

Last Updated July 2023

Refereed Papers/Articles

- Yu L, Davis IJ, Liu P. Regulation of EWSR1-FLI1 Function by Post-Transcriptional and Post-Translational Modifications. *Cancers (Basel)*. 2023 Jan 6;15(2):382. doi: 10.3390/cancers15020382. PMID: 36672331; PMCID: PMC9857208.
- Vital T, Wali A, Butler KV, Xiong Y, Foster JP 2nd, Marcel SS, McFadden AW, Nguyen VU, Bailey BM, Lamb KN, James LI, Frye SV, Moseley AL, Jin J, Pattenden SG, Davis IJ. MS0621, a novel small-molecule modulator of Ewing sarcoma chromatin accessibility, interacts with an RNA-associated macromolecular complex and influences RNA splicing. *Front Oncol*. 2023 Jan 30;13:1099550. doi: 10.3389/fonc.2023.1099550. PMID: 36793594; PMCID: PMC9924231.
- Robbe Z.L., Shi W., Wasson L.K., Scialdone A.P., Wilczewski C.M., Sheng X., Hepperla A.J., Akerberg B.N., Pu W.T., Cristea I.M., Davis I.J., Conlon F.L. CHD4 is recruited by GATA4 and NKK2-5 to repress noncardiac gene programs in the developing heart. *Genes Dev*. 36:468-482. 2022.
- Reppe L., Tsahouridis O., Akulian J., Davis I.J., Lee H., Fucà G., Weiss J., Dotti G., Pecot C.V., Savoldo B. Targeting disialoganglioside GD2 with chimeric antigen receptor redirected T cells in lung cancer. *J. for ImmunoTherapy of Cancer*. 10(1):e003897. Doi:10.1136/jtic-2021-003897. 2022.
- Zhou M., Leung J.Y., Gessner K.H., Hepperla A.J., Simon J.M., Davis I.J., Kim W.Y. PBRM1 inactivation promotes upregulation of human endogenous retrovirus in a HIF-dependent manner. *Cancer Immunology Res*. 10:285-290. 2022.
- Marcel S.S., Quimby A.L., Noel M.P., Jaimes O.C., Mehrab-Mohseni M., Ashur S.A., Velasco B., Tsuruta J.K., Kasoji S.K., Santos C.M., Dayton P.A., Parker J.S., Davis I.J.*., Pattenden S.G.* Genome-wide cancer-specific chromatin accessibility patterns derived from archival process xenograft tumors. *Genome Research*. 31:2327-2339. Doi:10.1101/gr.275219.121. 2021.
- Chen M., Foster II J.P., Leisenring N.H., Lock I., Daniel A.R., Floyd R.W., Xu E.S., Davis I.J., Kirsch D.G. Radiation-induced phosphorylation of a prion-like domain regulates transformation by FUS-CHOP. *Cancer Research*. Doi: 10.1158/0008-5472.CAN-20-1497. 2021.
- Su S., Chen J., Jian Y., Wang Y., Vital T., Zhang J., Laggner C., Nguyen K.T., Zhu Z., Prevatte A.W., Barker N.K., Herring L.E., Davis I.J.*., Liu P.*. SPOP and OTUD7A control EWS-FLI1 protein stability to govern Ewing sarcoma growth. *Adv Sci (Weinh.)* Doi: 10.1002/advs.202004846. 2021. *Corresponding authors.
- Slaughter M.J., Shanle E.K., Khan A., Chua K.F., Hong T., Boxer L.D., Allis C.D., Josephowicz S.Z., Garcia B.A., Rothbart S.B., Strahl B.D.*., Davis I.J.* HDAC inhibition results in widespread alteration of the histone acetylation landscape and BRD4 targeting to gene bodies. *Cell Reports*. 2021. *Corresponding authors.
- Lerner A.M., Hepperla A.J., Meriesh H.A., Keele G.R., Yumerefendi H., Restrepo D., Zimmerman S., Bear J., Kuhlman B., Davis I.J.*., Strahl B.D.*. An optogenetic switch for the Set2 methyltransferase provides evidence for rapid transcription-dependent and independent dynamics of H3K36 methylation. *Genome Research*. Doi: 10.1101/gr.264283.120. 2020. *Corresponding authors.
- Bailey M.H., Meyerson W.U., Dursi L.J., Wang L.B., Dong G., Lian W.W., Weerasringhe A., Li S., Kelso S., MC3 Working Group, PCAWG novel somatic mutation calling methods working group, Saksena G, Ellrott K, Wendl MC, Wheeler DA, Getz G, Simpson JT, Gerstein MB, Ding L, PCAWG Working Group. Retrospective evaluation of whole exome and genome mutations calls in 746 cancer samples. *Nature Communications*. 11:4748. 2020.

- Li C.H., Prokopec S.D., Sun R.X., Yousif F., Schmitz N., PCAWG Tumor Subtypes and Clinical Translation, Boutros PC, PCAWG Consortium. Sex differences in oncogenic mutational processes. *Nature Communications*. 11:4330. 2020.
- Goulet D.J., Foster II J.P., Zawistowski J.S., Bevill S.M., Noël M.P., Olivares-Quintero J.F., Sciaky N., Singh D., Santos C., Pattenden S.G., Davis I.J., Johnson G.L. Discrete adaptive responses to MEK inhibitor in subpopulations of triple-negative breast cancer. Doi: 10.1158/1541-7786.MCR-19-1011. 2020.
- Smitherman AB, Wood WA, Mitin N, Miller VA, Deal A, Davis IJ, Blatt J, Gold SH, Muss H. Accelerated aging among childhood, adolescent and young adult cancer survivors is evidenced by increased expression of 16INK4a and frailty. *Cancer*. In press. 2020.
- ICGC/TCGA Pan-Cancer Analysis of Whole Genomes Consortium. Pan-cancer analysis of whole genomics. *Nature*. Nature. 578:82-93. 2020. PMID 32025007.
- Gallegos Z.R., Taus P., Gibbs Z.A., McGlynn K., Gomez N.C., Davis I., Whitehurst A.W. EWSR1-FLI1 activation of the cancer/testis antigen FATE1 promotes Ewing sarcoma survival. *Molecular Cellular Biology*. 2019.
- Bailey K., Cost C., Davis I., Glade-Bender J., Grohar P., Houghton P., Isakoff M., Stewart E., Laack N., Yustein J., Reed D., Janeway K., Gorlick R., Lessnick S., DuBois S., Hingorani P. Emerging novel agents for patients with advance Ewing sarcoma: a report from the Children's Oncology Group (COG) New Agents for Ewing Sarcoma Task Force. *F1000Res*. 493. 2019.
- Jiang Y., Zhang Y., Leung J., Fan C., Popov K., Su S., Qian J., Wang X., Holtzhausen A., Ubil E., Xiang Y., Davis I., Dokholyan N., Wu G., Perou G., Kim W., Earp H.S., Liu P. MERTK Mediated Novel Site Akt Phosphorylation Alleviates SAV1 Suppression. *Nature Comm*. 10:1515 2019.
- Dronamraju R., Kershner J.L., Peck S.A., Hepperla A.J., Adams A.T., Hughes K.D., Aslam S. Yoblinski A.R., Davis I.J., Mosley A.J., Strahl B.D. Casein kinase II phosphorylation of Spt6 enforces transcriptional fidelity by maintaining Spn1-Spt6 interaction. *Cell Reports*. 25:3476-3489. 2018.
- Slaughter M.J., Shanle E.K., McFadden A.W., Hollis E.S., Suttle L.E., Strahl B.D., Davis I.J. Polybromo-1 (PBRM1) bromodomains variably influence nucleosome interactions and cellular function. *J. Biological Chemistry*. 293(35):13592-13603. 2018.
- Dronamaraju R., Hepperla A.J., Shibata Y., Adams A.T., Magnuson T., Davis I.J., Strahl B.D. Spt6 association with RNA polymerase II directs mRNA turnover during transcription. *Molecular Cell*, 70(6):1054-1066. 2018.
- Chiang YC, Park IY, Terzo EA, Tripathy DN, Mason FM, Fahey CC, Karki M, Schuster CB, Sohn BH, Chowdhury P, Powell RT, Ohi R, Tsai YH, de Cubas AA, Khan A, Davis I, Strahl BD, Parker JS, Dere R, Walker CL, Rathmell WK. SETD2 Haploinsufficiency for microtubule methylation is an early driver of genomic instability in renal cell carcinoma. *Cancer Research*. 78(12):3135-3146. 2018.
- Wilczewski C.M., Hepperla A.J., Shimbo T., Wasson L., Robbe Z.L., Davis I.J., Wade P.A., Conlon F.L. CHD4 and the NuRD complex directly control cardiac sarcomere formation. *Proceeding of the National Academy of Sciences USA*. 115(26):6727-6732. 2018.
- Chiarella AM, Quimby AL, Mehrab-Mohseni M, Velasco B, Kasoji SK, Davis IJ, Dayton PA, Hathaway NA, Pattenden SG. Cavitation enhancement increases efficiency and consistency of chromatin fragmentation from fixed cells for downstream quantitative applications. *Biochemistry*. 57(19):2756-2761. 2018.
- Hepperla A. and Davis, I.J. as part of The Cancer Genome Atlas Research Network. Comprehensive and

integrated genomic characterization of adult soft tissue sarcomas. *Cell*. 171:950-965. 2017.

- McDaniel SL, Hepperla A, Huang J, Dronamraju R, Adams A, Kulkarni VG, Davis IJ*, Strahl BD*. H3K36me3 methylation regulates nutrient stress response in *Saccharomyces cerevisiae* by enforcing transcriptional fidelity. *Cell Reports*. 19:2371-2382. 2017. *Corresponding authors.
- Gomez, N.C., Hepperla, A. Dumitru, R., Simon J.M., Fang, F. and Davis I.J. Widespread chromatin accessibility at repetitive elements links stem cells with human cancer. *Cell Reports*. 17:1607-1620. 2016.
- Hacker K.E., Fahey C.C., Shinsky S.A., Chiang Y.J., DiFiore J.V., Jha D.K., Vo A.H., Shavit J.A., Davis I.J., Strahl B.D., Rathmell W.K. Structure/function analysis of recurrent mutations ins SETD2 protein reveals a critical and conserved role for a SET domain residue in maintaining protein stability and histone H3 Lys-36 trimethylation. *J. Biological Chemistry*. 291:21283-21295. 2016.
- Park, I.Y., Powell, R.T., Tripathi, D.N., Dere, R., Ho, T.H., Blasius, T.L., Chiang, Y.-C., Davis, I.J., Fahey, C.C., Hacker, K.E., Verhey, K.J., Bedford, M.T., Jonasch, E., Rathmell, W.K., Walker, C.L. Dual chromatin and cytoskeletal remodeling by SETD2. *Cell*. 166:950-962. 2016.
- Dominguez, D., Tsai, Y.H., Gomez, N., Jha, D.K., Davis, I., Wang Z. A high-resolution transcriptome map of cell cycle reveals novel connections between periodic genes and cancer. *Cell Research*. 26:946-962. 2016.
- Crowther, A.J., Ocasio, J.K., Fang, F., Meidinger, J. Wu, J., Deal, A.M., Chang, S.X., Yuan, H., Schmid, R., Davis, I., Gershon, T.R. Radiation sensitivity in a preclinical mouse model of medulloblastoma relies on the function of the intrinsic apoptotic pathway. *Cancer Research*. 76:3211-3223. 2016.
- O'Neill, A.F., Adil, E.A., Irace, A.L., Neff, L., Davis, I.J., Perez-Atayde, A.R., Voss, S.D., Weinberg, O., Rahbar, R. Post-transplant lymphoproliferative disorder of the pediatric airway: presentation and management. *International J Pediatric Otorhinolaryngology*. 86:218-223. 2016.
- Pattenden, S.G., Simon, J.M., Wali, A., Jayakody, C.N., Troutman, J., McFadden, A.W., Wooten, J., Wood, C.C., Frye, S.V., Janzen, W.P., Davis, I.J. High-throughput small molecule screen identifies inhibitors of aberrant chromatin accessibility. *Proc. Natl. Acad. Sci. USA*. 113:3018-1023. 2016.
- Waldron, L., Steimle, J.D., Greco, T.M., Gomez, N.C., Dorr, K.M., Kweon, J., Temple, B., Yang, X.H., Wilczewski, C.M., Davis, I.J., Cristea, I.M., Moskowitz, I.P., Conlon, F.L. The Cardiac TBX interactome reveals a chromatin remodeling network essential for cardiac septation. *Developmental Cell*. 36(3):262-275. 2016.
- Roode, L.E., Brighton, H., Bo, T., Perry, J.L., Parrott, M.C., Kersey, F., Luft, J.C., Bear, J.E., DeSimone, J.M., Davis, I.J. Subtumoral analysis of PRINT nanoparticle distribution reveals targeting variation based on cellular and particle properties. *Nanomedicine*. 12(4):1053-1062. 2016.
- Simon, J.M., Parker, J.S., Liu, F., Rothbart, S.B., Ait-Si-Ali S., Strahl, B.D., Jin, J., Davis, I.J., Mosley, A.L. and S.G. Pattenden. A role for Widely Interspaced Zinc Finder (WIZ) in retention of the G9a methyltransferase on chromatin. *J. Biological Chemistry*. pii: jbc.M115.654459. 2015.
- Walker, M.P., Stopford, C.M., Cederlund M., Fang, F., Jahn, C., Rabinowitz, A.D., Goldfarb, D., Graham, D.M., Yan, F., Deal, A.M., Fedoriw, Y., Richards, K.L., Davis, I.J., Weidinger, G., Damania, B., Major, M.B. FoxP1 potentiates WNT/β-catenin signaling in diffuse large B-cell lymphoma. *Science Signaling*. 8(362);ra12. 2015.
- Chan, K.T., Asokan, S.B., King, S.J., Bo, T., Dubose, E.S., Liu, W., Berginski, M.E., Simon, J.M., Davis, I.J., Gomez, S.M., Sharpless, N.E., Bear, J.E., LKB1 loss in melanoma disrupts directional migration towards ECM cues. *Journal of Cell Biology*. 207(2):299-315. 2014.

- Orvis, T., Hepperla, A., Walter, V., Simon, J.M., Song, S., Parker, J., Wilkerson, M.D., Desai, N., Major, M.B., Hayes, D.N., Davis, I.J.* , Weissman, B.* Inactivation of the SWI/SNF complex ATPase BRG1/SMARCA4 promotes non-small cell lung cancer aggressiveness through changes in chromatin organization. *Cancer Research*. 74(22):6486-98. 2014. *Co-corresponding authors.
- Patel M., Gomez, N.C., McFadden, A.W., Moats-Staats, B.M., Wu, S., Rojas, A., Sapp, T. Simon, J.M., Smith, S.V., Kaiser-Rogers, K., Davis, I.J. PTEN deficiency mediates a reciprocal response to IGF-1 and mTOR inhibition. *Molecular Cancer Research*. 12(11):1610-20. 2014.
- Konze, K.D., Pattenden, S.G., Liu, F., Barsyte-Lovejoy, D., Li, F., Simon, J.M., Davis, I.J., Vedadi, M., Jin, J. A chemical tool for chemiprecipitation of the lysine methyltransferase G9a *in vitro* and *in vivo*. *Chemical and Medicinal Chemistry*. 9(3):549-553. 2014.
- Simon, J.M., Hacker, K.E., Singh, D., Brannon, A.R., Parker, J.S., Weiser, M., Ho, T.H., Kuan, P.-F., Jonasch, E., Furey, T.S., Prins, J.F., Lieb, J.D., Rathmell, W.K., Davis, I.J. Variation in chromatin accessibility in human kidney cancer links H3K36 methyltransferase loss with widespread RNA processing defects. *Genome Research*. 24(2):241-250. 2014.
- Wu, C., Haynes, E.M., Asokan, S.B., Simon, J.M., Sharpless, N.E., Baldwin, A.S., Davis, I.J., Johnson, G.L., Bear, J.E. Loss of Arp2/3 induces NK- κ B-dependent, non-autonomous effect on chemotactic signaling. *Journal of Cell Biology*. 203(6):907-916. 2013.
- Hilton, I., Simon, J., Lieb, J.D., Davis, I.J., Damania, B., Dittmer, D. The open chromatin landscape of Kaposi's sarcoma-associated herpesvirus. *Journal of Virology*. 87(21):11831-11842. 2013.
- Shukla, N., Schiffman, J., Reed, D., Davis, I.J., Womer, R.B., Lessnick, S.L., Lawlor, E.R. and the COG Ewing Sarcoma Biology Committee. Biomarkers in Ewing sarcoma: the promise and challenge of personalized medicine. A report from the Children's Oncology Group. *Frontiers in Oncology*. 3:141. 2013.
- Sankar, S., Gomez N.C., Bell, R., Patel, M., Davis, I.J., Lessnick, S.L., Luo, W. EWS and RE1 silencing transcription factor inhibit neuronal phenotype development and oncogenic transformation in Ewing sarcoma. *Genes and Cancer*. 4(5-6):213-223. 2013.
- Coulter, D.W., Walko, C., Patel, J., Moats-Staats, B.M., McFadden, A., Smith, S.V., Khan, W.A., Bridges, A.S., Deal, A.M., Oesterheld, J., Davis, I.J., Blatt, J., Valproic acid reduces the tolerability of temsirolimus in children and adolescents with solid tumors. *Anti-Cancer Drugs*. 24:415-421. 2013.
- Wagner, A.J., Goldberg, J.M., DuBois, S., Choy, E., Rosen, L., Pappo, A., Geller, J., Judson, I., Hogg, D., Senzer, N., Davis, I.J., Chai, F., Waghorne, C., Schwartz, B., Demetri, G.D. ,Tivantinib (ARQ 197), a selective inhibitor of mesenchymal-epithelial factor, in patients with Microphthalmia Transcription Factor-Associated (MiT) Tumors: Results of a multicenter phase 2 trial. *Cancer*. 118:5894-902. 2012.
- Patel, M., Simon, J.M., Iglesia, M.D., Wu, S.B., McFadden, A.W., Lieb, J.D., Davis, I.J. Tumor-specific retargeting of an oncogenic transcription factor chimera results in dysregulation of chromatin and transcription. *Genome Research*. 22:259-270. 2012.
- Mosquera, J.M., Dal Cin, P., Mertz, K.D., Perner, S., Davis, I.J., Fisher, D.E., Rubin, M.A., Hirsch, M.S. Validation of a *TFE3* break-apart FISH assay for Xp11.2 translocation renal cell carcinomas. *Diagnostic Molecular Pathology*. 20:129-137. 2011.
- Ressegue, M.E., da Costa, K.A., Galanko, J.A., *Davis, I.J., *Zeisel, S.H. Aberrant estrogen regulation of PEMT results in choline deficiency-associated liver dysfunction. *Journal Biological Chemistry*. 286:1649-58. 2011. * Co-corresponding authors.

- Davis, I.J., McFadden, A.W., Zhang, Y., Coxon, A., Burgess, T.L., Wagner, A.J., Fisher, D.E. Identification of the receptor tyrosine kinase c-Met and its ligand, Hepatocyte Growth Factor, as therapeutic targets in clear cell sarcoma. *Cancer Research*. 70:639-45. 2010.
- Sun, W., Buck, M.J., Patel, M., Davis, I.J. Improved ChIP-chip analysis by mixture model approach. *BMC Bioinformatics*. 10:173. 2009.
- Tsuda M, Davis I.J., Argani P., Shukla N., McGill G.C., Nagai M., Saito T., Lae M., Fisher D.E., Ladanyi M. TFE3 fusions activate MET signaling by transcriptional upregulation, defining another class of tumors as candidates for therapeutic MET inhibition. *Cancer Research*. 67:919-29. 2007.
- Davis I.J., J. J. Kim, F. Ozsolak, H.R. Widlund, O. Rozenblatt-Rosen, S.R. Granter, J. Du, J.A. Fletcher, C.T. Denney, S.L. Lessnick, W.M. Linehan, A.L. Kung and D.E. Fisher. Oncogenic MITF dysregulation in clear cell sarcoma: defining the MiT family of human cancers. *Cancer Cell*. 9:473-484. 2006.
- Mukohara, T., G. Civiello, I.J. Davis, M.L. Taffaro, J. Christensen, D.E. Fisher, B.E. Johnson and P.A. Jänne. Inhibition of the Met receptor in mesothelioma. *Clinical Cancer Research*. 11:8122-8130. 2005.
- Argani, P., M. Lae, B. Hutchinson, V.E. Reuter, M.H. Collins, J. Perentesis, J.E. Tomaszewski, J.S. Brooks, G. Acs, J.A. Bridge, S.O. Vargas, I.J. Davis, D.E. Fisher and M. Ladanyi. Renal Carcinomas With the t(6;11)(p21;q12): Clinicopathologic Features and Demonstration of the Specific Alpha-TFEB Gene Fusion by Immunohistochemistry, RT-PCR, and DNA PCR. *American J. Surgical Pathology*. 29:230-240. 2005.
- Miller, A.J., C. Levy, I.J. Davis, E. Razin and D.E. Fisher. SUMOylation of MITF and its related family members TFEB and TFE3. *J Biological Chemistry*. 280:146-55. 2005.
- Huber, W.E., R. Price, H.R. Widlund, J. Du, I.J. Davis, M. Wegner and D.E. Fisher. A tissue restricted cAMP transcriptional response: SOX10 modulates MSH-triggered expression of MITF in melanocytes. *J. Biological Chemistry*. 278:45224-30. 2003.
- Thornley, I., L. Lehmann, W.S. Ferguson, I. Davis, E.N. Forman and E.C. Guinan. Homozygous alpha-thalassemia treated with intrauterine transfusions and postnatal hematopoietic stem cell transplantation. *Bone Marrow Transplant*. 32:341-2. 2003.
- Davis, I.J., B.-L. Hsi, J. Arroyo, S.O. Vargas, Y.A. Yeh, G. Motyckova, P. Valencia, A.R. Perez-Atayde, P. Argani, M. Ladanyi, J.A. Fletcher and D.E. Fisher. Cloning of an *Alpha-TFEB* fusion in renal tumors harboring the t(6;11)(p21;q13) chromosome translocation. *Proceedings of the National Academy of Sciences*. 100:6051-6. 2003.
- Arbiser, J.L., R. Yeung R., S. W. Weiss, Z.K. Arbiser, M.B. Amin, C. Cohen, D. Frank, S. Mahajan, G.S. Herron, J. Yang, H. Onda, H.B. Zhang, X. Bai, E. Uhlmann, A. Loehr, H. Northrup, P. Au, I. Davis, D.E. Fisher and D.H. Gutmann. The generation and characterization of a cell line derived from a sporadic renal angiomyolipoma: use of telomerase to obtain stable populations of cells from benign neoplasms. *American J. of Pathology*. 159:179-192. 2001.
- Vargas, S.O., C.A. French, P.N. Faul, J.A. Fletcher, I.J. Davis, P. Dal Cin, and A.R. Perez-Atayde. Laryngeal carcinoma with chromosomal translocation 15;19: Evidence for a distinct disease entity of young patients with a rapidly fatal course. *Cancer*. 92:1195-203. 2001.
- Davis, I.J. and L.F. Lau. Endocrine and neurogenic regulation of the orphan receptors Nur77 and Nurr-1 in the adrenal gland. *Molecular and Cellular Biology*. 14:3469-3483. 1994.
- Davis, I.J., T.G. Hazel, R.-H. Chen, J. Blenis and L.F. Lau. Functional domains and phosphorylation of the

orphan receptor Nur77. *Molecular Endocrinology*. 7:953-964. 1993.

- Davis, I.J., T.G. Hazel and L.F. Lau. Transcription Activation by Nur77, a growth factor-inducible member of the steroid hormone receptor superfamily. *Molecular Endocrinology*. 5:854-859. 1991.
- Hazel, T.G., R. Misra, I.J. Davis, M.E. Greenberg and L.F. Lau. Nur77 is differentially modified in PC12 cells upon membrane depolarization and growth factor treatment. *Molecular and Cellular Biology*. 11:3239-3246. 1991.