



**Recent References (2016-Present) on the Administration of Aldosterone
Using ALZET® Osmotic Pumps**

Q10965: S. M. Mutchler, *et al.* Validation of commercially available antibodies directed against subunits of the epithelial Na(+) channel. *Physiological Reports* 2023;11(1):e15554

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** C57BL/6; **Pump:** 2002; **Duration:** 2 weeks;

ALZET Comments: Dose (240 µg/kg/day); animal info: Male mice; nephrology; immunology

Q10524: Z. Fu, *et al.* Mutagenesis of the cleavage site of (pro)renin receptor abrogates aldosterone-salt-induced hypertension and renal injury in mice. *American Journal of Physiology* 2023;324(1):F1-F11

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** PRR R279V/L28V mutant; **Pump:** 1002; **Duration:** 14 days;

ALZET Comments: Dose (0.4 mg/kg/day); Controls received mp w/ vehicle; animal info (Male; mice; 16-20 weeks old); blood pressure measured with implantable radiotelemetric device; cardiovascular (hypertension)

Q11094: V. Buncha, *et al.* Mice with endothelial cell-selective adhesion molecule deficiency develop coronary microvascular rarefaction and left ventricle diastolic dysfunction. *Physiological Reports* 2023;11(6):e15643

Agents: Aldosterone **Vehicle:** UNX; **Route:** CSF/CNS; **Species:** Mice; **Strain:** C57BL/6J, Wild-type; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (0.30 µg/h); Controls received mp w/ vehicle; animal info (Male; 12-14 weeks old); Blood pressure measured via tail-cuff method; cardiovascular;

Q11070: R. Brinks, *et al.* Nrf2 Activation Does Not Protect from Aldosterone-Induced Kidney Damage in Mice. *Antioxidants (Basel)* 2023;12(3):

Agents: Aldosterone **Vehicle:** EtOH; PBS; **Route:** SC; **Species:** Mice; **Strain:** C57BL/6; **Pump:** 1004; **Duration:** 28 days;

ALZET Comments: Dose (125 µg/kg/day); 15% EtOH in PBS used; animal info (Male; 36 total; 12 weeks old); Blood pressure measured via tail-cuff method; cardiovascular; nephrology (kidney damage)

Q10872: X. L. Zhang, *et al.* HMGB1-Promoted Neutrophil Extracellular Traps Contribute to Cardiac Diastolic Dysfunction in Mice. *Journal of American Heart Association* 2022;11(4):e023800

Agents: Aldosterone **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (0.3 µg/h); Controls received mp w/ vehicle; animal info (C57BL/6 Male; 8 weeks old; Weighed about 20-22 g); post op. care: heat support; behavioral testing (Exercise exhaustion test); Blood pressure measured via noninvasive blood pressure system; cardiovascular; Therapeutic indication (Heart failure with preserved ejection fraction);

Q10721: Y. Wada, *et al.* Compromised Blood Flow in the Optic Nerve Head after Systemic Administration of Aldosterone in Rats: A Possible Rat Model of Retinal Ganglion Cell Loss. *Current Eye Research* 2022;47(5):777-785

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (80 µg/kg/d); Controls received mp w/ vehicle; animal info (Male; Pigmented Brown Norway; 20 weeks old); Blood pressure measured via automatic sphygmomanometer; functionality of mp verified by plasma levels;

Q10698: A. S. Terker, *et al.* Kir4.2 Mediates Proximal Potassium Effects on Glutaminase Activity and Kidney Injury. *Cell Reports* 2022;41(12):111840

Agents: Aldosterone **Vehicle:** Polyethylene glycol 200; **Route:** SC; **Species:** Mice; **Pump:** 1004; 1007D; **Duration:** 3 weeks; 7 days;

ALZET Comments: Dose (240 µg/kg/day); (180 mg/kg/day); Controls received mp w/ vehicle; animal info (male, aged 8-12 weeks. C57BL/6 mice); (wild-type (WT), 9 weeks of age, Kir4.2^{-/-}); cardiovascular; chronic kidney disease (kidney injury)



Q10549: T. Iijima, *et al.* Discovery of Apararenone (MT-3995) as a Highly Selective, Potent, and Novel Nonsteroidal Mineralocorticoid Receptor Antagonist. *Journal of Medicinal Chemistry* 2022;65(12):8127-8143

Agents: Aldosterone **Vehicle:** EtOH; PEG 400; Saline; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;
ALZET Comments: Dose (0.75 µg/h/animal); 10% EtOH, 50% PEG400, 40% saline used; Controls received mp w/ vehicle; animal info (Male Sprague Dawley, 7 weeks old); Blood pressure measured via telemetry transmitter system; cardiovascular; Therapeutic indication (Hypertension; Kidney disease; Heart failure);

Q10540: B. Hegyi, *et al.* Diabetes and Excess Aldosterone Promote Heart Failure With Preserved Ejection Fraction. *Journal of The American Heart Association* 2022;11(23):e027164

Agents: Aldosterone **Vehicle:** Saline; Ethanol; **Route:** SC; **Species:** C57BL/6 mice; **Pump:** 2004; **Duration:** 4 weeks;
ALZET Comments: Dose (0.3µg/h); 5% ethanol in saline used; Controls received mp w/ vehicle; animal info (Male and female WT, db/db mice); post op. care: buprenorphine 0.05-0.1 mg/kg, SC); cardiovascular;

Q10411: F. B. Bengur, *et al.* Spironolactone Mitigates Fibrosis and Improves Healing of Burn Wounds. *Plastic and Reconstructive Surgery* 2022;

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice; **Pump:** Not Stated; **Duration:** Not Stated;
ALZET Comments: animal info (Female; 4 weeks old; 2 total); gene therapy; Therapeutic indication (Hypertrophic collagen deposition);

Q10881: L. Zhang, *et al.* Resveratrol Ameliorates Cardiac Remodeling in a Murine Model of Heart Failure With Preserved Ejection Fraction. *Frontiers in Pharmacology* 2021;12(646240

Agents: Aldosterone, D- **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;
ALZET Comments: Dose: (0.15 mg/h); Controls received mp w/ vehicle; animal info: Male C57BL/6 mice (8–10 weeks old)Resveratrol is a natural phytoalexin antioxidant factor in HFpEF, cardiovascular;

Q10446: F. B. Bengur, *et al.* Spironolactone Mitigates Fibrosis and Improves Healing of Burn Wounds. *PRS Global Open* 2022;

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4, 6 weeks;
ALZET Comments: animal info: Female athymic mice; Spironolactone therapy; significant early improvement on burn wounds

Q9911: Y. Yan, *et al.* Effect of Fibulin-5 on aldosterone-induced apoptosis in human ascending aortic smooth muscle cells. *Experimental and Therapeutic Medicine* 2021;

Agents: Aldosterone; Cycloheximide **Vehicle:** DMSO; **Route:** Not Stated; **Species:** Rat; **Pump:** 2004; **Duration:** 8 weeks;
ALZET Comments: Animal info (primary aldosteronism rats); Aldosterone aka Aldo; cardiovascular;

Q10312: D. Rodrigues, *et al.* Aldosterone Negatively Regulates Nrf2 Activity: An Additional Mechanism Contributing to Oxidative Stress and Vascular Dysfunction by Aldosterone. *International Journal of Molecular Sciences* 2021;22(11):

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose: (600 ug/kg/day); animal info: Twelve-week-old male C57BL/6J mice; Aldosterone aka (Aldo); Cardiovascular

Q10289: F. Ochiai-Homma, *et al.* Characterization of pendrin in urinary extracellular vesicles in a rat model of aldosterone excess and in human primary aldosteronism. *Hypertension Research* 2021;44(12):1557-1567

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Rat; **Pump:** Not Stated; **Duration:** Not Stated;
ALZET Comments: Dose: (0.75 µg/h); Controls received mp w/ vehicle; animal info: Male Sprague-Dawley rats at six weeks of age; Blood pressure measured via: (CODA noninvasive blood pressure system); Cardiovascular"

Q9296: M. Jiang, *et al.* SIRT1 Alleviates Aldosterone-Induced Podocyte Injury by Suppressing Mitochondrial Dysfunction and NLRP3 Inflammasome Activation. *Kidney Diseases (Basel)* 2021;7(4):293-305

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose (300 ug/kg/day); animal info (8-12-week-old WT and cKO male mice, 25-30 g); dependence;



Q10201: F. Jaisser, *et al.* The Non-Steroidal Mineralocorticoid Receptor Antagonist KBP-5074 Limits Albuminuria and has Improved Therapeutic Index Compared With Eplerenone in a Rat Model With Mineralocorticoid-Induced Renal Injury. *Frontiers in Pharmacology* 2021;12(604928)

Agents: Aldosterone **Vehicle:** DMSO; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 27 days;

ALZET Comments: Dose: Aldosterone (0.3 mg/ml); 0.01% DMSO vehicle used; Controls received mp w/ vehicle; animal info: male SD rats, 7–8 weeks of age; Seventy-six male SD rats were obtained for Study B, which was performed using the same protocol used for Study A, with one difference: KBP-5074 was administered instead of eplerenone at doses of 0.5 mg/kg (group 3, low-dose group), 1.5 mg/kg (group 4, mid-dose group), and 5 mg/kg BID (group 5, high-dose group) by oral gavage."

Q10199: J. Ito, *et al.* Id2 Represses Aldosterone-Stimulated Cardiac T-Type Calcium Channels Expression. *International Journal of Molecular Sciences* 2021;22(7):

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose: (60 mg/kg/day) Controls received mp w/ vehicle; animal info: WT and Id2 transgenic mice, 8- to 12-week-old mice; post op. care: (0.3 mg/kg of medetomidine, 4.0 mg/kg of midazolam, and 5.0 mg/kg of butorphanol) were used as anesthesia; cardiovascular;

Q10158: M. Fila, *et al.* A variant of ASIC2 mediates sodium retention in nephrotic syndrome. *JCI Insight* 2021;6(15):

Agents: Aldosterone; Dexamethasone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** Not Stated;

ALZET Comments: Dose: Aldosterone (10 µg/kg/d); Dexamethasone (14µg/kg/d); Controls received mp w/ vehicle; animal info: male rats (150–170 g) Sprague-Dawley rats

Q9148: J. Y. Cao, *et al.* Autophagosome protects proximal tubular cells from aldosterone-induced senescence through improving oxidative stress. *Renal Failure* 2021;43(1):556-565

Agents: Aldosterone; Rapamycin; Choroquine **Vehicle:** DMSO; PBS; **Route:** IP; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (1 mg/kg/day Rapamycin; 60 mg/kg/day Aldosterone); 0.5% DMSO, 99.5% PBS used; Controls received mp w/ vehicle; animal info (healthy male Sprague-Dawley rats, 180-200 g); Aldosterone aka Aldo, Rapamycin aka Rap, Choroquine aka CQ; dependence;

Q10104: R. M. B. Bell, *et al.* Carbonyl reductase 1 amplifies glucocorticoid action in adipose tissue and impairs glucose tolerance in lean mice. *Molecular Metabolism* 2021;48(101225)

Agents: Dexamethasone; Aldosterone; 20b-DHB **Vehicle:** DMSO; Propylene glycol; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7 days;

ALZET Comments: Dose: 20b-DHB(20 ug/day); animal info (C57BL/6J Male, Female (8 weeks of age); Dihydrocorticosterone aka (20b-DHB) is a full agonist of the mineralocorticoid receptor.; Mifepristone is a GR antagonist RU486; Spironolactone is a MR antagonist; Carbonyl reductase 1 (Cbr1), is an enzyme inhibitor; diabetes; obesity

Q9899: H. J. Yang, *et al.* MD1 deletion exaggerates cardiomyocyte autophagy induced by heart failure with preserved ejection fraction through ROS/MAPK signaling pathway. *Journal of Cellular and Molecular Medicine* 2020;24(16):9300-9312

Agents: D-Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (0.15 mg/hr); Controls received mp w/ vehicle; animal info (8-10 weeks old, Male, C57BL/6, MD1-KO); cardiovascular;

Q9898: H. J. Yang, *et al.* Knockout of MD1 contributes to sympathetic hyperactivity and exacerbates ventricular arrhythmias following heart failure with preserved ejection fraction via NLRP3 inflammasome activation. *Experimental Physiology* 2020;105(6):966-978

Agents: Aldosterone, D- **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (0.15 mg/hr); Controls received mp w/ vehicle; animal info (Male global MD1 knockout (MD1-KO) mice, 8 weeks); cardiovascular;



Q9477: W. Shuai, *et al.* High-Choline Diet Exacerbates Cardiac Dysfunction, Fibrosis, and Inflammation in a Mouse Model of Heart Failure With Preserved Ejection Fraction. *Journal of Cardiac Failure* 2020;26(8):694-702

Agents: Aldosterone **Vehicle:** Saline; **Route:** IP; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ vehicle; animal info (C57BL/6 male mice, eight weeks old, weighing 22-26 g); 103.86 mmHg - 120.88 mmHg; cardiovascular;

Q9478: W. Shuai, *et al.* Loss of myeloid differentiation protein 1 promotes atrial fibrillation in heart failure with preserved ejection fraction. *ESC Heart Failure* 2020;7(2):626-638

Agents: Aldosterone **Vehicle:** Saline; **Route:** IP; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (0.15-μg/h); 1% NaCl used; Controls received mp w/ vehicle; animal info (8-week-old MD1-KO mice); 113.18 mmHg - 127.1 mmHg; cardiovascular;

Q8958: H. Shirai, *et al.* The effect of aldosterone on adiposity - The role of glucose absorption in the small intestine. *Biochemical and Biophysical Research Communications* 2020;531(4):628-635

Agents: Aldosterone **Vehicle:** PEG; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose (0.28 mg/kg/day); animal info (C57BL/6J, Male, 5 weeks old); cardiovascular;

Q10216: H. Klapper-Goldstein, *et al.* VDAC1 in the diseased myocardium and the effect of VDAC1-interacting compound on atrial fibrosis induced by hyperaldosteronism. *Scientific Reports* 2020;10(1):22101

Agents: Aldosterone **Vehicle:** DMSO; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** Not Stated;

ALZET Comments: Dose: (1.5 μg/h); 0.1% DMSO vehicle used; Controls received mp w/ vehicle; animal info: adult male Sprague-Dawley rats (250-350 g); Aldosterone aka (aldo); cardiovascular;

Q10215: H. Klapper-Goldstein, *et al.* An implantable system for long-term assessment of atrial fibrillation substrate in unanesthetized rats exposed to underlying pathological conditions. *Scientific Reports* 2020;10(1):553

Agents: Aldosterone **Vehicle:** PEG 400; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose: (1.5 μg/h); Controls received mp w/ vehicle; animal info: Adult male Sprague-Dawley rats (250-350g); cardiovascular; (Atrial fibrillation)

Q8587: H. Klapper-Goldstein, *et al.* An implantable system for long-term assessment of atrial fibrillation substrate in unanesthetized rats exposed to underlying pathological conditions. *Scientific Reports* 2020;10(1):553

Agents: Aldosterone **Vehicle:** PEG 400; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (1.5 μg/h); Controls received mp w/ vehicle; animal info (adult male Sprague-Dawley rats (250-350 g)); Aldosterone aka aldo; cardiovascular;

Q8545: R. Hu, *et al.* miR-196b-5p-enriched extracellular vesicles from tubular epithelial cells mediated aldosterone-induced renal fibrosis in mice with diabetes. *BMJ Open Diabetes Res Care* 2020;8(1):

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2004; 2006; **Duration:** 6 weeks;

ALZET Comments: Dose (0.4 mg/kg/day); Controls received mp w/ vehicle; animal info (db/db mice, 10 weeks old); Blood pressure measured via tail cuff method; diabetes;

Q8485: A. E. Garza, *et al.* Striatin heterozygous mice are more sensitive to aldosterone-induced injury. *Journal of Endocrinology* 2020;245(3):439-450

Agents: Eplerenone; Aldosterone; Spironolactone; Angiotensin II **Vehicle:** Not stated; **Route:** SC; **Species:** Mice; **Pump:** 1004; 1007D; **Duration:** 3 weeks;

ALZET Comments: Dose (0.7 mg/kg/day Angiotensin II; 100 mg/kg/day Angiotensin II + Spironolactone; 200 mg/kg/day Aldosterone; 100 mg/kg/day Aldosterone + Eplerenone); Controls received mp w/ vehicle; animal info (Twelve to 16-week-old male WT and Strn+/- male mice); Blood pressure measured via CODA noninvasive BP system; 103 ± 2 mmHg - 99±1 mmHg; Angiotensin II aka Ang II; cardiovascular;



Q8445: Q. N. Dinh, *et al.* Aldosterone-Induced Hypertension is Sex-Dependent, Mediated by T Cells and Sensitive to GPER Activation. Cardiovascular Research 2020;

Agents: Aldosterone; G-1; G-15; Angiotensin II **Vehicle:** Propylene Glycol; DMSO; Saline; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: Dose (0.72 mg/kg/d; 0.03 mg/kg/d; 0.3 mg/kg/d; 0.7 mg/kg/d); 87% propylene glycol used; Controls received mp w/ vehicle; animal info (C57BL/6 (WT) mice; RAG1-deficient mice; GPER- deficient mice); Blood pressure measured via tail cuff plethysmography; G-1 aka G protein-coupled estrogen receptor 1 agonist; G-15 aka G protein-coupled estrogen receptor 1 antagonist replacement therapy (estrogen receptor);

Q9122: X. Yuan, *et al.* Aldosterone promotes renal interstitial fibrosis via the AIF1/AKT/mTOR signaling pathway. Molecular Medicine Reports 2019;20(5):4033-4044

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: Dose (0.75 ug/h); Controls received mp w/ vehicle; animal info (Male Wistar rats, 6-8 weeks of age, 200-250 g); dependence;

Q9119: S. Yoon, *et al.* Cardiac nitric oxide synthase 1 worsens heart failure with preserved ejection fraction through S-nitrosylation of histone deacetylase 2. BioRxiv 2019;

Agents: D-Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 30 days;

ALZET Comments: Dose (30 ug/hr); animal info (8 weeks old, Male, C57BL/6); cardiovascular;

Q7288: S. L. a. Z. G. Ming C. Gong. A New Mouse Model of Aortic Aneurysm Induced by Deoxycorticosterone Acetate or Aldosterone in the Presence of High Salt. IntechOpen 2019;1-12

Agents: Aldosterone **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (200, 500, 700 ug/kg/day); 50% DMSO used; animal info (10-month-old C57BL/6 male mice); cardiovascular;

Q7574: G. Z. Liu, *et al.* Aldosterone stimulation mediates cardiac metabolism remodeling via Sirt1/AMPK signaling in canine model. Naunyn Schmiedebergs Arch Pharmacol 2019;392(7):851-863

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Dog (Beagle); **Pump:** 2ML4; **Duration:** 4 weeks;

ALZET Comments: Dose (12 ug/kg/day); Controls received mp w/ vehicle; animal info (male adult purebred beagle dogs (8.0–8.5 kg)); cardiovascular;

Q9794: K. Kosaki, *et al.* Renoprotective effects of voluntary running exercise training on aldosterone-induced renal injury in human L-FABP chromosomal transgenic mice. Hypertension Research 2019;42(10):1518-1527

Agents: Aldosterone **Vehicle:** PEG; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose (0.125 ug/kg/min); Controls received mp w/ vehicle; animal info (C7B/BL6); Blood pressure measured via Tail Cuff Method ;dependence;

Q8606: M. Khan, *et al.* Aldosterone impairs coronary adenosine-mediated vasodilation via reduced functional expression of Ca(2+)-activated K(+) channels. American Journal of Physiology Heart and Circulatory Physiology 2019;317(2):H357-H363

Agents: Aldosterone **Vehicle:** Saline, sterile; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose (250 ug/kg/day); Controls received mp w/ vehicle; animal info (Male C57BL/6J mice, 12 weeks old); Blood pressure measured via tail-cuff method; 125 mmHg - 126 mmHg; Aldosterone aka Aldo; cardiovascular;

Q7289: R. Goto, *et al.* Mineralocorticoid Receptor May Regulate Glucose Homeostasis through the Induction of Interleukin-6 and Glucagon-Like peptide-1 in Pancreatic Islets. J Clin Med 2019;8(5):

Agents: Aldosterone, d- **Vehicle:** Ethanol; Propylene Glycol; Distilled Water; **Route:** Not Stated; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (2.9 mg/mL); 9% ethanol, 87% propylene glycol, 4% dH₂O used; Controls received mp w/ vehicle; animal info (Male Sprague-Dawley rats); diabetes;



Q7445: Y. Chen, *et al.* Molecular and Cellular Effect of Angiotensin 1-7 on Hypertensive Kidney Disease. American Journal of Hypertension 2019;32(5):460-467

Agents: Angiotensin (1-7), Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;
ALZET Comments: Dose (1 mg/kg/day); animal info (Sprague-Dawley,); ALDO aka aldosterone; cardiovascular;

Q8708: A. Cannavo, *et al.* Aldosterone Jeopardizes Myocardial Insulin and beta-Adrenergic Receptor Signaling via G Protein-Coupled Receptor Kinase 2. Frontiers in Pharmacology 2019;10(888

Agents: Aldosterone and Spironolactone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;
ALZET Comments: Dose (Aldosterone- 2 ug/day and Spironolactone- 20 mg/kg/day); animal info (9-10 weeks old); cardiovascular;

Q7274: K. Buzgoova, *et al.* Brain derived neurotrophic factor expression and DNA methylation in response to subchronic valproic acid and/or aldosterone treatment. Croatian Medical Journal 2019;60(2):71-77

Agents: Aldosterone **Vehicle:** Ethanol; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 Days;
ALZET Comments: Dose (2 µg/100g body weight/d); 1% Ethanol used; Controls received mp w/ vehicle; animal info (Sprague-Dawley rats 250-275 g);

Q8175: K. Buzgoova, *et al.* Antidepressant effects of valproic acid in an animal model of depression. European Pharmaceutical Journal 2019;66(2):1-3

Agents: Aldosterone, d- **Vehicle:** Not stated; **Route:** SC; **Species:** Rat; **Pump:** 2002; **Duration:** 14 days;
ALZET Comments: animal info (Forty male adult Sprague-Dawley rats); D-aldosterone aka aldosterone; dependence;

Q5862: M. J. Butler, *et al.* Aldosterone induces albuminuria via matrix metalloproteinase-dependent damage of the endothelial glycocalyx. Kidney Int 2019;95(1):94-107

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;
ALZET Comments: Dose (0.6 µg/kg/d); 1% saline used; Controls received mp w/ vehicle; animal info (adult male DBA2J mice);

Q8977: T. Yamauchi, *et al.* Na(+)-Cl(-) cotransporter-mediated chloride uptake contributes to hypertension and renal damage in aldosterone-infused rats. American Journal of Physiology Renal Physiology 2018;315(2):F300-F312

Agents: Aldosterone **Vehicle:** Water, Distilled, DMSO buffered; **Route:** SC; **Species:** Rat; **Pump:** Not Stated; **Duration:** 6 weeks;
ALZET Comments: Dose (); Controls received sham surgery and mp w/ vehicle; animal info (8 weeks, male, Sprague-Dawley, 290-320g); replacement therapy (aldosterone); aldosterone dosage and pump model not stated in article;

Q7309: Y. Takasago, *et al.* Elevated plasma aldosterone levels are associated with a reduction in retinal ganglion cell survival. J Renin Angiotensin Aldosterone Syst 2018;19(3):1470320318795001

Agents: Aldosterone **Vehicle:** DMSO; **Route:** SC; **Species:** Rat; **Pump:** 2006; **Duration:** 6 weeks;
ALZET Comments: Dose (40, 80 or 160µg/kg/day); <5% DMSO used; Controls received mp w/ vehicle; animal info (Male, Sprague-Dawley, 200 to 250g); Resultant plasma level (40 µg/kg/day = 238 ± 17 pg/ml, 403 ± 38 pg/ml); (80 µg/kg/day = 461 ± 30 pg/ml); (160µg/kg/day = 1750 ± 151 pg/ml); cancer (glaucoma);

Q7056: S. B. Poulsen, *et al.* RNA sequencing of kidney distal tubule cells reveals multiple mediators of chronic aldosterone action. Physiol Genomics 2018;50(5):343-354

Agents: Aldosterone **Vehicle:** Saline; DMSO; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 6 days;
ALZET Comments: Dose (100 ug/kg/hr); animal info (8-13 week old);

Q8153: E. J. Park, *et al.* miR-34c-5p and CaMKII are involved in aldosterone-induced fibrosis in kidney collecting duct cells. Am J Physiol Renal Physiol 2018;314(3):F329-F342

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 10 days;
ALZET Comments: Dose (250 ug/kg/day); Controls received mp w/ vehicle; animal info (C57BL/6, 20-22 g); dependence;



Q8766: R. Otsu, *et al.* Inhibition of Renal Fibrosis and Glomerular Injury by Sacubitril/Valsartan, a Combination Angiotensin Receptor Blocker and Nephrylsin Inhibitor, in a Salt-Sensitive Hypertensive Model Using Angiotensin 1 Receptor Knockout Mice: The Contribution of Non-Angiotensin Blocking Effects to Renal Protection. *Open Medicine Journal* 2018;5(1):108-118

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 4 weeks;

ALZET Comments: Dose (0.15 ug/hr); 1% Saline used; animal info (AT1ar KO,); cardiovascular;

Q7062: A. Ono, *et al.* Gene expression changes in the retina after systemic administration of aldosterone. *Jpn J Ophthalmol* 2018;62(4):499-507

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2006; **Duration:** 7 days;

ALZET Comments: Dose (80 ug/kg/day); animal info (male SD, 200-250g); Therapeutic indication (Retinal ganglion cell loss);

Q8114: V. Marzolla, *et al.* Induction of Atherosclerotic Plaques Through Activation of Mineralocorticoid Receptors in Apolipoprotein E-deficient Mice. *J Vis Exp* 2018;139:

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 28 days;

ALZET Comments: Dose (240 ug/kg/day); 0.9% Saline used; Controls received mp w/ vehicle; cardiovascular;

Q7771: W. H. Liao, *et al.* Aldosterone deficiency in mice burdens respiration and accentuates diet-induced hyperinsulinemia and obesity. *JCI Insight* 2018;3(14):

Agents: aldosterone **Vehicle:** CSF, artificial; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Dose (25 ng/h); Controls received mp w/ vehicle; animal info (10-12 weeks, 129SvEv or ASKO); ALZET brain infusion kit 2 used; Brain coordinates (anterior-posterior -0.220, medial-lateral +1.000, dorsal-ventral -3.000); Cannula placement verified via stereotaxic frame and at sacrifice; cyanoacrylate adhesive; replacement therapy (aldosterone); Therapeutic indication (aldosterone attenuated high fat diet-induced hyperinsulinemia through increased body energetic efficiency.);

Q7184: M. Hulsmans, *et al.* Cardiac macrophages promote diastolic dysfunction. *J Exp Med* 2018;215(2):423-440

Agents: Aldosterone, D- **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 30 days;

ALZET Comments: Dose (0.30 ug/h); animal info (C57BL/6 mice, 18-30 week old);

Q7754: D. Hirohama, *et al.* Aldosterone Is Essential for Angiotensin II-Induced Upregulation of Pendrin. *J Am Soc Nephrol* 2018;29(1):57-68

Agents: Angiotensin II; Aldosterone; Dexamethasone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 7 days;

ALZET Comments: Dose ((AngII 400 ug/kg/day), (aldosterone 0.1ug/day), (dexamethasone 12 ug/kg/day)); Controls received mp w/ vehicle; animal info (8-14 weeks, male, C57BL/6J or PDS-/-); replacement therapy (aldosterone, dexamethasone; adrenalectomy); Vehicle used but identity not stated. All minipumps contained dexamethasone for glucocorticoid replacement;

Q7749: S. Gasparini, *et al.* Aldosterone infusion into the 4th ventricle produces sodium appetite with baroreflex attenuation independent of renal or blood pressure changes. *Brain Research* 2018;1698(70-80

Agents: aldosterone **Vehicle:** Saline, ethanol buffered; **Route:** CSF/CNS (fourth ventricle); **Species:** Rat; **Pump:** 2001; **Duration:** 6 days; 14 days;

ALZET Comments: Dose (100 ng/μL); 1% ethanol in 0.9% NaCl used; Controls received mp w/ vehicle; animal info (male, Holtzman, 280-320g); post op. care (IM injection of penicillin (30,000 IU) and SC injection of Ketoflex (ketoprofen 1%, 0.03 ml/rat)); Brain coordinates (12.9 mm caudal to bregma in the midline, 4.8 mm below the surface of the skull. The tips of cannulas were positioned 2 mm above the 4th V.);

Q10137: L. G. Cervantes-Perez, *et al.* Disruption of the with no lysine kinase-STE20-proline alanine-rich kinase pathway reduces the hypertension induced by angiotensin II. *Journal of Hypertension* 2018;36(2):361-367

Agents: Angiotensin II; Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 14 days;

ALZET Comments: Dose Ang II (1440 ug/kg per day); Aldosterone (700 ug/kg per day); animal info (12-16 wk old (approximately 25 g) male wild-type mice; Blood pressure measured via Radiotelemetry; Recorded blood pressure: (see pg 363); Angiotensin II aka (Ang II); peptides; cardiovascular; Arterial hypertension



Q7173: K. Bamberg, *et al.* Preclinical pharmacology of AZD9977: A novel mineralocorticoid receptor modulator separating organ protection from effects on electrolyte excretion. PLoS One 2018;13(2):e0193380

Agents: Aldosterone **Vehicle:** DMSO; **Route:** SC; **Species:** SC; **Pump:** 2ML4; **Duration:** 4 Weeks;

ALZET Comments: Dose (0.75 ug/hr); 0.15% DMSO/sterile water used; animal info (Male Sprague-Dawley rats 240 to 280 g); post op. care (redness cleaned with betadine and a topical antibiotic applied);

Q5717: L. Yang, *et al.* SGK1-dependent ENaC processing and trafficking in mice with high dietary K intake and elevated aldosterone. American Journal of Physiology Renal Physiology 2017;312(1):F65-F76

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** 2001; **Duration:** 7 days;

ALZET Comments: animal info (Sgk1 KO); Dose (12 ug/day);

Q5921: B. M. Wynne, *et al.* Aldosterone Modulates the Association between NCC and ENaC. Sci Rep 2017;7(1):4149

Agents: Aldosterone **Vehicle:** DMSO; saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 10 days;

ALZET Comments: Controls received mp w/ vehicle; 25% DMSO used; Dose (4 ug/Kg/day);

Q5970: J. M. Resch, *et al.* Aldosterone-Sensing Neurons in the NTS Exhibit State-Dependent Pacemaker Activity and Drive Sodium Appetite via Synergy with Angiotensin II Signaling. Neuron 2017;96(1):190-206 e7

Agents: Aldosterone **Vehicle:** Ethanol; **Route:** IP; **Species:** Mice; **Pump:** 1002; **Duration:** 8-12 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (4-5 week old); functionality of mp verified by plasma aldosterone levels; 5% ethanol used; Dose (900 ug/mL);

Q5883: N. Queisser, *et al.* Aldosterone activates the oncogenic signals ERK1/2 and STAT3 via redox-regulated mechanisms. Mol Carcinog 2017;56(8):1868-1883

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Rat; **Pump:** 2004; **Duration:** 4 hours;

ALZET Comments: Controls received mp w/ PBS; animal info (male, Sprague Dawley, 8 weeks old); cardiovascular; Bp measured using tail cuff; Dose (0.75 ug/kg/hr);

Q6339: S. B. Poulsen, *et al.* Long-term aldosterone administration increases renal Na(+)-Cl(-) cotransporter abundance in late distal convoluted tubule. American Journal of Physiology Renal Physiology 2017;313(3):F756-F766

Agents: Aldosterone **Vehicle:** DMSO; Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 6 days;

ALZET Comments: Dose (100 ug/kg/24 h); 5% DMSO used; Controls received mp w/ vehicle; animal info (Male mice C57BL/6JBomTac);

Q6449: Y. Kato, *et al.* Natriuretic peptide receptor guanylyl cyclase-A pathway counteracts glomerular injury evoked by aldosterone through p38 mitogen-activated protein kinase inhibition. Sci Rep 2017;7(46624

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (knockout); **Pump:** 2004; **Duration:** Not Stated;

ALZET Comments: Dose (0.2 µ g/kg body weight per minute); Controls received mp w/ vehicle; animal info (Male systemic GC-A KO mice and wild-type); replacement therapy (left uninephrectomy);

Q6469: Y. Guo, *et al.* MicroRNA-30e targets BNIP3L to protect against aldosterone-induced podocyte apoptosis and mitochondrial dysfunction. American Journal of Physiology Renal Physiology 2017;312(4):F589-F598

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7 days;

ALZET Comments: Dose (0.5 mg/h); Controls received mp w/ vehicle; animal info (8-wk-old C57BL/6J male mice weighing 20–25 g);

Q6419: J. P. Ball, *et al.* Role and Regulation of MicroRNAs in Aldosterone-Mediated Cardiac Injury and Dysfunction in Male Rats. Endocrinology 2017;158(6):1859-1874

Agents: Aldosterone **Vehicle:** PEG 300; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 8 weeks;

ALZET Comments: Dose (0.75 mg/h); Controls received mp w/ vehicle; animal info (Eight-week old male Sprague–Dawley rats); replacement therapy (uninephrectomy); cardiovascular;



Q6421: M. Bai, *et al.* NLRP3 inflammasome activation contributes to aldosterone-induced podocyte injury. *American Journal of Physiology Renal Physiology* 2017;312(4):F556-F564

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 2 weeks;

ALZET Comments: Controls received mp w/ vehicle; animal info (8-wk-old male mice weighing 25–30 g);

Q5084: B. Wang, *et al.* Berberine Improved Aldo-Induced Podocyte Injury via Inhibiting Oxidative Stress and Endoplasmic Reticulum Stress Pathways both In Vivo and In Vitro. *Cellular Physiology and Biochemistry* 2016;39(1):217-28

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Controls received no mp; animal info (male, Sprague Dawley, 5-6 weeks old, 260-290g); functionality of mp verified by measuring urinary aldosterone levels (pg 220); cardiovascular; bp measured using tail cuff; Dose (0.75 ug/hr);

Q5471: M. Valero-Munoz, *et al.* Dual Endothelin-A/Endothelin-B Receptor Blockade and Cardiac Remodeling in Heart Failure With Preserved Ejection Fraction. *Circulation: Heart Failure* 2016;9(11):

Agents: Aldosterone, D- **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ saline; animal info (Male, C57BL6J, 8 weeks old, 20-25g); no stress (see pg. 3); replacement therapy (uniphrectomy); cardiovascular; Dose (30 ug/h);

Q4889: A. S. Terker, *et al.* Unique chloride-sensing properties of WNK4 permit the distal nephron to modulate potassium homeostasis. *Kidney Int* 2016;89(127-134

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1002; **Duration:** 7 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (C57BL6 WT or BALB/c, 12-24 weeks old); 240 ug/kr/day

Q6510: A. S. Terker, *et al.* Direct and Indirect Mineralocorticoid Effects Determine Distal Salt Transport. *J Am Soc Nephrol* 2016;27(8):2436-45

Agents: Aldosterone **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice (knockout); **Pump:** Not Stated; **Duration:** 7 days;

ALZET Comments: Dose (240 ug/kg/day); animal info (Kidney--specific MR knockout mice, 12-24 weeks old);

Q5686: A. Tanino, *et al.* Interleukin-18 deficiency protects against renal interstitial fibrosis in aldosterone/salt-treated mice. *Clinical Science* 2016;130(19):1727-39

Agents: Aldosterone **Vehicle:** Water; ethanol; propylene glycol; **Route:** SC; **Species:** mice; **Pump:** 2004; **Duration:** 4 weeks; 28 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (male, C57BL6 or IL-18 KO, 8 weeks old); 9% ethanol used; 86.5% propylene glycol used; replacement therapy (uniphrectomy); immunology; Bp measured using indirect tail cuff; Dose (0.15 ug/h);

Q5201: H. Shi, *et al.* Effects of p53 on aldosterone-induced mesangial cell apoptosis in vivo and in vitro. *Mol Med Rep* 2016;13(6):5102-8

Agents: Aldosterone **Vehicle:** Saline; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 260-290g); cardiovascular; bp measured using tail cuff; Dose (0.75 ug/h);

Q5200: L. Sheng, *et al.* Epidermal growth factor receptor signaling mediates aldosterone-induced profibrotic responses in kidney. *Experimental Cell Research* 2016;346(1):99-110

Agents: Aldosterone **Vehicle:** Ethanol; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 5 weeks old, 18-200g); cardiovascular; Dose (0.75 ug/hr);



Q5191: T. Sakamoto, *et al.* Alteration of amiloride-sensitive salt taste nerve responses in aldosterone/NaCl-induced hypertensive rats. *Neuroscience Research* 2016;108(60-6

Agents: Aldosterone **Vehicle:** Ethanol; propylene glycol; water; **Route:** SC; **Species:** Rat; **Pump:** 2006; **Duration:** 5 weeks;
ALZET Comments: Dose (.75 ug/h); 9% ethanol, 87% propylene glycol, 4% H₂O used; Controls received mp w/ vehicle; animal info (Four-week-old male Sprague-Dawley rats weighing 130–150g); Blood pressure measured via tail-cuff plethysmography; 108.4 mmHg - 169.0 mmHg; Aldosterone aka ald; cardiovascular;

Q5969: J. C. Reil, *et al.* Hyperaldosteronism induces left atrial systolic and diastolic dysfunction. *American Journal of Physiology Heart and Circulatory Physiology* 2016;311(4):H1014-H1023

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Rat; **Pump:** 2ML4; **Duration:** 8 weeks;
ALZET Comments: Controls received no minipump; animal info (8 weeks old); cardiovascular; Therapeutic indication (Hypertension, stroke, thromboembolism); Dose (1.5 ug/h);

Q6628: H. Nakagawa, *et al.* Salt accelerates aldosterone-induced cardiac remodeling in the absence of guanylyl cyclase-A signaling. *Life Sci* 2016;165(9-15

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (knockout); **Pump:** Not Stated; **Duration:** 4 weeks;
ALZET Comments: Dose (100 ng/kg/min); Controls received mp w/ vehicle; animal info (Male 12-week-old GC-A KO mice and their WT littermates); cardiovascular;

Q4896: P. S. L. María Valero-Muñoz, BS; Richard M. Wilson, BS; Maarten Hulsmans, PhD, *et al.* Heart Failure With Preserved Ejection Fraction Induces Beiging in Adipose Tissue. *Circulation: Heart Failure* 2016;9(1-10

Agents: Aldosterone, D- **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;
ALZET Comments: Controls received mp w/ saline; animal info (C57BL6, 8 weeks old, 20-25g, uninephrectomy); replacement therapy (uninephrectomy); cardiovascular; bp measured using tail cuff; Dose (0.3 ug/h);

Q6567: Y. Kakizoe, *et al.* A serine protease inhibitor attenuates aldosterone-induced kidney injuries via the suppression of plasmin activity. *J Pharmacol Sci* 2016;132(2):145-153

Agents: Aldosterone **Vehicle:** DMSO; Saline; **Route:** SC; **Species:** Rat; **Pump:** 2004; **Duration:** Not Stated;
ALZET Comments: animal info (9 week old male Sprague-Dawley rats); replacement therapy (left uninephrectomy);

Q4899: y. B. S. H. H.-W. WANG, y A. CHEN, M. AHMAD, *et al.* ROLE OF BRAIN ALDOSTERONE AND MINERALOCORTICOID RECEPTORS IN ALDOSTERONE-SALT HYPERTENSION IN RATS. *Neuroscience* 2016;314(90-105

Agents: Aldosterone; eplerenone; FAD286 **Vehicle:** CSF, artificial; acetonitrile; **Route:** SC; CSF/CNS; **Species:** Rat; **Pump:** 2004; **Duration:** 2 weeks, 3 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (male, Wistar, 200-250g); 4% acetonitrile used; Multiple pumps per animal; cardiovascular; bp measured using radiotelemetry; bp measured using radiotelemetry; dose (1.5 and 7.5 ug/kg/hr Aldosterone, 5ug/day Eplerenone, 25 ug/day FAD286)

Q5346: R. D. Feldman, *et al.* Aldosterone mediates metastatic spread of renal cancer via the G protein-coupled estrogen receptor (GPER). *FASEB J* 2016;30(6):2086-96

Agents: Aldosterone; G protein-coupled estrogen receptor 15 antagonist **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 2 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (BALB/c male mice, 2 month old); cancer (Orthotopic renal cancer); dose-response (pg. 2093); Dose (200 ug/kg/day for both);

Q6110: T. Bruder-Nascimento, *et al.* NLRP3 Inflammasome Mediates Aldosterone-Induced Vascular Damage. *Circulation* 2016;134(23):1866-1880

Agents: Aldosterone **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;
ALZET Comments: Dose (600 µg/kg/d); Controls received mp w/ vehicle; animal info (8-10 week old male wild type, NLRP3 knockout, caspase-1 knockout, and interleukin-1 receptor knockout mice); cardiovascular;