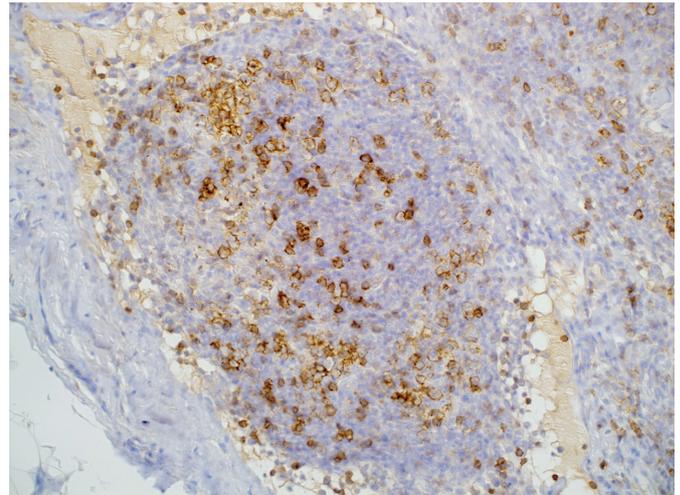


PD-1 (clone NAT105, mouse)

PD-1 (Programmed cell Death protein-1) belongs to the CD28/CTLA-Ig protein family and functions as an immune checkpoint (inhibition of T-cell response, peripheral tolerance). The PD-1 receptor, which is expressed by activated T-cells, B-cells and myeloid cells, is a diagnostic marker for germinal centre T-cells (follicular helper T-cells, TFH, ref. 15), angio-immunoblastic T-cell lymphomas (AITL) and a subgroup of peripheral/cutaneous T-cell lymphomas (PTCL) (refs. 16,17). Unlike CD10 and BCL6, PD-1 is expressed by few B-cells. PD-1 identifies the repertoire of CD8-positive tumour-reactive T-cells (ref. 1). The number and density of such tumour-infiltrating lymphocytes has been reported to be a powerful independent prognostic factor in various tumour types. Therapeutic monoclonal antibodies to PD-1 are in clinical development as so-called immune checkpoint inhibitors (activation of a tumour-specific T-cell response; studies in melanoma, renal cell carcinoma, NSCLC, bladder carcinoma, HNSCC, and other solid and haematological tumours; refs. 2-14)



Status: IVD

Species: Mouse, monoclonal

Clone: NAT105* (formerly MRQ-22)

Isotype: IgG1

Immunoreactivity: Cytoplasmic

Tissue pre-treatment: Tris/EDTA pH 8 (20-30 min 95-99°C, e.g. Trilogy, 920P-07)

Positive control tissue: Tonsil

Dilution recommendation: 1:25-1:100 (e.g. medac antibody dilution buffer, B1-31C)

* Diagnostic PD-1 antibody from the KEYNOTE 001 Study (pembrolizumab/melanoma, ref. 8)

T Cell Lymphomas	CD45 145M-9	CD2 102M-1	CD3 103R-9	CD4 104R-1	CD5 205R-2	CD7 107M-2	CD8 108M-9	CD25 125M-1	CD45RO 147M-9	PD1 315M-9
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	+
Lymphoblastic	+	+/-	+	+/-	+	+	+/-	+	+	-
Subcutaneous Panniculitic	+	+	+	-	+	+	+/-	-	+	-
NK-Type	+	+	+	-	-	/+	-	+	+	-
Cutaneous	+	+	+	+	-	+	-	-	-	-/+
Peripheral	+	+	+	+/-	+/-	+/-	-/+	+	+	-
Mycosis fungoides	+	+	+	+	+	-	-	+	+	-

Lymph Node	S-100 330M-1	CD1a 101R-1	Lysozyme 278A-1	CD21/CD35 121M-1/135M-1	PD-1 315M-9
FDC Tumor	-	+/-	-	+	-
Dermatopathic Lymphadenitis	+	+	+	-	-

Ordering Information

Antibody	Clone	Species	Dilution	Concentrate			Ready to use/RTU	
				0.1 ml	0.5 ml	1.0 ml	1 ml	7 ml
ALK1	ALK-1	Mouse	25-100	204M-14	204M-15	204M-16	204M-17	204M-18
Bcl6	GI191E/A8	Mouse	100-500	227M-94	227M-95	227M-96	227M-97	227M-98
CD2	MRQ-11	Mouse	10-50	102M-14	102M-15	102M-16	102M-17	102M-18
CD3	MRQ-39	Rabbit	100-500	103R-94	103R-95	103R-96	103R-97	103R-98
CD4	SP35	Rabbit	25-100	104R-14	104R-15	104R-16	104R-17	104R-18
CD5	EP77	Rabbit	New	205R-24	205R-25	205R-26	205R-27	205R-28
CD7	MRQ-56	Mouse	100-500	107M-24	107M-25	107M-26	107M-27	107M-28
CD8	C8/144B	Mouse	25-100	108M-94	108M-95	108M-96	108M-97	108M-98
CD10	56C6	Mouse	10-50	110M-14	110M-15	110M-16	110M-17	110M-18
CD20	L26	Mouse	100-500	120M-84	120M-85	120M-86	120M-87	120M-88
CD21	2G9	Mouse	25-100	121M-14	121M-15	121M-16	121M-17	121M-18
CD23	SP23	Rabbit	100-500	123R-14	123R-15	123R-16	123R-17	123R-18
CD30	Ber-H2	Mouse	50-200	130M-94	130M-95	130M-96	130M-97	130M-98
CD45	2B11 +PD7/26	Mouse	100-500	145M-94	145M-95	145M-96	145M-97	145M-98
CD56	MRQ-42	Rabbit	100-500	156R-14	156R-15	156R-16	156R-17	156R-18
Pax5	SP34	Rabbit	100-500	312R-14	312R-15	312R-16	312R-17	312R-18
PD-1	NAT105 (ex MRQ-22)	Mouse	25-100	315M-94	315M-95	315M-96	315M-97	315M-98
PD-L1	polyclonal	Rabbit	50-100	-	-	Z2263	-	-
TIA1	EP243	Rabbit	10-50	381R-14	381R-15	381R-16	381R-17	381R-18
TCR β F1	8A3	Mouse	50-100	-	-	Z2230	-	-

For further markers please see the current Cell Marque [catalogue](#) and the associated [supplement](#) on our website www.medac-diagnostics.de: first, click on Information, then on Immunohistochemistry, see under Catalogues.

PD-1 (CD279) and PD-L1 (B7-H1, PD-Ligand 1, CD274) References:

- Gros A, *et al.* PD-1 identifies the patient-specific CD8⁺ tumor-reactive repertoire infiltrating human tumors. *J Clin Invest* 2014; 124: 2246-2259.
- Sznol M, Longo DL. Release the Hounds! Activating the T-Cell response to cancer. *N Engl J Med* 2015; in press. doi: 10.1056/NEJMe1413488
- Ansell SM, *et al.* PD-1 blockade with nivolumab in relapsed or refractory Hodgkin's lymphoma. *N Engl J Med* 2015; in press. doi: 10.1056/NEJMoa1411087
- Ledford H. Immune system offers clues to cancer treatment. *Nature* 2014; doi: 10.1038/nature.2014.16395
- Wolchok JD, Chan TA. Antitumor immunity gets a boost. *Nature* 2014; 515: 496-498.
- Powles T, *et al.* MPDL3280A (anti-PD-L1) treatment leads to clinical activity in metastatic bladder cancer. *Nature* 2014; 515: 558-562.
- Herbst RS, *et al.* Predictive correlates of response to the anti-PD-L1 antibody MPDL3280A in cancer patients. *Nature* 2014; 515: 563-567.
- Tumeh PC, *et al.* PD-1 blockade induces responses by inhibiting adaptive immune resistance. *Nature* 2014; 515: 568-571.
- Kim JW, Eder JP. Prospects for targeting PD-1 and PD-L1 in various tumor types. *Oncology (Williston Park)* 2014; 28(11 Suppl 3): 202332.
- Mahoney KM, Atkins MB. Prognostic and predictive markers for the new immunotherapies. *Oncology (Williston Park)* 2014; 28(11 Suppl 3): 202335.
- Page DB, *et al.* Immune modulation in cancer with antibodies. *Annu Rev Med* 2014; 65: 185-202.
- Webster RM. The immune checkpoint inhibitors: where are we now? *Nat Rev Drug Discov* 2014; 13: 883-884.
- Nguyen LT, Ohashi PS. Clinical blockade of PD1 and LAG3 - potential mechanism of action. *Nat Rev Immunol* 2015; 15: 45-56.
- Bryan LJ, Gordon LI. Blocking tumor escape in hematologic malignancies: The anti-PD-1 strategy. *Blood Rev* 2015; in press. doi: 10.1016/j.blre.2014.09.004.
- Ahearne MJ, *et al.* Follicular helper T-cells: expanding roles in T-cell lymphoma and targets for treatment. *Br J Haematol* 2014; 166: 326-335.
- Hsi ED, *et al.* Diagnostic accuracy of a defined immunophenotypic and molecular genetic approach for peripheral T/NK-cell lymphomas. A North American PTCL study group project. *Am J Surg Pathol* 2014; 38: 768-775.
- O'Malley DP, *et al.* Utility of Bcl2, PD-1, and CD25 immunohistochemical expression in the diagnosis of T-cell lymphomas. *Appl Immunohistochem Mol Morphol* 2014; 22: 99-104.
- Web link: <http://shop.cellmarque.com/antibodies/PD-1-MRQ-22.asp>

