

# Population specific reference ranges of CD3, CD4 and CD8 lymphocyte subsets among healthy Kenyans

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## Abstract

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### *Background*

The enumeration of absolute CD4 counts is of primary importance for many medical conditions especially HIV infection where therapeutic initiation depends on the count. These ranges tend to vary across populations. However, these ranges have not been comprehensively established in the Kenyan population. Therefore, this study aimed at establishing the reference ranges for the CD4 and CD8 T-lymphocytes in normal healthy individuals in Kenya.

### *Methods*

A total of 315 individuals of the ages between 16 and 60 years old, in 5 different regions of the country, were recruited into the study. They were screened for diseases that potentially cause lymphocyte homeostasis perturbation. CD4/CD8 Counts were performed by use of a FACSCalibur flow cytometer (Becton-Dickinson, NJ) equipped with automated acquisition and analysis software. Results were analysed according to age, sex and region.

### *Results*

Results were presented as means and ranges (in parenthesis) generated non parametrically as 2.5 and 97.5 percentiles as follows; In general population; CD3 1655 (614-2685 cells/ $\mu$ L), CD4 920 (343-1493 cells/ $\mu$ L), and CD8 646 (187-1139 cells/ $\mu$ L), while according to sex, females; CD3 1787 (697-2841 cells/ $\mu$ L), CD4 1010 (422-1572 cells/ $\mu$ L), CD8 659 (187-1180 cells/ $\mu$ L); males; CD3 1610 (581-2641 cells/ $\mu$ L), CD4 889(320-1459 cells/ $\mu$ L) and CD8 644 (185-1140 cells/ $\mu$ L). The general reference ranges for CD4/CD8 ratios were as follows; general population 1.57(0.50-2.74), males 1.51(0.49-2.64) and females 1.69(0.55-2.95).

### *Conclusion*

The lymphocyte reference ranges for the Kenyan population are fairly comparable to those established in other African populations. The ranges also differ appreciably from those established in Germany, Italy and Switzerland. Furthermore, the study reported significant differences in the ranges of different population clusters within Kenya, as well as between males and females.