

## Pembrolizumab: review of its current therapeutic uses

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**Background:** Pembrolizumab is a humanized monoclonal antibody approved for human use in 2014 by the Food and Drug Administration (FDA) and in 2015 by the European Medicines Agency (EMA). It binds to the programmed cell death-1 (PD-1) receptor and blocks its interaction with ligands PD-L1 and PD-L2. PD-1 is a checkpoint protein involved in the regulation of immune response. PD-1 receptor is a negative regulator of T-cell activity that has been shown to be involved in the control of T-cell immune responses. Therefore, pembrolizumab potentiates T-cell responses, including anti-tumour responses, through blockade of PD-1 binding to PD-L1 and PD-L2, which are expressed in antigen presenting cells and may be expressed by tumours or other cells in the tumour microenvironment [1-3]. **Objective:** This study aimed at reviewing the current therapeutic uses of pembrolizumab. **Methods:** This study was performed resorting to several articles obtained through a search on PubMed dataset using the following terms: “pembrolizumab”, “programmed cell death-1 receptor”, “PD-1”, and “monoclonal antibodies”. Additionally, all post authorization summary opinion documents regarding pembrolizumab issued by the Committee for Medicinal Products for Human Use were obtained from EMA website [4]. **Results:** Since its first approval for the treatment of advanced melanoma in adults, the therapeutic indications of pembrolizumab have been increasing. Currently, pembrolizumab is approved, as monotherapy or combination, for the treatment of a wide range of cancer diseases, namely, non-small cell lung carcinoma, classical Hodgkin lymphoma, urothelial carcinoma, melanoma, renal cell carcinoma, head and neck squamous cell carcinoma, colorectal cancer, oesophageal carcinoma, endometrial carcinoma, microsatellite instability high or mismatch repair deficient cancers, cervical cancer, and triple-negative breast cancer. **Conclusions:** Due to its particular mechanism of action, involving the PD-1 receptor, pembrolizumab is currently approved for used in a wide range of cancer diseases.

**Keywords:** Pembrolizumab; programmed cell death-1 receptor; therapeutic uses;

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