

Hu-CD4/CD38/CD3/HLA-DR

4 Color FCM Reagent: sc-2921



BACKGROUND

Human CD4/CD38/CD3/HLA-DR: sc-2921 is a direct immunofluorescence reagent formatted to identify the percentage of activated T-helper/inducer lymphocytes (1) in erythrocyte-lysed whole blood, based on cell-surface antigen expression. CD4 identifies helper/inducer T lymphocytes (2). CD38 is expressed during the early and final stages of T and B cell differentiation, but not during the intermediate stage (3). Coexpression of CD38 on CD34+ cells indicates lineage commitment of those cells (4). CD3 identifies T lymphocytes and non-covalently associates with either α/β or γ/δ TCR (5). HLA-DR is expressed on B lymphocytes, monocytes, macrophages, activated T lymphocytes and human progenitor cells (6). Reductions in the percentage and absolute number of CD4+ cells, as well as abnormally high levels of activated peripheral T cells and an increased proportion of CD8+ cells coexpressing CD57 (involved in NK activity) have been reported in HIV infection and associated with disease progression (1).

Antigen Expression	Cell Type Identified
CD3+	Mature T Cells
CD3+ CD4+	Helper/Inducer T Cells
CD3+ HLA-DR+	Activated peripheral T Cells
CD3+ CD4+ CD38+	Activated helper/inducer T
CD3+ CD4+ HLA-DR+	Activated helper/inducer T

STORAGE

Store at 4° C. Do not freeze. Stable for one year from the date of shipment. Protect reagents from prolonged exposure to light.

PRODUCT

Supplied in 1.0 ml of PBS containing 0.1% azide and 0.1% gelatin. Sufficient for 50 tests. This product has been titrated for optimal performance. Recommended use is 20 uL per test (1x10⁶ cells). **For research use only. Not for use in diagnostic procedures.**

INSTRUMENT

Human CD4/CD38/CD3/HLA-DR: sc-2921 is recommended for use with a dual laser Flow Cytometer fitted with appropriate acquisition and analysis software, such as the FACSCalibur™ Flow Cytometer fitted with CellQuest™ Software by Becton Dickinson.

The flow cytometer must be equipped with 635 nm and 488 nm lasers and must be capable of detecting light scatter (forward and side) and four-color fluorescence with emission detectable in four ranges: 515-545 nm, 562-607 nm, >650 nm and 652-668 nm, and it must be able to threshold and discriminate using the >650 channel.

Antigen	Clone	Isotype	Label*	Detection Range (nm)
CD4	MT310	IgG ₁	FITC	515-545
CD38	HB-7	IgG ₁	PE	562-607
CD3	UCH-T1	IgG ₁	PE-Cy5	>650
HLA-DR	L243	IgG _{2a}	APC	652-668

*Fluorescent labels include FITC: Fluorescein isothiocyanate; PE: phycoerythrin; PE-Cy5: phycoerythrin-cyanin 5; APC: allophycocyanin

ISOTYPE CONTROL

sc-2921 CON (IgG₁ FITC/IgG₁ PE/IgG₁ PE-Cy5/IgG_{2a} APC) is the isotype matched negative control for this system and is suitable for 50 tests.

REFERENCES

- Levacher, M., Tallet, S., Dazza, M., Dournon, E., Rouveix, B., and Pocidalo, J. 1990. T-activation marker evaluation in ARC patients treated with AZT. Comparison with CD4+ lymphocyte count in non-progressors towards AIDS. Clin. Exp. Immunol. 81: 177-182.
- Gallagher, P.F., Fazekas de St. Groth, B., and Miller, J.F. 1989. CD4 and CD8 molecules can physically associate with the same T-cell receptor. Proc. Natl. Acad. Sci. USA 86: 10044-10048.
- Dörken, B., Möller, P., Pezzutto, A., Schwartz-Albiez, R., and Moldenhauer, G. B-cell antigens: CD19. In: Knapp, W., Dörken, B., Gilks, W.R. *et al.* eds. Leucocyte Typing IV: White Cell Differentiation Antigens. New York, NY: Oxford University Press; 1989: 34-36.
- Terstappen, L., Huang, S., Safford, M., Lansdorp, P., *et al.* 1991. Sequential generations of hematopoietic colonies derived from single nonlineage-committed CD34+CD38- progenitor cells. Blood. 77: 1218-1277.
- Exley, M., Terhorst, C., and Wileman, T. 1991. Structure, assembly and intracellular transport of the T cell receptor for antigen. Semin. Immunol. 3: 283-297.
- Alonso, M.C., Navarrete, C., Solana, R., Torres, A., Pena, J., and Festenstein, H. 1985. Differential expression of HLA-DR and HLA-DQ antigens on normal cells of the myelomonocytic lineage. Tissue Antigens 26: 310-317.