CD4 count (T cell count) - for patients with known HIV serology

General information

The CD4 count is used to monitor disease progression in HIV infection. For example, patients with counts below 200 x 106/L are at risk of pneumocystis pneumonia and should received antibiotic prophylaxis. CD4 counts are also used to inform decision making on anti-retroviral therapy. BHIVA publish guidelines on CD4 counts and their interpretation: www.aidsmap.com

Apart from HIV infection, the CD4 count can be reduced by acute and chronic stress, including infections and physical or psychological stress. CD4 counts are also affected by daily circadian rhythms and the menstrual cycle.

Specimen transport: An EDTA specimen should arrive in the lab on the same day or within 48 hours maximum. Samples should be stored and transported at room temperature and not refrigerated.

Repeat frequency: Three times a year in asymptomatic patients, more frequently in those with symptoms or when medication is being changed.

Special precautions: None

Laboratory information

Normal reference range: (95% confidence interval)

CD Marker	**Age**	**Minimum** %	**Maximum** %	**Minimum** cells/mm3	**Maximum** cells/mm3
CD3+CD4+	Neonates	17	52	400	3500
"	1 wk - 2 mo	41	68	1700	5300
"	2-5 mo	33	58	1500	5000
"	5-9 mo	33	58	1400	5100
"	9-15 mo	31	54	1000	4600
"	15-24 mo	25	50	900	5500
"	2-5 y	23	48	500	2400
"	5-10 y	27	53	300	2000
"	10-16 y	25	28	400	2100
"	Adults	31	59	300	1400

Paediatric reference ranges are from Comans-Bitter WM, et al, "Immunophenotyping of Blood Lymphocytes in Childhood," J Paediatrics*, 1997, 130:388-393*

Volume and sample type: 5ml EDTA blood

Method: Flow cytometry - single platform

Participation in EQA scheme: UK NEQAS Immune Monitoring Scheme

Turnaround time (calendar days from sample receipt to authorised result): Median - 1

Clinical information

Indications for the test: For use as a monitoring tool in serologically confirmed HIV infection. Should not be used in an attempt to diagnose HIV infection.

Factors affecting the test: Because physiological stress can affect results, avoid testing during acute infections, postoperatively etc. Always try and do monitoring tests at the same time of day. In women, try to do monitoring tests at the same phase of the menstrual cycle.

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