

Use of ALZET[®] Osmotic Pumps for Infusion in Mice

ALZET pumps can be easily attached to a catheter to infuse directly into an organ or tissue. The following studies are recent, selected examples* of targeted delivery in mice.

ROUTE	AGENT	MOUSE TYPE	PUMP MODEL	TITLE	REFERENCE
Sciatic nerve	Antibody, anti-MCP-1/MIA-1a; antibody, anti-IL-1B; immunoglobulin G	BALB/c	1007D	Involvement of monocyte chemoattractant protein-1, macrophage inflammatory protein-1alpha and interleukin-1beta in Wallerian degeneration	P7201 Brain 2005; 128:854-866
CNS-intratumoral	Interleukin-13-PE38; interleukin-13Ra2, pME18S-	Nude	1003D; 1007D	Evidence that IL-13R alpha-2 chain in human glioma cells is responsible for the antitumor activity mediated by receptor-directed cytotoxin therapy	P7434 J Immunother 2005; 28(3):193-202
CNS-intrathecal (lumbar)	Insulin-like growth factor I, recomb. human	Transgenic	2004	Prevention of spinal motor neuron death by insulin-like growth factor-1 associating with the signal transduction systems in SOD(G93A) transgenic mice	P7621 J Neurosci Res 2005; 82(4):452-457
ICV	Antibody, monoclonal, anti-amyloid protein, beta (1-15); immunoglobulin, IgG2b, mouse	Transgenic	1002	Antibodies against beta-amyloid reduce A beta oligomers, glycogen synthase kinase-3 beta activation and tau phosphorylation in vivo and in vitro	P7812 J Neurosci Res 2006; 83(3):374-384
CNS-prefrontal cortex	Phosphonovaleric acid, 2-amino-5-	Wistar	2002	Systems consolidation requires postlearning activation of NMDA receptors in the medial prefrontal cortex in trace eyeblink conditioning	P7792 J Neurosci 2006; 26(19):5049-5058
IV-Jugular	SJG-136	Nude	2001	SJG-136 (NSC 694501), a novel rationally designed DNA minor groove interstrand cross-linking agent with potent and broad spectrum antitumor activity. Part 2: Efficacy evaluations	P7052 Cancer Res 2004; 64(18):6700-6706
IV	TT-232	CBA/Ca	2002	Growth Inhibitory Effect of the Somatostatin Structural Derivative (TT-232) on Leukemia Models	P6894 Anticancer Res 2005; 25:325-330

Long-Term Delivery Achieved by Serially Implanting ALZET Osmotic Pumps

DURATION / REPLACEMENT SCHEDULE	AGENT	MOUSE TYPE	PUMP MODEL	TITLE	REFERENCE
90 days/replaced every 30 days	Montelukast sodium; dexamethasone	BALB/c	2004	Reversal of allergen-induced airway remodeling by CysLT1 receptor blockade	P7771 AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE 2006; 173(7):718-728
56 days/replaced every 28 days	Nogo-66 receptor (310) ecto-Fc; immunoglobulin G, rat	Transgenic	2004	Alzheimer precursor protein interaction with the Nogo-66 receptor reduces amyloid-beta plaque deposition	P7618 J Neurosci 2006; 26(5):1386-1395
8 weeks/replaced at 4 weeks	Peptide, AcSDKP	db/db, db/m	2004	N-acetyl-seryl-aspartyl-lysyl-proline prevents renal insufficiency and mesangial matrix expansion in diabetic db/db mice	P7756 Diabetes 2005; 54(3):838-845
10 weeks/replaced every 2 weeks	Olmesartan	ApoE -1-	1002	Effect of combination of calcium antagonist, azelnidipine, and AT1 receptor blocker, olmesartan, on atherosclerosis in apolipoprotein E-deficient mice	P7750 J Hypertens 2005; 23(7):1383-1389

*Contact ALZET Technical Services at 1-800-692-2990 or alzet@direct.com to request additional references from our database of nearly 10,000 research citations. Over 1,700 publications describe research in mice.

Select Recent References on the Use of ALZET® Pumps in Mice in Various Research Fields*

RESEARCH APPLICATION	PUMP MODEL	MOUSE TYPE	AGENT	ROUTE	TITLE	REFERENCE
Neuroscience	2004	C57BL/6J	Peptide, RFamide QREFP43	ICV	RFamide peptide QRFP43 causes obesity with hyperphagia and reduced thermogenesis in mice	P7824 Endocrinology 2006; 147(6):2916-2922
Neuroscience	1007D	CD-1	Ara C	ICV	In vivo transcriptional profile analysis reveals RNA splicing and chromatin remodeling as prominent processes for adult neurogenesis	P7670 MOLECULAR AND CELLULAR NEUROSCIENCE 2006; 31(1):131-148
Neuroscience	1002	B6D2F1	Peptide, PAK18; peptide, PAK18-R192A	ICV	Role of p21-activated kinase pathway defects in the cognitive deficits of Alzheimer disease	P7640 Nature Neuroscience 2006; 9(2):234-242
Cancer	2004	C57BL/KaLw Rij	TN14003, 4F-benzoyl	SC	The involvement of stromal derived factor 1 alpha in homing and progression of multiple myeloma in the 5TMM model	P7848 Haematologica-The Hematology Journal 2006; 91(5):605-612
Cancer	2001D	Nude	Thiazoloquinazoline, compound 54	SC	Discovery of novel and potent thiazoloquinazolines as selective Aurora A and B kinase inhibitors	P7807 J Med Chem 2006; 49(3):955-970
Cancer	1002	Nude	Norepinephrine; propranolol	SC	The norepinephrine-driven metastasis development of PC-3 human prostate cancer cells in BALB/c nude mice is inhibited by betablockers	P7800 Int J Cancer 2006; 118(11):2744-2749
Cancer	2004	MMTV-C3H/HeN	ML-7	SC	Inhibiting myosin light chain kinase retards the growth of mammary and prostate cancer cells	P7780 Eur J Cancer 2006; 42(7):948-957
Cancer	n/a	Nude	Peptide A1; peptide A1, mutant	SC	Critical role for the Ets transcription factor ELF-1 in the development of tumor angiogenesis	P7748 Blood 2006; 107(8):3153-3160
Cancer	1002	Nude	PNC-28	SC; IP	PNC-28, a p53-derived peptide that is cytotoxic to cancer cells, blocks pancreatic cancer cell growth in vivo	P7694 Int J Cancer 2006; 119(7):1577-1585
Cancer	2002	Nude	ST1646	SC	Biological and molecular properties of a new alphav beta3/alphav beta5 integrin antagonist	P7505 MOLECULAR CANCER THERAPEUTICS 2005; 4(11):1670-1680
Cardiovascular Research	2001	C57BL/6	EMD121974	SC	Fibroblast migration after myocardial infarction is regulated by transient SPARC expression	P7842 JOURNAL OF MOLECULAR MEDICINE-JMM 2006; 84(3):241-252
Cardiovascular Research	1002	C57BL/6	Candesartan	SC	Blockade of angiotensin II type 1 receptor improves the arrhythmia morbidity in mice with left ventricular hypertrophy	P7833 CIRCULATION JOURNAL 2006; 70(3):335-341

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Cardiovascular Research	2004	C57BL/6J	Angiotensin II	SC	Selective cyclooxygenase-2 inhibition with celecoxib decreases angiotensin II-induced abdominal aortic aneurysm formation in mice	P7730 ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY 2006; 26(5):1137-1143
Endocrinology	2002	C57BL/6J	Corticosterone	SC	Gender differences in response of hippocampus to chronic glucocorticoid stress: Role of glutamate receptors	P7810 J Neurosci Res 2006; 83(5):775-786
Endocrinology	2004	C57BL/6J	Lisofylline; exendin-4	SC	Combined treatment with lisofylline and exendin-4 reverses autoimmune diabetes	P7773 Biochem Biophys Res Commun 2006; 344(3):1017-1022
Endocrinology	1003D; 2001; 2004	C57BL/6J, obese	Peptide YY (3-36)	SC	PYY[3-36] administration decreases the respiratory quotient and reduces adiposity in diet-induced obese mice	P7687 J Nutr 2006; 136(1):195-201
Endocrinology	2002	C57BL/6	Testosterone, 17 α -methyl- (MENT)	SC	Modulation of elevated plus maze behavior after chronic exposure to the anabolic steroid 17 α -methyltestosterone in adult mice	P7581 Horm Behav 2006; 49(1):123-128
Wound Healing	2002	SCID	Ganciclovir	SC	Stem cells in the hair follicle bulge contribute to wound repair but not to homeostasis of the epidermis	P7655 Nature Medicine 2005; 11(12):1351-1354
In vivo Imaging	1007D	BALB/c	Luciferin, D-	SC	Real-time imaging of ligand-induced IKK activation in intact cells and in living mice	P7435 NATURE METHODS 2005; 2(8):607-614
In vivo Imaging	1002	SCID	Insulin, human	SC	Assessment of pancreatic islet mass after islet transplantation using in vivo bioluminescence imaging	P6949 Transplantation 2005; 79(7):768-776

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