

SUPPLEMENTARY TABLE WITH REFERENCES

Approved antibodies blocking Programmed death-1 (PD-1)/CTLA-4 and indications for use:

Pembrolizumab

Malignant Melanoma

- **First line metastatic setting:** For the treatment of patients with unresectable or metastatic melanoma [1].
- **Adjuvant setting:** For adjuvant treatment of patients with melanoma with involvement of lymph node(s) or following complete resection [2].

Non-Small Cell Lung Cancer (NSCLC)

- **First line metastatic setting:** In combination with pemetrexed and platinum-based chemotherapy treatment of patients with metastatic non-squamous NSCLC and no epidermal growth factor receptor (EGFR) or anaplastic lymphoma kinase (ALK) genomic tumor mutations detected [3];
- **First line metastatic setting:** In combination with carboplatin and either paclitaxel or nab-paclitaxel for treatment of patients with metastatic squamous NSCLC [4-5];
- **First line metastatic setting:** As a single agent for the first-line treatment of patients with metastatic NSCLC with high PD-L1 expression [Tumor Proportion Score (TPS) $\geq 50\%$] as determined by an FDA-approved test, and with no EGFR or ALK genomic tumor mutations detected [6];
- **Second line metastatic setting:** As a single agent for the treatment of patients with metastatic NSCLC (squamous and non-squamous) whose tumors express PD-L1 (TPS $\geq 1\%$) as determined by an FDA-approved test, with disease progression on or following platinum-based chemotherapy. Patients with EGFR or ALK genomic tumor mutations should have disease progression on FDA-approved treatment for these mutations prior to receiving pembrolizumab [6].

Head and Neck Squamous Cell Cancer (HNSCC)

- **Second line metastatic setting:** For the treatment of patients with recurrent or metastatic HNSCC with disease progression on or following platinum-based chemotherapy treatment [7].

Classical Hodgkin's Lymphoma (cHL)

- **Relapsed setting:** For the treatment of adult and pediatric patients with refractory cHL, or who have relapsed following 3 or more prior lines of treatment [8].

Primary Mediastinal Large B-Cell Lymphoma (PMBCL)

- **Relapsed setting:** For the treatment of adult and pediatric patients with refractory PMBCL who have relapsed following 2 or more prior lines of treatment [9].

Urothelial Carcinoma

- **First line metastatic setting:** For the treatment of patients with locally advanced or metastatic urothelial carcinoma who are not eligible for cisplatin-based chemotherapy and whose tumors express PD-L1 [Combined Positive Score (CPS) ≥ 10] as determined by an FDA-approved test, or in patients who are not eligible for any platinum-based chemotherapy regardless of PD-L1 status [10];
- **Second line metastatic setting:** For the treatment of patients with locally advanced or metastatic urothelial carcinoma who have disease progression during or following platinum-based chemotherapy [11];
- **First line metastatic setting:** For the treatment of patients who relapse within 12 months of neoadjuvant or adjuvant treatment with platinum-based chemotherapy [11].

Microsatellite Instability-High Cancer

- **Relapsed metastatic setting:** For the treatment of adult and pediatric patients with unresectable or metastatic, microsatellite instability-high (MSI-H) or mismatch repair deficient solid tumors that have progressive disease following prior treatment and who have no satisfactory alternative treatment options;
- **Relapsed metastatic setting:** For colorectal cancer that has progressive disease following treatment with a fluoropyrimidine, oxaliplatin, and irinotecan based chemotherapy treatment [12].

Gastric Cancer

- **Relapsed metastatic setting:** For the treatment of patients with recurrent, locally advanced or metastatic gastric or gastroesophageal junction adenocarcinoma whose tumors express PD-L1 CPS ≥ 1 as determined by an FDA-approved test, with progressive disease on or after two or more prior lines of treatment including fluoropyrimidine- and platinum-based chemotherapy and, if appropriate, anti-HER2/neu-targeted therapy [13-14].

Cervical Cancer

- **Second line metastatic setting:** For the treatment of patients with recurrent or metastatic cervical cancer with disease progression on, or after chemotherapy, whose tumors express CPS ≥ 1 as determined by an FDA-approved test [15].

Hepatocellular Carcinoma

- **Second line metastatic setting:** For the treatment of patients with hepatocellular carcinoma who have been previously treated with sorafenib [16].

Merkel Cell Carcinoma

- **Second line metastatic setting:** For the treatment of adult and pediatric patients with recurrent locally advanced or metastatic Merkel cell carcinoma [17].

Nivolumab

Malignant Melanoma

- **First line metastatic setting:** As a single agent or in combination with ipilimumab, is indicated for the treatment of patients with unresectable or metastatic melanoma [18-20].
- **Adjuvant setting:** For the adjuvant treatment of patients with melanoma with involvement of lymph nodes or metastatic disease who have undergone complete resection [21].

Non-Small Cell Lung Cancer

- **Second line metastatic setting:** For the treatment of patients with metastatic non-small cell lung cancer (NSCLC) with progression on or after platinum-based chemotherapy. Patients with EGFR or ALK genomic tumor mutations should have disease progression on FDA-approved treatment for these mutations prior to receiving nivolumab [22-24].

Small Cell Lung Cancer

- **Second line metastatic setting:** For the treatment of patients with metastatic small cell lung cancer (SCLC) with disease progression following platinum-based chemotherapy and at least one other line of treatment [25].

Renal Cell Carcinoma

- **Second line metastatic setting:** For the treatment of patients with advanced renal cell carcinoma (RCC) who have received prior anti-angiogenic treatment [26].
- **First line metastatic setting:** In combination with ipilimumab, is indicated for the treatment of patients with intermediate or poor risk, previously untreated RCC [27].

Hodgkin's Lymphoma

- **Relapsed setting:** For the treatment of adult patients with cHL that has relapsed or progressed after autologous hematopoietic stem cell transplantation (HSCT) and brentuximab vedotin, or three or more lines of systemic treatment that include autologous HSCT [28-29].

Squamous Cell Carcinoma of the Head and Neck

- **Second line metastatic setting:** For the treatment of patients with recurrent or metastatic squamous cell carcinoma of the head and neck (SCCHN) with disease progression on or after platinum-based treatment [30].

Urothelial Carcinoma

- **Second line metastatic setting:** For the treatment of patients with locally advanced or metastatic urothelial carcinoma who have disease progression during or following platinum-based chemotherapy, have disease progression within 12 months following neoadjuvant or adjuvant treatment with platinum-based chemotherapy [31].

Microsatellite Instability-High (MSI-H) or Mismatch Repair Deficient (dMMR) Metastatic Colorectal Cancer

- **Relapsed setting:** As a single agent, is indicated for the treatment of adult and pediatric patients, 12 years and older with microsatellite instability-high (MSI-H) or mismatch repair-deficient (dMMR) metastatic colorectal cancer (CRC) that has progressive disease following treatment with a fluoropyrimidine, oxaliplatin, and irinotecan [32];
- **Relapsed setting:** In combination with ipilimumab, is indicated for the treatment of adults and pediatric patients (12 years and older) with MSI-H or dMMR metastatic CRC that has progressive disease following treatment with a fluoropyrimidine, oxaliplatin, and irinotecan [33].

Hepatocellular Carcinoma

- **Second line metastatic setting:** For the treatment of patients with hepatocellular carcinoma who have been previously treated with sorafenib (second line setting) [34].

Cemiplimab

Cutaneous squamous cell carcinoma

- **First line metastatic setting:** For the treatment of patients with metastatic cutaneous squamous cell carcinoma (CSCC) or locally advanced CSCC who are not candidates for curative surgery or curative radiation [35.]

Antibodies blocking Programmed death-ligand 1 (PD-L1) and indications for use:

Atezolizumab

Urothelial Carcinoma

- **First line metastatic setting:** For the treatment of patients with locally advanced or metastatic urothelial carcinoma who are not eligible for cisplatin-based chemotherapy, and whose tumors express PD-L1 (PD-L1 stained tumor-infiltrating immune cells [IC] covering $\geq 5\%$ of the tumor area), or are not eligible for any platinum-based chemotherapy regardless of level of tumor PD-L1 expression;
- **Second line metastatic setting:** For patients who have disease progression during or following any platinum-based chemotherapy, or within 12 months of neoadjuvant or adjuvant chemotherapy [36].

Non-Small Cell Lung Cancer

- **Second line metastatic setting:** For the treatment of patients with metastatic NSCLC who have disease progression during or following platinum-based chemotherapy. Patients with EGFR or ALK genomic tumor mutations should have disease progression on FDA- approved treatment for these mutations prior to receiving atezolizumab [37].

Durvalumab

Urothelial carcinoma

- **Second line metastatic setting:** For the treatment of patients with locally advanced or metastatic urothelial carcinoma who have disease progression during or following platinum-based chemotherapy or have disease progression within 12 months of neoadjuvant or adjuvant treatment with platinum-based chemotherapy [38.]

Non-Small Cell Lung Cancer

- **Adjuvant setting:** Unresectable, Stage III NSCLC in which the disease has not progressed following concurrent platinum-based chemotherapy and radiation therapy [39].

Avelumab

Merkel Cell Carcinoma

- **First line metastatic setting:** For the treatment of adults and pediatric patients 12 years and older with metastatic Merkel cell carcinoma [40].

Antibodies blocking cytotoxic T lymphocyte -4 (CTLA-4) and indications for use:

Ipilimumab

Malignant Melanoma

- **First line metastatic setting:** For the treatment of unresectable or metastatic melanoma in adults and pediatric patients (12 years and older) [19];
- **Adjuvant setting:** For the adjuvant treatment of patients with cutaneous melanoma with pathologic involvement of regional lymph nodes of more than 1 mm who have undergone complete resection, including total lymphadenectomy [41].

Renal Cell Carcinoma

- **First line metastatic setting:** In combination with nivolumab, for the treatment of patients with intermediate or poor risk, previously untreated advanced renal cell carcinoma (RCC) [26].

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