

From the boxplots, CD4-T cells seem to have the most change in population when comparing responders from non-responders. Patients that responded to the treatment tr1 have noticeably higher frequencies of CD4-T cells. The distribution seems closer to the mean, which maybe suggests there is a link between higher CD4-T cell concentration and treatment positive effectiveness. The visual pattern matches with the statistical findings given in the cell count graph provided, which showed a significant difference between the two groups.

Monocytes were next in showing a visual trend. The non-responders mostly had higher monocyte percentages. The variation within this group seems to be more drastic. Although this pattern did not reach any significance statistically, the boxplot seems to have a clear separation to maybe consider monocyte levels a factor in treatment resistance.

For B cells, the distributions between the two groups were pretty similar, but there is a little chance that responders might have a slightly stronger B cell response. Since there are higher medians with a more concentrated spread. This difference, however, I feel is not strong or statistically significant.

CD8-T cells and NK cells seem like there is no visual separation between responders and non-responders. Their boxplots are mostly identical, maybe meaning that these immune populations do not play a major role in differentiating treatment outcomes for melanoma patients.

I think overall, the clearest main statistical indicator was the elevated CD4-T cell frequency in the responders. It could potentially indicate that an active helper T cell-mediated immune response is associated with successful immunotherapy. The second marker may be monocytes, specifically in identifying non-responders according to the boxplots.