References on the Administration of Erythropoietin Using ALZET® Osmotic Pumps

Agents: Erythropoietin, recombinant human Vehicle: Saline; Route: CSF/CNS (intracerebral); IV; Species: Mice; Pump: 2006; Duration: 14 days;
ALZET Comments: Dose (3000 U/kg); Controls received mp w/ vehicle; animal info (Tg21 mice); recombinant human Erythropoietin aka recombinant human EPO; ALZET brain infusion kit 3 used; Brain coordinates (midline, 1.00 mm; anteroposterior, 0.34 mm; dorsoventral, 2.30 mm); dental cement used; replacement therapy (Erythropoietin);

Agents: Erythropoietin Vehicle: Saline; Route: SC; Species: Mice; Pump: 1007D; Duration: 1 week;
ALZET Comments: Dose (1,000 IU of EPO); animal info (36 weeks old, CD-1, Male, 20-25 g); EPO aka hemangiogenic and antiapoptotic factor; dependence;

ALZET Comments: Erythropoietin, recombinant human; CSF/CNS; Mice; 30 days; Controls received mp w/ vehicle; animal info (C57BL6); good methods (Jove Video; picture of pump and implantation pg. 4); ischemia (cerebral); post op. care (Carprofen 4 mg/kg); behavioral testing (rotarod test; hand grip strength); cyanoacrylate adhesive; “In this work we have shown the method of implantation of minipumps with a cannula connected to the skull in order to deliver the plasticity promoting protein rhEpo directly into the ventricle, thus circumventing the BBB.” pg 8; Cannula placement verified via histologic analysis "The are no evident severe tissue alterations based on Nissl staining as compared to the corresponding contralateral area";

ALZET Comments: Erythropoietin, recombinant human; SC; Mice (knockout); Mice (transgenic); 30 days; Dose (3 U EPO/day or 10 U EPO/day); Controls received mp w/ vehicle; animal info (8-12 week old WT and Osx:cre-PHD2f/f and Vav:cre-PHD2f/f mice);

ALZET Comments: Erythropoietin; SC; Mice (transgenic); 10 days; Controls received mp w/ vehicle; animal info (female, Tg6, 12 weeks old);

ALZET Comments: Erythropoietin, human recombinant; PBS; BSA; SC; Rat; 1 week; Controls received mp w/ vehicle or sham surgery; animal info (Sprague Dawley, 120 days old, 240-280g); behavioral testing (open field exploration, inhibitory avoidance, Morris water maze);

ALZET Comments: Epidermal Growth Factor; erythropoietin; CSF, artificial; CSF/CNS; Rat; 2001; 14 days; Animal info (male, Sprague Dawley); pumps replaced every 7 days; ischemia (cerebral); behavioral testing (staircase test); pumps removed 7 days after serial implantation;
ALZET Comments: Epidermal growth factor; erythropoietin; CSF, artificial; CSF/CNS; Mice; 1007D; 14 days; Animal info (male, C57Bl6, 9-11 weeks old); EGF-PGF pumps replaced after 7 days with pump filled with ETO; ALZET brain infusion kit 3 used; comparison of epicortical composite vs mp; stress/adverse reaction: "Unlike the ICV catheter/minipump, which causes significant tissue damage, the epicortical composite provides a minimal invasiveness and no tissue damage." (see pg.9); immunology; Pumps implanted 4 days after stroke; Bilk implanted same day as stroke;

ALZET Comments: Erythropoietin; Saline; IV (jugular); Rat; 2001D; 1003D; 72 hours; Control animals received mp w/ vehicle; animal info (Wistar, male, 300-350 g); silastic tubing used.

ALZET Comments: Erythropoietin, recomb. human; Saline; IP; Rat (nude); 2ML4; Animal info (athymic, male, 10-15 wks old); pump functionality measured via residual volume.

ALZET Comments: Erythropoietin; NaCl; CSF/CNS; Mice; 4 weeks; Controls received mp w/ vehicle; animal info (C57Bl6/j, male, 23-25 g, 8-10 wks); ALZET brain infusion kit 3 used; ischemia (focal cerebral).

ALZET Comments: Epidermal growth factor, recomb. human; erythropoietin; cyclosporine A; CSF/CNS; SC; Mice (NOD/SCID); 1007D; Animal info (male, C57/BL6, 8-10 wks old); pumps replaced after 7 days; ALZET brain infusion kit 3 used.

ALZET Comments: Erythropoietin, asialo-; Saline, sterile; SC; Rat; 2001; 4 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 250-275 g).

ALZET Comments: Erythropoietin, human, recomb.; antibody, anti-EPO; Saline; CSF/CNS; Rat; 6 days; 24 hours; Controls received mp w/ rat serum albumin, or control mouse IgG; animal info (male, Fischer 344, 10-12 wks old, 200-250 g, SLC).

ALZET Comments: Erythropoietin; Albumin, rat serum; saline; CSF/CNS; Rat; 2001; 1 week; Controls received mp w/ vehicle; animal info (Sprague Dawley, 220-250 g).

ALZET Comments: Granulocyte-colony stimulating factor, human, recomb.; erythropoietin, human, recomb.; IP; Rat; 2ML1; 48 hours; Controls received mp w/ saline; animal info (male, CD, 250 g, splenectomy).
ALZET Comments: Erythropoietin, human, recomb.; Saline; albumin, rat serum; CSF/CNS; Rat; 2001; 7 days; Controls received mp w/ vehicle; animal info (male, 190-210 g).

ALZET Comments: Erythropoietin; Saline; IV (femoral); Rat; 2ML1; 3 days; Controls received mp w/ vehicle; animal info (male, Long-Evans, 280-330 g., MCAO).

ALZET Comments: Epidermal growth factor, recomb. human; fibroblast growth factor-2, recomb. human; insulin-like growth factor I, recomb. human; erythropoietin, recomb. rat; brain-derived neurotrophic factor, recomb. human; DDL4, recomb. mouse; CSF/CNS; Rat; 1003D; 3 days; Ischemia; animal info (male, Wistar, 8wks old, 280-300 g.); bilateral infusion.

ALZET Comments: Granulocyte-colony stimulating factor-, recomb. human; erythropoietin; IP; Rat; 2ML1; 7 days; Controls received mp w/ saline; peptides; animal info (male, Sprague Dawley, 300 -350 g., splenectomy); “We used implantable osmotic minipumps to guarantee continuous systemic delivery of the tested cytokines over the first even days upon intraperitoneal deposition.” pg. 353.

ALZET Comments: Erythropoietin receptor, soluble; Phosphate buffer;CSF/CNS; Mice; 1007D; 1 week; Controls received mp w/ vehicle; ALZET brain infusion kit used; animal info (male C57/BL6, 3 months old, hypoxia).

ALZET Comments: Erythropoietin; epidermal growth factor; CSF, artificial; CSF/CNS; Rat; 2001; 7, 14 days; Controls received mp w/ vehicle; peptides; animal info (male, Long-Evans, 90-110 days old); ischemia (cerebral); behavioral testing (forelimb assymetry, forelimb inhibition (swimming), reaching); some animals received 7 days EGF.

ALZET Comments: Erythropoietin; Ear (round window); Guinea pig; 1007D; 1 week; Controls received mp w/ saline; replacement therapy (noise-induced hearing impairment); comparison of acute admin. vs. mp; peptides; animal info (male, Dunkin-Hartley); tissue perfusion (round window); mp primed 6 hours in 37 Celsius saline; correct catheter placement confirmed.

ALZET Comments: Erythropoietin receptor, soluble; PBS; BSA; CSF/CNS; Rat; 1007D; 5 days; Controls received mp w/ vehicle; peptides; ischemia (cerebral); animal info (male, Wistar, 200-225 g); MCAO.

ALZET Comments: Erythropoietin, soluble receptor; PBS; BSA; CSF/CNS; Mice; 1003D; 64 hours; Controls received mp w/ vehicle; peptides; ischemia (cerebral); human EPO used; 0.1%BSA used in vehicle.

ALZET Comments: Erythropoietin; antibody, rabbit anti-EPO neutralizing; rabbit IgG; Saline; albumin, mouse serum; rat serum; CSF/CNS; Mice; 1007D; 6 days; Controls received mp w/ vehicle; peptides; Erythropoietin (EPO) Recomb. Human, antibody & IgG were dissolved in 0.9% saline with 1 mg/ml mouse serum albumin; pump/cannula schematic (p. 9739 fig A).


ALZET Comments: Erythropoietin; Saline; Rat; 2 weeks; controls received mp w/vehicle; peptides; cardiovascular.


ALZET Comments: Interleukin-11; Stem cell factor; Granulocyte-colony stimulating factor, PEGylated; Erythropoietin;; SC;; mice;; 2002; 1007D;; 7 days;; controls received mp w/ saline; functionality of mp verified by pilot studies; no stress (see pg. 3223); peptides; recomb. human interleukin-11, EPO, & G-CSF used; recomb. rat stem cell factor used (pegylated);agents were given in every combination;


ALZET Comments: Erythropoietin; Granulocyte-colony stimulating factor; Etoposide; SC; mice; 7 days; dose-response curves (pg. 326-328); cancer; peptides; etoposide is VP-16-213; EPO and VP-16-213 given in same pump initially, but this inactived the G-CSF; multiple pumps per animal (1-2) for G-CSF/VP-16 mice.


ALZET Comments: Erythropoietin; intraterine; Rat; 2002; 5 days; controls received intrauterine bolus of saline; replacement therapy (gentamicin-induced anemia); comparison of iv bolus and intrauterine bolus vs. mp; peptides; mp implanted subdermally in abdomen; "administration of drug at a constant rate produces considerably greater biological effect than that observed in the pulsatile mode." (pg. 200); tissue perfusion (uterus); recomb. human EPO used.


ALZET Comments: Erythropoietin; Interleukin-3; Colony-stimulating factor, GM; PBS; Glycerol; SC; mice; 2002; 14 days; immunology; peptides.


ALZET Comments: Interleukin-3; Colony-stimulating factor, GM; Erythropoietin; PBS; Glycerol; LPS, e. coli; SC; mice; 2002; no duration posted; controls received mp with vehicles +/- LPS; immunology; peptides; recomb. mouse GM-CSF & IL-3 used; recomb. human EPO used.


ALZET Comments: Erythropoietin; SC; Mice; 1701; 7 days; comparison of injections vs. mp infusion; peptides.