



Recent References on the Administration of Agents to Immunodeficient Mice
Using ALZET® Osmotic Pumps

NOG Mice

Q10584: K. Kudo, *et al.* Secreted Phospholipase A(2) Modifies Extracellular Vesicles and Accelerates B Cell Lymphoma. *Cell Metabolism* 2022;34(4):615-633 e8

Agents: Varespladib **Vehicle:** Sulfolbutylether-beta-cyclodextrin; **Route:** Intraspinal; **Species:** Mice; **Strain:** NOG; **Pump:** 2006; 1004; **Duration:** 3 weeks;

ALZET Comments: Dose (1 µg/g body weight/day); Controls received mp w/ vehicle; mouse jugular catheter used; animal info: humanized mice; Varespladib is a sPLA2 inhibitor; immunology;

Q6623: T. Morishita, *et al.* The photosensitizer verteporfin has light-independent antileukemic activity for Ph-positive acute lymphoblastic leukemia and synergistically works with dasatinib. *ONCOTARGET* 2016;7(35):56241-56252

Agents: Verteporfin **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** NOG; **Pump:** Not Stated; **Duration:** 7 days;

ALZET Comments: Dose (140 mg/kg/day); Controls received mp w/ vehicle; Resultant plasma level (654 nM); (leukemia);

Q5592: S. Ando, *et al.* Tofacitinib induces G1 cell-cycle arrest and inhibits tumor growth in Epstein-Barr virus-associated T and natural killer cell lymphoma cells. *Oncotarget* 2016;7(47):76793-76805

Agents: Tofacitinib **Vehicle:** DMSO, PEG, Saline; **Route:** SC; **Species:** Mice; **Strain:** NOG; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Controls received mp w/ vehicle; 50% DMSO, 10% PEG, 40% Saline used; cancer (Lymphoma); Therapeutic indication (lymphoma); Dose (30 mg/kg/day); enzyme inhibitor (JAK3)

Q4667: P. Yu, *et al.* Augmented efficacy with the combination of blockade of the Notch-1 pathway, bortezomib and romidepsin in a murine MT-1 adult T-cell leukemia model. *LEUKEMIA* 2015;29(556-566

Agents: Compound E **Vehicle:** PEG 300; **Route:** SC; **Species:** Mice; **Strain:** NOG; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: Controls received mp w/ PBS; cancer (leukemia, adult T-cell);

Q2329: Y. Zhang, *et al.* CXCR4 inhibitors selectively eliminate CXCR4-expressing human acute myeloid leukemia cells in NOG mouse model. *Cell Death & Disease* 2012;3(:):U31-U41

Agents: AMD 3100; TN140 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice **Strain:** NOG -/-; **Duration:** 7 days;

ALZET Comments: Control animals received mp w/ PBS; cancer; half-life, pg 2 "Taking into consideration the short in vivo half-life of AMD3100 (3-5 h) and TN140 (9.6 h) the drugs were administered by s.c. pumps implantation during 7 days."

NSG Mice (2018-Present)

Q11288: E. Itzhaki, *et al.* Tumor-Targeted Poly(ArgGlyAsp) Nanocapsules for Personalized Cancer Therapy – In Vivo Study. *Advanced Therapeutics* 2023;6(6):

Agents: Estradiol, 17b- **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** NRG; NSG; **Pump:** Not Stated; **Duration:** 28 d

ALZET Comments: Dose (1.08 mg/pellet); controls received mp w/ vehicle; animal info (5–8 week old); cancer (colon, breast, and gastric cancer);

Q11270: W. Dong, *et al.* A designer peptide against the EAG2-Kvbeta2 potassium channel targets the interaction of cancer cells and neurons to treat glioblastoma. *Nature Cancer* 2023;4(10):1418-1436

Agents: K90-114 **Vehicle:** DPBS; **Route:** CSF/CNS (intratumoral); **Species:** Mice; **Strain:** NSG; **Pump:** 1002; 1007D; **Duration:** 14 days;

ALZET Comments: Dose (300 µg); animal info: 6–12-week-old female; peptides; brain coordinates (1.5 mm lateral to midline, 2 mm posterior to bregma and –3 mm deep to the cranial surface); cancer (Glioblastoma); brain tissue distribution; "We utilized an osmotic pump with a cannula to infuse peptide intratumorally (Fig. 5c), a delivery route that bypasses the blood–brain barrier and increases peptide local concentration." p. 8



Q11239: G. Basile, *et al.* Excess pancreatic elastase alters acinar-beta cell communication by impairing the mechano-signaling and the PAR2 pathways. *Cell Metabolism* 2023;35(7):1242-1260 e9

Agents: Telaprevir **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Strain:** NSG; C57BL6/J; **Pump:** 1004; **Duration:** 4 weeks;
ALZET Comments: Dose (30 or 300 ug/kg/day); Controls received mp w/ vehicle; animal info (Male; 8-10 weeks, 4 weeks old);

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; **Strain:** NSG, NOD.Cg-25 PrkdcscidIl2rgtm1Wjl/SzJl; NRG, NOD.Cg-Rag1tm1Mom Il2rgtm1Wjl/SzJl; **Pump:** Not Stated; **Duration:** 28 days;

ALZET Comments: Dose (1.08 mg/pellet); animal info (5–8 weeks old, female or male according to the patient's sex.);

Q11165: L. Labanieh, *et al.* Enhanced safety and efficacy of protease-regulated CAR-T cell receptors. *Cell* 2022;185(10):1745-1763 e22

Agents: Grazoprevir; ritonavir **Vehicle:** PEG 300; propylene glycol; ethanol; **Route:** IP; **Species:** Mice; **Strain:** NSG; **Pump:** 2002; **Duration:** 14 days;

ALZET Comments: Dose: 54 mg/ml GPV, 6 mg/ml RTV; 100% PEG300 vehicle used; Controls received mp w/ vehicle; animal info: male and female 10 weeks old; half-life (p.25); GPV is an NS3p inhibitor; RTV is GPV pharmacokinetic enhancer

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; **Strain:** Vav3-deficient; Rac1Δ/Δ+Rac2-deficient; C57Bl/10; NOD/SCID/IL2RG-/-; **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)

Q10479: A. Freuchet, *et al.* IL-34 deficiency impairs FOXP3(+) Treg function in a model of autoimmune colitis and decreases immune tolerance homeostasis. *Clinical and Translational Medicine* 2022;12(8):e988

Agents: Interleukin-34, recombinant human **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice; **Strain:** NOD/SCID/Il2rg-/- ;NSG; **Pump:** 1004; **Duration:** 14 days;

ALZET Comments: Dose: (.42 µg/h); animal info:) 8–12-week-old; peptide; immunology;

Q9781: L. B. Crawford, *et al.* Development of a huBLT Mouse Model to Study HCMV Latency, Reactivation, and Immune Response. *Methods in Molecular Biology* 2021;

Agents: Granulocyte-colony stimulating factor **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Strain:** NOD.Cg-Prkdcscid Il2rgtm1Wjl/SxJ (NSG); **Pump:** 1000; **Duration:** Not Stated;

ALZET Comments: Animal info (Adult mice); functionality of mp verified by weight; Granulocyte-colony stimulating factor aka G-CSF; dependence; good methods (p. 356)

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

Agents: YM155 **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** NSG; **Pump:** 1007D; **Duration:** 7 days;

ALZET Comments: Dose (5 mg/kg); Controls received mp w/ vehicle; dependence;

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

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

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



Q9429: S. A. Richman, *et al.* Ligand-Induced Degradation of a CAR Permits Reversible Remote Control of CAR T Cell Activity In Vitro and In Vivo. *Molecular Therapy* 2020;28(7):1600-1613

Agents: Aquashield 1 **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Strain:** NSG; **Pump:** 2001; **Duration:** 7 days;
ALZET Comments: Dose (1.3 mg/day); animal info (6-8-week-old female); Aquashield 1 aka AS-1; 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; **Species:** Mice; **Strain:** NSG; **Pump:** 1004; **Duration:** 26 d
ALZET Comments: Dose: TMZ (100 µL at 32.5 mg/mL); Pyr-Pam (100 µL at 7 mg/mL); Controls received mp w/ vehicle; (BIK 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

Q8432: C. Dai, *et al.* Tacrolimus- and sirolimus-induced human beta cell dysfunction is reversible and preventable. *JCI Insight* 2020;5(1):

Agents: Tacrolimus **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** NSG; **Pump:** 1004; **Duration:** 4 weeks;
ALZET Comments: Dose (0.25 mg/kg/day); Controls received mp w/ vehicle; animal info (Male, age 12–18 weeks);

Q7638: J. Enriquez Perez, *et al.* The effect of locally delivered cisplatin is dependent on an intact immune function in an experimental glioma model. *Sci Rep* 2019;9(1):5632

Agents: Cisplatin **Vehicle:** Saline; **Route:** CSF/CNS; **Species:** Mice; **Strain:** C57BL/6; NSG; **Pump:** 1003D; **Duration:** 3 days;
ALZET Comments: Dose (1080, 120, or 12 µg/kg/day); 0.9% Saline used; animal info (8-10 weeks old, 18-21 weeks old); ALZET brain infusion kit 3 used; cyanoacrylate adhesive; cancer (Glioma);

Q7853: A. Ring, *et al.* CBP/beta-Catenin/FOXM1 Is a Novel Therapeutic Target in Triple Negative Breast Cancer. *Cancers (Basel)* 2018;10(12):

Agents: ICG-001, phospho- **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Strain:** NSG; **Pump:** 2ML4; **Duration:** 26 days;
ALZET Comments: Dose (300 mM); Controls received mp w/ vehicle; animal info (female); phospho-ICG-001 is a water-soluble version of ICG-001, a specific CBP-binding small molecule; cancer (Triple negative breast); Every other day, the pumps were mobilized manually under the skin of the mice to prevent adhesions (p.14); Therapeutic indication (Treatment led to the down-regulation of survivin reporter activity and protein levels; specifically inhibits the viability of CBP-dependent MDA-MB-231 cells, but not non-transformed MCF10a cells (p.2));

Q7075: B. Li, *et al.* Epigenetic Regulation of CXCL12 Plays a Critical Role in Mediating Tumor Progression and the Immune Response In Osteosarcoma. *Cancer Research* 2018;78(14):3938-3953

Agents: AMD3100; AMG487 **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice; **Strain:** BALB/c; NSG; **Pump:** Not Stated;
Duration: Not Stated;
ALZET Comments: animal info (Five-week-old female); cancer (osteosarcoma);

NOD/SCID Mice (2018-Present)

Q11313: P. L. Hsu, *et al.* Targeting BRD3 eradicates nuclear TYRO3-induced colorectal cancer metastasis. *Sci Adv* 2023;

Agents: ARP100 **Vehicle:** DMSO; **Route:** IP; **Species:** Mice; **Strain:** NOD/SCID; **Pump:** 2004; **Duration:** 1 month;
ALZET Comments: Dose (5 mg/kg/day); Controls received mp w/ vehicle; animal info (Male; 8 weeks old); enzyme inhibitor (MMP2); cancer (Colorectal);

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; **Strain:** Vav3-deficient; Rac1Δ/Δ+Rac2-deficient; C57Bl/10; NOD/SCID/IL2RG-/-; **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 males and females, 8–14 weeks old); IODVA1 aka 2-guanidinobenzimidazole derivative with anti-tumorigenic properties; cancer (leukemia)



Q10479: A. Freuchet, *et al.* IL-34 deficiency impairs FOXP3(+) Treg function in a model of autoimmune colitis and decreases immune tolerance homeostasis. *Clinical and Translational Medicine* 2022;12(8):e988

Agents: Interleukin-34, recombinant human **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice; **Strain:** NOD/SCID/Il2rg^{-/-}; NSG; **Pump:** 1004; **Duration:** 14 days;

ALZET Comments: Dose: (.42 µg/h); animal info: 8–12-week-old; peptide; immunology;

Q10143: K. E. Chen, *et al.* Prolactin enhances T regulatory cell promotion of breast cancer through the long form prolactin receptor. *Translational Oncology* 2021;14(11):101195

Agents: SMO; LFPRLR SMO, mice; LFPRLR SMO, human **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Strain:** Foxp3+EGFP Balb/c or NOD-SCID; **Pump:** 2004; **Duration:** 28 days;

ALZET Comments: Dose: (100 pmoles/h); Controls received mp w/ vehicle; animal info: 8-week old mice; pumps replaced (as needed); SMO aka splice modulating oligomer; LFPRLR aka long form prolactin receptor; cancer (Breast cancer);

Q8917: J. H. Oh, *et al.* Elevated GCN5 expression confers tamoxifen resistance by upregulating AIB1 expression in ER-positive breast cancer. *Cancer Letters* 2020;495(145-155

Agents: Tamoxifen **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** NOD-SCID; **Pump:** Not Stated; **Duration:** Not Stated;

ALZET Comments: Controls received mp w/ vehicle; animal info (female);

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; **Strain:** NOD-SCID; **Pump:** 2002; **Duration:** 14 days;

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

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; **Strain:** NOD/SCID; **Pump:** Not stated; **Duration:** 7 days;

ALZET Comments: Dose (25 mg/kg at 0.5 µl/h); Controls received mp w/ vehicle; 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; **Strain:** NOD/SCID/IL2Rgamma, null; **Pump:** Not Stated; **Duration:** 28d

ALZET Comments: Dose (5, 10 mg/ml at 0.25 µl/h); Controls received mp w/ vehicle; animal info (6-8 weeks, 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);

Q7245: M. Tsoli, *et al.* Dual targeting of mitochondrial function and mTOR pathway as a therapeutic strategy for diffuse intrinsic pontine glioma. *Oncotarget* 2018;9(7541-7556

Agents: Temsirolimus; Phenylarsonous acid, 4-(N-(S-penicillaminylacetyl)-amino) **Vehicle:** Saline; **Route:** SC, IP; **Species:** Mice; **Strain:** NOD/SCID; **Pump:** 2002; **Duration:** 4 weeks;

ALZET Comments: Dose (PEMAO-3 mg/kg/day, Temsirolimus-10 mg/kg/day and 5 mg/kg/day); Controls received mp w/ vehicle; animal info (5 week-old, female); pumps replaced every 2 weeks; enzyme inhibitor (PENAO Inhibits adenine nucleotide translocase, Temsirolimus inhibits mTOR; cancer (Glioma);



SCID Mice (2018-Present)

Q11245: I. Bhutada, *et al.* CDK7 and CDK9 inhibition interferes with transcription, translation, and stemness, and induces cytotoxicity in GBM irrespective of temozolomide sensitivity. *Neuro-Oncology* 2024;26(1):70-84

Agents: SNS032 **Vehicle:** Not Stated; **Route:** CSF/CNS (intratumoral); **Species:** Mice; **Strain:** SCID; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: animal info: 8 weeks-old; ALZET BIK 3 used; good methods see Supp. data; cancer (Glioblastoma);

Q11080: B. Jiang, *et al.* Hedgehog-induced ZFYVE21 promotes chronic vascular inflammation by activating NLRP3 inflammasomes in T cells. *Science Signaling* 2023;16(**Agents:** Vismodegib; GANT61; MCC950; SAG **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** SCID/bg; **Pump:** 1004; **Duration:** 28 days;

ALZET Comments: Dose (Vismodegib 12 mg/kg/day; GANT61 6 mg/kg/day; MCC950 4 mg/kg/day, SAG 15 mg/kg/day); Controls received mp w/ vehicle; animal info (Female; 6-12 weeks old); immunology;

Q11249: C. Brat, *et al.* Endogenous anti-tumorigenic nitro-fatty acids inhibit the ubiquitin-proteasome system by directly targeting the 26S proteasome. *Cell Chemical Biology* 2023;30(10):1277-1294 e12

Agents: 9-Nitro-oleic acid **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Strain:** SCID; **Pump:** 2001; **Duration:** 7; 8 ;15 days;

ALZET Comments: controls received mp w/ vehicle; animal info: 5–6 week-old; pumps replaced after 8 days;

Q7082: Gartung A, *et al.* Suppression of chemotherapy-induced cytokine/lipid mediator surge and ovarian cancer by a dual COX-2/sEH inhibitor. *Proceedings of the National Academy of Sciences* 2019;116(5):1698-1703

Agents: PTUPB **Vehicle:** Not Stated; **Route:** IP; **Species:** Mice **Strain:** C57BL/6; SCID; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (30 mg/kg/d); animal info (6-wk-old female); PTUPB aka 4-(5-phenyl-3-{3-[3-(4-trifluoromethyl-phenyl)-ureido]-propyl}-pyrazol-1-yl) benzenesulfonamide is a dual COX-2/sEH inhibitor; enzyme inhibitor (cyclooxygenase-2 and soluble epoxide hydrolase); cancer (ovarian);

Q6985: E. Binda, *et al.* Drug Delivery in an Orthotopic Tumor Stem Cell-Based Model of Human Glioblastoma. *Methods Mol Biol* 2019;1869(197-205

Agents: Not Stated **Vehicle:** Saline; **Route:** CSF/CNS (nucleus striatum); **Species:** Mice; **Strain:** SCID; **Pump:** Not Stated; **Duration:** 2 weeks;

ALZET Comments: ALZET brain infusion kit 3 used; cyanoacrylate adhesive; cancer (glioblastoma multiforme); good method; Methods paper describing local intracranial delivery of drugs by osmotic mini-pumps.

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; **Strain:** C57BL/6J; SCID; **Pump:** Not Stated; **Duration:** 28 days; 2 months; 3 months;

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

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; **Strain:** 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); 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;



Nude Mice (2019-Present)

Q11321: J. H. Jun, *et al.* Effects of dexmedetomidine on A549 non-small cell lung cancer growth in a clinically relevant surgical xenograft model. *Scientific Reports* 2023;13(1):12471

Agents: Dexmedetomidine **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** BALB/c nude; **Pump:** 1002; **Duration:** 14 days; **ALZET Comments:** Dose (20 ug/kg/day); animal info (male; 6 weeks old, 17-18 g); receptor agonist (Alpha-2 adrenoceptor); immunology; xenograft

Q11231: A. H. Shah, *et al.* Human endogenous retrovirus K contributes to a stem cell niche in glioblastoma. *The Journal of Clinical Investigation* 2023;133(13):

Agents: Abacavir **Vehicle:** Saline; **Route:** CSF/CNS (intratumoral); **Species:** Mice; **Strain:** Athymic nude; **Pump:** Not Stated; **Duration:** 4 weeks;

ALZET Comments: Dose (12.3 mg/kg/d); controls received mp w/ saline; abacavir is a commercially available nucleoside reverse transcriptase inhibitor

Q10983: W. Qiu, *et al.* USP10 deubiquitinates RUNX1 and promotes proneural-to-mesenchymal transition in glioblastoma. *Cell Death and Disease* 2023;14(3):207

Agents: Spautin-1 **Vehicle:** Not Stated; **Route:** Not Stated; **Species:** Mice; **Strain:** Nude;

ALZET Comments: Dose (20 mg/kg); animal info: male nude mice (5-6 weeks of age); Spautin-1 is a selective inhibitor of deubiquitinating enzymes USP10 and USP13; enzyme inhibitor; cancer (Glioblastoma);

Q11142: S. I. Masunaga, *et al.* The impact of TP53 status of tumor cells including the type and the concentration of administered 10B delivery agents on compound biological effectiveness in boron neutron capture therapy. *Journal of Radiation Research* 2023;64(2):399-411

Agents: 5-bromo-2-deoxyuridine **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** Balb/cA nude; **Pump:** 2001; **Duration:** 7 d

ALZET Comments: Dose (250 mg/mL); animal info (6-7 weeks old);

Q11106: C. Garlapati, *et al.* PLK1 and AURKB phosphorylate survivin differentially to affect proliferation in racially distinct triple-negative breast cancer. *Cell Death & Disease* 2023;14(1):12

Agents: YM155 **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** Nude; **Pump:** 1004; **Duration:** 2 weeks;

ALZET Comments: Dose (10 mg/kg); Controls received mp w/ vehicle; cancer (Breast); xenograft

Q11103: R. L. Fine, *et al.* C-Terminal p53 Palindromic Tetrapeptide Restores Full Apoptotic Function to Mutant p53 Cancer Cells In Vitro and In Vivo. *Biomedicines* 2023;11(1):

Agents: Adenovirus, 4R-Pal-p53p plasmid **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** Nude; **Pump:** Not Stated; **Duration:** 14 days;

ALZET Comments: Controls received mp w/ vehicle; animal info (Female; 8-10 weeks old); peptides; gene therapy; xenograft

Q11155: Q. Zhang, *et al.* USP21 promotes self-renewal and tumorigenicity of mesenchymal glioblastoma stem cells by deubiquitinating and stabilizing FOXD1. *Cell Death and Disease* 2022;13(8):712

Agents: Disulfiram **Vehicle:** Not Stated; **Route:** CSF/CNS; **Species:** Mice; **Strain:** BALB/c nude; **Duration:** 10 weeks;

ALZET Comments: Dose: (50 mg/kg); animal info: 8-weeks-old male; Brain coordinates (2mm anterior, 2mm lateral, 3mm depth from the dura); cancer (Glioblastoma);

Q10855: S. Yuan, *et al.* Ras Drives Malignancy Through Stem Cell Crosstalk With the Microenvironment. *Nature* 2022;612(7940):555-563

Agents: Leptin; VEGFA; Rapamycin **Vehicle:** PBS; DMSO; **Route:** SC; **Species:** Mice; **Strain:** Nude; **Duration:** 4 weeks;

ALZET Comments: Dose: Leptin (2 mg/ml; 0.5 mg/ml); 0.5 mg/ml SMLA; VEGFA 50ug/ml; 10 mM rapamycin; 10% DMSO used; Controls received mp w/ vehicle; animal info (mice); cancer (Squamous cell carcinomas);



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; **Strain:** athymic nude; **Duration:** 3 weeks; 7 days;

ALZET Comments: animal info: mice; Fenoldopam 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; **Strain:** athymic nude; **Pump:** 1003D; **Duration:** 72 hours;

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

Q10056: I. Peregrin-Alvarez, *et al.* Anti-Mullerian Hormone (AMH) regulates BRCA1 and BRCA2 gene expression after ovarian cortex transplantation. *Gynecological Endocrinology* 2021;37(4):349-352

Agents: Antibody, anti-Mullerian hormone; **Route:** IP; **Species:** Mice; **Strain:** NU/J nude; **Duration:** 7 days;

ALZET Comments: Dose (1.23 mcg/day); Controls received mp w/ vehicle; animal info (ovariectomized mice); anti-Mullerian hormone Antibody aka rAMH; replacement therapy (anti-mullerian hormone);

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(11):2662

Agents: Bisphenol A **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** BALB/c nude; **Pump:** 1004; **Duration:** 28 days;

ALZET Comments: Dose (100 ug/kg/day); animal info (6 weeks old; Male mice ; Weigh 17-18 g); 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 **Species:** Mice; **Strain:** BALB/c nude; **Pump:** 1004; **Duration:** 4 weeks;

ALZET Comments: Dose (100 ng/kg/min); animal info (5-week-old male 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

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-β-cyclodextrin; **Route:** SC; **Species:** Mice; **Strain:** athymic nude; **Pump:** 1004;

Duration: 4 weeks;

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

Q9855: B. Zhang, *et al.* The stress hormone norepinephrine promotes tumor progression through beta2-adrenoreceptors in oral cancer. *Archives of Oral Biology* 2020;113(10):4712

Agents: Norepinephrine; ICI-118,551 **Vehicle:** Saline; **Route:** SC; **Species:** Mice; **Strain:** Nude; **Pump:** 1004; **Duration:** 3 weeks;

ALZET Comments: Dose (10 mg /kg/day); Controls received mp w/ vehicle; animal info (4-week-old female); Norepinephrine aka NE; cancer (Tumor Growth);

Q9921: T. Yamamoto, *et al.* BRD4 promotes metastatic potential in oral squamous cell carcinoma through the epigenetic regulation of the MMP2 gene. *British Journal of Cancer* 2020;123(4):580-590

Agents: JQ1 **Vehicle:** DMSO; **Route:** IP; **Species:** Mice; **Strain:** Nude; **Pump:** Not Stated; **Duration:** 2 weeks;

ALZET Comments: Dose (20 mg/kg/day); Controls received mp w/ vehicle; animal info (Female mice (4–6 weeks old)); JQ1 aka Bromodomain containing 4 inhibitor; cancer (Squamous cell carcinoma);



Q9534: X. Wang, *et al.* The synergistic inhibitory effect of combining therapies targeting EGFR and mitochondria in sarcomas. *Oncotarget* 2020;

Agents: Phenylarsonous acid, 4-(N-(S-penicillaminylacetyl)amino)- **Vehicle:** DMSO; **Route:** SC; **Species:** Mice; **Strain:** Balb/c nude; **Pump:** 2002; **Duration:** 20 days;

ALZET Comments: Dose (3 mg/kg/day); Controls received mp w/ vehicle; animal info (Ten-week mice); 4-(N-(S-penicillaminylacetyl)amino)-phenylarsonous acid aka PENAO; cancer (Sarcoma);

Q8512: F. Gourgue, *et al.* Obesity and triple-negative-breast-cancer: Is apelin a new key target? *Journal of Cellular and Molecular Medicine* 2020;24(17):10233-10244

Agents: Apelin-13 **Vehicle:** PBS; **Route:** SC; **Species:** Mice; **Strain:** Balb/cJRj; Balb/c nude; **Pump:** 2006; **Duration:** 6 weeks; **ALZET Comments:** Dose (0.1 umol/kg/day); Controls received mp w/ vehicle; animal info (9-week-old); dependence;

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; **Strain:** athymic nude; **Pump:** 1003D; **Duration:** 3 days; **ALZET Comments:** Dose (100 nM); Controls received mp w/ vehicle; 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; **Strain:** athymic nude; **Pump:** 2001D; **Duration:** 24 hours; **ALZET Comments:** Dose (130 ug/h); Controls received mp w/ vehicle; cancer (ewing sarcoma);

Q7425: X. Zhi, *et al.* Adrenergic modulation of AMPK dependent 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; **Strain:** BALB/c nude; **Duration:** 21 days; **ALZET Comments:** Dose (2 mg/kg/day); Controls received mp w/ vehicle; animal info: Male 5 weeks old, weighing ~20 g); cancer (gastric cancer);

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; **Strain:** Nude; **Pump:** 1007D; **Duration:** 3 days; **ALZET Comments:** 5% Captisol and 2% mouse serum albumin used; animal info (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 ;

Q7663: G. Shetty, *et al.* Effect of hormone modulations on donor-derived spermatogenesis or colonization after syngeneic and xenotransplantation in mice. *Anesthesia & Analgesia* 2019;7(2):257-265

Agents: Follicle stimulating hormone, recomb. human **Vehicle:** Not Stated; **Route:** SC; **Species:** Mice; **Strain:** C57BL/6Law; nude; **Pump:** 2002; **Duration:** 2 weeks; **ALZET Comments:** Dose (5 IU/day); Controls received sham surgery; animal info (7-9 weeks, male); replacement therapy (FSH);

Q7080: S. Krishnamurthy, *et al.* Hyperosmotic intraventricular drug delivery of DV1 in the management of intracranial metastatic breast cancer in a mouse model. *J Clin Neurosci* 2019;62(207-211

Agents: DV1 **Vehicle:** Saline; **Route:** CSF/CNS (left ventricle); **Species:** Mice; **Strain:** athymic nude; **Pump:** 1007D; **Duration:** 7 **ALZET Comments:** Dose (50 mg/kg/day); Controls received mp w/ vehicle; animal info (female 8 weeks old,); DV1 is a synthetic inhibitor of Chemokine receptor 4 (CXCR4); ALZET brain infusion kit 3 used; cyanoacrylate adhesive; cancer (breast); the skin incision was closed with Vetbond; Brain coordinates (skull at 0.3 mm posterior, 1.0 mm lateral to the bregma, 3.0mm deep);