransferTip-F (ICSI)*	Set of 25 sterile microcapillaries for sperm injection using the ICSI technique, flexible flange, 35° angle; 4 µm inner diameter, 7 µm outer diameter	930001031
TransferTip-R (ICSI)*	Set of 25 sterile microcapillaries for sperm injection using the ICSI technique, rigid flange, 35° angle; 4 µm inner diameter, 7 µm outer diameter	930001066
TransferTip-RP (ICSI)*	Set of 25 sterile microcapillaries for injection using the ICSI technique, rigid parallel flange, 35° angle; 4 µm inner diameter, 7 µm outer diameter	930001074
TransferTip (ES)*	Set of 25 sterile microcapillaries for transferring ES cells into blastocysts, 20° angle; 15 µm inner diameter, 20 µm outer diameter	930001040
Piezo drill tip (ICSI)*	Set of 25 sterile microcapillaries for sperm injection using the piezo drill ICSI technique, 6 mm rigid flange, 25° angle; 6 µm inner diameter	930001091
Piezo drill tip (ES)	Set of 25 sterile microcapillaries for ES cells transfer into blastocysts using the piezo drill technique, 6 mm rigid flange, 25° angle; 15 µm inner diameter	930001104

*For research use only. Not for use in human medical applications. This product is not registered in the U.S. as a medical device and does not have a 510(k) registration.

For technical information, contact your local Eppendorf North America Cell Biology Specialist at 800-645-3050 or email apps@eppendorf.com.

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