

The [iPRECIO® infusion pump](#) is an advanced infusion device for programmable drug delivery applications in mice, rats and larger animals. This implantable infusion pump enables full control over dosing studies and empowers researchers to execute even the most complex dosing protocols, such as intermittent bolus dosing, variable/constant delivery, escalating drug administration and more.

The infusion protocol is programmed using the iPRECIO management software and downloaded to the pump's memory chip. Once implanted, the pump delivers automatically according to the pre-programmed infusion protocol. The iPRECIO refillable reservoir can be accessed percutaneously via a re-sealable septum, enabling researchers to change solutions or refill the pump during the course of the study.

The following is a list of research studies describing the use of iPRECIO pumps in various research areas. Contact ALZET technical services at 800-692-2990 or alzet@direct.com for additional information.

iPRECIO Bibliography

iPRECIO SMP-300 Publications (N=20)

1. Arao *et al.* **Dysregulation of hypothalamic-pituitary estrogen receptor α -mediated signaling causes episodic LH secretion and cystic ovary.** THE FASEB JOURNAL 2019; [Link to Abstract]
2. Shevtsov *et al.* **Granzyme B Functionalized Nanoparticles Targeting Membrane Hsp70-Positive Tumors for Multimodal Cancer Theranostics.** Small 2019; 1900205, DOI10.1002/sml.201900205 [Link to Abstract]
3. Arlt *et al.* **Effects of hydroxyurea on CNV induction in the mouse germline.** Environmental and Molecular Mutagenesis 2018;59(8):698-714 [Link to Abstract]
4. Teixeira *et al.* **Evaluation and Comparison of Drug Disposition Using Iprecio® Pumps in a Single and Prolonged Infusion.** Poster #549 Control Release Society Annual Meeting & Exposition 2018 (July 22-24) New York, NY [Link to Abstract]
5. Ramadi *et al.* **Focal, remote-controlled, chronic chemical modulation of brain microstructures.** PNAS 2018;115(28):7254-7259 [Link to Abstract]

6. Trazzi *et al.* **CDKL5 protein substitution therapy rescues neurological phenotypes of a mouse model of CDKL5 disorder.** Human Molecular Genetics 2018;27(9):1572-1592 [Link to Abstract]
7. Dagdeviren *et al.* **Miniaturized neural system for chronic, local intracerebral drug delivery.** Science Translational Medicine 2018;10(425):eaan2742 [Link to Publication]
8. Korner *et al.* **Resolution of inflammation and sepsis survival are improved by dietary Ω -3 fatty acids.** Cell Death and Differentiation 2017;25:421-431 [Link to Publication]
9. Hafenbreidel *et al.* **Mechanisms specific to methamphetamine-associated memory disruption by nonmuscle myosin II inhibition.** Neuroscience Annual Meeting 2017 (Nov 11-15) Washington, DC [Link to Abstract]
10. Rising *et al.* **An improved method of implanting a programmable continuous infusion pump in mice.** AALAS Annual Meeting 2017 (Oct 15-19)
11. Teixeira *et al.* **Drug delivery system characterization of a formulation delivered from an iPRECIO® microinfusion pump.** World Congress of Pharmacy and Pharmaceutical Sciences 2017 (77th annual congress of FIP), Seoul, Republic of Korea, September 10-14, 2017 [Link to Abstract]
12. Teixeira *et al.* **Comparative bioavailability of a drug in a peg based solution using an iPRECIO® pump infusion and subcutaneous bolus.** World Congress of Pharmacy and Pharmaceutical Sciences 2017 (77th annual congress of FIP), Seoul, Republic of Korea, September 10-14, 2017 [Link to Abstract]
13. Teixeira *et al.* **Comparative bioavailability of cyclodextrins' based drug delivery from ALZET® and iPRECIO® pumps and subcutaneous bolus administration.** World Congress of Pharmacy and Pharmaceutical Sciences 2017 (77th annual congress of FIP), Seoul, Republic of Korea, September 10-14, 2017 [Link to Abstract]
14. Trotter *et al.* **Convergent and Divergent Behavioral Changes Caused by Different Patterns of Morphine Exposure in Mice.** International Narcotics Conference (INCR), Chicago, July 9-14, 2017 [Link to Abstract]
15. Salt *et al.* **Perilymph pharmacokinetics of marker applied through a cochlear implant in guinea pigs.** PLoS One 2017; 12(8): e0183374 [Link to Publication]
16. Tajiri *et al.* **Targeting Ras-Driven Cancer Cell Survival and Invasion through Selective Inhibition of DOCK1.** Cell Reports 2017;19:969–980 [Link to Publication]

17. Ogawa *et al.* **Periferal administration of orexin improves survival of mice with endotoxin shock.** *eLife* 2016; 5:e21055 [Link to Publication]
18. Inoue *et al.* **Vagus nerve stimulation mediates protection from kidney ischemia-reperfusion injury through $\alpha 7$ nAChR⁺ splenocytes.** *J Clin Invest* 2016;126(5):1939-1952 [Link to Publication]
19. Sabharwal *et al.* **Angiotensin-(1-7) delays onset of dilated cardiomyopathy in mice with muscular dystrophy.** Poster B321 754.7, Experimental Biology 2016, San Diego, CA
20. Chavan *et al.* **Liver-derived ketone bodies are necessary for food anticipation.** *Nature Communications* 2016;7:10580 [Link to Publication]

SMP-200 Publications (N=92)

21. Seita *et al.* **Comprehensive evaluation of ubiquitous promoters suitable for the generation of transgenic cynomolgus monkeys.** *Biology of Reproduction* 2019, [ioz040.doi.org/10.1093/biolre/ioz040](https://doi.org/10.1093/biolre/ioz040) [Link to Abstract]
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24. Carlezon *et al.* **Chronic intermittent nicotine exposure attenuates conditioned fear: A therapeutic model of the nicotine patch.** Poster #414.13, Neuroscience 2018 (Nov 3-7) San Diego, CA [Link to Abstract]
25. Cauley *et al.* **Critical developmental periods for effects of low-level tobacco smoke exposure on behavioral performance.** *NeuroToxicology* 2018;68:81-87 [Link to Abstract]
26. Dey *et al.* **Mitochondrial ROS Drive Sudden Cardiac Death and Chronic Proteome Remodeling in Heart Failure.** *Circulation Research* 2018;123(3) [Link to Abstract]

27. Shikida *et al.* **Effect of Continuous Intravenous Calcium Loading on Fibroblast Growth Factor 23 in Normal and Uremic Rats.** *Calcified Tissue International* 2018;103(4):455-464 [Link to Abstract]
28. Zaretsky *et al.* **Disinhibiting neurons in the dorsomedial hypothalamus delays the onset of exertional fatigue and exhaustion in rats exercising in a warm environment.** *Brain Research* 2018;1689:12-20 [Link to Abstract]
29. Romeo-Guitart *et al.* **Neuroprotective Drug for Nerve Trauma Revealed Using Artificial Intelligence.** *Scientific Reports* 2018;8, article number 1879 [Link to Publication]
30. Streijger *et al.* **A Direct Comparison Between Norepinephrine and Phenylephrine for Augmenting Spinal Cord Perfusion in a Porcine Model of Spinal Cord Injury.** *Journal of Neurotrauma* 2018;35(12):1345-1357 [Link to Abstract]
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37. Kroon *et al.* **Nicotinic acid timed to feeding reverses tissue lipid accumulation and improves glucose control in obese Zucker rats[S].** *J Lipid Res.* 2017;58(1):31-41 [Link to Abstract]

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