Recent References (2014-2019) on the Administration of Endotoxins Using ALZET® Osmotic Pumps


ALZET Comments: Endotoxin, LPS; Saline; IP; Rat; 2006; 6 weeks; Dose (12.5 μg/kg/hr); Controls received mp w/ vehicle; animal info (male Wistar rats; 200–220 g);

Q6984: M. Bolos, et al. Maturation dynamics of the axon initial segment (AIS) of newborn dentate granule cells in young adult C57BL/6J mice. J Neurosci 2019;

ALZET Comments: Endotoxin, LPS; PBS; SC; Mice; 1002; 2 weeks; Dose (150 μg/kg/day); Controls received mp w/ vehicle; animal info (5-week-old C57BL/6J Ola Hsd female mice);


ALZET Comments: Endotoxin, LPS; CSF/CNS (fourth ventricle); Rat; 4 weeks; Dose (1.6 mg/ml); animal info (Male adult Wistar rats); post op. care (1% chloramphenicol applied to the exposed skull and scalp, Bupivacaine applied locally to the scalp, and 4 ml of sterile isotonic saline injected s.c. to prevent dehydration); Brain coordinates (-2.5 mm posterior to Lambda, 7 mm ventral to the dura); neurodegenerative (Alzheimer’s);


ALZET Comments: Endotoxin, LPS; IV (jugular); Rat (pregnant); 2001D; 24 hours; animal info (female, Wistar E19); ischemia (intrauterine); no stress (see pg. 4 “No mortality was experienced for dams undergoing the above protocol”); behavioral testing (Righting Reflex, negative geotaxis, open field, elevated plus maze, Morris water maze, balance beam); teratology; Dose (600 ng/hr); Resultant plasma level (4.5 EU/mL after 16 hours of infusion);


ALZET Comments: Endotoxin, LPS; Saline; SC; Mice; 2004; 28 days; Dose (300 μg/kg/day); animal info (8-week-old C57BL/6 J males); LPS treatment is an established model of inflammation/insulin resistance;


ALZET Comments: Endotoxin, LPS; coenzyme Q10; temple; Interleukin-1 receptor antagonist; butylhydroquinone, tert-; Saline; CSF, artificial; IP; ;CSF/CNS (cisterna magna); Rat; 1007D; 7 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 8 weeks old, 250-280g); ALZET brain infusion kit 2 used; post op. care (IM procaine Penicillin 1000 IU); tissue perfusion (cisterna magna); cardiovascular; bp measured using tail cuff; Dose (LPS 1.2 mg/kg/day; coenzyme Q10 3.25 ug/ul/hr; tempol 5 ug/ul/hr; IL-1Ra 0.5 ug/ul/h);


ALZET Comments: Endotoxin, LPS; CSF, artificial; CSF/CNS; Rat; 2004; 28 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, P32); behavioral testing (Open Field test; elevated plus maze; fear conditioning); Cannula placement verified via methylene blue dye; used Plastics One cannula; used PEEK cannula; rats exposed to radio frequency electromagnetic fields while pump implanted; Dose (1.25 ug/h); Brain coordinates;


ALZET Comments: Endotoxin, LPS; Saline; SC; Mice; 2004; 28 days; Controls received mp w/ vehicle; animal info (male, C57BL/6N, 12 weeks old); immunology; diabetes; Dose (600 ug/kg/day).

ALZET Comments: Ultra-high molecular weight polyethylene particles; oligodeoxynucleotide, decoy; oligodeoxynucleotide, scrambled; Endotoxin, LPS; Brain-derived neurotropic factor; Saline; In Vitro (cell culture); Bone (Femur); Mice (nude); 2006; 4 weeks; Controls received mp w/ vehicle; animal info (Male athymic nude mice, 10-15 weeks old); stability verified by (in vitro experiment); dose-response (pp. 277); good methods (pp. 276); tissue perfusion (bone); Dose (15 mg/ml UHMWPE, 50uM decoy, 1 ug/ml LPS); Therapeutic indication (Bone loss, chronic inflammation);.


ALZET Comments: Endotoxin, LPS; PBS; SC; Mice (knockout); 1004; 4 weeks; Controls received mp w/ vehicle; cardiovascular; Therapeutic indication (atherosclerosis); Dose (252ug/kg);.

Q5384: D. Lana, et al. The neuron-astrocyte-microglia triad involvement in neuroinflammaging mechanisms in the CA3 hippocampus of memory-impaired aged rats. Exp Gerontol 2016;83(71-88)

ALZET Comments: Endotoxin, LPS; CSF, artificial; CSF/CNS (fourth ventricle); Rat; 4 weeks; Controls received mp w/ vehicle; animal info (Male Wistar rats, 3 months & 20 months old); Plastics One cannula used; post op. care (chloramphenicol (1% solution) applied to exposed skull, scalp; bupivacaine applied topically); “A volume overload to the brain is minimal using this procedure because the 0.15 ul/h administered contributes only about 0.16% of the total CSF volume produced by the rat each hour and is only 0.09% of the rat’s total CSF volume” pg 73; Memory/learning study; aging; Brain coordinates; 4th ventricle: 2.5 mm posterior to Lambda, on the midline, and 7 mm ventral to the dura; Dose (1.6 ug/mL);.


ALZET Comments: Endotoxin, LPS; Saline, normal; CSF/CNS (striatum); Rat; 1007D; 7 days; Controls received mp w/ vehicle; animal info (Male Wistar rats aged 8-12 weeks); ALZET brain infusion kit 2 used; good methods (pg. 3); tissue perfusion (striatum); model to study TLR4 activation in vivo; nitrosative/oxidative stress and neuroinflammation; Brain coordinates; 1-mm burr hole was made over the right striatum [AP, +0.75 mm; ML, +1.7 mm relative to bregma]; Dose (5 ug/day);.


ALZET Comments: Endotoxin, LPS; Saline, isotonic; IP; mice; 1003D; 3 days; Controls received mp w/ vehicle; animal info (WT, PAI-1 deficient, & TLR4 deficient male mice); Strain/dose-specific reactions (pg. 505); “As expected, the sham and vehicle control (saline) showed no lethality in mice survival as compared to LPS-challenged mice” pg 504; Inflammation induction; Dose (10 ug/ul);.


ALZET Comments: Endotoxin, LPS; Oral cavity; Sheep (ewe); 1 day; 6 days; Controls received mp w/ saline; animal info (Merino); teratology; immunology;.


ALZET Comments: Endotoxin, LPS; PBS; SC; Mice; 1004; 8 weeks; Animal info (female, 8 wks old, C57BL/6Jrcc); long-term delivery; pumps replaced after 4 weeks.


ALZET Comments: Endotoxin, LPS; CSF, artificial; CSF/CNS (fourth ventricle); Rat; 2004; 28 days; Animal info (male, F-344, 3 months old); behavioral testing (rotarod; open field test; forced swim test); tissue perfusion (fourth ventricle); immunology;.

**ALZET Comments:** Endotoxin, LPS; CSF/CNS (fourth ventricle); Rat; 2004; 28 days; Controls received mp w/ aCSF; animal info (male F-344, 3 months old); neurodegenerative (Alzheimer's disease); behavioral testing (Morris Water Maze); immunology;.

Q4451: Y. H. Ho, et al. Peripheral inflammation increases seizure susceptibility via the induction of neuroinflammation and oxidative stress in the hippocampus. JOURNAL OF BIOMEDICAL SCIENCE 2015;22(U1-U14)

**ALZET Comments:** Endotoxin, LPS; NS398; tempol; Saline; DMSO; IP; CSF/CNS; Rat; 1007D; 7 days; Controls received mp w/ vehicle; animal info (male, Sprague Dawley, 10 weeks old, 250-282g); ALZET brain infusion kit 2 used; 1% DMSO used; Multiple pumps per animal (2); post op. care (IM procaine penicillin 1000IU); immunology; used dental cement; NS398 is a COX-2 inhibitor and anti-inflammatory; tempol scavanges ROS;.

Q4416: C. W. Fischer, et al. Chronic lipopolysaccharide infusion fails to induce depressive-like behaviour in adult male rats. ACTA NEUROPSYCHIATRICA 2015;27(189-194)

**ALZET Comments:** Endotoxin, LPS; Saline; IP; Rat; 2ML4; 1 week; 4 weeks; Controls received mp w/ vehicle; animal info (male, Sprague DAWLEY, 299.9g); functionality of mp verified by circulating LPS; long-term study;.


**ALZET Comments:** Insulin, recombinant cat; endotoxin, LPS; artificial; CSF/CNS (fourth ventricle); Rat; 2004; 4 weeks; Controls received mp w/ vehicle; animal info (male, Wistar, 237g); functionality of mp verified by circulating LPS; long-term study;.


**ALZET Comments:** Endotoxin, LPS; Intra-amniotic; Sheep (fetus); 24 hours; Controls received mp w/ saline; animal info (124 gestation day); immunology;.

Q4116: G. Stifano, et al. Chronic Toll-like receptor 4 stimulation in skin induces inflammation, macrophage activation, transforming growth factor beta signature gene expression, and fibrosis. ARTHRITIS RESEARCH & THERAPY 2014;16(U10-U22)

**ALZET Comments:** Endotoxin, LPS; SC; Mice; 7 days; 28 days; Controls received mp w/ PBS, sterile; animal info (TLR2 -/- or MyD88 -/-); immunology;.

Q3583: I. Nitsos, et al. The Impact of Chronic Intrauterine Inflammation on the Physiologic and Neurodevelopmental Consequences of Intermittent Umbilical Cord Occlusion in Fetal Sheep. REPRODUCTIVE SCIENCES 2014;21(658-670)

**ALZET Comments:** Endotoxin, LPS; Amniotic sac; Sheep (fetus); 2ML4; 4 weeks; Controls received mp w/ saline; animal info (female, pregnant, GD80); post op. care (benacillin); teratology; immunology; E.coli LPS 055:B5, 18 mg/ml;.
Q3556: J. H. Ma, et al. Chronic brain inflammation causes a reduction in GluN2A and GluN2B subunits of NMDA receptors and an increase in the phosphorylation of mitogen-activated protein kinases in the hippocampus. MOLECULAR BRAIN 2014;7(U1-U10)

ALZET Comments: Endotoxin, LPS; CSF, artificial; CSF/CNS (fourth ventricle); Rat; 2004; 28 days; Controls received mp w/ vehicle; animal info (male, Fischer-344); behavioral testing (morris water maze); tissue perfusion (fourth ventricle); immunology; LPS from E.coli, serotype 055:B5;


ALZET Comments: Endotoxin, LPS; PBS; SC; Mice; 1002; 1004; 2 weeks; 4 weeks; 8 weeks;; Animal info (female, C57BL6Jcc, 6 weeks old); pumps replaced every 4 weeks; neurodegenerative (Alzheimer’s); immunology;

Q3976: W. Liang, et al. Metabolically induced liver inflammation leads to NASH and differs from LPS- or IL-1 beta-induced chronic inflammation. LABORATORY INVESTIGATION 2014;94(491-502)

ALZET Comments: Endotoxin, LPS; interleukin-1B, recombinant murine; SC; Mice; 1004; 10 weeks; Controls received mp w/ PBS; animal info (male, APOE3L.CETP, 10-14 weeks old); cardiovascular; myocardial infarction; immunology;


ALZET Comments: Endotoxin, PgLPS ATCC 33277; Mice; 1003D; 1007D; 2004; 28 days; Controls received mp w/ saline; animal info (C57BL6J or MMP-9 -/-, 4-7 months old); cardiovascular; myocardial infarction; immunology;


ALZET Comments: Endotoxin, LPS; CSF, artificial; CSF/CNS (fourth ventricle); Rat; 2006; 21 days; 56 days; Controls received mp w/ vehicle; animal info (male, F-344 rats, 3 months or 9 months or 23 months old); post op. care (lidocane 1% on wound; 2ML isotonic saline SC injection; 2% tylenol in drinking water 3 days after surgery); tissue perfusion (fourth ventricle); long-term study; immunology; LPS aka lipopolysaccharide;