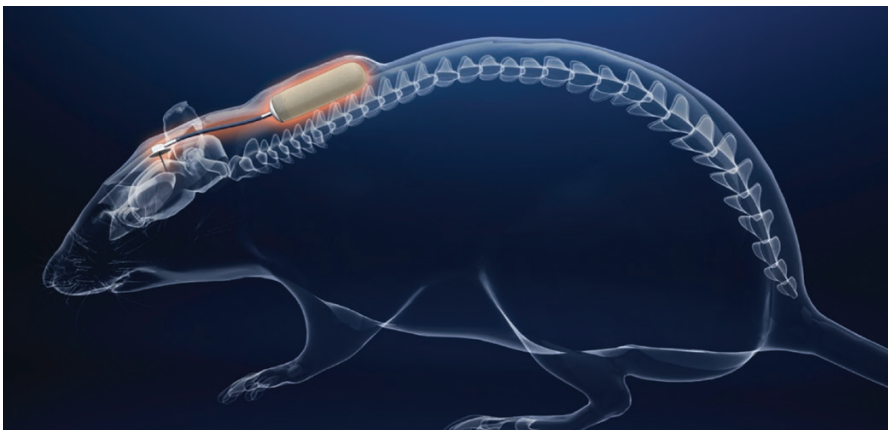


# alzet<sup>®</sup> NEUROSCIENCE PRODUCTS

OSMOTIC PUMPS Simplifying neuroscience research with ALZET Osmotic Pumps

ALZET<sup>®</sup> Osmotic Pumps and Brain Infusion Kits have been used in cutting edge neuroscience research for nearly 4 decades. Their ability to circumvent the blood-brain barrier (BBB) and administer agents directly to the central nervous system (CNS) has enabled new and exciting discoveries in the study of neuropathic pain, cerebral ischemia, neurodegenerative diseases, and more.



*Subcutaneous placement of an ALZET pump and brain cannula enables automatic and continuous delivery of agents to the CNS of unrestrained lab animals.*

Neuroscientists have also capitalized on the ALZET pump's ability to deliver a precise and continuous dose, without researcher intervention or animal disturbance, for using them in behavioral studies. Gathered here is a selection of CNS infusion tools to help you achieve reliable and reproducible results.

## BENEFITS OF ALZET PUMPS IN NEUROSCIENCE RESEARCH

- Small size for use in mice and young rats
- Direct delivery across the blood-brain barrier
- Continuous and controlled delivery of neuroactive compounds
- Ideal for behavioral studies — no animal handling required during infusion
- Easy attachment to a catheter for delivery to the brain, spinal cord, or peripheral nerves
- Well-established neuroscience method with over 15,000 publications
- Improved bioavailability of short half-life peptides and proteins
- Convenient & cost-effective for chronic dosing of lab animals
- Automatic nighttime and weekend dosing

# ALZET BRAIN INFUSION KITS



ALZET pumps and brain infusion kits are a reliable and convenient tool to deliver agents across the BBB, and directly to their site of action in the brain. They enable continuous delivery of a precise drug dose, and ensure that sufficient levels are maintained at the target location to elicit their effects.

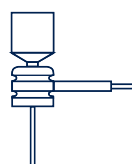
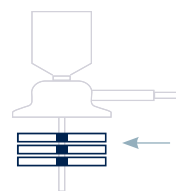


ALZET brain infusion kits can be used in two ways:

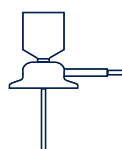
- Infusion into the cerebral ventricles, exposing a wide variety of brain regions to the infusate via the cerebrospinal fluid.
- Direct microinfusion of discrete brain structures, resulting in localized distribution of infusate in the target tissue.

Each ALZET Brain Infusion Kit includes materials for 10 brain infusions:

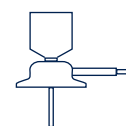
- 10 Brain Infusion Cannulae
- 10 Vinyl Catheter Tubes
- 40 Depth-Adjustment Spacers
- 1 Instruction Sheet



**BIK1**



**BIK2**



**BIK3**

Brain Infusion Kit (BIK)	BIK1	BIK2	BIK3
Order number	0004760	0008663	0008851
Material (tube)	Stainless steel		
Gauge (tube)	28 Gauge		30 Gauge
Dimensions (tube)	ID = 0.18 mm; OD = 0.36 mm		ID = 0.16 mm; OD = 0.31 mm
Penetration depths	3-5 mm		1-3 mm
Material (elbow stop, flange)	Polycarbonate		
Side connector (for catheter attachment)	0.71 mm (21 Gauge)		
Cannula Design	Narrow diameter with suture grooves	Low profile and wide base for skin closure and stability	
Features	Compatible with all ALZET pump models; optimum for delivery to lateral ventricles of rats (BIK1 & 2) and mice (BIK3); easily customized for delivery to different brain regions or animal sizes; fine cannula minimizes trauma to the brain during placement; available sterile		

## CATHETER TUBING

Medical grade polyethylene and vinyl catheters are available for multiple targeted delivery applications.

Description	Order No.	Length	Outside Diameter	Inside Diameter	Volume
Vinyl Tubing (10 per bag)	0007760	15 cm (6 in)	1.14 mm (0.045 in)	0.69 mm (0.027 in)	3.739 $\mu$ l/cm
Polyethylene Tubing (10 per bag)	0007750	15 cm (6 in)	1.22 mm (0.048 in)	0.72 mm (0.030 in)	4.566 $\mu$ l/cm



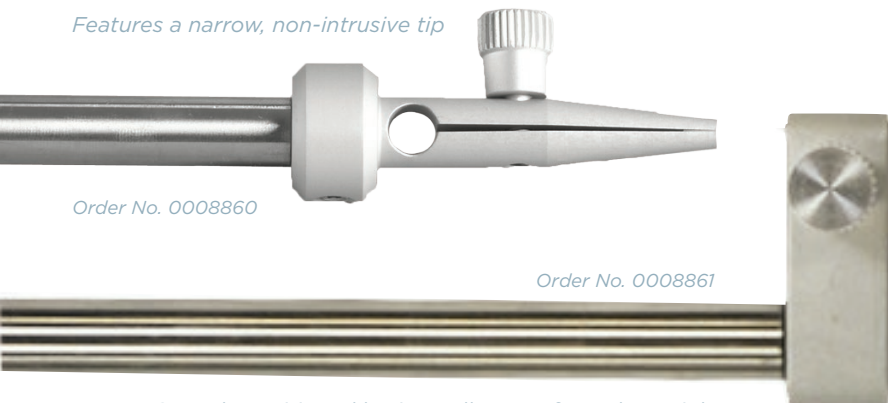
## INTRATHECAL CATHETERS

Specifically designed for use with ALZET pumps, these catheters are constructed with high quality materials for increased patency and reduced tissue trauma. They incorporate useful features, such as flexible and secure catheter junctions to minimize kinking and leaking, and a teflon-coated, stainless steel wire to facilitate placement. They are available sterile and individually packaged.

Description (Item No.)	Material	Length	General Features
Rat Intrathecal (0007740)	Polyurethane	23.7 cm	Optimum for occipital insertion; includes 10 cm of very fine tubing (28G; 0.36 mm OD); teflon-coated, stainless steel wire stylet.
Rat Intrathecal-Short (0007741)	Polyurethane	15 cm	Shorter length for lumbar insertion; includes 10 cm of very fine tubing (28G; 0.36 mm OD); teflon-coated, stainless steel wire stylet.
Mouse Intrathecal (0007743)	Polyurethane	6 cm	Includes 2.5 cm of very fine tubing (32G; 0.23 mm OD); teflon-coated, stainless steel wire.

Additional catheters are available for other targeted delivery applications. Visit our website at [www.alzet.com](http://www.alzet.com), or contact us for a complete list.

*Features a narrow, non-intrusive tip*



*Order No. 0008860*

*Order No. 0008861*

*Cannula positioned horizontally away from the stainless steel rod for easier visualization during cannulation.*

## CANNULA HOLDERS

Designed to hold the removable tab on all ALZET brain infusion cannulae, these devices facilitate stereotaxic placement of brain cannula to the skull of laboratory animals.

## WOUND CLOSURE SYSTEMS



The AutoClip & Reflex wound closure systems provide a fast and effective alternative to sutures for closing incisions made for ALZET pump implantations. The components are available separate, or as a kit containing the Applier, Remover, and stainless steel wound clips (7 mm or 9 mm). The 9 mm AutoClips are ideal for use in rats, while the 7 mm Reflex clips are optimum for use in mice and young rats. Visit [www.alzet.com](http://www.alzet.com), or contact us for a complete list of wound closure products available.

## CYANOACRYLATE ADHESIVE (LOCTITE 454)

Loctite 454 is an instant adhesive gel for use with ALZET Brain Infusion Kits and other brain cannulae. It offers a convenient alternative to dental cement, and researchers have found it to be ideal for brain cannulation in mice and other small animals. One 3 gram tube is enough for 10 brain cannulations.



Order No. 0008670

## ALZET OSMOTIC PUMPS: RATES & DURATIONS

ALZET pumps are available in 3 different sizes, durations ranging from 1 day to 42 days, and various release rates to meet your experimental research needs.



Pump Model	Reservoir Volume	Duration	Release Rate	Order #
1003D	100 $\mu$ l	3 days	1.0 $\mu$ l/hr	0000289
1007D	100 $\mu$ l	1 week	0.5 $\mu$ l/hr	0000290
1002	100 $\mu$ l	2 weeks	0.25 $\mu$ l/hr	0004317
1004	100 $\mu$ l	4 weeks	0.11 $\mu$ l/hr	0009922
2001D	200 $\mu$ l	1 day	8.0 $\mu$ l/hr	0000294
2001	200 $\mu$ l	1 week	1.0 $\mu$ l/hr	0000292
2002	200 $\mu$ l	2 weeks	0.5 $\mu$ l/hr	0000296
2004	200 $\mu$ l	4 weeks	0.25 $\mu$ l/hr	0000298
2006	200 $\mu$ l	6 weeks	0.15 $\mu$ l/hr	0007223
2ML1	2 ml	1 week	10 $\mu$ l/hr	0000323
2ML2	2 ml	2 weeks	5.0 $\mu$ l/hr	0000325
2ML4	2 ml	4 weeks	2.5 $\mu$ l/hr	0000327