



References (2018-Present) Using the ALZET® Osmotic Pumps in Xenograft Models

Q10692: S. Talele, *et al.* Central Nervous System Distribution of the Ataxia-Telangiectasia Mutated Kinase Inhibitor AZD1390: Implications for the Treatment of Brain Tumors. *Journal of Pharmacology and Experimental Therapeutics* 2022;383(1):91-102

Agents: AZD1390 **Vehicle:** DMSO; **Route:** IP; **Species:** Mice; **Pump:** 1003D; **Duration:** 24 hours;

ALZET Comments: Dose (10 mg/ml); Controls received mp w/ vehicle; animal info (Male; Female; 8-14 weeks old; Wild-type, TKO); enzyme inhibitor (AZD1390 is a ataxia telangiectasia mutant kinase inhibitor); cancer (Glioblastoma);

Q10613: N. Moskovits, *et al.* Palbociclib in Combination With Sunitinib Exerts a Synergistic Anti-Cancer Effect in Patient-Derived Xenograft Models of Various Human Cancers Types. *Cancer Letters* 2022;536(215665

Agents: Estradiol **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: Dose (1.08 mg/pellet); animal info (5–8 weeks old immunodeficient NRG or NSG mice (NSG, NOD.Cg-25 PrkdcscidIl2rgtm1Wjl/SzJl; NRG, NOD.Cg-Rag1tm1Mom Il2rgtm1Wjl/SzJl) female or male according to the patient's sex.); cancer (Breast);

Q10274: S. Hegde, *et al.* Inhibition of the RacGEF VAV3 by the small molecule IODVA1 impedes RAC signaling and overcomes resistance to tyrosine kinase inhibition in acute lymphoblastic leukemia. *Leukemia* 2022;36(3):637-647

Agents: IODVA1; Imatinib **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (Vav3-deficient mice and Rac1Δ/Δ+Rac2-deficient mice; C57Bl/10 (females, 8–16 weeks old) and NSG (NOD/SCID/IL2RG-/- males and females, 8–14 weeks old); IODVA1 aka 2-guanidinobenzimidazole derivative with anti-tumorigenic properties; cancer (leukemia)

Q10381: L. M. Fernandez-Sevilla, *et al.* High BMP4 expression in low/intermediate risk BCP-ALL identifies children with poor outcomes. *Blood* 2022;139(22):3303-3313

Agents: DMH1 **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 5 weeks;

ALZET Comments: Dose (3 mg/kg/day); Controls received mp w/ vehicle; animal info (8-12 weeks old; IV-infused via tail vein with human primary cells); DMH1 is a BMP inhibitor; cancer (Blood); Therapeutic indication (Leukemic CNS disease);

Q10434: A. DeGuzman, *et al.* Bittersweet: relevant amounts of the common sweet food additive, glycerol, accelerate the growth of PC3 human prostate cancer xenografts. *BMC Research Notes* 2022;15(1):101

Agents: Glycerol **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2004; **Duration:** 32 days;

ALZET Comments: Dose (0.25 μL/h); Controls received mp w/ vehicle; animal info (Male; 6 weeks old); post op. care (Bupivacaine 7 mg/kg); wound clips used; cancer (Prostate);

Q10421: A. Casazza, *et al.* PhAc-ALGP-Dox, a Novel Anticancer Prodrug with Targeted Activation and Improved Therapeutic Index. *Molecular Cancer Therapeutics* 2022;21(4):568-581

Agents: Doxorubicin; PhAc-ALGP-Dox **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (58 mg/kg; 1026 mg/kg/wk); animal info (Female; 6-8 weeks old); doxorubicin and PhAc-ALGP-Dox are chemotherapeutics; cancer (General);

Q10495: N. Ben-Jonathan, *et al.* Dopamine Receptors in Breast Cancer: Prevalence, Signaling, and Therapeutic Applications. *Critical Reviews TM in Oncogenesis* 2022;27(2):51-71

Agents: Fenoldopam **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 3 weeks; 7 days;

ALZET Comments: animal info: athymic nude mice; Fenoldopam aka (Fen) is a D1R agonist; fluorescence imaging; cancer (Breast cancer); xenograft



Q10835: B. Xu, *et al.* An Oncolytic Virus Expressing a Full-Length Antibody Enhances Antitumor Innate Immune Response to Glioblastoma. *Nature Communications* 2021;12(1):5908

Agents: aCD47-G1 **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1003D; **Duration:** 72 hours;

ALZET Comments: Dose: 24 ug/day; Controls received mp w/ vehicle; animal info: Six- to eight-week-old female athymic nude mice CT2A GBM model; ALZET brain infusion kit 3 used; Brain coordinates (2mm lateral and 1mm anterior to bregma at a depth of 3 mm); immunology;

Q10236: Y. Li, *et al.* Tacrolimus inhibits oral carcinogenesis through cell cycle control. *Biomedicine & Pharmacotherapy* 2021;139(111545)

Agents: Tacrolimus **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Rat; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose: (5 mg/kg/d); Controls received mp w/ vehicle; animal info: Male Sprague-Dawley (SD) rats (6–8 weeks old); Tacrolimus aka (TAC, FK506) is a major calcineurin inhibitor; cancer ();

Q10214: S. H. Kizilbash, *et al.* In Vivo Efficacy of Tesevatinib in EGFR-Amplified Patient-Derived Xenograft Glioblastoma Models May Be Limited by Tissue Binding and Compensatory Signaling. *Molecule Cancer Therapeutics* 2021;20(6):1009-1018

Agents: Tesevatinib **Vehicle:** DMSO; **Route:** IP; **Species:** Mice; **Pump:** 1003D; **Duration:** 48 hours;

ALZET Comments: "Dose: (1 uL/h); Controls received mp w/ vehicle; animal info: FVB wild-type (WT) mice and (TKO) 8 to 14 weeks; half-life (p.3); Tesevatinib is a potent oral brain penetrant EGFR inhibitor cancer (Glioblastoma)" "

Q10561: J. H. Jun, *et al.* Effects of Bisphenol A on the Proliferation, Migration, and Tumor Growth of Colon Cancer Cells: In vitro and in Vivo Evaluation with Mechanistic Insights Related to ERK and 5-HT3. *Food and Chemical Toxicology* 2021;158(112662)

Agents: Bisphenol A **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 28 days;

ALZET Comments: Dose (100 ug/kg/day); animal info (6 weeks old; Male BALB/c nude; Weigh 17-18 g); BPA aka Bisphenol A; cancer (Colon);

Q9223: L. H. Feng, *et al.* Irbesartan inhibits metastasis by interrupting the adherence of tumor cell to endothelial cell induced by angiotensin II in hepatocellular carcinoma. *Annals of Translational Medicine* 2021;9(3):207

Agents: Angiotensin II **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose (100 ng/kg/min); animal info (5-week-old male BALB/c nude mice, 18–20 g); Angiotensin II aka Ang II; cancer (Carcinoma); "Ang II was administered by an ALZET osmotic pump (ALZA, Cupertino, California, USA; model: 1004; sustained release rate: 0.11 µL/hour; duration: 4 weeks), which could release Ang II continuously, homogeneously and stably; avoid stress due to repeated administration; and protect the short half-life of the drug" pg 3

Q8715: M. H. Chasse, *et al.* Mithramycin induces promoter reprogramming and differentiation of rhabdoid tumor. *EMBO Molecular Medicine* 2021;13(2):e12640

Agents: Mithramycin **Vehicle:** PBS supplemented with magnesium or calcium; **Route:** SC; **Species:** Mice; **Pump:** 1003D; **Duration:** 3 days;

ALZET Comments: Dose (2.4 mg/kg); Controls received mp w/ vehicle; cancer (rhabdoid tumor)

Q10114: D. C. Borcharding, *et al.* Suppression of Breast Cancer by Small Molecules That Block the Prolactin Receptor. *Cancers (Basel)* 2021;13(11):

Agents: SMI-6 **Vehicle:** Hydroxypropyl-b-cyclodextrin; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose: (0.11 u/h); dose-response (see pg 3) fig.1; PEG300; 37% hydroxypropyl-b-cyclodextrin; Controls received mp w/ vehicle; animal info: Eight-week-old female athymic nu/nu mice; SMI-6 aka small molecule inhibitor 6; cancer (Breast cancer);



Q9511: T. H. Turner, *et al.* Identification of synergistic drug combinations using breast cancer patient-derived xenografts. Scientific Reports 2020;10(1):1493

Agents: YM-155 **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (5 mg/kg); Controls received mp w/ vehicle; animal info (female non-obese diabetic severe combined immunodeficient gamma (NSG) mice); dependence;

Q9470: J. Shi, *et al.* Restoring apoptosis dysregulation using survivin inhibitor in nasopharyngeal cancer. Head Neck 2020;42(5):913-923

Agents: YM-155 **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (5 mg/kg/day); Controls received mp w/ vehicle; animal info (6-week-old female NOD scid gamma (NSG) mice); YM-155 aka survivin inhibitor; cancer (Nasopharyngeal carcinoma);

Q10328: L. Shaashua, *et al.* Spontaneous regression of micro-metastases following primary tumor excision: a critical role for primary tumor secretome. BMC Biology 2020;18(1):163

Agents: Conditioned medium **Vehicle:** Serum-free medium; **Route:** IP; **Species:** Mice; **Pump:** 1003D; **Duration:** Not Stated;

ALZET Comments: Dose: (100 µl/mouse); animal info: Eight-week-old female BALB/c mice; Conditioned medium aka (CM) made with MDA-MB-231HM cells, Serum-free medium (SM); cancer

Q9426: J. S. Rechberger, *et al.* Evaluating infusate parameters for direct drug delivery to the brainstem: a comparative study of convection-enhanced delivery versus osmotic pump delivery. Neurosurgical Focus 2020;48(1):E2

Agents: FITC-Dextran **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Rat; **Pump:** 2001D; 2ML1; **Duration:** 24 hours; 5 days;

ALZET Comments: Animal info (Female Sprague-Dawley rats (mean age 6 weeks, mean weight 140 g)); ALZET brain infusion kit II used; cyanoacrylate adhesive; dependence;

Q8815: A. Rahman, *et al.* Antiproliferative Effects of Monoclonal Antibodies against (Pro)Renin Receptor in Pancreatic Ductal Adenocarcinoma. Molecular Cancer Therapeutics 2020;19(9):1844-1855

Agents: Handle region peptide **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 28 days;

ALZET Comments: Dose (0.1 mg/kg); Controls received mp w/ vehicle; animal info (5 weeks old, Male); Handle region peptide aka HRP (Pro)Renin Receptor Antagonist; cancer (Tumor);

Q10261: B. S. Moon, *et al.* Epigenetic modulator inhibition overcomes temozolomide chemoresistance and antagonizes tumor recurrence of glioblastoma. Journal of Clinical Investigation 2020;130(11):5782-5799

Agents: Temozolomide; Pyr-Pam **Vehicle:** Saline; **Route:** CSF/CNS (intrathecal); **Species:** Mice; **Pump:** 1004; **Duration:** 26 days;

ALZET Comments: Dose: TMZ (100 µL at 32.5 mg/mL); Pyr-Pam (100 µL at 7 mg/mL); Controls received mp w/ vehicle; animal info: immunocompromised (NSG) mice; Temozolomide aka (TMZ); Pyrvinium pamoate aka (Pyr-Pam); (Brain Infusion Kit 3, 1–3 mm); Alzet used; Brain coordinates ((coordinates: 2 mm anterior and 3 mm to the right of bregma at a depth of 3 mm); dental cement used; (sterile bone wax)cancer (Glioblastoma multiforme); incorrectly labelled pump as Model 1004D

Q8881: S. Liu, *et al.* Assessment and Comparison of the Efficacy of Methotrexate, Prednisolone, Adalimumab, and Tocilizumab on Multipotency of Mesenchymal Stem Cells. Frontiers in Pharmacology 2020;11(1004

Agents: Methotrexate; Prednisolone; Adalimumab; Tocilizumab **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (0.25 or 0.5 mg/kg methotrexate; 0.1 or 0.2 mg/kg prednisolone; 0.75 or 1.5 mg/kg adalimumab; 4 or 8 mg/kg tocilizumab); Controls received mp w/ vehicle; animal info (male mice, 6-10 weeks old); dependence;



Q8632: Y. Li, *et al.* Dual targeting of Polo-like kinase 1 and baculoviral inhibitor of apoptosis repeat-containing 5 in TP53-mutated hepatocellular carcinoma. *World Journal of Gastroenterology* 2020;26(32):4786-4801

Agents: YM155 **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (3 mg/kg/day); Controls received mp w/ vehicle; animal info (Eight-week-old male mice); cancer (Hepatocellular carcinoma);

Q9274: C. T. Holland, *et al.* S179D Prolactin Sensitizes Human PC3 Prostate Cancer Xenografts to Anti-tumor Effects of Well-Tolerated Doses of Calcitriol. *Journal of Cancer Science Clinical Therapeutics* 2020;4(4):442-456

Agents: S179D **Vehicle:** Propylene Glycol; **Route:** Sc; **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments:

Q8849: G. Flores, *et al.* CDK9 Blockade Exploits Context-dependent Transcriptional Changes to Improve Activity and Limit Toxicity of Mithramycin for Ewing Sarcoma. *Molecular Cancer Therapeutics* 2020;19(5):1183-1196

Agents: Mithramycin **Vehicle:** PBS; **Route:** IP; **Species:** Mice (Nude); **Pump:** 1003D; **Duration:** 3 days;

ALZET Comments: Dose (100 nM); Controls received mp w/ vehicle; animal info (Athymic nude mice); dependence;

Q8458: J. Enriquez Perez, *et al.* Convection-enhanced delivery of temozolomide and whole cell tumor immunizations in GL261 and KR158 experimental mouse gliomas. *BMC Cancer* 2020;20(1):7

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 8–10weeks 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;

Q8447: G. Dolgormaa, *et al.* Mac-2-binding protein glycan isomer enhances the aggressiveness of hepatocellular carcinoma by activating mTOR signaling. *British Journal of Cancer* 2020;123(7):1145-1153

Agents: M2BPGI **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: Dose (3.6 ug/ml/day); Controls received mp w/ vehicle; animal info (female NOD-SCID mice, 7 weeks old, 19-20 g); M2BPGI aka Mac-2-binding protein; cancer (Carcinoma);

Q9571: A. Corachan, *et al.* Long-term vitamin D treatment decreases human uterine leiomyoma size in a xenograft animal model. *Reproductive Sciences* 2020;113(1):205-216 e4

Agents: 1,25(OH)2D3 **Vehicle:** Ethanol; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** 21, 60 days;

ALZET Comments: Dose (0.5 or 1 ug/kg/day); Controls received mp w/ vehicle; animal info (5 weeks old, Female); 1,25(OH)2D3 aka Vitamin Dependence;

Q8404: H. Castillo-Ecija, *et al.* Treatment-driven selection of chemoresistant Ewing sarcoma tumors with limited drug distribution. *Journal of Controlled Release* 2020;324(440-449

Agents: Irinotecan **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2001D; **Duration:** 24 hours;

ALZET Comments: Dose (130 ug/h); Controls received mp w/ vehicle; animal info (athymic nude mice); cancer (ewing sarcoma);

Q7425: X. Zhi, *et al.* Adrenergic modulation of AMPKdependent autophagy by chronic stress enhances cell proliferation and survival in gastric cancer. *Int J Oncol* 2019;54(5):1625-1638

Agents: Propranolol Hydrochloride **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 21 days;

ALZET Comments: Dose (2 mg/kg/day); Controls received mp w/ vehicle; animal info (Male BALB/c nude mice (5weeks old, weighing ~20 g)); cancer (gastric cancer);



Q9043: J. P. Zepecki, *et al.* Regulation of human glioma cell migration, tumor growth, and stemness gene expression using a Lck targeted inhibitor. *Oncogene* 2019;38(10):1734-1750

Agents: Lck inhibitor **Vehicle:** DMSO, Kolliphor; **Route:** CSF/CNS; **Species:** Mice; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ vehicle; animal info (8 weeks old, Nu/J, Male); Lck-I aka Lck Inhibitor; enzyme inhibitor (Lck Inhibitor); ALZET brain infusion kit 3 used; Brain coordinates (+0.5 mm and +1.1 mm ML relative to Bregma); cyanoacrylate adhesive; cancer (Glioblastoma);

Q7038: G. Zadra, *et al.* Inhibition of de novo lipogenesis targets androgen receptor signaling in castration-resistant prostate cancer. *Proc Natl Acad Sci U S A* 2019;116(2):631-640

Agents: IPI-9119 **Vehicle:** 1-methyl-2-pyrrolidinone; sodium phosphate buffer; **Route:** SC; **Species:** Mice; **Pump:** 2002; **Duration:** 4 weeks;

ALZET Comments: Dose (100 mg/mL); 20% 1-methyl-2-pyrrolidinone used; enzyme inhibitor (fatty acid synthase); cancer (prostate); no stress: Mice did not show any signs of toxicity, stress, weight loss, or changes in feeding behavior. (see pg. 635);

Q7039: X. Yu, *et al.* Synergistic antitumor effects of 9.2.27-PE38KDEL and ABT-737 in primary and metastatic brain tumors. *PLoS One* 2019;14(1):e0210608

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 ;

Q7680: Y. Wang, *et al.* NRG-1 Stimulates Serum DJ-1 Increase in Breast Cancers. *Pathol Oncol Res* 2019;25(1):71-79

Agents: NRG-1 **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 24 hours;

ALZET Comments: Dose (10 ug/d); Controls received mp w/ vehicle; post op. care (carprofen); cancer (breast);

Q8274: A. MacDonald, *et al.* Necuparanib, A Multitargeting Heparan Sulfate Mimetic, Targets Tumor and Stromal Compartments in Pancreatic Cancer. *Mol Cancer Ther* 2019;18(2):245-256

Agents: Necuparanib **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 1004; **Duration:** Not stated;

ALZET Comments: Dose (40 mg/kg/day); Controls received mp w/ vehicle; animal info (C57bl/6/FVB); cancer (Pancreatic);

Q8271: R. Luwor, *et al.* Targeting Glioma Stem Cells by Functional Inhibition of Dynamin 2: A Novel Treatment Strategy for Glioblastoma. *Cancer Invest* 2019;37(3):144-155

Agents: Cydn-4-36, Temozolomide, or both **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 14 days;

ALZET Comments: Dose (Cydn- 150 mg/kg/day or TMZ-20 mg/kg/day); animal info (8-10 weeks old, BALB/c nu/nu); Cydn-4-36 aka dynamin inhibitor, TMZ aka temozolomide aka DNA-alkylating prodrug; enzyme inhibitor (Dynamin inhibitor); cancer (Glioma);

Q8258: Y. T. Lin, *et al.* Cordycepin Suppresses Endothelial Cell Proliferation, Migration, Angiogenesis, and Tumor Growth by Regulating Focal Adhesion Kinase and p53. *Cancers (Basel)* 2019;11(2):

Agents: Cordycepin **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Pump:** Not stated; **Duration:** 7 days;

ALZET Comments: Dose (2.4 mg/kg/day); Controls received mp w/ vehicle; animal info (BALB/c,); dependence;

Q6885: H. Kaneko, *et al.* Developmental ability of oocytes retrieved from Meishan neonatal ovarian tissue grafted into nude mice. *Animal Science Journal* 2019;

Agents: Follicle stimulating hormone, porcine **Vehicle:** Saline; **Route:** Not Stated; **Species:** Mice (nude); **Pump:** 2004;

Duration: 13 days;

ALZET Comments: Dose (porcine FSH (62.5 or 125 U/ml); animal info (Female nude mice (Crlj;CD1-Foxn1nu));



Q7630: H. Y. Jang, *et al.* Schedule-dependent synergistic effects of 5-fluorouracil and selumetinib in KRAS or BRAF mutant colon cancer models. *Biochemical Pharmacology* 2019;160(110-120

Agents: fluorouracil, 5- **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 7 days;

ALZET Comments: Dose (10, 30 mg/kg/day); Controls received mp w/ vehicle; animal info (5.5 weeks, male, athymic, Balb-c/nu); cancer (colorectal); "An equivalent dose of 5-FU (JW Pharmaceutical, Seoul, Korea) was continuously delivered by osmotic pumps (Durect, Cupertino, CA, USA) over 7 days, to minimize possible side effects of severe weight loss by repeated bolus injections of 5-FU [26]." pg.112; Therapeutic indication (improved effectiveness of capecitabine (5-FU precursor) monotherapy due to synergistic effect with MEK inhibitor);

Q7957: Z. Chen, *et al.* USP9X deubiquitinates ALDH1A3 and maintains mesenchymal identity in glioblastoma stem cells. *J Clin Invest* 2019;129(5):2043-2055

Agents: WP1130 **Vehicle:** Not stated; **Route:** CSF/CNS (caudate nucleus); **Species:** Mice; **Pump:** Not stated; **Duration:** 7 days;

ALZET Comments: Dose (25 mg/kg at 0.5 µl/h); Controls received mp w/ vehicle; animal info (NOD/SCID); WP1130 is a USP9X inhibitor; enzyme inhibitor (USP9X); Brain coordinates (2 mm anterior, 2 mm lateral, 3 mm depth from the dura); Cannula placement verified via MRI after removal of the pump system.; cancer (glioblastoma); MRI; vehicle use stated but identity not listed in paper.; Therapeutic indication (promotes robust polyubiquitylation of ALDH1A3, which results in a marked reduction in ALDH1A3 protein levels and functional activity, leading to attenuation of the tumor-initiating ability of MES GSCs);

Q9001: K. Zhang, *et al.* Targeting histone methyltransferase G9a inhibits growth and Wnt signaling pathway by epigenetically regulating HP1alpha and APC2 gene expression in non-small cell lung cancer. *Molecular Cancer* 2018;17(1):153

Agents: UNC0638 **Vehicle:** PBS; **Route:** IP; **Species:** Mice; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: Dose (5, 10 mg/ml at 0.25 µl/h); Controls received mp w/ vehicle; animal info (6-8 weeks, NOD/SCID/IL2Rgamma null, 24-27g); UNC0638 is a selective G9a inhibitor; cancer (lung); pump model not stated but listed as 100 µl capacity with 0.25 µl/h rate; Therapeutic indication (Targeting G9a by the specific inhibitor UNC0638 down-regulates HP1alpha, and epigenetically restores expression of APC2 and other tumor suppressors through promoter demethylation, and then significantly inhibits Wnt signaling pathways and growth of non-small cell lung cancer;

Q8770: W. Wang, *et al.* Intratumoral delivery of bortezomib: impact on survival in an intracranial glioma tumor model. *J Neurosurg* 2018;128(3):695-700

Agents: Bortezomib **Vehicle:** Saline; **Route:** CSF/CNS (Cranium); **Species:** Mice; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: Dose (0.36, 1.2, 3.6 µg); Controls did not receive tumor injection and received mp w/ vehicle; animal info (athymic, nu/nu); comparison of iv injection vs mp; ALZET brain infusion kit used (model not stated); cancer (Glioblastoma); "The pump was used because it is an efficient method for intratumoral administration and circumvents the BBB." pg.698. "The mini-osmotic pump provides drug treatment directly to the brain and also bypasses the liver, thereby achieving the desired drug concentration in the glioma microenvironment while avoiding the use of high drug doses." p.699; "Tumor progression could not be determined using imaging because the pump interfered with imaging." p.698. "doses at 7.2 µg, 18.0 µg, and 36.0 µg were toxic and fatal to the testing animals." p.698; Therapeutic indication (bortezomib can be an effective therapy for the treatment of GBM, as long as the drug is administered in such a way that the BBB is circumvented.);

Q7306: M. L. Sulciner, *et al.* Resolvins suppress tumor growth and enhance cancer therapy. *J Exp Med* 2018;215(1):115-140

Agents: Resolvin D1, Resolvin D2, Resolvin E1, Annexin V recombinant protein, **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice (SCID); **Pump:** pump model not stated; **Duration:** 28 days, 2 and 3 months;

ALZET Comments: Dose: Resolvins (15 ng/d), Annexin V recombinant protein (4 µg/kg/d); Controls received mp w/ vehicle; animal info (C57BL/6J, SCID); pumps replaced after 14 days for the 28 day studies and every 28 days for the 2 and 3 month studies; cancer (prostate);

Q8808: E. Porcu, *et al.* BMP9 counteracts the tumorigenic and pro-angiogenic potential of glioblastoma. *Cell Death & Differentiation* 2018;25(10):1808-1822

Agents: Bone Morphogenetic Protein 9 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Dose (1 µg or 3 µg); Bone Morphogenetic Protein 9 aka BMP9; cancer (Glioblastoma);



Q8141: M. S. Nandhu, *et al.* Development of a Function-Blocking Antibody Against Fibulin-3 as a Targeted Reagent for Glioblastoma. Clin Cancer Res 2018;24(4):821-833

Agents: mAb428.2 Antibody **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** 2001; **Duration:** 8 days;

ALZET Comments: Dose (1.0 ul/hr/day); Controls received mp w/ vehicle; animal info (FoxN1nu/nu); dependence;

Q6915: K. Mitsuoka, *et al.* Predicting response to sepantronium bromide (YM155), a survivin suppressant, by PET imaging with [(11)C]YM155. Nucl Med Biol 2018;64-65(41-46

Agents: YM155 **Vehicle:** DMSO; Saline; **Route:** SC; **Species:** Mice (nude); **Pump:** 1003D; 1007D; **Duration:** 2 weeks;

ALZET Comments: animal info (5-6 week old Male athymic nude mice); YM155 aka Sepantronium bromide; cancer (tumor);

Q7079: B. Kuhn, *et al.* Anti-inflammatory nitro-fatty acids suppress tumor growth by triggering mitochondrial dysfunction and activation of the intrinsic apoptotic pathway in colorectal cancer cells. Biochemical Pharmacology 2018;155(48-60

Agents: Nitrooleate, 9- **Vehicle:** PEG 400, ethanol; **Route:** SC; **Species:** Mice (SCID); **Pump:** 2001; **Duration:** 5 days;

ALZET Comments: Dose (16 mg/kg/day); 10% ethanol and 90% PEG400 used; animal info (5-6 week old SCID mice); pumps replaced after 7 days; 9-NOA is a Nitro-fatty acids; cancer (colorectal); "we have chosen a continuous application of NFAs via ALZET® osmotic pumps giving the advantage of a reduction of interindividual variations in mice due to a diverse oral chow consumption behavior and therefore kept the number of animals needed as low as possible." pg. 57; Due to poor solubility of 9-NOA and limited pump size in consequence of the weight of the mice, pumps were surgically removed and replaced with new ones on day 8 of the experiment;

Q7195: H. Koblish, *et al.* Preclinical characterization of INCB053914, a novel pan-PIM kinase inhibitor, alone and in combination with anticancer agents, in models of hematologic malignancies. PLoS One 2018;13(6):e0199108

Agents: INCB053914 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** 2001, 2002; **Duration:** 7-19 days;

ALZET Comments: Dose (0.5 ul/h/day); animal info (female, 5-9 weeks old); comparison of twice daily oral gavage vs mp; INCB053914 is a Pan-PIM kinase inhibitor; enzyme inhibitor (pan-PIM kinase); Therapeutic indication (cancer);

Q7015: S. A. Kahn, *et al.* Notch1 regulates the initiation of metastasis and self-renewal of Group 3 medulloblastoma. Nat Commun 2018;9(1):4121

Agents: Antibody, anti-NRR1 **Vehicle:** PBS; **Route:** CSF/CNS (lateral ventricle); **Species:** Mice; **Pump:** 1004; **Duration:** 10-50 days;

ALZET Comments: Dose (1 µg/µL); Controls received mp w/ vehicle; anti-NRR1 is a NOTCH1 blocking antibody; ALZET brain infusion kit used; Brain coordinates (coronal suture, 2mm right lateral to midline, 4mm into the lateral ventricle); cancer (medulloblastoma);

Q8771: W. J, *et al.* Integrated Dissection of Cysteine Oxidative Post-translational Modification Proteome During Cardiac Hypertrophy. Journal of Proteome Research 2018;17(3):695-700

Agents: Isoproterenol **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 1, 3, 5, 7, 10, 14 days;

ALZET Comments: Dose (15 mg/kg/day); Controls received mp w/ vehicle; animal info (9-12 weeks, male, C57BL/6J); cardiovascular; isoproterenol used to induce cardiac hypertrophy in mice;

Q7757: K. Iizuka, *et al.* Analysis of the prolonged infusion of DFP-10917, a deoxycytidine analog, as a therapeutic strategy for the treatment of human tumor xenografts in vivo. Int J Oncol 2018;52(3):851-860

Agents: DFP-10917 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Pump:** Not Stated; **Duration:** 1, 3, 14 days;

ALZET Comments: Dose (4.5, 8, 30 mg/kg/day); Controls received no treatment; animal info (5 weeks, male, BALB/cA Jcl-nu, 17.2-24.6g); comparison of bolus injection vs mp; DFP-10917 AKA 2'-C-cyano-2'-deoxy-1-beta-D-arabino-pentofuranocylcytosine is a 2'-deoxycytidine analog with antitumor activity; cancer (tumor xenografts); Infusion of agent occurred on three regimens: 24 consecutive hours on days 1 and 8, for 3 consecutive days on days 1 and 15, or for 14 consecutive days (p.852); Therapeutic indication ("regression of tumor growth without any toxicities on human solid and hematological tumor xenografts compared to clinically available deoxycytidine analogs." p.858);



Q7021: H. Hvid, *et al.* Activation of insulin receptors and IGF-1 receptors in COLO-205 colon cancer xenografts by insulin and insulin analogue X10 does not enhance growth under normo- or hypoglycaemic conditions. *Diabetologia* 2018;61(11):2447-2457

Agents: Insulin, human; X10 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice (nude); **Pump:** Not Stated; **Duration:** Not Stated; **ALZET Comments:** Dose (insulin at 27 nmol/kg/d; X10 at 41 nmol/kg/d); Controls received mp w/ vehicle; animal info (male BALB/c nude mice); X10 is an insulin analog; cancer (colon); diabetes;

Q7762: C. R. Chitambar, *et al.* Gallium Maltolate Disrupts Tumor Iron Metabolism and Retards the Growth of Glioblastoma by Inhibiting Mitochondrial Function and Ribonucleotide Reductase. *Mol Cancer Ther* 2018;17(6):1240-1250

Agents: gallium, (tris-hydroxy-2-methyl-4H-pyran-4-onato) **Vehicle:** Not Stated; **Route:** IV (Jugular); **Species:** Rat; **Pump:** Not Stated; **Duration:** 10 days;

ALZET Comments: Dose (50 mg/kg/day); animal info (Male athymic rats 250g); tris-hydroxy-2-methyl-4H-pyran-4-onato)gallium aka GaM; cancer (glioblastoma);