



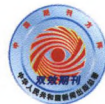
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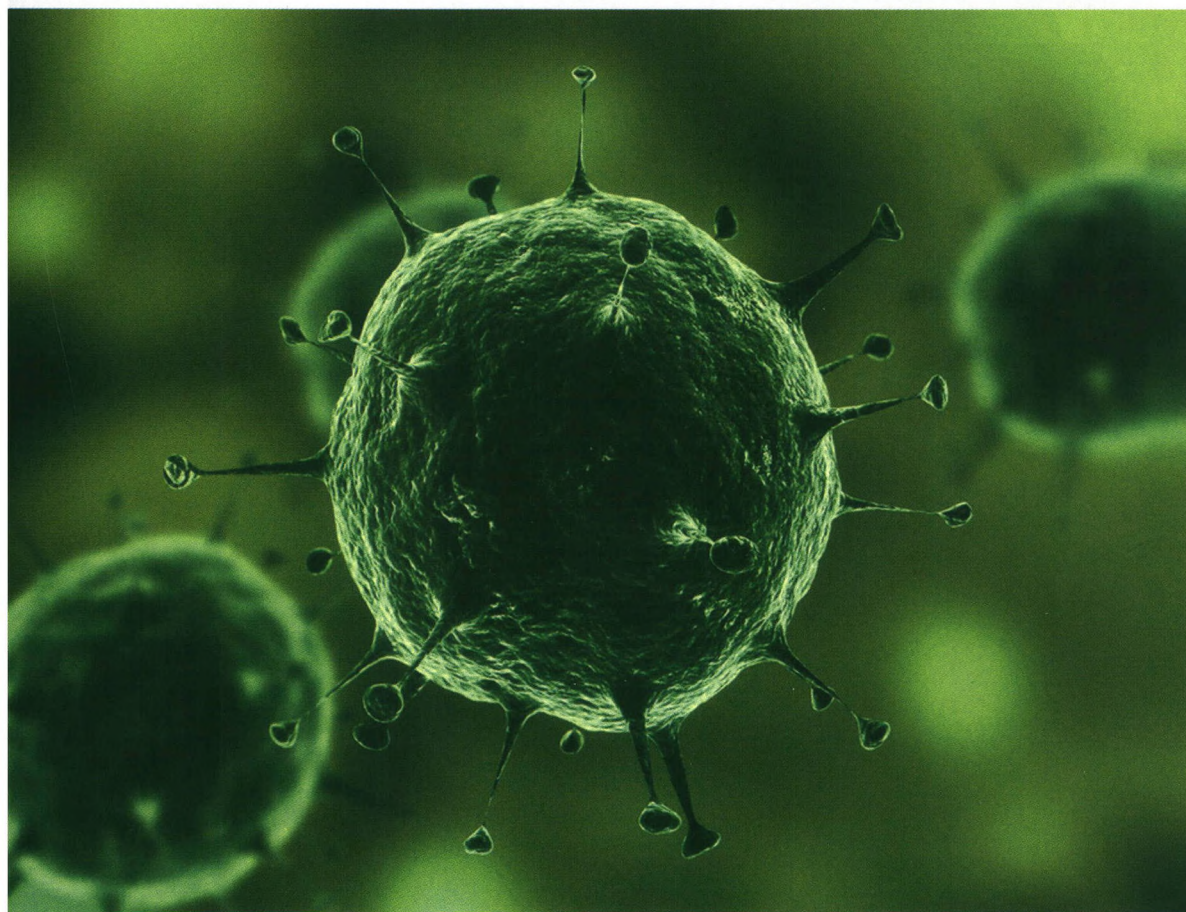
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- [42] LI G, WANG Z, ZHANG C, *et al.* Molecular and clinical. characterization of TIM-3 in glioma through 1,024 samples [J]. *Oncoimmunol*, 2017, 6(8): e1328339. DOI: 10.1080/2162402X.2017.1328339.
- [43] KURZ S C, CABRERA L P, HASTIE D, *et al.* PD-1 inhibition has only limited clinical benefit in patients with recurrent high-grade glioma [J]. *Neurology*, 2018, 91(14): e1355-e1359. DOI: 10.1212/WNL.0000000000006283.
- [44] CASTRO M G, BAKER G J, LOWENSTEIN P R. Blocking immunosuppressive checkpoints for glioma therapy: The more the Merrier! [J]. *Clin Cancer Res*, 2014, 20(20): 5147-5149. DOI: 10.1158/1078-0432.CCR-14-0820.
- [45] FOURCADE J, SUN Z, BENALLAOUA M, *et al.* Upregulation of tim-3 and PD-1 expression is associated with tumor antigen-specific CD8⁺T cell dysfunction in melanoma patients [J]. *J Exp Med*, 2010, 207(10): 2175-2186. DOI: 10.1084/jem.20100637.
- [46] HARRIS-BOOKMAN S, MATHIOS D, MARTIN A M, *et al.* Expression of LAG-3 and efficacy of combination treatment with anti-LAG-3 and anti-PD-1 monoclonal antibodies in glioblastoma [J]. *Int J Cancer*, 2018, 143(12): 3201-3208. DOI: 10.1002/ijc.31661.
- [47] FRANCISCO L M, SALINAS V H, BROWN K E, *et al.* PD-L1 regulates the development, maintenance, and function of induced regulatory T cells [J]. *J Exp Med*, 2009, 206(13): 3015-3029. DOI: 10.1084/jem.20090847.
- [48] MBONGUE J C, NICHOLAS D A, TORREZ T W, *et al.* The role of indoleamine 2, 3-dioxygenase in immune suppression and autoimmunity [J]. *Vaccines*, 2015, 3(3): 703-729. DOI: 10.3390/vaccines3030703.
- [49] MUNN D H, SHARMA M D, MELLOR A L. Ligation of B7-1/ B7-2 by human CD4⁺T cells triggers indoleamine 2, 3-dioxygenase activity in dendritic cells [J]. *J Immunol*, 2004, 172(7): 4100-4110. DOI: 10.4049/jimmunol.172.7.4100.
- [50] KLINE C, LIU S J, DURISETI S, *et al.* Reirradiation and PD-1 inhibition with nivolumab for the treatment of recurrent diffuse intrinsic pontine glioma: A single-institution experience [J]. *J Neurooncol*, 2018, 140(3): 629-638. DOI: 10.1007/s11060-018-2991-5.
- [51] SHARABI A B, LIM M, DEWEESE T L, *et al.* Radiation and checkpoint blockade immunotherapy: Radiosensitisation and potential mechanisms of synergy [J]. *Lancet Oncol*, 2015, 16(13): e498-e509. DOI: 10.1016/S1470-2045(15)00007-8.
- [52] DAI B, QI N, LI J, *et al.* Temozolomide combined with PD-1 antibody therapy for mouse orthotopic glioma model [J]. *Biochem Biophys Res Commun*, 2018, 501(4): 871-876. DOI: 10.1016/j.bbrc.2018.05.064.
- [53] HANIHARA M, KAWATAKI T, OH-OKA K, *et al.* Synergistic. antitumor effect with indoleamine 2, 3-dioxygenase inhibition and temozolomide in a murine glioma model [J]. *J Neurosurg*, 2016, 124(6): 1594-1601. DOI: 10.3171/2015.5.JNS141901.
- [54] YI M, JIAO D, QIN S, *et al.* Synergistic effect of immune checkpoint blockade and anti-angiogenesis in cancer treatment [J]. *Mol Cancer*, 2019, 18(1): 60. DOI: 10.1186/s12943-019-0974-6.
- [55] VORON T, COLUSSI O, MARCHETEAU E, *et al.* VEGF-A modulates expression of inhibitory checkpoints on CD8⁺T cells in tumors [J]. *J Exp Med*, 2015, 212(2): 139-148. DOI: 10.1084/jem.20140559.
- [56] TAMURA R, TANAKA T, OHARA K, *et al.* Persistent restoration to the immunosupportive tumor microenvironment in glioblastoma by bevacizumab [J]. *Cancer Sci*, 2019, 110(2): 499-508. DOI: 10.1111/cas.13889.
- [57] 姜运峰, 董晓鹏, 赵小刚. PD-1 单克隆抗体联合血管内皮抑素在 Lewis 肺癌小鼠的抗肿瘤效应 [J]. *山东大学学报*, 2018, 56(9): 11-16. DOI: 10.6040/j.issn.1671-7554.0.2018.251.
- [58] WEI J, NDUOM E K, KONG L Y, *et al.* MiR-138 exerts anti-glioma efficacy by targeting immune checkpoints [J]. *Neuro Oncol*, 2016, 18(5): 639-648. DOI: 10.1093/neuonc/nov292.
- [59] WANG Y, WANG L. miR-34a attenuates glioma cells progression and chemoresistance via targeting PD-L1 [J]. *Biotechnol Lett*, 2017, 39(10): 1485-1492. DOI: 10.1007/s10529-017-2397-z.
- [60] PARSA A T, WALDRON J S, PANNER A, *et al.* Loss of tumor suppressor PTEN function increases B7-H1 expression and immunoresistance in glioma [J]. *Nat Med*, 2007, 13(1): 84-88. DOI: 10.1038/nm1517.
- [61] DORAND R D, NTHALE J, MYERS J T, *et al.* Cdk5 disruption attenuates tumor PDL1 expression and promotes antitumor immunity [J]. *Science*, 2016, 353(6297): 399-403. DOI: 10.1126/science.aae0477.
- [62] JAHAN N, TALAT H, ALONSO A, *et al.* Triple combination immunotherapy with GVAX, anti-PD-1 monoclonal antibody, and agonist anti-OX40 monoclonal antibody is highly effective against murine intracranial glioma [J]. *Oncoimmunology*, 2019, 8(5): e1577108. DOI: 10.1080/2162402X.2019.1577108.
- [63] ZHU S, LV X, ZHANG X, *et al.* An effective dendritic cell-based vaccine containing glioma stem-like cell lysate and CpG adjuvant for an orthotopic mouse model of glioma [J]. *Int J Cancer*, 2019, 144(11): 2867-2879. DOI: 10.1002/ijc.32008.
- [64] SAHA D, MARTUZA R L, RABKIN S D. Oncolytic herpes simplex virus immunovirotherapy in combination with immune checkpoint blockade to treat glioblastoma [J]. *Immunotherapy*, 2018, 10(9): 779-786. DOI: 10.2217/imt-2018-0009.
- [65] WU A, MAXWELL R, XIA Y, *et al.* Combination anti-CXCR4 and anti-PD-1 immunotherapy provides survival benefit in glioblastoma through immune cell modulation of tumor microenvironment [J]. *J Neurooncol*, 2019, 143(2): 241-249. DOI: 10.1007/s11060-019-03172-5.

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