References on the Administration of Vitamins Using ALZET® Osmotic Pumps

1. RO-23-7553

ALZET Comments: RO-23-7553; PBS; IP; mice; 1007D; 7 days; controls received sham mp; cancer.

2. Vitamin A

ALZET Comments: Dipyridamole; Lazaroids; Retinoic acid; Review of adhesion formation and prevention; mentions the use of mini-osmotic pumps to evaluate new agents to reduce experimental pelvic adhesions (p. 125).

ALZET Comments: Retinoic acid, 13-cis-; Ethanol; SC; Mice (transgenic); 1007D; 5 weeks; Controls received mp w/ vehicle; dose-response (fig. 1); no stress (see pg. 312-13); cancer (neuroblastoma).

ALZET Comments: Retinoic acid; uridine, bromodeoxy-; SC; Mice; 1, 3, 6 days; Controls received mp w/ vehicle; comparison of SC injections vs. mp; cancer (gastric); multiple pumps per animal (2).

ALZET Comments: Transforming growth factor; insulin-like growth factor I; retinoic acid; brain-derived neurotrophic factor;; PBS; BSA;; Ear (vestibule); Guinea pig; 2002; 4 weeks; Controls received mp w/ vehicle; pumps replaced after 2 weeks; peptides; IntraEAR catheter used; GFI group pumps filled with TGF, IGF and Retinoic acid; GFII group pumps filled with TGF, IGF, BDNF and retinoic acid; tissue perfusion (vestibule).

ALZET Comments: Retinoic acid; Quinacrine; Dipyridamole; PBS; Ethanol; injury site; rabbit; 2ML1; 1, 2, 3, 7 days; controls received mp w/vehicle; tissue perfusion (surgical injury site); animals given morphine i.m. for post-operative pain; catheter stabilized in sidewall w/suture; in some studies, catheter tubing was disconnected to halt flow at specific times; immunology.

ALZET Comments: Retinoic acid; Phorbol myristate acetate; ETHANOL; Gibco BRL minimal essential medium; DMSO; Culture medium, serum-free; CSF/CNS (cortex); Rat; 2ML1; 21, 28 days; controls received mp w/ vehicle; functionality of mp verified by residual volume; pumps replaced weekly.

3. Vitamin B12

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Bibliography

ALZET Comments: Vitamin b12; Cobalamin, ethylphenyl-; saline; SC; mice; 2004; 4 weeks; controls received mp w saline; animal info: 7 wks old, female, strain 129.S6; mp used to infuse EtPhCbl in mice to see if it causes Cbl (cobalamin) deficiency; EtPhCbl (3.5 nmol/24 h), CNCbI.

ALZET Comments: Cobinamide; vitamin B12; Saline; SC; Mice; 2004; 27 days; Control animals received mp w/ vehicle; animal info (129.S6, 8 wks old, female); "To avoid wound biting between mice, the mice were housed in individual cages for 3 days after surgery."; post op. care (buprenorphine in the water); cobinamide is a vitamin B12 analogue.

ALZET Comments: Vitamin B12; IP; Rat; 2002; 15 days; controls received mp w/saline.

ALZET Comments: Vitamin B12 analog; SC; Rat; 2002; no duration posted; controls received pumps with saline only; pumps replaced after three weeks; cobalamin analog.

4. Vitamin B12 analog

ALZET Comments: Vitamin B12 analog; SC; Rat; 2002; no duration posted; controls received pumps with saline only; pumps replaced after three weeks; cobalamin analog.

5. Vitamin D

ALZET Comments: Vitamin D3, 1,25-dihydroxy; Cyclodextrin; hydroxypropyl-B-; CSF/CNS (third ventricle); Rat; 1004; 28 days; Controls received mp w/ vehicle; animal info (male, Long Evans, adult); dose-response (Supplementary Figure 3); obesity; Dose (-.264 ug/day); Brain coordinates (i3vt 2.2A/P, 7.8D/V).

ALZET Comments: Vitamin D, 1,25-Dihydroxy-; Mice; 4 weeks; animal info (Hyp mice); “In contrast, Alzet minipump infusion of 1,25D into Hyp mice for 4 weeks after weaning, along with a diet rich in phosphate, normalizes the growth plate and dramatically improves osteoid thickness” pg 936; Oral vs. minipump (pg. 936).

ALZET Comments: Hydroxyvitamin D3, 1a-; SC; Sheep (ewe); 2002; 6 days; Animal info (merino, mature); functionality of mp verified by plasma 1,125-dihydroxycholecalciferol levels.

Q3900: S. K. Halder, et al. Paricalcitol, a Vitamin D Receptor Activator, Inhibits Tumor Formation in a Murine Model of Uterine Fibroids. REPRODUCTIVE SCIENCES 2014;21(1108-1119
ALZET Comments: Vitamin D3, 1,25-dihydroxy; PEG; ethanol; SC; Mice (nude); 28 days; Controls received mp w/ vehicle; animal info (female, athymic, nude, 5-6 weeks old); 95% PEG used; 5% ethanol used; cancer (uterine fibroid tumor).
ALZET Comments: Parathyroid hormone (1-34), human; vitamin D3, 1,25-dihydroxy; SC; Rat; 3 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 3 months old);

ALZET Comments: Vitamin D3, 1,25-dihydroxy; Ethylene glycol; SC; Rat; 3 weeks; Controls received mp w/ vehicle; animal info (female, Eker, 14-16 wks old); functionality of mp verified via serum drug levels; cancer (uterine leiomyomas).

ALZET Comments: Vitamin D3, 1,25-dihydroxy-; SC; Rat; 2006; 6 weeks; Animal info (adult, SHR, WKY, 36 wk old); long-term study.

ALZET Comments: Vitamin D, 1 alpha 25-dihydroxy; Vitamin D hybrid, 1 alpha 25-dihydroxy; Mice; 6-7 days; Animal info (female, virgin, FVB, 8 wks old); cancer; enzyme inhibitor (histone deacetylase, HDAC).

ALZET Comments: Vitamin D3; IP; Rat; 14 days; No stress (see pg. 425, 432); animal info (male, Sprague-Dawley, 7 weeks old).

ALZET Comments: Vitamin D3, 1,25-dihydroxy-; Propylene glycol; SC; Mice; 2004; 1-4 months; Controls received mp w/ vehicle; long-term study; pumps replaced every 4 weeks; stability verified by serum calcium levels; cancer (prostate); animal info (4-7 months old, male).

ALZET Comments: Vitamin D3, 1, 25-dihydroxy-; vitamin D3, 22-oxa-lalpha, 25-dihydroxy-; Tween 20; ethanol; SC; Mice; 2004; 3 weeks; 10, 18 days; Controls received mp w/ vehicle; dose-response; cancer (lung carcinoma); 10% ethanol; millipore chamber ring; sc dorsal air sac model.

ALZET Comments: Vitamin D3, 1, 25-dihydroxy-; Mice; 6 weeks; Controls received mp w/ vehicle; pumps replaced after 3 weeks, no stress (see pg. E728).

ALZET Comments: Vitamin D3, 1,25-dihydroxy; EB 1089; Polypropylene glycol; sodium phosphate; SC; Rat; 28 days; Controls received mp w/ vehicle; functionality of mp verified by plasma 25(OH)-D and 1,25-D levels; stress/adverse reaction: (see pg. 137) 5 animals died due to anesthesia complications and to tail irritation and diarrhea.

6. Vitamin E


**ALZET Comments:** Vitamin D3, 1,25-dihydroxy-; Mice; 2004; 6 weeks; Controls received mp w/ vehicle; pumps replaced after 3 weeks.


**ALZET Comments:** Vitamin E; IP; Rat; 2001; 7 days; functionality of mp verified by measuring EPC-K1 plasma levels; immunology; EPC-K1 is a diester of a-tocopherol and ascorbic acid; agent also called D-alpha-tocopherol.

**P3759:** T. Udaka, et al. The effect of combination therapy with EPC-K1 and low-dose cyclosporine to pulmonary allograft after rat lung transplantation. J. Heart Lung Transplant 1997;16(839-845

**ALZET Comments:** Vitamin E; IP; Rat; 2001; 7 days; functionality of mp verified by measuring EPC-K1 plasma levels; immunology; EPC-K1 is a diester of a-tocopherol and ascorbic acid; agent also called D-alpha-tocopherol.


**ALZET Comments:** Vitamin E; Liposomes; CSF/CNS (cortex); Rat; 2001; 7 days; Multiple pumps per animal (2); agent also called D-alpha-tocopherol.