Recent References (2015-2020) on the Intratumoral Administration of Agents Using ALZET® Osmotic Pumps

**Agents:** Temozolomide **Vehicle:** PBS; Saline; **Route:** CSF/CNS (intratumoral); **Species:** Mice; **Pump:** 1003D; **Duration:** 3 days;
**ALZET Comments:** Dose (2.4mg/Kg/day); 0.9% NaCl used; Controls received mp w/ vehicle; animal info (C57BL/6 female mice 8–10 weeks old); temozolomide aka TMZ; ALZET brain infusion kit 3 used; Brain coordinates (1.5 mm to the right and 1.0 mm anterior of the bregma); immunology;

**Agents:** 9.2.27-PE38KDEL immunotoxin, ABT-737 **Vehicle:** PBS, captisol, mouse serum albumin; **Route:** CSF/CNS (intratumoral); **Species:** Mice (nude); **Pump:** 1007D; **Duration:** 3 days;
**ALZET Comments:** 5% Captisol and 2% mouse serum albumin used; animal info (Nude mice (22–30 g, 6–8 weeks); ALZET brain infusion kit 3 used; cancer (glioblastoma); “Convection-enhanced delivery (CED), utilizing osmotic pumps, has been successfully used to bypass the blood-brain barrier and to deliver ITs directly into brain tumors” pg.12;

**Agents:** apelin-F13A, DC101, Antibody, anti-VEGFR2 **Vehicle:** CSF, artificial; **Route:** CSF/CNS (intratumoral); **Species:** Mice; **Pump:** 1002; 2004; **Duration:** 14 and 28 days;
**ALZET Comments:** Dose (30 or 60 μg of apelin-F13A, 0.8 mg of DC101); apelin-F13A is a mutant APLNR ligand, DC101 is a VEGFR2-blocking antibody; ALZET brain infusion kit 3 used; cancer (glioblastoma);

**Agents:** Etoposide, Bevacizumab, IMCA12, Interleukin-13-PE38, Tetrakis Chlorin **Vehicle:** Not Stated; **Route:** CSF/CNS (intratumoral); **Species:** Mice, Rat; **Pump:** 2001D, 1003D, 1007D, 1004, 2004; **Duration:** 24 hours, 3, 7, 21, 28 days;
**ALZET Comments:** ALZET brain infusion kit 1,2, and 3 used; cancer (Glioblastoma);

**Agents:** Bevacizumab; RNA, small interfering (anti-HIF-1α/PEG); Immunotoxin, DTAT/DTATEGF; Endostatin; 17-ODYA; Miconazole; **Vehicle:** Not Stated; **Route:** CSF/CNS (intratumoral), IV; **Species:** Mice; **Pump:** Not Stated; **Duration:** Not Stated;
**ALZET Comments:** enzyme inhibitor (CYP epoxygenase); cancer (glioblastoma); This review describes methods (including convection-enhanced delivery devices, implantable polymer devices, nanocarriers, and cellular vehicles) to deliver antiangiogenic factors to intracranial tumors.

**Agents:** Bevacizumab **Vehicle:** PBS; **Route:** CSF/CNS (intratumoral); **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;
**ALZET Comments:** Dose (25 ug/ul); Controls received mp w/ vehicle; comparison of weekly IV injections vs intratumoral delivery via minipump; cancer (Glioma); “Localized BEV delivery by Alzet micro-osmotic pumps is more effective in reducing tumor size and tumor cell infiltr¬tration when compared with systemic administration.”

**Agents:** RNA, small interfering **Vehicle:** Not Stated; **Route:** CSF/CNS (intratumoral); **Species:** mice (nude); **Pump:** 1002, 2002; **Duration:** 14 days;
ALZET Comments: animal info (athymic nude, 6-8 weeks old); ALZET brain infusion kit 3 used; cancer (glioblastoma); “Because repeated surgery introduces stress and pain that may impact the survival of the experimental animals, we opted for the convection-enhanced delivery (CED) strategy using an Alzet osmotic pump to deliver a continuous supply of the nano RNAi combination...” pg E6151;

Agents: Telodendrimer nanoparticles, peptide-incorporated Vehicle: Not Stated; Route: CSF/CNS (Intratumoral); Species: Mice (nude); Pump: Not Stated; Duration: 7 days;
ALZET Comments: Controls received mp w/ free peptide; animal info (female, athymic nude NCRU -Sp/Sp, 8 weeks old); cancer (glioblastoma U87); tissue perfusion (intratumoral); pumps primed overnight at 37C; Dose (0.5 ug/h); Brain coordinates (0.5 mm anterior to bregma and 2.5 mm lateral of midline);

Agents: M443 Vehicle: PBS; DMSO; Route: CSF/CNS (intratumoral); Species: Mice (nude); Pump: Not Stated; Duration: 2 weeks;
ALZET Comments: 0.01% DMSO used; animal info (4 week old female athymic mice); enzyme inhibitor (MRK); Brain coordinates (2 mm to the right and 1 mm posterior to the lambda); cancer (Medulloblastoma); Industry authored (Fatimo Innovation LLC);

Agents: HSP70, human recomb. Vehicle: Not Stated; Route: CSF/CNS (intratumoral); Species: Rat; Pump: Not Stated; Duration: Not Stated;
ALZET Comments: comparison of intracranial injections vs mp; cancer (Glioma); peptides; “Such injections, particularly those done using an osmotic pump, caused a significant delay in tumor growth and increase the survival of tumor-bearing animals.” pg 2532; Therapeutic indication (Cancer, Glioma);

Q4673: M. Zamykal, et al. Inhibition of intracerebral glioblastoma growth by targeting the insulin-like growth factor 1 receptor involves different context-dependent mechanisms. NEURO-ONCOLOGY 2015;17(1076-1085
Agents: IMC-A12 Vehicle: Saline; Route: CSF/CNS (intratumoral); Species: Mice; Pump: 2004; Duration: 3 weeks; 4 weeks;
ALZET Comments: Controls received mp w/ vehicle; animal info (Foxn1nu, 6-8 weeks old); cancer (glioblastoma); tissue perfusion (glioblastoma); IMC-A12 aka cixutumumab;

Agents: Bevacizumab Vehicle: Saline; Route: CSF/CNS (intratumoral); Species: Mice (nude); Pump: 1004; Duration: 28 days;
ALZET Comments: Controls received mp w/ vehicle; animal info (athymic, nu/nu); ALZET brain infusion kit used; cancer (glioma); immunology; “Bevacizumab was delivered into the tumor using chronic pump-mediated delivery, defined as “convection-enhanced delivery” or CED. This CED method was used because it has the advantage of achieving the desirable drug concentration in the microenvironment of the glioma while avoiding the use of high initial doses.” pg 2;

Agents: Ganciclovir Vehicle: Not Stated; Route: CSF/CNS (intratumoral); Species: Mice (transgenic); Pump: 2004; Duration: 7 days;
ALZET Comments: Controls received mp w/ saline, normal; animal info (male, CD11b-HSVTK trangenic); ALZET brain infusion kit used; cancer (glioma GL261);

Agents: Tetrakis (p-carboranylthiotetrafluorophenyl) Chlorin  
Vehicle: Not Stated;  
Route: CSF/CNS (intratumoral);  
Species: Rat;  
Pump: 2001D;  
Duration: Not Stated;  

ALZET Comments: Animal info (male, 200-250 g, F344 Fischer); ALZET brain infusion kit 2 used; TPFC, also known as Tetrakis(p-Carboranylthio-Tetrafluorophenyl)Chlorin, is a carboranyl-containing chlorin of high boron content; cancer (glioma); tissue perfusion; convection-enhanced delivery