

Based on audience feedback from our November 2015 webinar, Primetech has created a comprehensive resource package.
Summary of studies and iPRECIO Micro Infusion Pump Parameters from <Application Examples & Much More>.
<http://www.insidescientific.com/webinars/item/384-gold-standard-physiological-measurements-and-novel-drug-delivery-methods-iprecio>

Research Application (RA), Author, doi:	Refillability of Pump		How pump programmed?			Administration Site	Key words	Duration
	KVO/RCV	Vehicle and Drug(s)	Continuous	Intermittent or bolus	Circadian / Timed release			
RA 1 Chavan et al. doi:10.1038/ncomms10580	1 week recovery	Pumps programmed to infuse saline (2ul/hr) or β OHB (2ul/hr) or sodium pyruvate (5ul/hr) or coconut oil (5ul/hr) prior to meal time (6h, ZT22-ZT) in Restricted Food (RF)	No	Yes	Yes	SC	Biological sciences-Neuroscience-Biochemistry Mice + SMP-300 iPRECIO Pump	< 3 weeks
RA 2 Kroon et al. doi: 10.1194/jlr.M058149	Pump programmed to stop for 3 days	Nicotinic Acid (NiAc) or saline 5 days of continuous or intermittent (12 hr ON/OFF cycles, infusion on 13:00h)	Yes	Yes	Yes	SC	Adipose tissue-diabetes-drug therapy-Lipoyosis and fatty acid metabolism-GPR109A-Niacin-Tachyphylaxis Zucker rat + SMP-200 Pump	5 or 11 days infusion + 2 days recovery
RA 3 Suehiro et al. doi:10.1038/srep04972	No	PKA and ATP - solution change every 2 days 1ul/hour	Yes	No	No	intrathecal	Neural-stem cells-spinal cord injury rat + SMP-200 Pump	14 days
RA 4 Mitchell et al. Developments in LifeSciences Vol. 14 No. 4	1ul/hr saline for 1 week for full recovery	Test articles infusing at 30ul/hr for 72 hours after 1ul/hr saline recovery after catheterization and pump implantation	Yes	No	No	intrathecal	Regulatory request, CNS end points (modified Irwin assessment) rat + SMP-200 Pump	10 days
RA 5 Asemu et al. DOI: 10.1152/ajpheart.00674.2012	No	Aldosterone (15% ethanol 50% DMSO and 35% water) was continuous infused	Yes	No	No	IV jugular	Cardiac, diastolic dysfunction, heart failure, metabolism dog + SMP-200 Pump	14 weeks
RA 6 Thisgaard et al. DOI: 10.7150/thno.15898	No	isotone saline, 0.1 mM MTX, then 0.3 μ g/ml 125 I-UdR, 127 I-UdR was continuously infused	Yes	No	No	Brain infusion	convection delivery, [125 I]5-Iodo-2'-deoxyuridine, temozolomide, SMP-200 Pump	10 days
Author, doi:								
GLP Studies with iPRECIO Pumps								
Patten et al	1ul/hr artificial CSF	Treatment period 30ul/hour for 72 hours	No	Yes	Yes	intrathecal	CNS (modified Irwin assessment) rat + SMP-200 pump	3 days for TA
Perron et al	No	Flow-rate and dosing validation studies on the bench	No	Yes	Yes	in-vitro	GLP validation	< 7 days
Ringer et al	Saline when not infusing test article	2 hour baseline, 2 hour infusion (Milrinone or vehicle)	No	Yes	Yes	right jugular vein	GLP validation, jacketed, ambulatory, cardiovascular Dog + iPRECIO Dual	24 hours
Author, doi:								
Toxicology with iPRECIO pumps								
Tsuboi et al. http://doi.org/10.2131/fts.3.1	No but full study saline infusion	Saline infusion for 4 weeks and 13 weeks 2 or 2.5ul/hour	Yes	No	No	IV jugular	Infusion pump, implantation, rat, iPRECIO, Physiological condition SMP-200 pump	4 or 13 weeks
Application (PA), Author, doi:								
AP1 Tan et al. 5-HT doi: 10.3389/fphar.2011.00044	3 days pump "OFF" (0.2ul/hour) , for control cardiovascular parameters	5-HT dose response with control period	No	Yes	Yes	sc	drug delivery, minipump, osmotic pumps, implantable pump, dose response, quantitative pharmacology, preclinical, telemetry rat + SMP-200 pump	30 days

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AP2 Tan et al. dobutamine doi: 10.3389/fphar.2011.00044	11 day recovery period	Saline, dobutamine and verapamil infusions	No	Yes	Yes	IV	drug delivery, minipump, osmotic pumps, implantable pump, dose response, quantitative pharmacology, preclinical, telemetry rat + SMP-200 pump	30 days
AP3 Zaretsky et al.	5 day recovery but no flow	BMI (0.1 mM) 100 nl injections	No	Yes	Yes	intra-hypothalamic	hypothalamas, cardiovascular, micro injections rat + SMP-200 pump	several days
AP4 Kuroki et al. DOI: 10.1152/ajpheart.00922.2013	7 to 10 days recovery then 4 days control period	5ul/hour continuous infusion of Ang II. Comparison made with Alzet Pump and Harvard Syringe pump	Yes	no	No	SC administration	salt-sensitive hypertension; angiotensin II-salt hypertension; Alzet salt-sensitive hypertension; minipump; iPRECIO pump; plasma angiotensin II	2 weeks Ang II infusion
AP5 Gey et al. doi:10.1016/j.nbd.2016.03.012	no RCV	0.2 ul/hr continuous infusion. Stability of vigabatrin was tested and confirmed for 5 weeks	yes	no	no	Bilateral infusion into STN or anterior SNr	minipump; iPRECIO pump; plasma angiotensin II Rats, SMP-200	3 or 4 week
Webinar (WE), Author, www or doi								
WE 1 Schnell http://www.insidescientific.com/webinars/item/384-gold-standard-physiological-measurements-and-novel-drug-delivery-methods-iprecio	Saline infusion for tumor size to grow to a certain size (12th day)	On day 21 (tumor reached certain size), infusion of Compound A for 22 days. Behaviour and weight gain not impaired versus control without subcutaneous pump	Yes	No	No	Intra-cranial infusion	Cancer, orthotopic, glioblastoma, bioluminescence Nude rats, SMP-200	22 days
WE 2 Doyle http://www.insidescientific.com/webinars/item/384-gold-standard-physiological-measurements-and-novel-drug-delivery-methods-iprecio	7 days recovery Saline 5 days baseline Saline 5 day TA or 10 day TA	Vitamin B12 Conjugation of Peptide-YY3-36 or Native Peptide-YY3-36 or saline 5 pulses per day; three 1 hour pulses of 10 nmol.kg-1.h-1 (20 µl.h-1) with three hours between pulses and two 1 hour pulses of 5 nmol.kg-1.h-1 (10 µl.h-1) with five hours between pulses	No	Yes	Yes	subcutaneous	endocrinology vitamin B12, BBB, reduction of food intake, peptides rats, SMP-200 pumps	5 or 10 days
Henry et al. DOI: http://dx.doi.org/10.1210/en.2014-1825 (WE 2)	7 days recovery Saline 5 days baseline Saline 5 day TA or 10 day TA	Vitamin B12 Conjugation of Peptide-YY3-36 or Native Peptide-YY3-36 or saline 5 pulses per day; three 1 hour pulses of 10 nmol.kg-1.h-1 (20 µl.h-1) with three hours between pulses and two 1 hour pulses of 5 nmol.kg-1.h-1 (10 µl.h-1) with five hours between pulses	No	Yes	Yes	subcutaneous	endocrinology vitamin B12, BBB, reduction of food intake, peptides rats, SMP-200 pumps	5 or 10 days