In ovo

LF610 series Fixed platinum needle electrode (for routine work)

Target sample : chick embryo' s organ or tissue derived from ectoderm (i.e. neural tube)

How to read catalogue no

LF610 P 2 - 1
- 1: length of conductive part
- 2: gap between electrodes
- P: electrode material: platinum

* A unit of length and gap is mm

Series

- LF610P1.5-1
- LF610P2-1
- LF6102.5-1
- LF610P4-1
- LF610P4-2
- LF610P4-4

LF611 series Platinum needle electrode

Target sample : chick embryo' s organ or tissue derived from ectoderm (i.e. neural tube)

How to read catalogue no

LF611 P 3 - 1
- 1: length of conductive part
- 3: length from electrode tip to bent part
- P: electrode material: platinum

* A unit of length is mm

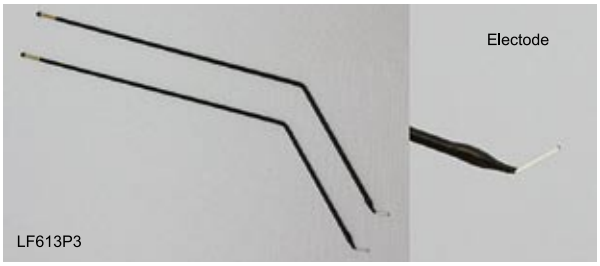
Series

- LF611P3-1
- LF611P7-2
- LF611P7-3
- LF611P7-4
- LF611P7-5
- LF611P8-2

See Application 1

LF613 series Z-Shape platinum electrode*

Target sample : chick embryo' s organ or tissue derived from endoderm and mesoderm



How to read catalogue no

LF613 P 3
- 3: length of conductive part
- P: electrode material: platinum

* A unit of length is mm

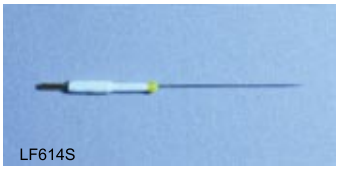
Series

- LF613P1
- LF613P2
- LF613P3
- LF613P5

＊Used with LF611 or LF614 series electrodes

LF614 series Tungsten & stainless steel needel electrode

Target sample : pinpoint area of chick embryo' s organ or tissue derived from endoderm and mesoderm



How to read catalogue no

LF614 T
- T: electrode material: T: Tungsten, S: Stainless steel

Series

LF614T (5pcs) *1 LF614S (1pc) *2

*1 Diameter of needle tip: 200μmΦ
*2 Diameter of needle tip: 100μmΦ, Length of conductive part: 1mm

LF580 Electrode holder

Electrod e gap:1-10mm (1mm increment)
Compatible electrodes: LF611・LF613

LF615C Electrode holder

Compatible electrodes: LF614T LF614S

* Product specifications are subject to change without notice

In vivo & In utero

LF560 series Fixed gap needle electrode

Target sample : Mouse and rat' s muscle, newborn rat' s brain etc.

How to read catalogue no

LF560 S 5

- 5: gap between electrodes
- S: electrode material: stainless steel

* A unit of gap is mm

Series

LF560S5 LF560S10 LF560S15

Diameter of electrode tip : 0.5mmΦ

See Application 3

LF647 series Tweezers with rectangular (square) electrodes

Target sample : Mouse and rat' s pancreas, black porgy' s gonad

How to read catalogue no

LF647 P 1X2

- 1X2: electrode size (W x H)
- P: electrode materia — T: Tungsten, S: Stainless steel

* A unit of size is mm

Series

- LF647P1X2
- LF647P2.5X1
- LF647S10X15
- LF647P2X2
- LF647P3X5
- LF647S15X10
- LF647P2X5
- LF647S5X10
- LF647S20X20

LF650 series Tweezers with disk electrodes

Target sample : Mouse and rat' s skin, organs, retina, zebrafish' s fin, mouse embryo' s brain (in utero)

How to read catalogue no

LF650 P 5

- 5: Diameter of disk electrode
- P: electrode materia — T: Tungsten, S: Stainless steel

* A unit of diameter is mm

Series

- LF650P0.5
- LF650P5
- LF650S5
- LF650P1
- LF650P7
- LF650S7
- LF650P3
- LF650P10
- LF650S10

See Application 6, 9 and 11

LF650 series Tweezers with asymmetric disk electrodes

Target sample : pinpoint area of mouse and rat' s organs, mouse embryo' s brain (in utero)

How to read catalogue no

LF650 P 1 - 3

- 3: Diameter of disk electrode
- 1: Diameter of disk electrode
- P: electrode materia — T: Tungsten, S: Stainless steel

* A unit of diameter is mm

Series

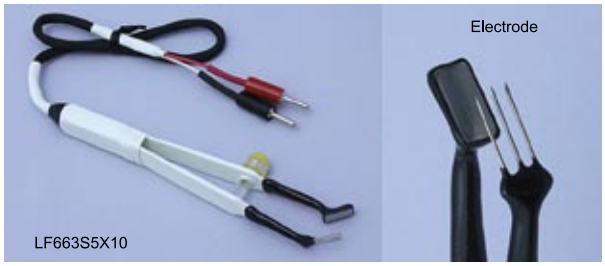
- LF650P0.5-3
- LF650P1-3
- LF650P0.5-5
- LF650P1-5

* Product specifications are subject to change without notice

In vivo & In utero

LF663 & 664 series Tweezers with fork & rectangular electrodes

Target sample : Mouse and rat' s skin



How to read catalogue no

LF663 P 3X6
- 3X6: electrode size (W x H)
- P: electrode materia (T: Tungsten, S: Stainless steel)
- 663: no of needles

* A unit of size is mm

Series

- LF663S5X8
- LF663S5X10
- LF664S10X15
- LF663P3X6
- LF663P5X5

See Application 14

LF195 series Platinum needle electrode

Target sample : Xenopus embryo

How to read catalogue no

LF195 P 0.5
- 0.5: Diameter of electrode tip
- P: electrode materia: platinum coating

* A unit of diameter of electrode tip is mm

Series

LF195P0.3 LF195P0.5

Used with LF700P20E (see LF700 series)

See Application 4

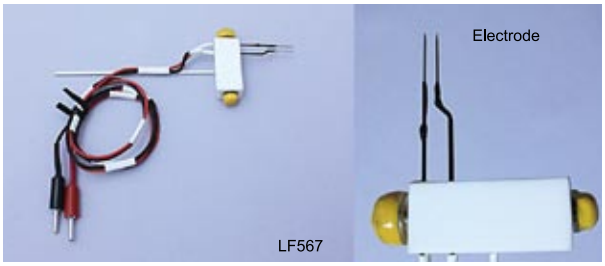
LF651P Tweezers with U-shape platinum electrodes

Target sample : Mouse embryo' s spinal cord

Specifications	ID: 4mmΦ OD: 6mmΦ

LF567 Needle electrode (variable gap)

Target sample : Honey bee' s brain, newborn mouse' s brain etc.

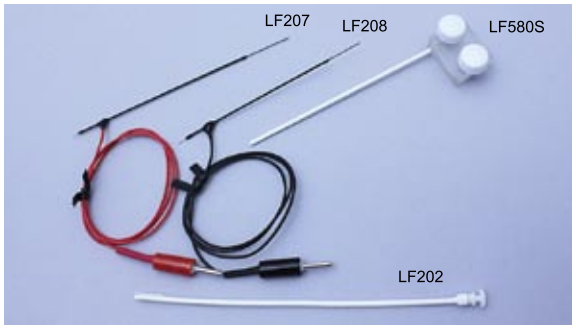


Specifications	Variable gap: 0.5-20mm, Diameter of electrode tip: 0.5mm

See Application 8 and 10

LF200S Injection needle electrode with holder

Target sample : Adult mouse' s brain



Components

- LF207 injection needle (anode)
- LF208 injection needle (cathode)
- LF580S electrode holder
- LF202 Cleaning wire

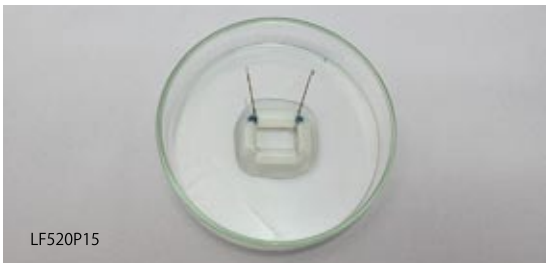
Specifications	Electrode tip of LF208 & LF207 ID: 0.15mmΦ OD: 0.3mmΦ Length of conductive part: 0.5mm

* Product specifications are subject to change without notice

Ex vivo

LF520 series Bath with plate electrodes on petridish

Target sample: mouse or rat' s embryo (whole mount culture), extracted organ or tissue



Series	
• LF520P5	• LF520P20
• LF520P15*	• LF520P25

* For whole mount culture

How to read catalogue no

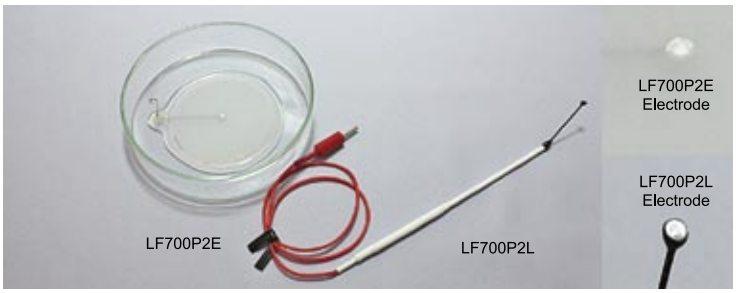
LF520 P 5
- gap between electrodes
- electrode material: platinum coating

* A unit of gap between electrodes is mm

See Application 5

LF700 series Platinum disk electrode on petridish & on rod

Target sample: mouse or rat' s sliced tissue (i.e. hippocampus)



How to read catalogue no

LF700 P 2 E
- Type of electrode E: Petridish type L: Rod type
- Diameter of disk electrode
- electrode material: platinum coating

* A unit of diameter is mm

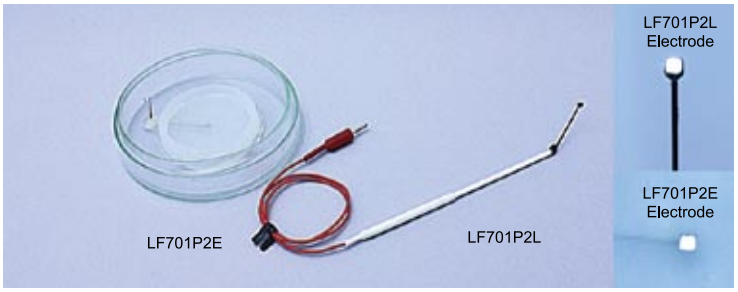
Series

Petridish type				Rod type			
• LF700P2E	• LF700P5E	• LF700P20E		• LF700P1L	• LF700P4L	• LF700P10L	
• LF700P3E	• LF700P7E			• LF700P2L	• LF700P5L	• LF700P20L	
• LF700P4E	• LF700P10E			• LF700P3L	• LF700P7L		

See Application 12

LF701 series Platinum square electrode on petridish & on rod

Target sample: mouse or rat' s sliced tissue, planarian, early chick embryo etc.



How to read catalogue no

LF701 P 2 E
- Type of electrode E: Petridish type L: Rod type
- length of square electrode
- electrode material: platinum coating

* A unit of square is mm

Serie

Petridish type			Rod type		
• LF701P2E	• LF701P10E		• LF701P2L	• LF701P7L	
• LF701P5E	• LF701P20E		• LF701P3L	• LF701P10L	
• LF701P7E			• LF701P5L	• LF701P20L	

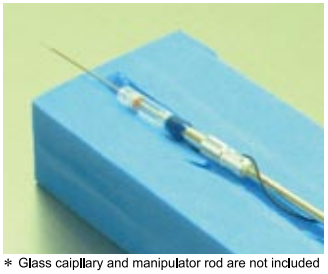
See Application 2 and 13

* Product specifications are subject to change without notice

In vitro

LF230 Glass capillary holder with wire electrode

Target sample: single mammalian or plant cell etc.



＊ Glass caipllary and manipulator rod are not included

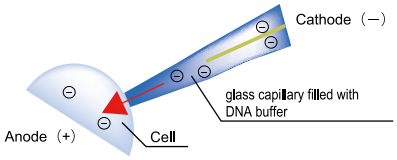
Procedure of electroporation with LF230

1. Place the tip of a glass capillary on cell membrane
2. Electroporate a cell
3. Make a pore on cell membrane and introduce genes into a cell

Advantage of LF230

・Able to quantify the amount of DNA introduced into a cell
・Minimize a damage caused by buffer

Schematics of L230 with glass capillary



LF512・513・514series Plate electrode for cultured cells

Target sample:Human corneal keratocyte cells・Dental pulp cells・NC65・BCEC

Series	
・LF512-5	・LF513-5
・LF513-4	・LF514-5

How to read catalogue no

LF512-5

- 5: gap between electrodes
- 2: no of plate electrodes

＊A unit of gap between electrodes is mm

Schematics of plate electrode

Plate electrodes for cultured adherent cells

Each plate electrode has a 0.3mm height insulated foot at both ends of the bottom. When an electrode is placed in a dish, as the conductive part of an electrode will not touch cells directly, a foot minimizes the damage on cells.

Cables & Accessory

D200 Footswitch

Compatible with CUY21EDIT・CUY21Vivo-SQ・CUY21EX
Able to apply DC pulse by footswitch

D117 Hook cable

Compatible with CUY21EDIT・CUY21Vivo-SQ・CUY21EX
Able to connect an electrode by hook

D115CB Connector cable

Compatible with CUY21EDIT・CUY21Vivo-SQ・CUY21EX
Able to connect a tweezers type electrode directly

D112CB High voltage connector cable

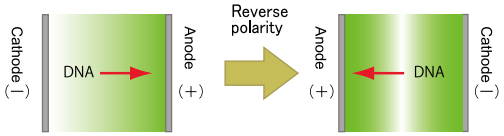
Compatible with CUY21EDIT・CUY21Vivo-SQ・CUY21EX
Connect a main device to a polarity changer DU902

DU902 Polarity changer

Compatible with CUY21EDIT・CUY21Vivo-SQ・CUY21EX
D112CB cable is not included

Increase transfection area by reversing polarity between electrodes

Polarity Change



Genes are expressed intensively around anode side as DNA charged with negative is pulled over to anode

Transfection can be expanded by just reversing polarity between electrodes

＊ Product specifications are subject to change without notice