Nivolumab Therapeutic Cheat Sheet

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TRADE NAME[1]

- Opdivo®

MECHANISM OF ACTION[1]

- Human IgG4 monoclonal antibody that binds to the programmed death-1 (PD-1) receptor on T-cells
- Inhibits interaction with PD-1 receptor ligands PD-L1 and PD-L2, preventing T-cell inactivation
- The combination of nivolumab (anti-PD-1) and ipilimumab (anti-CTLA-4) enhances T cell responses more effectively than either therapy alone

FDA-APPROVED FOR[1]

- Melanoma (unresectable, metastatic, or adjuvant treatment)
- Non-small cell lung cancer
- Malignant pleural mesothelioma
- Renal cell carcinoma
- Hodgkin lymphoma
- Head and neck squamous cell carcinoma
- Urothelial carcinoma
- Colorectal cancer
- Hepatocellular carcinoma
- Esophageal, gastroesophageal junction, and gastric cancers

OFF-LABEL DERMATOLOGIC USES[2,3]

- Cutaneous squamous cell carcinoma
- Merkel cell carcinoma (in select cases)
- Kaposi sarcoma (in HIV-negative patients)

DOSING[1]

- For unresectable or metastatic melanoma:
  - 240 mg IV q2 weeks or 480 mg IV q4 weeks in conjunction with ipilimumab
  - 480 mg IV q4 weeks in conjunction with relatlimab 160 mg
- For adjuvant treatment of melanoma: 240 mg IV q2 weeks or 480 mg IV q4.
- Dosing may vary for other indications.

WARNINGS AND PRECAUTIONS[1,4]

- Immune-mediated adverse reactions may be severe or fatal and include: pneumonitis, colitis, hepatitis and hepatotoxicity, endocrinopathies, dermatologic adverse reactions, nephritis and renal dysfunction.
- Both acute and delayed infusion-related reactions may occur – infusion should be interrupted, slowed, or permanently discontinued based on the reaction severity.
- Severe or fatal complications can occur in hematopoietic stem cell transplant recipients treated with nivolumab before or after transplant.
- Do not use nivolumab in patients with multiple myeloma who are receiving thalidomide analogues and dexamethasone.

SIDE EFFECTS[1,5,6]

- When used as a monotherapy, side effects include: fatigue, musculoskeletal pain, pruritus, diarrhea, nausea, asthenia, cough, dyspnea, constipation, decreased appetite, back pain, arthralgia, upper respiratory tract infection, pyrexia, headache, abdominal pain, vomiting, and urinary tract infection. The most common cutaneous adverse events include lichenoid and eczematous eruptions as well as vitiligo.
- When used in combination with ipilimumab, side effects include: fatigue, diarrhea, rash, pruritus, nausea, musculoskeletal pain, pyrexia, cough, decreased appetite, vomiting, abdominal pain, dyspnea, upper respiratory tract infection, arthralgia, headache, hypothyroidism, decreased weight, and dizziness.
  - Among the listed side effects above, those unique to combination therapy with ipilimumab include hypothyroidism, decreased weight, dizziness
- When used in conjunction with relatlimab, side effects include: pruritus, fatigue, rash, arthralgia, hypothyroidism/thyroiditis, diarrhea, and vitiligo.
  - Among the listed side effects above, those unique to combination therapy with relatlimab include hypothyroidism/thyroiditis and vitiligo.
- Skin hyperpigmentation within 6 months

DRUG INTERACTIONS[1,3]

- No significant pharmacokinetic interactions have been reported.
- There is a theoretical caution that use of immunosuppressive agents (including systemic corticosteroids) may blunt the efficacy of nivolumab.

CONTRAINDICATIONS[1]

- Absolute contraindications include known hypersensitivity to nivolumab.
- Relative contraindications include pregnancy/lactation.

PREGNANCY AND BREASTFEEDING[1]

- Pregnancy is not recommended, as animal studies have shown the risk of fetal harm, abortion, and infant death in mothers treated with nivolumab (category X).
- Breastfeeding is not recommended during treatment and for at least 5 months after the last dose of nivolumab.

MONITORING[1]

- Monitor for signs and symptoms of immune-mediated adverse reactions.
- Baseline and periodic monitoring of LFTs, creatinine, and thyroid function.

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