

## Datasheet 2021/11/7

**Product Name:** MC-38 Cell Line

**Catalog Number:** ENH204-FP

**Size:** 1 vial

### Specifications:

*Product Type:* Cell Line

*Name:* MC-38

*Accession ID:* CVCL\_B288

*Organism:* C57BL6 murine

*Source:* Colon Carcinoma

*Morphology:* Epithelial

*Biosafety Level:* BSL1

*Subculturing:* 1:5 to 1:10

*Growth Conditions:* Dulbecco's modified MEM with 10% fetal bovine serum, 2mM glutamine, 0.1 mM nonessential amino acids, 1 mM sodium pyruvate, 10 mM Hepes, 50ug/ml gentamycin sulfate, pen/strep.

*Cryopreservation:* 90% FBS, 10% DMSO

*Mycoplasma Tested:* Yes; Also tested for mouse pathogens (See: [MC-38 Pathogen Testing Results](#))

*Storage:* Liquid nitrogen

*Shipped:* Dry ice

### Provider:



[James W. Hodge, PhD, MBA](#)  
National Cancer Institute/NIH

### References:

1. Roh-Johnson M, Shah AN, Stonick JA, Poudel KR, Kargl J, Yang GH, di Martino J, Hernandez RE, Gast CE, Zarour LR, Antoku S, Houghton AM, Bravo-Cordero JJ, Wong MH, Condeelis J, Moens CB. Macrophage-Dependent Cytoplasmic Transfer during Melanoma Invasion In Vivo. *Dev Cell*. 2017 Dec 4;43(5):549-562.e6. [View Article](#)
2. Obermajer N, Urban J, Wieckowski E, Muthuswamy R, Ravindranathan R, Bartlett DL, Kalinski P. Promoting the accumulation of tumor-specific T cells in tumor tissues by dendritic cell vaccines and chemokine-modulating agents. *Nat Protoc*. 2018 Feb;13(2):335-357. [View Article](#)
3. Xiao Q, Wu J, Wang WJ, Chen S, Zheng Y, Yu X, Meeth K, Sahraei M, Bothwell ALM, Chen L, Bosenberg M, Chen J, Sexl V, Sun L, Li L, Tang W, Wu D. DKK2 imparts tumor immunity evasion through  $\beta$ -catenin-independent suppression of cytotoxic immune-cell activation. *Nat Med*. 2018 Mar;24(3):262-270. [View Article](#)
4. Villarreal DO, L'Huillier A, Armington S, Mottershead C, Filippova EV, Coder BD, Petit RG, Princiotta MF. Targeting CCR8 induces protective antitumor immunity and enhances vaccine-induced responses in colon cancer. *Cancer Res*. 2018 Jul 19. pii: canres.1119.2018. [View Article](#)
5. Grasselly C, Denis M, Bourguignon A, Talhi N, Mathe D, Tourette A, Serre L, Jordheim LP, Matera EL, Dumontet C. The Antitumor Activity of Combinations of Cytotoxic Chemotherapy and Immune Checkpoint Inhibitors Is Model-Dependent. *Front Immunol*. 2018 Oct 9;9:2100. [View Article](#)
6. Yuzhalin AE, Gordon-Weeks AN, Tognoli ML, Jones K, Markelc B, Konietzny R, Fischer R, Muth A, O'Neill E, Thompson PR, Venables PJ, Kessler B

- M, Lim SY, Muschel RJ. Colorectal cancer liver metastatic growth depends on PAD4-driven citrullination of the extracellular matrix. *Nat Commun*. 2018 Nov 14;9(1):4783. [View Article](#)
7. Paauwe M, Schoonderwoerd MJA, Helderma R, Harryvan TJ, Groenewoud A, van Pelt GW, Bor R, Hemmer DM, Versteeg HH, Snaar-Jagalska BE, Theuer CP, Hardwick JCH, Sier CFM, Ten Dijke P, Hawinkels LJAC. Endoglin Expression on Cancer-Associated Fibroblasts Regulates Invasiveness and Stimulates Colorectal Cancer Metastasis. *Clin Cancer Res*. 2018 Dec 15. [View Article](#)
  8. Chang J, Bhasin SS, Bielenberg DR, Sukhatme VP, Bhasin M, Huang S, Kieran MW, Panigrahy D. Chemotherapy-generated cell debris stimulates colon carcinoma tumor growth via osteopontin. *FASEB J*. 2019 Jan;33(1):114-125. [View Article](#)
  9. Lee LYW, Woolley C, Starkey T, Biswas S, Mirshahi T, Bardella C, Segditsas S, Irshad S, Tomlinson I. Serum- and Glucocorticoid-induced Kinase Sgk1 Directly Promotes the Differentiation of Colorectal Cancer Cells and Restrains Metastasis. *Clin Cancer Res*. 2019 Jan 15. [View Article](#)
  10. Teng Y, Ren Y, Sayed M, Hu X, Lei C, Kumar A, Hutchins E, Mu J, Deng Z, Luo C, Sundaram K, Sriwastva MK, Zhang L, Hsieh M, Reiman R, Haribabu B, Yan J, Jala VR, Miller DM, Van Keuren-Jensen K, Merchant ML, McClain CJ, Park JW, Egilmez NK, Zhang HG. Plant-Derived Exosomal MicroRNAs Shape the Gut Microbiota. *Cell Host Microbe*. 2018 Nov 14;24(5):637-652.e8. [View Article](#)
  11. Chen J, López-Moyado IF, Seo H, Lio CJ, Hempleman LJ, Sekiya T, Yoshimura A, Scott-Browne JP, Rao A. NR4A transcription factors limit CAR T cell function in solid tumours. *Nature*. 2019 Mar;567(7749):530-534. [View Article](#)
  12. Yanagitani N, Friboulet L, Nishio M, Takeuchi K, Kawamoto H, Fujita N, Katayama R. Secreted PD-L1 variants mediate resistance to PD-L1 blockade therapy in non-small cell lung cancer. *J Exp Med*. 2019 Apr 1;216(4):982-1000. [View Article](#)
  13. Cao Y, Trillo-Tinoco J, Sierra RA, Anadon C, Dai W, Mohamed E, Cen L, Costich TL, Magliocco A, Marchion D, Klar R, Michel S, Jaschinski F, Reich RR, Mehrotra S, Cubillos-Ruiz JR, Munn DH, Conejo-Garcia JR, Rodriguez PC. ER stress-induced mediator C/EBP homologous protein thwarts effector T cell activity in tumors through T-bet repression. *Nat Commun*. 2019 Mar 20;10(1):1280. [View Article](#)
  14. Wang W, Yang J, Edin ML, Wang Y, Luo Y, Wan D, Yang H, Song CQ, Xue W, Sanidad KZ, Song M, Bisbee HA, Bradbury JA, Nan G, Zhang J, Shih PB, Lee KSS, Minter LM, Kim D, Xiao H, Liu JY, Hammock BD, Zeldin DC, Zhang G. Targeted Metabolomics Identifies the Cytochrome P450 Monooxygenase Eicosanoid Pathway as a Novel Therapeutic Target of Colon Tumorigenesis. *Cancer Res*. 2019 Apr 15;79(8):1822-1830. [View Article](#)
  15. Kvarnhammar AM, Veitonmäki N, Hägerbrand K, Dahlman A, Smith KE, Fritzell S, von Schantz L, Thagesson M, Werchau D, Smedenfors K, Johansson M, Rosén A, Åberg I, Winnerstam M, Nyblom E, Barchan K, Furebring C, Norlén P, Ellmark P. The CTLA-4 x OX40 bispecific antibody ATO R-1015 induces anti-tumor effects through tumor-directed immune activation. *J Immunother Cancer*. 2019 Apr 11;7(1):103. [View Article](#)
  16. Xie YJ, Dougan M, Jaikhanani N, Ingram J, Fang T, Kummer L, Momin N, Pishesha N, Rickelt S, Hynes RO, Ploegh H. Nanobody-based CAR T cells that target the tumor microenvironment inhibit the growth of solid tumors in immunocompetent mice. *Proc Natl Acad Sci U S A*. 2019 Apr 16;116(16):7624-7631. [View Article](#)
  17. Lee JW, Stone ML, Porrett PM, Thomas SK, Komar CA, Li JH, Delman D, Graham K, Gladney WL, Hua X, Black TA, Chien AL, Majmundar KS, Thompson JC, Yee SS, O'Hara MH, Aggarwal C, Xin D, Shaked A, Gao M, Liu D, Borad MJ, Ramanathan RK, Carpenter EL, Ji A, de Beer MC, de Beer FC, Webb NR, Beatty GL. Hepatocytes direct the formation of a pro-metastatic niche in the liver. *Nature*. 2019 Mar;567(7747):249-252. [View Article](#)
  18. Segovia M, Russo S, Jeldres M, Mahmoud YD, Perez V, Duhalde M, Charnet P, Rousset M, Victoria S, Veigas F, Louvet C, Vanhove B, Floto RA, Anegón I, Cuturi MC, Girotti MR, Rabinovich GA, Hill M. Targeting TMEM176B Enhances Antitumor Immunity and Augments the Efficacy of Immune Checkpoint Blockers by Unleashing Inflammasome Activation. *Cancer Cell*. 2019 May 13;35(5):767-781.e6. [View Article](#)
  19. Pai CS, Huang JT, Lu X, Simons DM, Park C, Chang A, Tamaki W, Liu E, Roybal KT, Seagal J, Chen M, Hagihara K, Wei XX, DuPage M, Kwek SS, Oh DY, Daud A, Tsai KK, Wu C, Zhang L, Fasso M, Sachidanandam R, Jayaprakash A, Lin I, Casbon AJ, Kinsbury GA, Fong L. Clonal Deletion of Tumor-Specific T Cells by Interferon- $\gamma$  Confers Therapeutic Resistance to Combination Immune Checkpoint Blockade. *Immunity*. 2019 Feb 19;50(2):477-492.e8. [View Article](#)
  20. Nakanishi Y, Duran A, L'Hermitte A, Shelton PM, Nakanishi N, Reina-Campos M, Huang J, Soldevila F, Baaten BJG, Tauriello DVF, Castilla EA, Bahangou MS, Bao F, Sigal D, Diaz-Meco MT, Moscat J. Simultaneous Loss of Both Atypical Protein Kinase C Genes in the Intestinal Epithelium Drives Serrated Intestinal Cancer by Impairing Immunosurveillance. *Immunity*. 2018 Dec 18;49(6):1132-1147.e7. [View Article](#)
  21. Whitehead MWJ, Khanzini N, Borsig L, Hennet T. Custom Glycosylation of Cells and Proteins Using Cyclic Carbamate-Derivatized Oligosaccharides. *Cell Chem Biol*. 2017 Nov 16;24(11):1336-1346.e3. [View Article](#)
  22. Tavazoie MF, Pollack I, Tanqueco R, Ostendorf BN, Reis BS, Gonsalves FC, Kurth I, Andreu-Agullo C, Derbyshire ML, Posada J, Takeda S, Tafreshi AN, Rowinsky E, Szarek M, Waltzman RJ, Mcmillan EA, Zhao C, Mita M, Mita A, Chmielowski B, Postow MA, Ribas A, Mucida D, Tavazoie SF. LXR/ApoE Activation Restricts Innate Immune Suppression in Cancer. *Cell*. 2018 Feb 8;172(4):825-840.e18. [View Article](#)
  23. Pan WW, Moroishi T, Koo JH, Guan KL. Cell type-dependent function of LATS1/2 in cancer cell growth. *Oncogene*. 2019 Apr;38(14):2595-2610. [View Article](#)
  24. Rabin-Court A, Rodrigues MR, Zhang XM, Perry RJ. Obesity-associated, but not obesity-independent, tumors respond to insulin by increasing mitochondrial glucose oxidation. *PLoS One*. 2019 Jun 12;14(6):e0218126. [View Article](#)
  25. Hu Z, Qu G, Yu X, Jiang H, Teng XL, Ding L, Hu Q, Guo X, Zhou Y, Wang F, Li HB, Chen L, Jiang J, Su B, Liu J, Zou Q. Acylglycerol Kinase Maintains Metabolic State and Immune Responses of CD8(+) T Cells. *Cell Metab*. 2019 Jun 11. pii: S1550-4131(19)30256-6. [View Article](#)
  26. Herbst EB, Unnikrishnan S, Klibanov AL, Mauldin FW Jr, Hossack JA. Validation of Normalized Singular Spectrum Area as a Classifier for Molarly Targeted Microbubble Adherence. *Ultrasound Med Biol*. 2019 Jun 18. pii: S0301-5629(19)30236-4. [View Article](#)
  27. Gong B, Kiyotani K, Sakata S, Nagano S, Kumehara S, Baba S, Besse B, Yanagitani N, Friboulet L, Nishio M, Takeuchi K, Kawamoto H, Fujita N, Katayama R. Secreted PD-L1 variants mediate resistance to PD-L1 blockade therapy in non-small cell lung cancer. *J Exp Med*. 2019 Apr 1;216(4):982-1000. [View Article](#)
  28. Ekiz HA, Lai SA, Gundlapalli H, Haroun F, Williams MA, Welm AL. Inhibition of RON kinase potentiates anti-CTLA-4 immunotherapy to shrink breast tumors and prevent metastatic outgrowth. *Oncoimmunology*. 2018 Jul 11;7(9):e1480286. [View Article](#)
  29. Xu YP, Lv L, Liu Y, Smith MD, Li WC, Tan XM, Cheng M, Li Z, Bovino M, Aubé J, Xiong Y. Tumor suppressor TET2 promotes cancer immunity and immunotherapy efficacy. *J Clin Invest*. 2019 Jul 16;130. [View Article](#)
  30. Ou W, Byeon JH, Thapa RK, Ku SK, Yong CS, Kim JO. Plug-and-Play Nanorization of Coarse Black Phosphorus for Targeted Chemo-phototherapy of Colorectal Cancer. *ACS Nano*. 2018 Oct 23;12(10):10061-10074. doi: 10.1021/acsnano.8b04658. Epub 2018 Sep 19. [View Article](#)
  31. Larimer BM, Bloch E, Nesti S, Austin EE, Wehrenberg-Klee E, Boland G, Mahmood U. The Effectiveness of Checkpoint Inhibitor Combinations and Administration Timing Can Be Measured by Granzyme B PET Imaging. *Clin Cancer Res*. 2019 Feb 15;25(4):1196-1205. [View Article](#)
  32. Leclerc M, Voilin E, Gros G, Cognac S, de Montpréville V, Validire P, Bismuth G, Mami-Chouaib F. Regulation of antitumour CD8 T-cell immunity and checkpoint blockade immunotherapy by Neupilin-1. *Nat Commun*. 2019 Jul 26;10(1):3345. doi: 10.1038/s41467-019-11280-z. [View Article](#)

- [w Article](#)
33. Tanegashima T, Togashi Y, Azuma K, Kawahara A, Ideguchi K, Sugiyama D, Kinoshita F, Akiba J, Kashiwagi E, Takeuchi A, Irie T, Tatsugami K, Hoshino T, Eto M, Nishikawa H. Immune Suppression by PD-L2 against Spontaneous and Treatment-Related Antitumor Immunity. *Clin Cancer Res.* 2019 May 10. [View Article](#)
  34. Phan T, Nguyen VH, D'Alincourt MS, Manuel ER, Kaltcheva T, Tsai W, Blazar BR, Diamond DJ, Melstrom LG. Salmonella-mediated therapy targeting indoleamine 2, 3-dioxygenase 1 (IDO) activates innate immunity and mitigates colorectal cancer growth. *Cancer Gene Ther.* 2019 Mar 1. [View Article](#)
  35. Garrido G, Schrand B, Rabasa A, et al. Tumor-targeted silencing of the peptide transporter TAP induces potent antitumor immunity. *Nat Commun.* 2019;10(1):3773. Published 2019 Aug 21. [View Article](#)
  36. Bae T, Jang J, Lee H, et al. Paeonia lactiflora root extract suppresses cancer cachexia by down-regulating muscular NF- $\kappa$ B signalling and muscle-specific E3 ubiquitin ligases in cancer-bearing mice. *J Ethnopharmacol.* 2020;246:112222. [View article](#)
  37. Sivakumar R, Chan M, Shin JS, et al. Organotypic tumor slice cultures provide a versatile platform for immuno-oncology and drug discovery. *Oncoimmunology.* 2019;8(12):e1670019. Published 2019 Oct 10. [View article](#)
  38. Kusano T, Ehrlichou D, Matsumura T, et al. Targeted knock-in mice expressing the oxidase-fixed form of xanthine oxidoreductase favor tumor growth. *Nat Commun.* 2019;10(1):4904. Published 2019 Oct 28. [View article](#)
  39. Yokoyama Y, Lew ED, Seelige R, et al. Immuno-oncological Efficacy of RXDX-106, a Novel TAM (TYRO3, AXL, MER) Family Small-Molecule Kinase Inhibitor. *Cancer Res.* 2019;79(8):1996-2008. [View article](#)
  40. Nasiri AR, Rodrigues MR, Li Z, Leitner BP, Perry RJ. SGLT2 inhibition slows tumor growth in mice by reversing hyperinsulinemia. *Cancer Metab.* 2019;7:10. Published 2019 Dec 11. [View article](#)
  41. Dinarvand P, Yang L, Biswas I, Giri H, Rezaie AR. Plasmodium falciparum histidine rich protein HRPII inhibits the anti-inflammatory function of antithrombin. *J Thromb Haemost.* 2020;18(6):1473-1483. [View article](#)
  42. Ho WJ, Yarchoan M, Charmsaz S, et al. Multipanel mass cytometry reveals anti-PD-1 therapy-mediated B and T cell compartment remodeling in tumor-draining lymph nodes. *JCI Insight.* 2020;5(2):e132286. Published 2020 Jan 30. [View article](#)
  43. Strauss L, Mahmoud MAA, Weaver JD, et al. Targeted deletion of PD-1 in myeloid cells induces antitumor immunity. *Sci Immunol.* 2020;5(43):eaay1863. [View article](#)
  44. Scortegagna M, Hockemeyer K, Dolgalev I, et al. Siah2 control of T-regulatory cells limits anti-tumor immunity. *Nat Commun.* 2020;11(1):99. Published 2020 Jan 7. [View article](#)
  45. Yu M, Guo G, Huang L, et al. CD73 on cancer-associated fibroblasts enhanced by the A2B-mediated feedforward circuit enforces an immune checkpoint. *Nat Commun.* 2020;11(1):515. Published 2020 Jan 24. [View article](#)
  46. Sugiyama E, Togashi Y, Takeuchi Y, et al. Blockade of EGFR improves responsiveness to PD-1 blockade in EGFR-mutated non-small cell lung cancer. *Sci Immunol.* 2020;5(43):eaav3937. [View article](#)
  47. Scheetz LM, Yu M, Li D, Castro MG, Moon JJ, Schwendeman A. Synthetic HDL Nanoparticles Delivering Docetaxel and CpG for Chemoimmunotherapy of Colon Adenocarcinoma. *Int J Mol Sci.* 2020;21(5):1777. Published 2020 Mar 5. [View article](#)
  48. Wang G, Kang X, Chen KS, et al. An engineered oncolytic virus expressing PD-L1 inhibitors activates tumor neoantigen-specific T cell response. *Nat Commun.* 2020;11(1):1395. Published 2020 Mar 13. [View article](#)
  49. Zhao R, Xiao Q, Li M, et al. Rational design of peptides for identification of linear epitopes and generation of neutralizing monoclonal antibodies against DKK2 for cancer therapy. *Antib Ther.* 2020;3(2):63-70. [View article](#)
  50. Guan Y, Kraus SG, Quaney MJ, Daniels MA, Mitchem JB, Teixeira E. FOLFOX Chemotherapy Ameliorates CD8 T Lymphocyte Exhaustion and Enhances Checkpoint Blockade Efficacy in Colorectal Cancer. *Front Oncol.* 2020;10:586. Published 2020 Apr 23. [View article](#)
  51. Waschkies CF, Pfiffner FK, Heuberger DM, et al. Tumor grafts grown on the chicken chorioallantoic membrane are distinctively characterized by MRI under functional gas challenge. *Sci Rep.* 2020;10(1):7505. Published 2020 May 5. [View article](#)
  52. Hu J, Wang Z, Chen Z, et al. DKK2 blockage-mediated immunotherapy enhances anti-angiogenic therapy of Kras mutated colorectal cancer. *Biomed Pharmacother.* 2020;127:110229. [View article](#)
  53. LaSalle T, Austin EE, Rigney G, et al. Granzyme B PET imaging of immune-mediated tumor killing as a tool for understanding immunotherapy response. *J Immunother Cancer.* 2020;8(1):e000291. [View article](#)
  54. Buss CG, Bhatia SN. Nanoparticle delivery of immunostimulatory oligonucleotides enhances response to checkpoint inhibitor therapeutics. *Proc Natl Acad Sci U S A.* 2020;117(24):13428-13436. [View article](#)
  55. Grant FM, Yang J, Nasrallah R, et al. BACH2 drives quiescence and maintenance of resting Treg cells to promote homeostasis and cancer immunosuppression. *J Exp Med.* 2020;217(9):e20190711. [View article](#)
  56. Strauss L, Mahmoud MAA, Weaver JD, et al. Targeted deletion of PD-1 in myeloid cells induces antitumor immunity. *Sci Immunol.* 2020;5(43):eaay1863. [View article](#)
  57. Kumagai S, Togashi Y, Sakai C, et al. An Oncogenic Alteration Creates a Microenvironment that Promotes Tumor Progression by Conferring a Metabolic Advantage to Regulatory T Cells. *Immunity.* 2020;53(1):187-203.e8. [View article](#)
  58. Muramatsu T, Noguchi T, Sugiyama D, et al. Newly emerged immunogenic neoantigens in established tumors enable hosts to regain immune surveillance in a T cell-dependent manner [published online ahead of print, 2020 Jul 30]. *Int Immunol.* 2020;dxaa049. [View article](#)
  59. Nagasaki J, Togashi Y, Sugawara T, Itami M, Yamauchi N, Yuda J, Sugano M, Ohara Y, Minami Y, Nakamae H, Hino M, Takeuchi M, Nishikawa H. The critical role of CD4+ T cells in PD-1 blockade against MHC-II-expressing tumors such as classic Hodgkin lymphoma. *Blood Adv.* 2020 Sep 8;4(17):4069-4082. [View article](#)
  60. Ou P, Wen L, Liu X, Huang J, Huang X, Su C, Wang L, Ni H, Reizis B, Yang CY. Thioesterase PPT1 balances viral resistance and efficient T cell cross priming in dendritic cells. *J Exp Med.* 2019 Sep 2;216(9):2091-2112. [View article](#)
  61. Ou W, Byeon JH, Soe ZC, Kim BK, Thapa RK, Gupta B, Poudel BK, Ku SK, Yong CS, Kim JO. Tailored Black Phosphorus for Erythrocyte Membrane Nanocloaking with Interleukin-1 $\alpha$  siRNA and Paclitaxel for Targeted, Durable, and Mild Combination Cancer Therapy. *Theranostics.* 2019 Sep 19;9(23):6780-6796. [View article](#)
  62. Yuzhalin AE, Lim SY, Gordon-Weeks AN, Fischer R, Kessler BM, Yu D, Muschel RJ. Proteomics analysis of the matrisome from MC38 experimental mouse liver metastases. *Am J Physiol Gastrointest Liver Physiol.* 2019 Nov 1;317(5):G625-G639. [View article](#)
  63. Hsu TS, Lin YL, Wang YA, Mo ST, Chi PY, Lai AC, Pan HY, Chang YJ, Lai MZ. HIF-2 $\alpha$  is indispensable for regulatory T cell function. *Nat Commun.* 2020 Oct 6;11(1):5005. [View article](#)
  64. Fernandes RA, Su L, Nishiga Y, Ren J, Bhuiyan AM, Cheng N, Kuo CJ, Picton LK, Ohtsuki S, Majzner RG, Rietberg SP, Mackall CL, Yin Q, Ali LR, Yang X, Savvides CS, Sage J, Dougan M, Garcia KC. Immune receptor inhibition through enforced phosphatase recruitment. *Nature.* 2020 Oct;58

- 6(7831):779-784. [View article](#)
65. Jacobs L, De Smidt E, Geukens N, Declerck P, Hollevoet K. Electroporation outperforms in vivo-jetPEI for intratumoral DNA-based reporter gene transfer. *Sci Rep.* 2020 Nov 11;10(1):19532. [View article](#)
  66. Cho R, Sakurai Y, Jones HS, Akita H, Hisaka A, Hatakeyama H. Silencing of VEGFR2 by RGD-Modified Lipid Nanoparticles Enhanced the Efficacy of Anti-PD-1 Antibody by Accelerating Vascular Normalization and Infiltration of T Cells in Tumors. *Cancers (Basel).* 2020 Dec 4;12(12):E3630. [View article](#)
  67. Luo R, Firat E, Gaedicke S, Guffart E, Watanabe T, Niedermann G. Cisplatin Facilitates Radiation-Induced Abscopal Effects in Conjunction with PD-1 Checkpoint Blockade Through CXCR3/CXCL10-Mediated T-cell Recruitment. *Clin Cancer Res.* 2019 Dec 1;25(23):7243-7255. [View article](#)
  68. Capietto AH, Jhunjunwala S, Pollock SB, Lupardus P, Wong J, Hänsch L, Cevallos J, Chestnut Y, Fernandez A, Lounsbury N, Nozawa T, Singh M, Fan Z, de la Cruz CC, Phung QT, Taraborrelli L, Haley B, Lill JR, Mellman I, Bourgon R, Delamarre L. Mutation position is an important determinant for predicting cancer neoantigens. *J Exp Med.* 2020 Apr 6;217(4):e20190179. [View article](#)
  69. Karagiannidis I, Jerman SJ, Jacenik D, Phinney BB, Yao R, Prossnitz ER, Beswick EJ. G-CSF and G-CSFR Modulate CD4 and CD8 T Cell Responses to Promote Colon Tumor Growth and Are Potential Therapeutic Targets. *Front Immunol.* 2020 Sep 15;11:1885. [View article](#)
  70. Mittal D, Lepletier A, Madore J, Aguilera AR, Stannard K, Blake SJ, Whitehall VLI, Liu C, Bettington ML, Takeda K, Long GV, Scolyer RA, Lan R, Siemiers N, Korman A, Teng MWL, Johnston RJ, Dougall WC, Smyth MJ. CD96 Is an Immune Checkpoint That Regulates CD8+ T-cell Antitumor Function. *Cancer Immunol Res.* 2019 Apr;7(4):559-571. [View article](#)
  71. Myers DR, Abram CL, Wildes D, Belwafa A, Welsh AMN, Schulze CJ, Choy TJ, Nguyen T, Omaque N, Hu Y, Singh M, Hansen R, Goldsmith MA, Quintana E, Smith JAM, Lowell CA. Shp1 Loss Enhances Macrophage Effector Function and Promotes Anti-Tumor Immunity. *Front Immunol.* 2020 Sep 29;11:576310. [View article](#)
  72. Trillo-Tinoco J, Sierra RA, Mohamed E, Cao Y, de Mingo-Pulido Á, Gilvary DL, Anadon CM, Costich TL, Wei S, Flores ER, Ruffell B, Conejo-Garcia JR, Rodriguez PC. AMPK Alpha-1 Intrinsically Regulates the Function and Differentiation of Tumor Myeloid-Derived Suppressor Cells. *Cancer Res.* 2019 Oct 1;79(19):5034-5047. [View article](#)
  73. Kohlhapp FJ, Haribhai D, Mathew R, Duggan R, Ellis PA, Wang R, Lasater EA, Shi Y, Dave N, Riehm JJ, Robinson VA, Do AD, Li Y, Orr CJ, Sampath D, Raval A, Merchant M, Bhatena A, Salem AH, Hamel KM, Levenson JD, Donawho C, Pappano WN, Uziel T. Venetoclax Increases Intratumoral Effector T Cells and Antitumor Efficacy in Combination with Immune Checkpoint Blockade. *Cancer Discov.* 2020 Sep 4. [View article](#)
  74. Magiera-Mularz K, Kocik J, Musielak B, Plewka J, Sala D, Machula M, Grudnik P, Hajduk M, Czepiel M, Siedlar M, Holak TA, Skalniak L. Human and mouse PD-L1: similar molecular structure, but different druggability profiles. *iScience.* 2020 Dec 24;24(1):101960. [View article](#)
  75. Budhu S, Giese R, Gupta A, Fitzgerald K, Zappasodi R, Schad S, Hirschhorn D, Campesato LF, De Henau O, Gigoux M, Liu C, Mazo G, Deng L, Barker CA, Wolchok JD, Merghoub T. Targeting Phosphatidyserine Enhances the Anti-tumor Response to Tumor-Directed Radiation Therapy in a Preclinical Model of Melanoma. *Cell Rep.* 2021 Jan 12;34(2):108620. [View article](#)
  76. You G, Lee Y, Kang YW, Park HW, Park K, Kim H, Kim YM, Kim S, Kim JH, Moon D, Chung H, Son W, Jung UJ, Park E, Lee S, Son YG, Eom J, Won J, Park Y, Jung J, Lee SW. B7-H3x4-1BB bispecific antibody augments antitumor immunity by enhancing terminally differentiated CD8+ tumor-infiltrating lymphocytes. *Sci Adv.* 2021 Jan 15;7(3):eaa3160. [View article](#)
  77. Yang SB, Lee MH, Kim BR, Choi YM, Kim BJ. A Hepatitis B Virus-Derived Peptide Exerts an Anticancer Effect via TNF/iNOS-producing Dendritic Cells in Tumor-Bearing Mouse Model. *Cancers (Basel).* 2021 Jan 22;13(3):407. [View article](#)
  78. Ghonim MA, Ibba SV, Tarhuni AF, Errami Y, Luu HH, Dean MJ, El-Bahrawy AH, Wyczechowska D, Benslimane IA, Del Valle L, Al-Khami AA, Ochoa AC, Boulares AH. Targeting PARP-1 with metronomic therapy modulates MDSC suppressive function and enhances anti-PD-1 immunotherapy in colon cancer. *J Immunother Cancer.* 2021 Jan;9(1):e001643. [View article](#)
  79. Villa A, Garofalo M, Crescenti D, Rizzi N, Brunialti E, Vingiani A, Belotti P, Sposito C, Franzè S, Cilurzo F, Pruneri G, Recordati C, Giudice C, Giordano A, Tortoreto M, Beretta G, Stefanello D, Manenti G, Zaffaroni N, Mazzaferro V, Ciana P. Transplantation of autologous extracellular vesicles for cancer-specific targeting. *Theranostics.* 2021 Jan 1;11(5):2034-2047. [View article](#)
  80. Rodriguez-Garcia A, Lynn RC, Poussin M, Eiva MA, Shaw LC, O'Connor RS, Minutolo NG, Casado-Medrano V, Lopez G, Matsuyama T, Powell DJ Jr. CAR-T cell-mediated depletion of immunosuppressive tumor-associated macrophages promotes endogenous antitumor immunity and augments adoptive immunotherapy. *Nat Commun.* 2021 Feb 9;12(1):877. [View article](#)
  81. Lewis ND, Sia CL, Kirwin K, Haupt S, Mahimkar G, Zi T, Xu K, Dooley K, Jang SC, Choi B, Boutin A, Grube A, McCoy C, Sanchez-Salazar J, Doherty M, Gaidukov L, Estes S, Economides KD, Williams DE, Sathyanarayanan S. Exosome Surface Display of IL12 Results in Tumor-Retained Pharmacology with Superior Potency and Limited Systemic Exposure Compared with Recombinant IL12. *Mol Cancer Ther.* 2020 Dec 21. [View article](#)
  82. Fan J, Das JK, Xiong X, Chen H, Song J. Development of CAR-T Cell Persistence in Adoptive Immunotherapy of Solid Tumors. *Front Oncol.* 2021 Jan 6;10:574860. [View article](#)
  83. Choi YW, Kim YH, Oh SY, Suh KW, Kim YS, Lee GY, Yoon JE, Park SS, Lee YK, Park YJ, Kim HS, Park SH, Kim JH, Park TJ. Senescent Tumor Cells Build a Cytokine Shield in Colorectal Cancer. *Adv Sci (Weinh).* 2021 Jan 4;8(4):2002497. [View article](#)
  84. Yoon Y, Kim G, Jeon BN, Fang S, Park H. Bifidobacterium Strain-Specific Enhances the Efficacy of Cancer Therapeutics in Tumor-Bearing Mice. *Cancers (Basel).* 2021 Feb 25;13(5):957. [View article](#)
  85. Charmsaz S, Gross N, Jaffee E, Ho WJ. A global live cell barcoding approach for multiplexed mass cytometry profiling of mouse tumors. *JCI Insight.* 2021 Apr 8;6(7):143283. [View article](#)
  86. Prakash MD, Stojanovska L, Feehan J, Nurgali K, Donald EL, Plebanski M, Flavel M, Kitchen B, Apostolopoulos V. Anti-cancer effects of polyphenol-rich sugarcane extract. *PLoS One.* 2021 Mar 10;16(3):e0247492. [View article](#)
  87. Lione L, Salvatori E, Petrazzuolo A, Massacci A, Maggio R, Conforti A, Compagnone M, Aurisicchio L, Ciliberto G, Palombo F. Antitumor efficacy of a neoantigen cancer vaccine delivered by electroporation is influenced by microbiota composition. *Oncoimmunology.* 2021 Mar 23;10(1):1898832. [View article](#)
  88. Bahmani B, Gong H, Luk BT, Haushalter KJ, DeTeresa E, Previti M, Zhou J, Gao W, Bui JD, Zhang L, Fang RH, Zhang J. Intratumoral immunotherapy using platelet-cloaked nanoparticles enhances antitumor immunity in solid tumors. *Nat Commun.* 2021 Mar 31;12(1):1999. [View article](#)
  89. Peled M, Bar-Lev TH, Talalai E, Spitz HZ, Daniel-Meshulam I, Bar J, Kamer I, Ofek E, Mor A, Onn A. Mesencephalic astrocyte-derived neurotrophic factor is secreted from interferon- $\gamma$ -activated tumor cells through ER calcium depletion. *PLoS One.* 2021 Apr 23;16(4):e0250178. [View article](#)

If you publish research with this product, please [let us know](#) so we can cite your paper.

**FOR RESEARCH USE ONLY. NOT INTENDED FOR DIAGNOSTIC or THERAPEUTIC USE.**