

## SUPPLEMENTAL REFERENCES

1. Fang W, Yang Y, Ma Y, Hong S, Lin L, He X, et al. Camrelizumab (SHR-1210) alone or in combination with gemcitabine plus cisplatin for nasopharyngeal carcinoma: results from two single-arm, phase I trials. *Lancet Oncol* 2018;19:1338-50.
2. Nie J, Wang C, Liu Y, Yang Q, Mei Q, Dong L, et al. Addition of low-dose decitabine to anti-PD-1 antibody camrelizumab in relapsed/refractory classical Hodgkin lymphoma. *J Clin Oncol* 2019;37:1479-89.
3. Song Y, Wu J, Chen X, Lin T, Cao J, Liu Y, et al. A single-arm, multicenter, phase II study of camrelizumab in relapsed or refractory classical Hodgkin lymphoma. *Clin Cancer Res* 2019;25:7363-9.
4. Wei Z, Yang X, Ye X, Huang G, Li W, Han X, et al. Camrelizumab combined with microwave ablation improves the objective response rate in advanced non-small cell lung cancer. *J Cancer Res Ther* 2019;15:1629-34.
5. Lickliter JD, Gan HK, Voskoboynik M, Arulananda S, Gao B, Nagrial A, et al. A first-in-human dose finding study of camrelizumab in patients with advanced or metastatic cancer in Australia. *Drug Des Devel Ther* 2020;14:1177-89.
6. Chen J, Quan M, Chen Z, Zeng T, Li Y, Zhou Y, et al. Camrelizumab in advanced or metastatic solid tumour patients with DNA mismatch repair deficient or microsatellite instability high: an open-label prospective pivotal trial. *J Cancer Res Clin Oncol* 2020;146:2651-7.
7. Qin S, Ren Z, Meng Z, Chen Z, Chai X, Xiong J, et al. Camrelizumab in patients with previously treated advanced hepatocellular carcinoma: a multicentre, open-label, parallel-group, randomised, phase 2 trial. *Lancet Oncol* 2020;21:571-80.
8. Huang J, Xu J, Chen Y, Zhuang W, Zhang Y, Chen Z, et al. Camrelizumab versus investigator's choice of chemotherapy as second-line therapy for advanced or metastatic oesophageal squamous cell carcinoma (ESCORT): a multicentre, randomised, open-label, phase 3 study. *Lancet Oncol* 2020;21:832-42.
9. Liu J, Liu Q, Li Y, Li Q, Su F, Yao H, et al. Efficacy and safety of camrelizumab combined with apatinib in advanced triple-negative breast cancer: an open-label phase II trial. *J Immunother Cancer* 2020;8:e000696.
10. Yuan G, Cheng X, Li Q, Zang M, Huang W, Fan W, et al. Safety and efficacy of camrelizumab combined with apatinib for advanced hepatocellular carcinoma with portal vein tumor thrombus: a multicenter retrospective study. *Oncotargets Ther* 2020;13:12683-93.
11. Wang C, Liu Y, Dong L, Li X, Yang Q, Brock MV, et al. Efficacy of decitabine plus anti-PD-1 camrelizumab in patients with Hodgkin lymphoma who progressed or relapsed after PD-1 blockade monotherapy. *Clin Cancer Res* 2021;27:2782-91.
12. Liu Y, Wang C, Li X, Dong L, Yang Q, Chen M, et al. Improved clinical outcome in a randomized phase II study of anti-PD-1 camrelizumab plus decitabine in relapsed/refractory Hodgkin lymphoma. *J Immunother Cancer* 2021;9:e002347.
13. Mei K, Qin S, Chen Z, Liu Y, Wang L, Zou J. Camrelizumab in combination with apatinib in second-line or above therapy for advanced primary liver cancer: cohort A report in a multicenter phase Ib/II trial. *J Immunother Cancer* 2021;9:e002191.
14. Zhou C, Chen G, Huang Y, Zhou J, Lin L, Feng J, et al. Camrelizumab plus carboplatin and pemetrexed versus chemotherapy alone in chemotherapy-naïve patients with advanced non-squamous non-small-cell lung cancer (CameL): a randomised, open-label, multicentre, phase 3 trial. *Lancet Respir Med* 2021;9:305-14.
15. Xu J, Shen J, Gu S, Zhang Y, Wu L, Wu J, et al. Camrelizumab in combination with apatinib in patients with advanced hepatocellular carcinoma (RESCUE): a nonrandomized, open-label, phase II trial. *Clin Cancer Res* 2021;27:1003-11.
16. Ren S, Chen J, Xu X, Jiang T, Cheng Y, Chen G, et al. Camrelizumab plus carboplatin and paclitaxel as first-line treatment for advanced squamous NSCLC (CameL-Sq): a phase 3 trial. *J Thorac Oncol* 2022;17:544-57.
17. Zhang W, Yan C, Zhang T, Chen X, Dong J, Zhao J, et al. Addition of camrelizumab to docetaxel, cisplatin, and radiation therapy in patients with locally advanced esophageal squamous cell carcinoma: a phase 1b study. *Oncoimmunology* 2021;10:1971418.
18. Luo H, Lu J, Bai Y, Mao T, Wang J, Fan Q, et al. Effect of camrelizumab vs placebo added to chemotherapy on survival and progression-free survival in patients with advanced or metastatic esophageal squamous cell carcinoma: the ESCORT-1st randomized clinical trial. *JAMA* 2021;326:916-25.
19. Yang Y, Qu S, Li J, Hu C, Xu M, Li W, et al. Camrelizumab versus placebo in combination with gemcitabine and cisplatin as first-line treatment for recurrent or metastatic nasopharyngeal carcinoma (CAPTAIN-1st): a multicentre, randomised, double-blind, phase 3 trial. *Lancet Oncol* 2021;22:1162-74.

20. Sun YT, Guan WL, Zhao Q, Wang DS, Lu SX, He CY, et al. PD-1 antibody camrelizumab for Epstein-Barr virus-positive metastatic gastric cancer: a single-arm, open-label, phase 2 trial. *Am J Cancer Res* 2021;11:5006-15.
21. Lin Z, Cai M, Zhang P, Li G, Liu T, Li X, et al. Phase II, single-arm trial of preoperative short-course radiotherapy followed by chemotherapy and camrelizumab in locally advanced rectal cancer. *J Immunother Cancer* 2021;9:e003554.
22. Wang D, Yang X, Long J, Lin J, Mao J, Xie F, et al. The efficacy and safety of apatinib plus camrelizumab in patients with previously treated advanced biliary tract cancer: a prospective clinical study. *Front Oncol* 2021;11:646979.
23. Jiang FE, Zhang HJ, Yu CY, Liu AN. Efficacy and safety of regorafenib or fruquintinib plus camrelizumab in patients with microsatellite stable and/or proficient mismatch repair metastatic colorectal cancer: an observational pilot study. *Neoplasma* 2021;68:861-6.
24. Wei F, Huang Q, He J, Luo L, Zeng Y. Lenvatinib plus camrelizumab versus lenvatinib monotherapy as post-progression treatment for advanced hepatocellular carcinoma: a short-term prognostic study. *Cancer Manag Res* 2021;13:4233-40.
25. Yu Y, Huang S, Chen J, Yu F, Zhang L, Xiang X, et al. An assessment of combination of the camrelizumab with chemotherapy in metastatic biliary tract cancers. *Cancer Control* 2021;28:10732748211017165.
26. Zhou H, Wang Y, Lin Y, Cai W, Li X, He X. Preliminary efficacy and safety of camrelizumab in combination with XELOX plus bevacizumab or regorafenib in patients with metastatic colorectal cancer: a retrospective study. *Front Oncol* 2021;11:774445.
27. Yang Y, Zhu L, Cheng Y, Liu Z, Cai X, Shao J, et al. Three-arm phase II trial comparing camrelizumab plus chemotherapy versus camrelizumab plus chemoradiation versus chemoradiation as preoperative treatment for locally advanced esophageal squamous cell carcinoma (NICE-2 Study). *BMC Cancer* 2022;22:506.
28. Wu J, Song Y, Chen X, Lin T, Cao J, Liu Y, et al. Camrelizumab for relapsed or refractory classical Hodgkin lymphoma: extended follow-up of the multicenter, single-arm, phase 2 study. *Int J Cancer* 2022;150:984-92.
29. Xia L, Peng J, Lou G, Pan M, Zhou Q, Hu W, et al. Antitumor activity and safety of camrelizumab plus famitinib in patients with platinum-resistant recurrent ovarian cancer: results from an open-label, multicenter phase 2 basket study. *J Immunother Cancer* 2022;10:e003831.
30. Papadopoulos KP, Johnson ML, Lockhart AC, Moore K, Falchook GS, Formenti SC, et al. First-in-human study of cemiplimab alone or in combination with radiotherapy and/or low-dose cyclophosphamide in patients with advanced malignancies. *Clin Cancer Res* 2020;26:1025-33.
31. Rischin D, Migden MR, Lim AM, Schmults CD, Khushalani NI, Hughes BG, et al. Phase 2 study of cemiplimab in patients with metastatic cutaneous squamous cell carcinoma: primary analysis of fixed-dosing, long-term outcome of weight-based dosing. *J Immunother Cancer* 2020;8:e000775.
32. Migden MR, Khushalani NI, Chang AL, Lewis KD, Schmults CD, Hernandez-Aya L, et al. Cemiplimab in locally advanced cutaneous squamous cell carcinoma: results from an open-label, phase 2, single-arm trial. *Lancet Oncol* 2020;21:294-305.
33. Kitano S, Shimizu T, Koyama T, Ebata T, Iwasa S, Kondo S, et al. Dose exploration results from phase I study of cemiplimab, a human monoclonal programmed death (PD)-1 antibody, in Japanese patients with advanced malignancies. *Cancer Chemother Pharmacol* 2021;87:53-64.
34. Rischin D, Gil-Martin M, Gonzalez-Martin A, Brana I, Hou JY, Cho D, et al. PD-1 blockade in recurrent or metastatic cervical cancer: data from cemiplimab phase I expansion cohorts and characterization of PD-L1 expression in cervical cancer. *Gynecol Oncol* 2020;159:322-8.
35. Sezer A, Kilickap S, Gumus M, Bondarenko I, Ozguroglu M, Gogishvili M, et al. Cemiplimab monotherapy for first-line treatment of advanced non-small-cell lung cancer with PD-L1 of at least 50%: a multicentre, open-label, global, phase 3, randomised, controlled trial. *Lancet* 2021;397:592-604.
36. Stratigos AJ, Sekulic A, Peris K, Bechter O, Prey S, Kaatz M, et al. Cemiplimab in locally advanced basal cell carcinoma after hedgehog inhibitor therapy: an open-label, multicentre, single-arm, phase 2 trial. *Lancet Oncol* 2021;22:848-57.
37. Baggi A, Quaglino P, Rubatto M, Depenni R, Guida M, Ascierto PA, et al. Real world data of cemiplimab in locally advanced and metastatic cutaneous squamous cell carcinoma. *Eur J Cancer* 2021;157:250-8.
38. Hober C, Fredeau L, Pham-Ledard A, Boubaya M, Herms F, Celerier P, et al. Cemiplimab for locally advanced and metastatic cutaneous squamous-cell carcinomas: real-life experience from the French CAREPI Study Group. *Cancers (Basel)* 2021;13:3547.

39. Valentin J, Gerard E, Ferte T, Prey S, Dousset L, Dutriaux C, et al. Real world safety outcomes using cemiplimab for cutaneous squamous cell carcinoma. *J Geriatr Oncol* 2021; 12:1110-3.
40. Gogishvili M, Melkadze T, Makharadze T, Giorgadze D, Dvorkin M, Penkov K, et al. Cemiplimab plus chemotherapy versus chemotherapy alone in non-small cell lung cancer: a randomized, controlled, double-blind phase 3 trial. *Nat Med* 2022;28:2374-80.
41. Tewari KS, Monk BJ, Vergote I, Miller A, de Melo AC, Kim HS, et al. Survival with cemiplimab in recurrent cervical cancer. *N Engl J Med* 2022;386:544-55.
42. Lu S, Wu L, Jian H, Chen Y, Wang Q, Fang J, et al. Sintilimab plus bevacizumab biosimilar IBI305 and chemotherapy for patients with EGFR-mutated non-squamous non-small-cell lung cancer who progressed on EGFR tyrosine-kinase inhibitor therapy (ORIENT-31): first interim results from a randomised, double-blind, multicentre, phase 3 trial. *Lancet Oncol* 2022;23:1167-79.
43. Shi Y, Su H, Song Y, Jiang W, Sun X, Qian W, et al. Safety and activity of sintilimab in patients with relapsed or refractory classical Hodgkin lymphoma (ORIENT-1): a multicentre, single-arm, phase 2 trial. *Lancet Haematol* 2019; 6:e12-9.
44. Jiang H, Zheng Y, Qian J, Mao C, Xu X, Li N, et al. Safety and efficacy of sintilimab combined with oxaliplatin/capecitabine as first-line treatment in patients with locally advanced or metastatic gastric/gastroesophageal junction adenocarcinoma in a phase Ib clinical trial. *BMC Cancer* 2020;20:760.
45. Gao S, Li N, Gao S, Xue Q, Ying J, Wang S, et al. Neoadjuvant PD-1 inhibitor (Sintilimab) in NSCLC. *J Thorac Oncol* 2020;15:816-26.
46. Jiang H, Li N, Wang H, Chen Z, Zheng Y, Qian J, et al. Assessment of TMB, PD-L1, and lymphocyte to monocyte ratio as predictive potential in a phase Ib study of sintilimab in patients with advanced solid tumors. *Am J Cancer Res* 2021;11:4259-76.
47. Jiang H, Zheng Y, Qian J, Mao C, Xu X, Li N, et al. Efficacy and safety of sintilimab in combination with chemotherapy in previously untreated advanced or metastatic nonsquamous or squamous NSCLC: two cohorts of an open-label, phase Ib study. *Cancer Immunol Immunother* 2021;70:857-68.
48. Tao R, Fan L, Song Y, Hu Y, Zhang W, Wang Y, et al. Sintilimab for relapsed/refractory extranodal NK/T cell lymphoma: a multicenter, single-arm, phase 2 trial (ORIENT-4). *Signal Transduct Target Ther* 2021;6:365.
49. Ni J, Zhou Y, Wu L, Ai X, Dong X, Chu Q, et al. Sintilimab, stereotactic body radiotherapy and granulocyte-macrophage colony stimulating factor as second-line therapy for advanced non-small cell lung cancer: safety run-in results of a multicenter, single-arm, phase II trial. *Radiat Oncol* 2021;16:177.
50. Duan H, Wang T, Luo Z, Wang X, Liu H, Tong L, et al. A multicenter single-arm trial of sintilimab in combination with chemotherapy for neoadjuvant treatment of resectable esophageal cancer (SIN-ICE study). *Ann Transl Med* 2021; 9:1700.
51. Lu X, Gu W, Shi G, Ye D. Pazopanib together with 6-8 cycles of sintilimab followed by single use of pazopanib in the second-line treatment of advanced renal cell carcinoma. *Transl Androl Urol* 2021;10:2078-83.
52. Huang N, Zhao C, Hu X, Zhang C, Xiong F, Huang W, et al. Safety and efficacy of sintilimab combination therapy for the treatment of 48 patients with advanced malignant tumors. *Transl Cancer Res* 2022;11:252-61.
53. Xu J, Li Y, Fan Q, Shu Y, Yang L, Cui T, et al. Clinical and biomarker analyses of sintilimab versus chemotherapy as second-line therapy for advanced or metastatic esophageal squamous cell carcinoma: a randomized, open-label phase 2 study (ORIENT-2). *Nat Commun* 2022;13:857.
54. Shi Y, Wu L, Yu X, Xing P, Wang Y, Zhou J, et al. Sintilimab versus docetaxel as second-line treatment in advanced or metastatic squamous non-small-cell lung cancer: an open-label, randomized controlled phase 3 trial (ORIENT-3). *Cancer Commun (Lond)* 2022;42:1314-30.
55. Lu Z, Wang J, Shu Y, Liu L, Kong L, Yang L, et al. Sintilimab versus placebo in combination with chemotherapy as first line treatment for locally advanced or metastatic oesophageal squamous cell carcinoma (ORIENT-15): multicentre, randomised, double blind, phase 3 trial. *BMJ* 2022; 377:e068714.
56. Naing A, Gainor JF, Gelderblom H, Forde PM, Butler MO, Lin CC, et al. A first-in-human phase 1 dose escalation study of spartalizumab (PDR001), an anti-PD-1 antibody, in patients with advanced solid tumors. *J Immunother Cancer* 2020;8:e000530.
57. Minami H, Doi T, Toyoda M, Imamura Y, Kiyota N, Mitsuma A, et al. Phase I study of the antiprogrammed cell death-1 Ab spartalizumab (PDR001) in Japanese patients with advanced malignancies. *Cancer Sci* 2021;112:725-33.
58. Yao JC, Strosberg J, Fazio N, Pavel ME, Bergsland E, Ruszniewski P, et al. Spartalizumab in metastatic, well/poorly-

- differentiated neuroendocrine neoplasms. *Endocr Relat Cancer* 2021;28:161-72.
59. Wang F, Wei XL, Wang FH, Xu N, Shen L, Dai GH, et al. Safety, efficacy and tumor mutational burden as a biomarker of overall survival benefit in chemo-refractory gastric cancer treated with toripalimab, a PD-1 antibody in phase Ib/II clinical trial NCT02915432. *Ann Oncol* 2019;30:1479-86.
  60. Yang J, Dong L, Yang S, Han X, Han Y, Jiang S, et al. Safety and clinical efficacy of toripalimab, a PD-1 mAb, in patients with advanced or recurrent malignancies in a phase I study. *Eur J Cancer* 2020;130:182-92.
  61. Wei XL, Ren C, Wang FH, Zhang Y, Zhao HY, Zou BY, et al. A phase I study of toripalimab, an anti-PD-1 antibody, in patients with refractory malignant solid tumors. *Cancer Commun (Lond)* 2020;40:345-54.
  62. Lu M, Zhang P, Zhang Y, Li Z, Gong J, Li J, et al. Efficacy, safety, and biomarkers of toripalimab in patients with recurrent or metastatic neuroendocrine neoplasms: a multicenter phase Ib trial. *Clin Cancer Res* 2020;26:2337-45.
  63. Wang Z, Ying J, Xu J, Yuan P, Duan J, Bai H, et al. Safety, antitumor activity, and pharmacokinetics of toripalimab, a programmed cell death 1 inhibitor, in patients with advanced non-small cell lung cancer: a phase 1 trial. *JAMA Netw Open* 2020;3:e2013770.
  64. Tang B, Chi Z, Chen Y, Liu X, Wu D, Chen J, et al. Safety, efficacy, and biomarker analysis of toripalimab in previously treated advanced melanoma: results of the POLARIS-01 multicenter phase II trial. *Clin Cancer Res* 2020;26:4250-9.
  65. Wang FH, Wei XL, Feng J, Li Q, Xu N, Hu XC, et al. Efficacy, safety, and correlative biomarkers of toripalimab in previously treated recurrent or metastatic nasopharyngeal carcinoma: a phase II clinical trial (POLARIS-02). *J Clin Oncol* 2021;39:704-12.
  66. Hua Y, You R, Wang Z, Huang P, Lin M, Ouyang Y, et al. Toripalimab plus intensity-modulated radiotherapy for recurrent nasopharyngeal carcinoma: an open-label single-arm, phase II trial. *J Immunother Cancer* 2021;9:e003290.
  67. Lian B, Si L, Chi ZH, Sheng XN, Kong Y, Wang X, et al. Toripalimab (anti-PD-1) versus high-dose interferon- $\alpha$ 2b as adjuvant therapy in resected mucosal melanoma: a phase II randomized trial. *Ann Oncol* 2022;33:1061-70.
  68. Hu H, Kang L, Zhang J, Wu Z, Wang H, Huang M, et al. Neoadjuvant PD-1 blockade with toripalimab, with or without celecoxib, in mismatch repair-deficient or microsatellite instability-high, locally advanced, colorectal cancer (PICC): a single-centre, parallel-group, non-comparative, randomised, phase 2 trial. *Lancet Gastroenterol Hepatol* 2022;7:38-48.
  69. Wang ZX, Cui C, Yao J, Zhang Y, Li M, Feng J, et al. Toripalimab plus chemotherapy in treatment-naïve, advanced esophageal squamous cell carcinoma (JUPITER-06): a multi-center phase 3 trial. *Cancer Cell* 2022;40:277-88.
  70. Peters S, Gettinger S, Johnson ML, Janne PA, Garassino MC, Christoph D, et al. Phase II trial of atezolizumab as first-line or subsequent therapy for patients with programmed death-ligand 1-selected advanced non-small-cell lung cancer (BIRCH). *J Clin Oncol* 2017;35:2781-9.
  71. Balar AV, Galsky MD, Rosenberg JE, Powles T, Petrylak DP, Bellmunt J, et al. Atezolizumab as first-line treatment in cisplatin-ineligible patients with locally advanced and metastatic urothelial carcinoma: a single-arm, multicentre, phase 2 trial. *Lancet* 2017;389:67-76.
  72. Petrylak DP, Powles T, Bellmunt J, Braiteh F, Loriot Y, Morales-Barrera R, et al. Atezolizumab (MPDL3280A) monotherapy for patients with metastatic urothelial cancer: long-term outcomes from a phase 1 study. *JAMA Oncol* 2018;4:537-44.
  73. Fehrenbacher L, von Pawel J, Park K, Rittmeyer A, Gandara DR, Ponce Aix S, et al. Updated efficacy analysis including secondary population results for OAK: a randomized phase III study of atezolizumab versus docetaxel in patients with previously treated advanced non-small cell lung cancer. *J Thorac Oncol* 2018;13:1156-70.
  74. Socinski MA, Rittmeyer A, Shapovalov D, Orlandi F, McCleod M, Soo RA, et al. IMpower131: Progression-free survival (PFS) and overall survival (OS) analysis of a randomised phase III study of atezolizumab + carboplatin + paclitaxel or nab-paclitaxel vs carboplatin + nab-paclitaxel in 1L advanced squamous NSCLC. *Ann Oncol* 2018;29 Supplement 8:viii750-1.
  75. Pal SK, Hoffman-Censits J, Zheng H, Kaiser C, Tayama D, Bellmunt J. Atezolizumab in platinum-treated locally advanced or metastatic urothelial carcinoma: clinical experience from an expanded access study in the United States. *Eur Urol* 2018;73:800-6.
  76. Adams S, Diamond JR, Hamilton E, Pohlmann PR, Tolaney SM, Chang CW, et al. Atezolizumab plus nab-paclitaxel in the treatment of metastatic triple-negative breast cancer with 2-year survival follow-up: a phase 1b clinical trial. *JAMA Oncol* 2019;5:334-42.
  77. West H, McCleod M, Hussein M, Morabito A, Rittmeyer A, Conter HJ, et al. Atezolizumab in combination with carbo-

- platin plus nab-paclitaxel chemotherapy compared with chemotherapy alone as first-line treatment for metastatic non-squamous non-small-cell lung cancer (IMpower130): a multicentre, randomised, open-label, phase 3 trial. *Lancet Oncol* 2019;20:924-37.
78. Pujol JL, Greillier L, Audigier-Valette C, Moro-Sibilot D, Uwer L, Hureau J, et al. A randomized non-comparative phase II study of anti-programmed cell death-ligand 1 atezolizumab or chemotherapy as second-line therapy in patients with small cell lung cancer: results from the IFCT-1603 trial. *J Thorac Oncol* 2019;14:903-13.
  79. Ikeda S, Kato T, Kenmotsu H, Ogura T, Iwasawa S, Iwasawa T, et al. A phase II study of atezolizumab for pretreated advanced/recurrent non-small cell lung cancer with idiopathic interstitial pneumonias: rationale and design for the TORG1936/AMBITIOUS study. *Ther Adv Med Oncol* 2020;12:1758835920922022.
  80. Jotte R, Cappuzzo F, Vynnychenko I, Stroyakovskiy D, Rodriguez-Abreu D, Hussein M, et al. Atezolizumab in combination with carboplatin and nab-paclitaxel in advanced squamous NSCLC (IMpower131): results from a randomized phase III trial. *J Thorac Oncol* 2020;15:1351-60.
  81. Herbst RS, Giaccone G, de Marinis F, Reinmuth N, Vergnenegre A, Barrios CH, et al. Atezolizumab for first-line treatment of PD-L1-selected patients with NSCLC. *N Engl J Med* 2020;383:1328-39.
  82. Lin SH, Lin Y, Yao L, Kalhor N, Carter BW, Altan M, et al. Phase II trial of concurrent atezolizumab with chemoradiation for unresectable NSCLC. *J Thorac Oncol* 2020;15:248-57.
  83. Shu CA, Gainor JF, Awad MM, Chiuzan C, Grigg CM, Pabani A, et al. Neoadjuvant atezolizumab and chemotherapy in patients with resectable non-small-cell lung cancer: an open-label, multicentre, single-arm, phase 2 trial. *Lancet Oncol* 2020;21:786-95.
  84. Galsky MD, Arija JA, Bamias A, Davis ID, De Santis M, Kikuchi E, et al. Atezolizumab with or without chemotherapy in metastatic urothelial cancer (IMvigor130): a multicentre, randomised, placebo-controlled phase 3 trial. *Lancet* 2020;395:1547-57.
  85. Emens LA, Esteva FJ, Beresford M, Saura C, De Laurentis M, Kim SB, et al. Trastuzumab emtansine plus atezolizumab versus trastuzumab emtansine plus placebo in previously treated, HER2-positive advanced breast cancer (KATE2): a phase 2, multicentre, randomised, double-blind trial. *Lancet Oncol* 2020;21:1283-95.
  86. Loriot Y, Sternberg CN, Castellano D, Oosting SF, Dumez H, Huddart R, et al. Safety and efficacy of atezolizumab in patients with autoimmune disease: subgroup analysis of the SAUL study in locally advanced/metastatic urinary tract carcinoma. *Eur J Cancer* 2020;138:202-11.
  87. Mittendorf EA, Zhang H, Barrios CH, Saji S, Jung KH, Hegg R, et al. Neoadjuvant atezolizumab in combination with sequential nab-paclitaxel and anthracycline-based chemotherapy versus placebo and chemotherapy in patients with early-stage triple-negative breast cancer (IMpassion031): a randomised, double-blind, phase 3 trial. *Lancet* 2020;396:1090-100.
  88. van der Heijden MS, Loriot Y, Duran I, Ravaud A, Retz M, Vogelzang NJ, et al. Atezolizumab versus chemotherapy in patients with platinum-treated locally advanced or metastatic urothelial carcinoma: a long-term overall survival and safety update from the phase 3 IMvigor211 clinical trial. *Eur Urol* 2021;80:7-11.
  89. Emens LA, Adams S, Barrios CH, Dieras V, Iwata H, Loi S, et al. First-line atezolizumab plus nab-paclitaxel for unresectable, locally advanced, or metastatic triple-negative breast cancer: IMpassion130 final overall survival analysis. *Ann Oncol* 2021;32:983-93.
  90. Bellmunt J, Hussain M, Gschwend JE, Albers P, Oudard S, Castellano D, et al. Adjuvant atezolizumab versus observation in muscle-invasive urothelial carcinoma (IMvigor010): a multicentre, open-label, randomised, phase 3 trial. *Lancet Oncol* 2021;22:525-37.
  91. Felip E, Altorki N, Zhou C, Csozsi T, Vynnychenko I, Goloborodko O, et al. Adjuvant atezolizumab after adjuvant chemotherapy in resected stage IB-IIIa non-small-cell lung cancer (IMpower010): a randomised, multicentre, open-label, phase 3 trial. *Lancet* 2021;398:1344-57.
  92. Nishio M, Barlesi F, West H, Ball S, Bordoni R, Cobo M, et al. Atezolizumab plus chemotherapy for first-line treatment of nonsquamous NSCLC: results from the randomized phase 3 IMpower132 trial. *J Thorac Oncol* 2021;16:653-64.
  93. Szabados B, Rodriguez-Vida A, Duran I, Crabb SJ, Van Der Heijden MS, Pous AF, et al. Toxicity and surgical complication rates of neoadjuvant atezolizumab in patients with muscle-invasive bladder cancer undergoing radical cystectomy: updated safety results from the ABACUS trial. *Eur Urol Oncol* 2021;4:456-63.
  94. Moore KN, Bookman M, Sehouli J, Miller A, Anderson C, Scambia G, et al. Atezolizumab, bevacizumab, and chemo-

- therapy for newly diagnosed stage III or IV ovarian cancer: placebo-controlled randomized phase III trial (IMagyn050/GOG 3015/ENGOT-OV39). *J Clin Oncol* 2021;39:1842-55.
95. van den Ende T, de Clercq NC, van Berge Henegouwen MI, Gisbertz SS, Geijssen ED, Verhoeven RH, et al. Neoadjuvant chemoradiotherapy combined with atezolizumab for resectable esophageal adenocarcinoma: a single-arm phase II feasibility trial (PERFECT). *Clin Cancer Res* 2021;27:3351-9.
  96. Miles D, Gligorov J, Andre F, Cameron D, Schneeweiss A, Barrios C, et al. Primary results from IMpassion131, a double-blind, placebo-controlled, randomised phase III trial of first-line paclitaxel with or without atezolizumab for unresectable locally advanced/metastatic triple-negative breast cancer. *Ann Oncol* 2021;32:994-1004.
  97. de Azevedo SJ, de Melo AC, Roberts L, Caro I, Xue C, Wainstein A. First-line atezolizumab monotherapy in patients with advanced BRAFV600 wild-type melanoma. *Pigment Cell Melanoma Res* 2021;34:973-7.
  98. Ardizzoni A, Azevedo S, Rubio-Viqueira B, Rodriguez-Abreu D, Alatorre-Alexander J, Smit HJ, et al. Primary results from TAIL: a global single-arm safety study of atezolizumab monotherapy in a diverse population of patients with previously treated advanced non-small cell lung cancer. *J Immunother Cancer* 2021;9:e001865.
  99. Furuya N, Nishino M, Wakuda K, Ikeda S, Sato T, Ushio R, et al. Real-world efficacy of atezolizumab in non-small cell lung cancer: a multicenter cohort study focused on performance status and retreatment after failure of anti-PD-1 antibody. *Thorac Cancer* 2021;12:613-8.
  100. Liu SV, Reck M, Mansfield AS, Mok T, Scherpereel A, Reimmuth N, et al. Updated overall survival and PD-L1 subgroup analysis of patients with extensive-stage small-cell lung cancer treated with atezolizumab, carboplatin, and etoposide (IMpower133). *J Clin Oncol* 2021;39:619-30.
  101. Gianni L, Huang CS, Egle D, Bermejo B, Zamagni C, Thill M, et al. Pathologic complete response (pCR) to neoadjuvant treatment with or without atezolizumab in triple-negative, early high-risk and locally advanced breast cancer: NeotRIP Michelangelo randomized study. *Ann Oncol* 2022;33:534-43.
  102. Tabernero J, Grothey A, Arnold D, de Gramont A, Ducreux M, O'Dwyer P, et al. MODUL cohort 2: an adaptable, randomized, signal-seeking trial of fluoropyrimidine plus bevacizumab with or without atezolizumab maintenance therapy for BRAFwt metastatic colorectal cancer. *ESMO Open* 2022;7:100559.
  103. Kenmotsu H, Sugawara S, Watanabe Y, Saito H, Okada M, Chen-Yoshikawa TF, et al. Adjuvant atezolizumab in Japanese patients with resected stage IB-IIIa non-small cell lung cancer (IMpower010). *Cancer Sci* 2022;113:4327-38.
  104. Mettu NB, Ou FS, Zemla TJ, Halfdanarson TR, Lenz HJ, Breakstone RA, et al. Assessment of capecitabine and bevacizumab with or without atezolizumab for the treatment of refractory metastatic colorectal cancer: a randomized clinical trial. *JAMA Netw Open* 2022;5:e2149040.
  105. Pal SK, Uzzo R, Karam JA, Master VA, Donskov F, Suarez C, et al. Adjuvant atezolizumab versus placebo for patients with renal cell carcinoma at increased risk of recurrence following resection (IMmotion010): a multicentre, randomised, double-blind, phase 3 trial. *Lancet* 2022;400:1103-16.
  106. Rossevoid AH, Andresen NK, Bjerre CA, Gilje B, Jakobsen EH, Raj SX, et al. Atezolizumab plus anthracycline-based chemotherapy in metastatic triple-negative breast cancer: the randomized, double-blind phase 2b ALICE trial. *Nat Med* 2022;28:2573-83.
  107. Peters S, Dziadziuszko R, Morabito A, Felip E, Gadgeel SM, Cheema P, et al. Atezolizumab versus chemotherapy in advanced or metastatic NSCLC with high blood-based tumor mutational burden: primary analysis of BFAST cohort C randomized phase 3 trial. *Nat Med* 2022;28:1831-9.
  108. Huober J, Barrios CH, Niikura N, Jarzab M, Chang YC, Huggins-Puhalla SL, et al. Atezolizumab with neoadjuvant anti-human epidermal growth factor receptor 2 therapy and chemotherapy in human epidermal growth factor receptor 2-positive early breast cancer: primary results of the randomized phase III IMpassion050 trial. *J Clin Oncol* 2022;40:2946-56.
  109. Mizugaki H, Yamamoto N, Murakami H, Kenmotsu H, Fujiwara Y, Ishida Y, et al. Phase I dose-finding study of monotherapy with atezolizumab, an engineered immunoglobulin monoclonal antibody targeting PD-L1, in Japanese patients with advanced solid tumors. *Invest New Drugs* 2016;34:596-603.
  110. Heery CR, O'Sullivan-Coyne G, Madan RA, Cordes L, Rajan A, Rauckhorst M, et al. Avelumab for metastatic or locally advanced previously treated solid tumours (JAVELIN Solid Tumor): a phase 1a, multicohort, dose-escalation trial. *Lancet Oncol* 2017;18:587-98.
  111. Dirix LY, Takacs I, Jerusalem G, Nikolinakos P, Arkenau HT, Forero-Torres A, et al. Avelumab, an anti-PD-L1 antibody, in patients with locally advanced or metastatic breast

- cancer: a phase 1b JAVELIN Solid Tumor study. *Breast Cancer Res Treat* 2018;167:671-86.
112. Chung HC, Arkenau HT, Lee J, Rha SY, Oh DY, Wyrwicz L, et al. Avelumab (anti-PD-L1) as first-line switch-maintenance or second-line therapy in patients with advanced gastric or gastroesophageal junction cancer: phase 1b results from the JAVELIN Solid Tumor trial. *J Immunother Cancer* 2019;7:30.
  113. Disis ML, Taylor MH, Kelly K, Beck JT, Gordon M, Moore KM, et al. Efficacy and safety of avelumab for patients with recurrent or refractory ovarian cancer: phase 1b results from the JAVELIN solid tumor trial. *JAMA Oncol* 2019;5:393-401.
  114. Hassan R, Thomas A, Nemunaitis JJ, Patel MR, Bennouna J, Chen FL, et al. Efficacy and safety of avelumab treatment in patients with advanced unresectable mesothelioma: phase 1b results from the JAVELIN solid tumor trial. *JAMA Oncol* 2019;5:351-7.
  115. Keilholz U, Mehnert JM, Bauer S, Bourgeois H, Patel MR, Gravenor D, et al. Avelumab in patients with previously treated metastatic melanoma: phase 1b results from the JAVELIN Solid Tumor trial. *J Immunother Cancer* 2019;7:12.
  116. Vaishampayan U, Schoffski P, Ravaud A, Borel C, Peguero J, Chaves J, et al. Avelumab monotherapy as first-line or second-line treatment in patients with metastatic renal cell carcinoma: phase 1b results from the JAVELIN Solid Tumor trial. *J Immunother Cancer* 2019;7:275.
  117. Doi T, Iwasa S, Muro K, Satoh T, Hironaka S, Esaki T, et al. Phase 1 trial of avelumab (anti-PD-L1) in Japanese patients with advanced solid tumors, including dose expansion in patients with gastric or gastroesophageal junction cancer: the JAVELIN Solid Tumor JPN trial. *Gastric Cancer* 2019;22:817-27.
  118. Konstantinopoulos PA, Luo W, Liu JF, Gulhan DC, Krasner C, Ishizuka JJ, et al. Phase II study of avelumab in patients with mismatch repair deficient and mismatch repair proficient recurrent/persistent endometrial cancer. *J Clin Oncol* 2019;37:2786-94.
  119. Apolo AB, Ellerton JA, Infante JR, Agrawal M, Gordon MS, Aljumaily R, et al. Avelumab as second-line therapy for metastatic, platinum-treated urothelial carcinoma in the phase 1b JAVELIN Solid Tumor study: 2-year updated efficacy and safety analysis. *J Immunother Cancer* 2020;8:e001246.
  120. Verschraegen CF, Jerusalem G, McClay EF, Iannotti N, Redfern CH, Bennouna J, et al. Efficacy and safety of first-line avelumab in patients with advanced non-small cell lung cancer: results from a phase 1b cohort of the JAVELIN Solid Tumor study. *J Immunother Cancer* 2020;8:e001064.
  121. You B, Bolze PA, Lotz JP, Massardier J, Gladiéff L, Joly F, et al. Avelumab in patients with gestational trophoblastic tumors with resistance to single-agent chemotherapy: cohort A of the TROPHIMMUN phase II trial. *J Clin Oncol* 2020;38:3129-37.
  122. Kim JH, Kim SY, Baek JY, Cha YJ, Ahn JB, Kim HS, et al. A phase II study of avelumab monotherapy in patients with mismatch repair-deficient/microsatellite instability-high or POLE-mutated metastatic or unresectable colorectal cancer. *Cancer Res Treat* 2020;52:1135-44.
  123. Levy S, Aarts MJ, Eskens FA, Keymeulen KB, Been LB, Grunhagen D, et al. Avelumab for advanced Merkel cell carcinoma in the Netherlands: a real-world cohort. *J Immunother Cancer* 2020;8:e001076.
  124. Guigay J, Lee KW, Patel MR, Daste A, Wong DJ, Goel S, et al. Avelumab for platinum-ineligible/refractory recurrent and/or metastatic squamous cell carcinoma of the head and neck: phase 1b results from the JAVELIN Solid Tumor trial. *J Immunother Cancer* 2021;9:e002998.
  125. Ascierto PA, Orlova K, Grignani G, Dudzisz-Sledz M, Fenig E, Chiarion Sileni V, et al. Avelumab expanded access program in metastatic Merkel cell carcinoma: efficacy and safety findings from patients in Europe and the Middle East. *Int J Cancer* 2021;149:1926-34.
  126. D'Angelo SP, Lebbe C, Mortier L, Brohl AS, Fazio N, Grob JJ, et al. First-line avelumab in a cohort of 116 patients with metastatic Merkel cell carcinoma (JAVELIN Merkel 200): primary and biomarker analyses of a phase II study. *J Immunother Cancer* 2021;9:e002646.
  127. Park K, Ozguroglu M, Vansteenkiste J, Spigel D, Yang JC, Ishii H, et al. Avelumab versus docetaxel in patients with platinum-treated advanced NSCLC: 2-year follow-up from the JAVELIN Lung 200 Phase 3 Trial. *J Thorac Oncol* 2021;16:1369-78.
  128. Pujade-Lauraine E, Fujiwara K, Ledermann JA, Oza AM, Kristeleit R, Ray-Coquard IL, et al. Avelumab alone or in combination with chemotherapy versus chemotherapy alone in platinum-resistant or platinum-refractory ovarian cancer (JAVELIN Ovarian 200): an open-label, three-arm, randomised, phase 3 study. *Lancet Oncol* 2021;22:1034-46.
  129. Moehler M, Dvorkin M, Boku N, Ozguroglu M, Ryu MH,

- Muntean AS, et al. Phase III trial of avelumab maintenance after first-line induction chemotherapy versus continuation of chemotherapy in patients with gastric cancers: results from JAVELIN Gastric 100. *J Clin Oncol* 2021;39:966-77.
130. Monk BJ, Colombo N, Oza AM, Fujiwara K, Birrer MJ, Randall L, et al. Chemotherapy with or without avelumab followed by avelumab maintenance versus chemotherapy alone in patients with previously untreated epithelial ovarian cancer (JAVELIN Ovarian 100): an open-label, randomised, phase 3 trial. *Lancet Oncol* 2021;22:1275-89.
131. Lee NY, Ferris RL, Psyrri A, Haddad RI, Tahara M, Bourhis J, et al. Avelumab plus standard-of-care chemoradiotherapy versus chemoradiotherapy alone in patients with locally advanced squamous cell carcinoma of the head and neck: a randomised, double-blind, placebo-controlled, multicentre, phase 3 trial. *Lancet Oncol* 2021;22:450-62.
132. Lee DW, Cho EJ, Lee JH, Yu SJ, Kim YJ, Yoon JH, et al. Phase II study of avelumab in patients with advanced hepatocellular carcinoma previously treated with sorafenib. *Clin Cancer Res* 2021;27:713-8.
133. Cowey CL, Liu FX, Kim R, Boyd M, Fulcher N, Krulwicz S, et al. Real-world clinical outcomes with first-line avelumab in locally advanced/metastatic Merkel cell carcinoma in the USA: SPEAR-Merkel. *Future Oncol* 2021;17:2339-50.
134. Tomita Y, Yamamoto Y, Tsuchiya N, Kanayama H, Eto M, Miyake H, et al. Avelumab first-line maintenance plus best supportive care (BSC) vs BSC alone for advanced urothelial carcinoma: JAVELIN Bladder 100 Japanese subgroup analysis. *Int J Clin Oncol* 2022;27:383-95.
135. Zeidan AM, Boss I, Beach CL, Copeland WB, Thompson E, Fox BA, et al. A randomized phase 2 trial of azacitidine with or without durvalumab as first-line therapy for higher-risk myelodysplastic syndromes. *Blood Adv* 2022;6:2207-18.
136. Powles T, O'Donnell PH, Massard C, Arkenau HT, Friedlander TW, Hoimes CJ, et al. Efficacy and safety of durvalumab in locally advanced or metastatic urothelial carcinoma: updated results from a phase 1/2 open-label study. *JAMA Oncol* 2017;3:e172411.
137. Antonia SJ, Villegas A, Daniel D, Vicente D, Murakami S, Hui R, et al. Durvalumab after chemoradiotherapy in stage III non-small-cell lung cancer. *N Engl J Med* 2017;377:1919-29.
138. Garassino MC, Cho BC, Kim JH, Mazieres J, Vansteenkiste J, Lena H, et al. Durvalumab as third-line or later treatment for advanced non-small-cell lung cancer (ATLANTIC): an open-label, single-arm, phase 2 study. *Lancet Oncol* 2018;19:521-36.
139. Siu LL, Even C, Mesia R, Remenar E, Daste A, Delord JP, et al. Safety and efficacy of durvalumab with or without tremelimumab in patients with PD-L1-low/negative recurrent or metastatic HNSCC: the phase 2 CONDOR randomized clinical trial. *JAMA Oncol* 2019;5:195-203.
140. Segal NH, Ou SI, Balmanoukian A, Fury MG, Massarelli E, Brahmer JR, et al. Safety and efficacy of durvalumab in patients with head and neck squamous cell carcinoma: results from a phase I/II expansion cohort. *Eur J Cancer* 2019;109:154-61.
141. Fujiwara Y, Iguchi H, Yamamoto N, Hayama M, Nii M, Ueda S, et al. Tolerability and efficacy of durvalumab in Japanese patients with advanced solid tumors. *Cancer Sci* 2019;110:1715-23.
142. Zandberg DP, Algazi AP, Jimeno A, Good JS, Fayette J, Bouganim N, et al. Durvalumab for recurrent or metastatic head and neck squamous cell carcinoma: results from a single-arm, phase II study in patients with  $\geq 25\%$  tumour cell PD-L1 expression who have progressed on platinum-based chemotherapy. *Eur J Cancer* 2019;107:142-52.
143. O'Reilly EM, Oh DY, Dhani N, Renouf DJ, Lee MA, Sun W, et al. Durvalumab with or without tremelimumab for patients with metastatic pancreatic ductal adenocarcinoma: a phase 2 randomized clinical trial. *JAMA Oncol* 2019;5:1431-8.
144. Kelly RJ, Lee J, Bang YJ, Almhanna K, Blum-Murphy M, Catenacci DV, et al. Safety and efficacy of durvalumab and tremelimumab alone or in combination in patients with advanced gastric and gastroesophageal junction adenocarcinoma. *Clin Cancer Res* 2020;26:846-54.
145. Ferris RL, Haddad R, Even C, Tahara M, Dvorkin M, Ciuleanu TE, et al. Durvalumab with or without tremelimumab in patients with recurrent or metastatic head and neck squamous cell carcinoma: EAGLE, a randomized, open-label phase III study. *Ann Oncol* 2020;31:942-50.
146. Ferrarotto R, Bell D, Rubin ML, Hutcheson KA, Johnson JM, Goepfert RP, et al. Impact of neoadjuvant durvalumab with or without tremelimumab on CD8+ tumor lymphocyte density, safety, and efficacy in patients with oropharynx cancer: CIAO trial results. *Clin Cancer Res* 2020;26:3211-19.
147. Kelley RK, Sangro B, Harris W, Ikeda M, Okusaka T, Kang YK, et al. Safety, efficacy, and pharmacodynamics of tremelimumab plus durvalumab for patients with unresectable



- hepatocellular carcinoma: randomized expansion of a phase I/II study. *J Clin Oncol* 2021;39:2991-3001.
148. Altorki NK, McGraw TE, Borczuk AC, Saxena A, Port JL, Stiles BM, et al. Neoadjuvant durvalumab with or without stereotactic body radiotherapy in patients with early-stage non-small-cell lung cancer: a single-centre, randomised phase 2 trial. *Lancet Oncol* 2021;22:824-35.
  149. Antill Y, Kok PS, Robledo K, Yip S, Cummins M, Smith D, et al. Clinical activity of durvalumab for patients with advanced mismatch repair-deficient and repair-proficient endometrial cancer: a nonrandomized phase 2 clinical trial. *J Immunother Cancer* 2021;9:e002255.
  150. Goldman JW, Dvorkin M, Chen Y, Reinmuth N, Hotta K, Trukhin D, et al. Durvalumab, with or without tremelimumab, plus platinum-etoposide versus platinum-etoposide alone in first-line treatment of extensive-stage small-cell lung cancer (CASPIAN): updated results from a randomised, controlled, open-label, phase 3 trial. *Lancet Oncol* 2021;22:51-65.
  151. Park S, Sun JM, Choi YL, Oh D, Kim HK, Lee T, et al. Adjuvant durvalumab for esophageal squamous cell carcinoma after neoadjuvant chemoradiotherapy: a placebo-controlled, randomized, double-blind, phase II study. *ESMO Open* 2022;7:100385.
  152. Sonpavde GP, Sternberg CN, Loriot Y, Marabelle A, Lee JL, Flechon A, et al. Primary results of STRONG: an open-label, multicenter, phase 3b study of fixed-dose durvalumab monotherapy in previously treated patients with urinary tract carcinoma. *Eur J Cancer* 2022;163:55-65.
  153. Park S, Noh JM, Choi YL, Chi SA, Kim K, Jung HA, et al. Durvalumab with chemoradiotherapy for limited-stage small-cell lung cancer. *Eur J Cancer* 2022;169:42-53.
  154. Rizvi NA, Cho BC, Reinmuth N, Lee KH, Luft A, Ahn MJ, et al. Durvalumab with or without tremelimumab vs standard chemotherapy in first-line treatment of metastatic non-small cell lung cancer: the MYSTIC Phase 3 Randomized Clinical Trial. *JAMA Oncol* 2020;6:661-74.
  155. Powles T, van der Heijden MS, Castellano D, Galsky MD, Loriot Y, Petrylak DP, et al. Durvalumab alone and durvalumab plus tremelimumab versus chemotherapy in previously untreated patients with unresectable, locally advanced or metastatic urothelial carcinoma (DANUBE): a randomised, open-label, multicentre, phase 3 trial. *Lancet Oncol* 2020;21:1574-88.
  156. Rosenberg JE, Park SH, Kozlov V, Dao TV, Castellano D, Li JR, et al. Durvalumab plus olaparib in previously untreated, platinum-ineligible patients with metastatic urothelial carcinoma: a multicenter, randomized, phase II trial (BAY-OU). *J Clin Oncol* 2023;41:43-53.
  157. Borghaei H, Redman MW, Kelly K, Waqar SN, Robert F, Kiefer GJ, et al. SWOG S1400A (NCT02154490): a phase II study of durvalumab for patients with previously treated stage IV or recurrent squamous cell lung cancer (Lung-MAP Sub-study). *Clin Lung Cancer* 2021;22:178-86.
  158. Herbst RS, Majem M, Barlesi F, Carcereny E, Chu Q, Monnet I, et al. COAST: an open-label, phase II, multidrug platform study of durvalumab alone or in combination with oleclumab or monalizumab in patients with unresectable, stage III non-small-cell lung cancer. *J Clin Oncol* 2022;40:3383-93.
  159. Camacho LH, Antonia S, Sosman J, Kirkwood JM, Gajewski TF, Redman B, et al. Phase I/II trial of tremelimumab in patients with metastatic melanoma. *J Clin Oncol* 2009;27:1075-81.
  160. Kirkwood JM, Lorigan P, Hersey P, Hauschild A, Robert C, McDermott D, et al. Phase II trial of tremelimumab (CP-675,206) in patients with advanced refractory or relapsed melanoma. *Clin Cancer Res* 2010;16:1042-8.
  161. Ribas A, Kefford R, Marshall MA, Punt CJ, Haanen JB, Marmol M, et al. Phase III randomized clinical trial comparing tremelimumab with standard-of-care chemotherapy in patients with advanced melanoma. *J Clin Oncol* 2013;31:616-22.
  162. Joshua AM, Monzon JG, Mihalciou C, Hogg D, Smylie M, Cheng T. A phase 2 study of tremelimumab in patients with advanced uveal melanoma. *Melanoma Res* 2015;25:342-7.
  163. Maio M, Scherpereel A, Calabro L, Aerts J, Perez SC, Bearz A, et al. Tremelimumab as second-line or third-line treatment in relapsed malignant mesothelioma (DETERMINE): a multicentre, international, randomised, double-blind, placebo-controlled phase 2b trial. *Lancet Oncol* 2017;18:1261-73.
  164. Duffy AG, Ulahannan SV, Makorova-Rusher O, Rahma O, Wedemeyer H, Pratt D, et al. Tremelimumab in combination with ablation in patients with advanced hepatocellular carcinoma. *J Hepatol* 2017;66:545-51.
  165. Sharma P, Sohn J, Shin SJ, Oh DY, Keam B, Lee HJ, et al. Efficacy and tolerability of tremelimumab in locally advanced or metastatic urothelial carcinoma patients who have failed first-line platinum-based chemotherapy. *Clin Cancer Res* 2020;26:61-70.
  166. Chung KY, Gore I, Fong L, Venook A, Beck SB, Dorazio P, et al. Phase II study of the anti-cytotoxic T-lymphocyte-as-

- sociated antigen 4 monoclonal antibody, tremelimumab, in patients with refractory metastatic colorectal cancer. *J Clin Oncol* 2010;28:3485-90.
167. Campbell MT, Matin SF, Tam AL, Sheth RA, Ahrar K, Tidwell RS, et al. Pilot study of tremelimumab with and without cryoablation in patients with metastatic renal cell carcinoma. *Nat Commun* 2021;12:6375.
  168. Edenfield WJ, Chung K, O'Rourke M, Cull E, Martin J, Bowers H, et al. A phase II study of durvalumab in combination with tremelimumab in patients with rare cancers. *Oncologist* 2021;26:e1499-507.
  169. Pakkala S, Higgins K, Chen Z, Sica G, Steuer C, Zhang C, et al. Durvalumab and tremelimumab with or without stereotactic body radiation therapy in relapsed small cell lung cancer: a randomized phase II study. *J Immunother Cancer* 2020;8:e001302.
  170. Juergens RA, Hao D, Ellis PM, Tu D, Mates M, Kollmannsberger C, et al. A phase IB study of durvalumab with or without tremelimumab and platinum-doublet chemotherapy in advanced solid tumours: Canadian Cancer Trials Group Study IND226. *Lung Cancer* 2020;143:1-11.
  171. Segal NH, Cercek A, Ku G, Wu AJ, Rimner A, Khalil DN, et al. Phase II single-arm study of durvalumab and tremelimumab with concurrent radiotherapy in patients with mismatch repair-proficient metastatic colorectal cancer. *Clin Cancer Res* 2021;27:2200-8.
  172. Sarfaty M, Whiting K, Teo MY, Lee CH, Peters V, Durocher J, et al. A phase II trial of durvalumab and tremelimumab in metastatic, non-urothelial carcinoma of the urinary tract. *Cancer Med* 2021;10:1074-83.
  173. Kim M, Keam B, Ock CY, Kim SH, Kim YJ, Lim SM, et al. Phase II study of durvalumab and tremelimumab in pulmonary sarcomatoid carcinoma: KCSG-LU16-07. *Thorac Cancer* 2020;11:3482-9.
  174. Leighl NB, Redman MW, Rizvi N, Hirsch FR, Mack PC, Schwartz LH, et al. Phase II study of durvalumab plus tremelimumab as therapy for patients with previously treated anti-PD-1/PD-L1 resistant stage IV squamous cell lung cancer (Lung-MAP substudy S1400F, NCT03373760). *J Immunother Cancer* 2021;9:e002973.
  175. Schoenfeld JD, Giobbie-Hurder A, Ranasinghe S, Kao KZ, Lako A, Tsuji J, et al. Durvalumab plus tremelimumab alone or in combination with low-dose or hypofractionated radiotherapy in metastatic non-small-cell lung cancer refractory to previous PD(L)-1 therapy: an open-label, multicentre, randomised, phase 2 trial. *Lancet Oncol* 2022;23:279-91.
  176. de Castro G Jr, Rizvi NA, Schmid P, Syrigos K, Martin C, Yamamoto N, et al. NEPTUNE: phase 3 study of first-line durvalumab plus tremelimumab in patients with metastatic NSCLC. *J Thorac Oncol* 2023;18:106-19.
  177. Leighl NB, Laurie SA, Goss GD, Hughes BG, Stockler M, Tsao MS, et al. CCTG BR34: a randomized phase 2 trial of durvalumab and tremelimumab with or without platinum-based chemotherapy in patients with metastatic NSCLC. *J Thorac Oncol* 2022;17:434-45.