References on the Administration of NMDA Agonists
Using ALZET® Osmotic Pumps

Aspartic Acid

ALZET Comments: Oligonucleotide, antisense; oligonucleotide sense; kainate, dihydro-; aspartic acid, DL-threo-B-benzyloxy-; Saline, sterile; CSF/CNS (optic nerve); Rabbit; 1003D; 3 days; Controls received mp w/ vehicle, or contralateral nerves; antisense (glutamate transporters GLAST + GLT-1); animal info (adult, male, white New Zealand).

ALZET Comments: Aspartic acid, dl-threo-B-hydroxy; spermine, 1-naphthyl acetyl; CSF/CNS (intrathecal, subarachnoid space); Rat; 1007D; 7 days; Controls received mp w/ saline; enzyme inhibitors (GLT-1, GluR2).

P3908: A. Hirata, et al. AMPA receptor-mediated slow neuronal death in the rat spinal cord induced by long-term blockade of glutamate transporters with THA. Brain Research 1997;771(37-44
ALZET Comments: Aspartic acid, dl-threo-B-hydroxy; Glutamate, l-; CSF/CNS (subarachnoid space, intrathecal); Rat; 2ML1; no duration posted; dose-response; cannula position verified.

ALZET Comments: Aminobutyric acid, Y-; Aspartic acid, dl-threo-B-hydroxy; Aspartic acid, l-; Cysteine sulfinic acid; Glutamic acid, l-; Radio-isotopes; 3H tracer; Acetate; Saline; CSF/CNS (corpus striatum); CSF/CNS (hippocampus); Rat; 2002; 2 weeks; comparison of injec. vs. mp infusion; amino acids infused separately & simultaneously.

Cysteinesulfinic Acid

ALZET Comments: Aminobutyric acid, Y-; Aspartic acid, dl-threo-B-hydroxy; Aspartic acid, l-; Cysteine sulfinic acid; Glutamic acid, l-; Radio-isotopes; 3H tracer; Acetate; Saline; CSF/CNS (corpus striatum); CSF/CNS (hippocampus); Rat; 2002; 2 weeks; comparison of injec. vs. mp infusion; amino acids infused separately & simultaneously.

Ibotenic Acid

ALZET Comments: Amyloid protein, Beta (1-40); ibotenic acid; Saline; CSF/CNS (hippocampus); Rat; Dose (B-amyloid (0.075, 0.15, or 0.224 µg/µl); ibotenic acid (0.01875, 0.15, or 0.0562 µg/µl)); Controls received mp w/ vehicle; animal info (Twenty male Albino Wistar rats weighing ~340 g); B-amyloid and ibotenic acid are neurotoxins; neurodegenerative (Alzheimer’s).

ALZET Comments: Ibotenic acid; Kainic acid; Quinolinic acid; PBS; CSF/CNS; Rat; 2002; 14 days; controls received mp w/ vehicle.

**ALZET Comments**: Ibotenic acid; CSF/CNS (middle temporal area); monkey; 2001; 3 days; 23 hours; no comment posted.

**NMDA**


**ALZET Comments**: NMDA; Magnesium sulfate; PBS; CSF/CNS (intrathecal); Rat; 2002; 4-8 weeks; controls received mp with PBS; long-term study, pumps replaced every 2 weeks; NMDA given with MgSO4.


**ALZET Comments**: NMDA; Glycine; Magnesium sulfate; APV; PBS; CSF/CNS (intrathecal); Rat; 1, 2, or 4 weeks; controls received no agent or mp w/ .1M PBS alone or w/.15M glycine in .1M PBS; 0.2 and 0.5M NMDA for 1-2 weeks poorly tolerated; .15M for 2 & 4 weeks better; NMDA and other agents infused in pairs.

### Quinolinic Acid


**ALZET Comments**: Quinolinic Acid; Saline; CSF/CNS (right lateral ventricle); Rat; 1007D; 7 days; Dose (9 mM); animal info (Wistar rat pups 21-day old); behavioral testing (MWM test); ALZET brain infusion kit used; ALZET brain infusion kit used; neurotoxicity (spatial learning and memory);.


**ALZET Comments**: Quinolinic acid; Saline; CSF/CNS (right lateral ventricle); Rat (neonate); 1007D; 7 days; Dose (9 mM); Controls received mp w/ vehicle; animal info (21-day old Wistar rat pups); behavioral testing (Spatial learning and memory test); ALZET brain infusion kit used; Brain coordinates (anteroposterior—3 mm behind bregma; lateral—3.6 mm from midline; and depth—3.8 mm from skull surface);.


**ALZET Comments**: Quinolinic acid; DMSO; IP; Rat; 2006; 28 days; Controls received mp w/ vehicle; animal info (weight: 151.5g); 10% DMSO; Therapeutic indication (Metabolic fingerprinting); Dose (0.3 mg/day, 1 mg/day);.


**ALZET Comments**: Quinolinic acid, 13C7-; Saline, physiological; IP; Guinea pig; 1007D; 5 days; Brain tissue distribution; animal info (female, Hartley, adult, 300-480 g); lateral compression of the spinal cord (spinal cord injury; SCI); nephrology; behavioral testing (motor testing, CTM reflex/sensory testing).

**R0207**: T. W. Stone. Kynurenines in the CNS: from endogenous obscurity to therapeutic importance. Progress in Neurobiology 2001;64(185-218)

**ALZET Comments**: Quinolinic acid; CSF/CNS; Rat; 14 days;


**ALZET Comments**: Quinolinic acid; Saline; 3H tracer; Radio-isotopes; SC; gerbil; 1007D; no duration posted; no comment posted.
**ALZET Comments:** Quinolinic acid; PBS; CSF/CNS; Rat; 2002; 14 days; controls received mp w/saline; comparison of ICV injections vs. mp; no stress (see pg. 305); stress/adverse reaction only in animals receiving ICV injections (pg.305).

**ALZET Comments:** Quinolinic acid; Saline; 13C tracer; Radio-isotopes; SC; gerbil; 1007D; 7 days; controls received saline; functionality of mp verified by in vitro assay, in vivo assays on blood and tissue samples; 13C-QUIN (labeled) used; analyzed fluid & tissue distribution of labeled quinolinic acid.

P3492: T. Bazzett, et al. The neuronal NOS inhibitor L-MIN, but not 7-NINA, reduces neurotoxic effects of chronic intrastratial administration of quinolinic acid. Brain Research 1997;775(229- 232)
**ALZET Comments:** Quinolinic acid; Nitroindazole, 7-, sodium salt; thiocitrulline dihydrochloride, methyl-; PBS; CSF/CNS (striatum); Rat; 2002; no duration posted; dose-response; microdialysis; quinolinic acid administered alone or w/1 other agent in same pump; enzyme inhibitor; nitric oxide synthase inhibitor.;

**ALZET Comments:** Quinolinic acid; Memantine; MK-801; Saline; SC; CSF/CNS; Rat; 2002; 2ML2; 2 weeks; ALZET brain infusion kit used; animals were given ICV quinolinic acid concurrently w/ subcutaneous NMDA antagonists.

**ALZET Comments:** Ibotenic acid; Kainic acid; Quinolinic acid; PBS; CSF/CNS; Rat; 2002; 14 days; controls received mp w/ vehicle.

**ALZET Comments:** Quinolinic acid; PBS; CSF/CNS (striatum); Rat; 2002; 18 days; controls received mp w/phosphate buffered saline; microdialysis; pump attached to dialysis probe anchored via guide cannula; stylet maintained patency of 8 mm cannula.

**ALZET Comments:** Quinolinic acid; CSF/CNS (striatum); Rat; 2002; 14-17 days; functionality of mp verified in vitro for 22 days; detailed methods; excitotoxin; pumps used in a microdialysis infusion apparatus; detailed schematic on p. 2.

**ALZET Comments:** Quinolinic acid; PBS; CSF/CNS; Rat; 2002; 7,14,21 days; controls received mp with vehicle; comparison of striatal injections vs. mp.

ALZET Comments: Quinolinic acid; Nicotinic acid; AP7; Kynurenic acid; Radio-isotopes; 3H tracer; NaOH; PBS; HCl; CSF/CNS (striatum); CSF/CNS (hippocampus); Rat; 2002; 15 hours - 2 weeks; Controls received mp with nicotinic acid; functionality of mp verified by measurement of radioactivity; dose response; neurodegenerative.