RHICCA Baseline Visual Summary

10 August 2020

RHICCA Baseline Data: Visual Summary

This document contains graphs and charts showing the RHICCA data collected at baseline, including each of the four biomarkers and how their distributions may vary depending on ART status, gender, and age. Of the 827 samples in the baseline data, 766 could be successfully matched with clinical data. A number of errors in the original data which led to extreme values have been corrected; however this process is still ongoing and more corrections may follow.

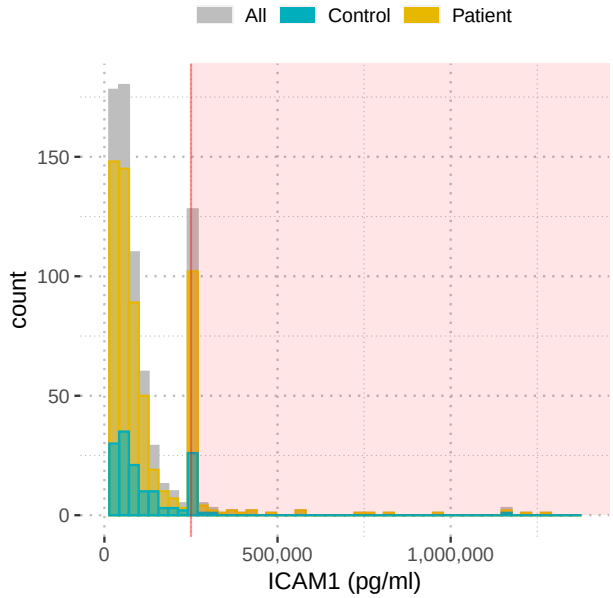
The data for each biomarker is either left-censored or right-censored, due to the detection limits imposed by the Luminex Assay. These detection limits are marked on the plots by a red line. Regions outside of these limits are shaded in red in the histograms, although there is still some uncensored data that lies beyond the detection limits.

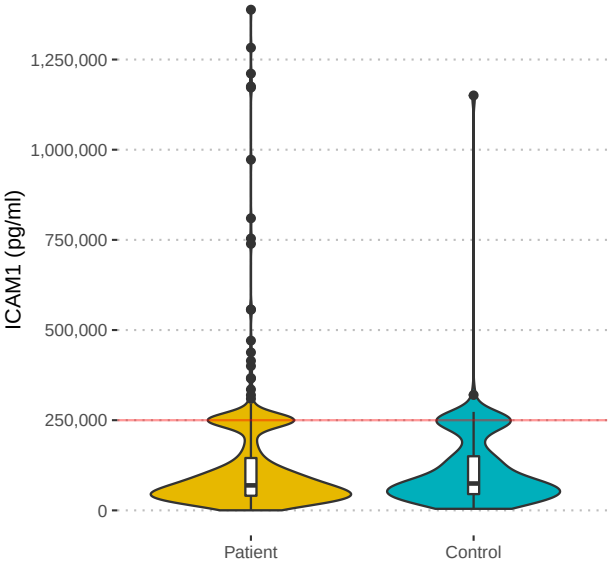
As the data for all biomarkers displays significant rightwards skew, graphs are shown on their original scale as well as a log scale for the purpose of reducing spread, thus enabling easier visual analysis.

ICAM1: ART vs Control

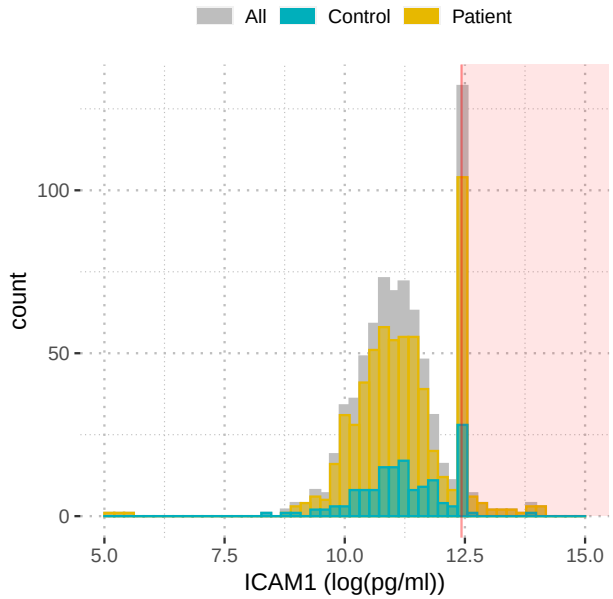
We see that the shapes of the ICAM1 distributions for ART and control subjects look similar to each other, although the ART patients certainly have a greater number of extreme values.

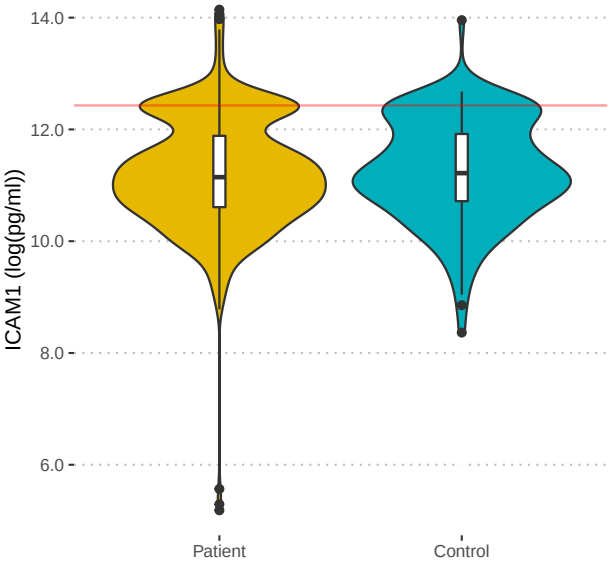
The upper detection limit of 250 000 results in a vertical bar on the x-axis where values listed as ">250 000" were imputed to that limit, although a number of uncensored values exist which are higher than this limit.





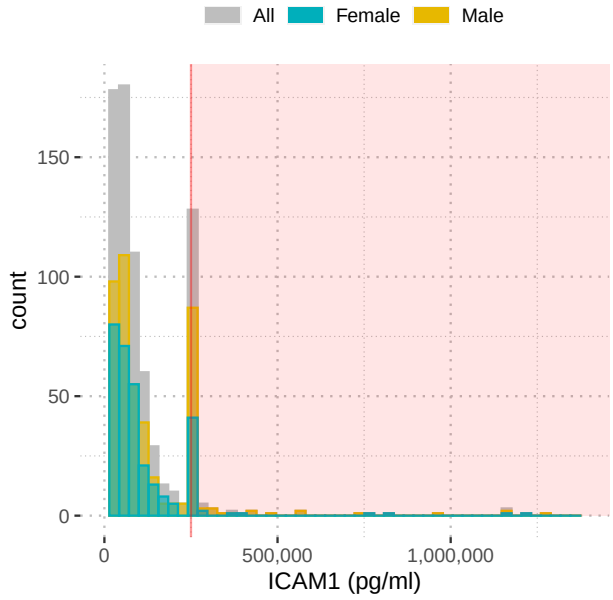
Log Scale

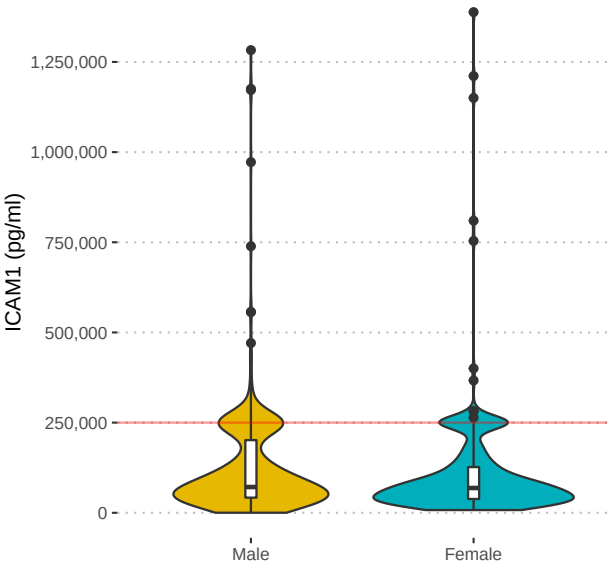




ICAM1: Gender

The data, when separated by gender, does not seem to show significant differences in distribution.





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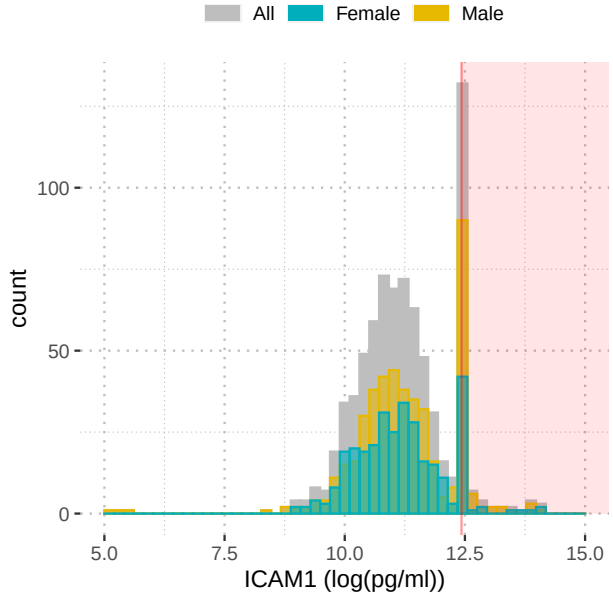
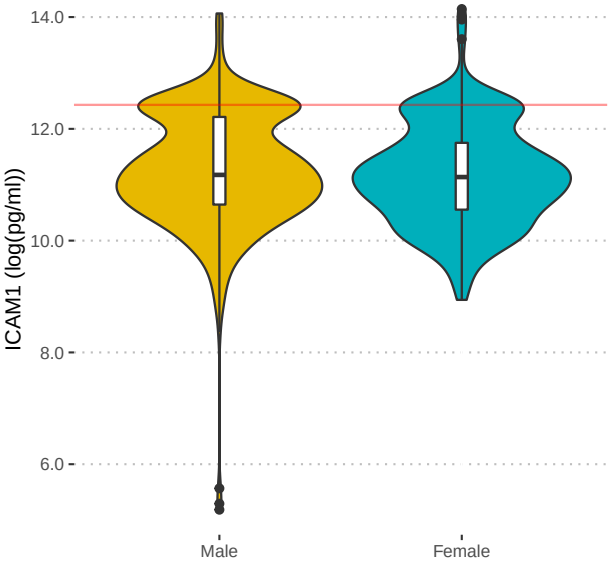
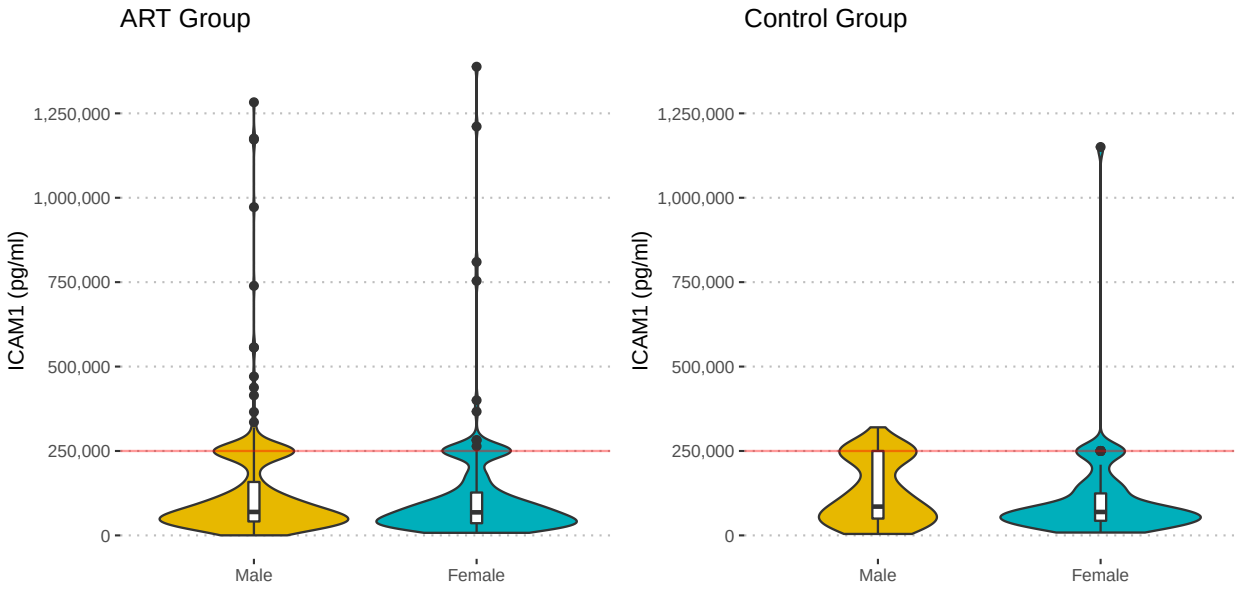




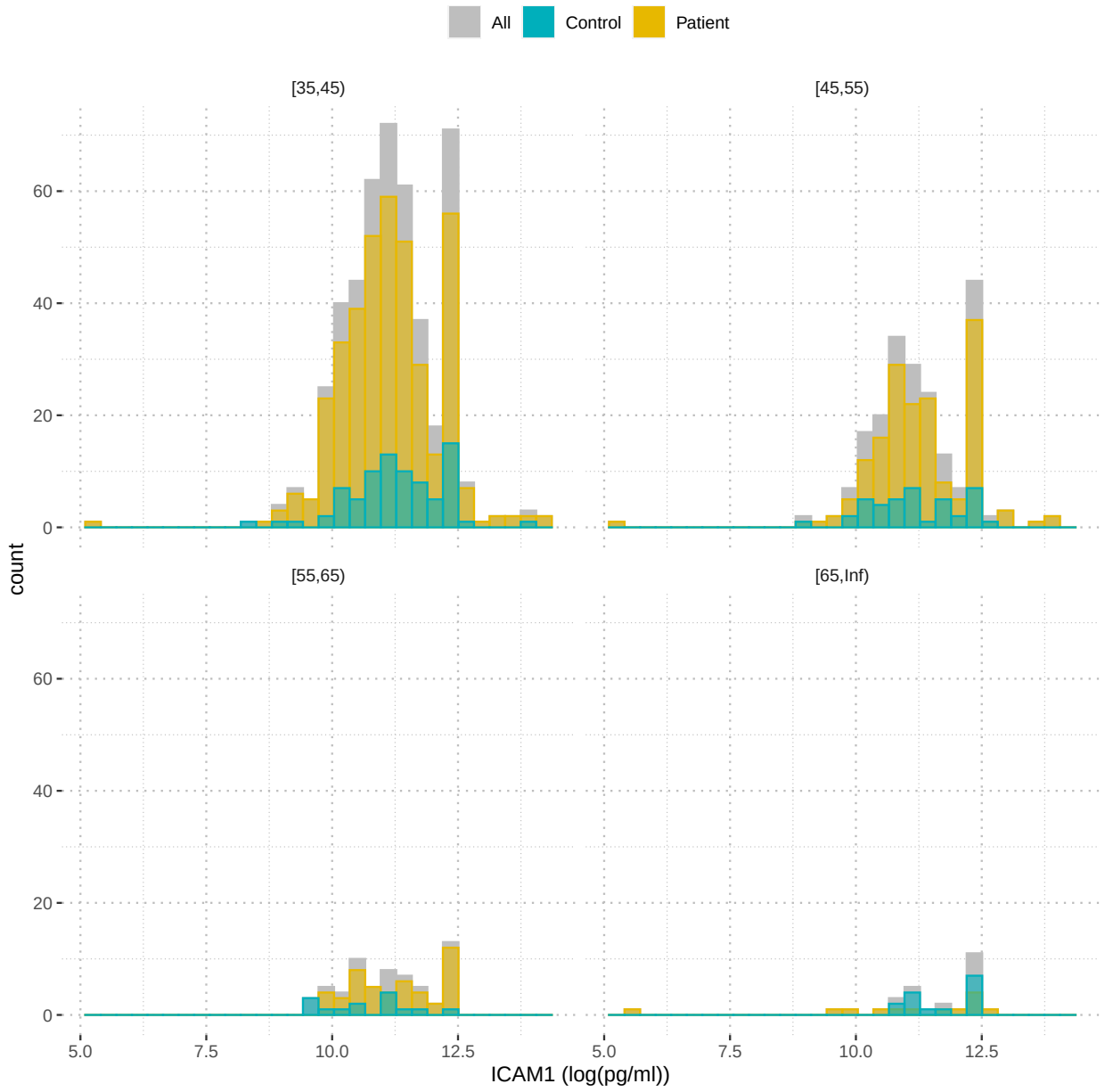
ICAM1: Gender and ART status

Neither the ART nor control group displays a significant difference in ICAM1 distribution between genders.



ICAM1: Age (Log Scale)

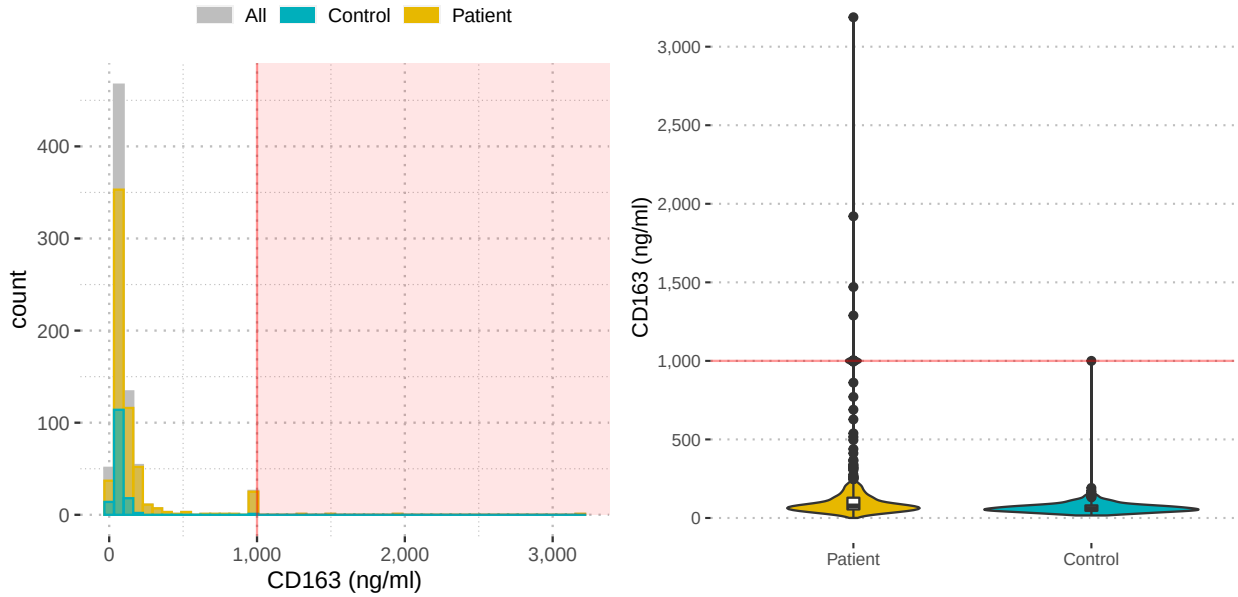
Separating by age group does not seem to show significant differences in distribution



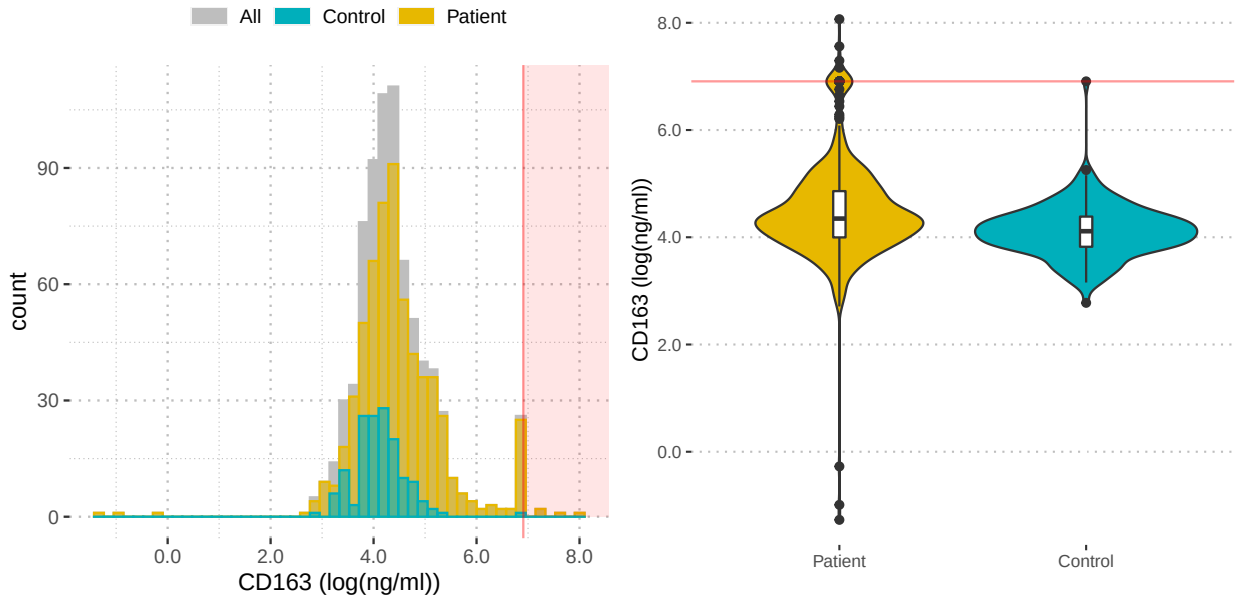
CD163: ART vs Control

The CD163 distribution for ART patients seems to be slightly more right-skewed than that of the control group, although the two distributions are shaped similarly.

There is a small peak where 27 observations have been censored at 1000 ng/ml, and only a handful of values lie beyond that detection limit.

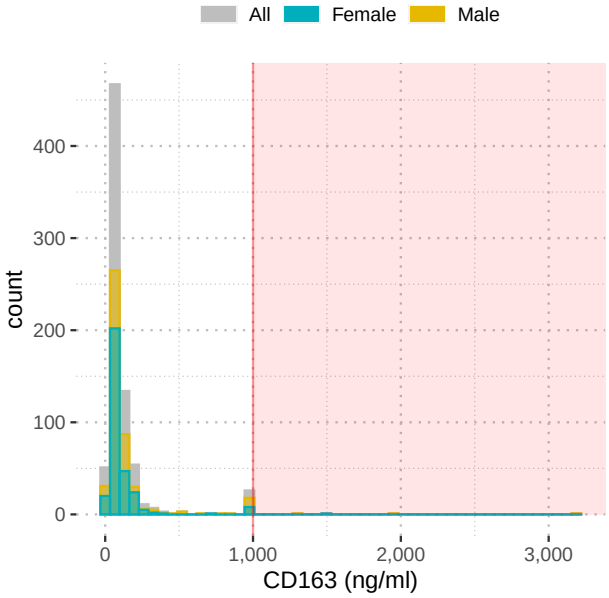


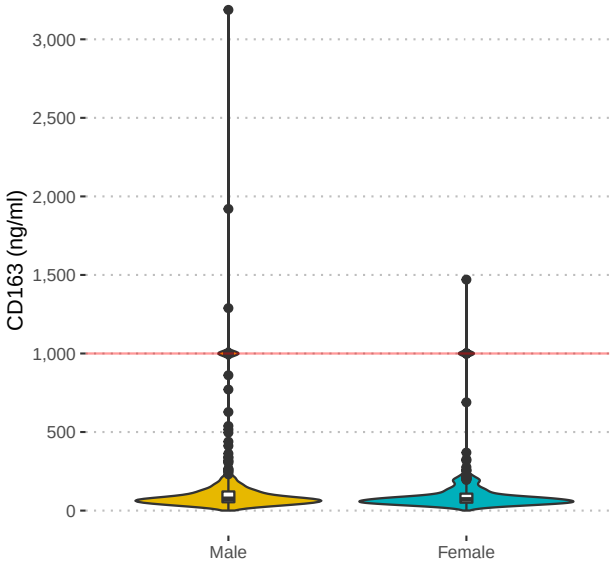
Log Scale



CD163: Gender

The data, when separated by ART status and gender, do not seem to show significant differences in distribution, although we see that male subjects are more likely to have higher CD163 levels, and that the difference in CD163 between ART and control seems more pronounced in the male group.





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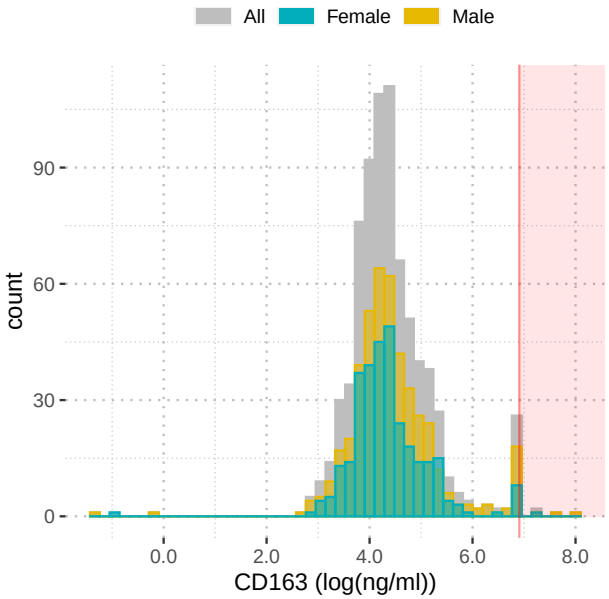
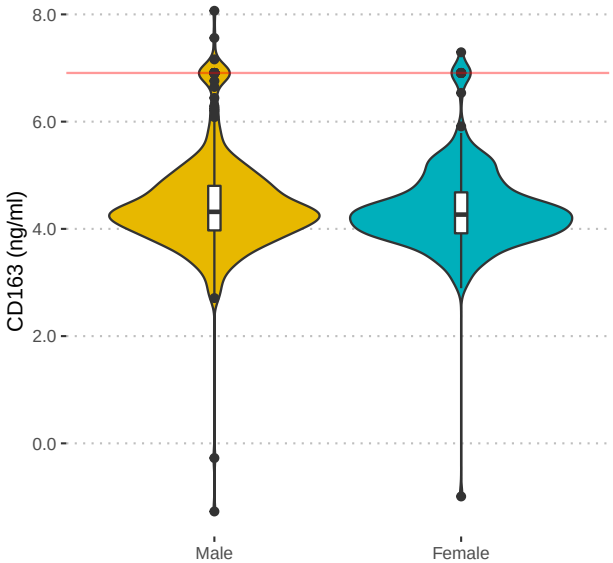
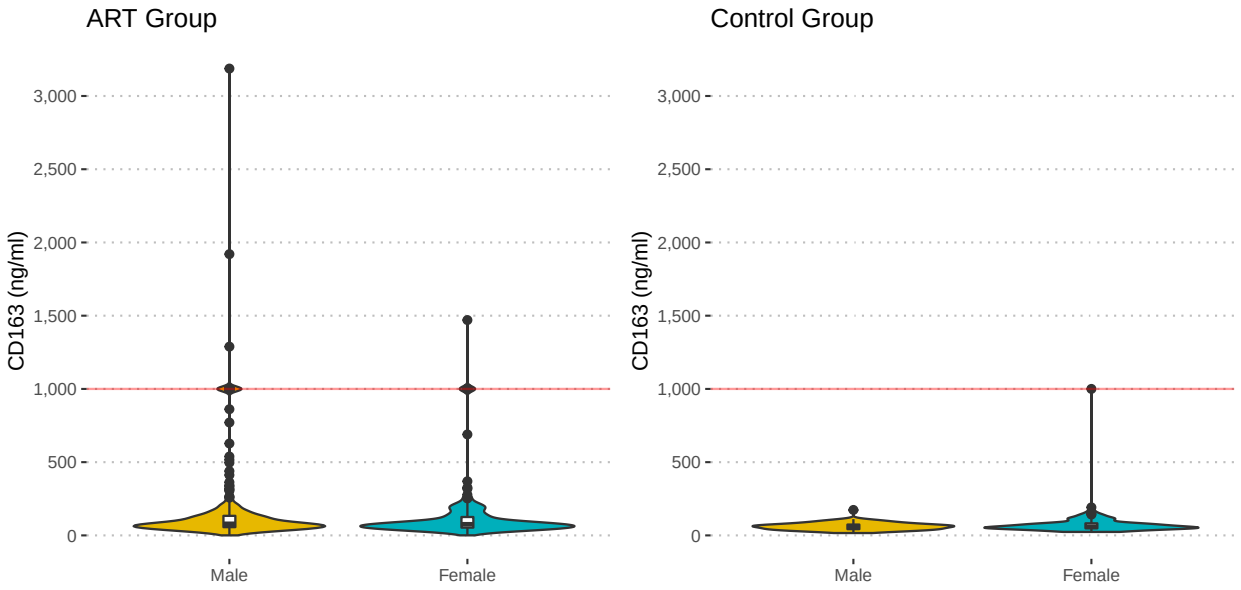


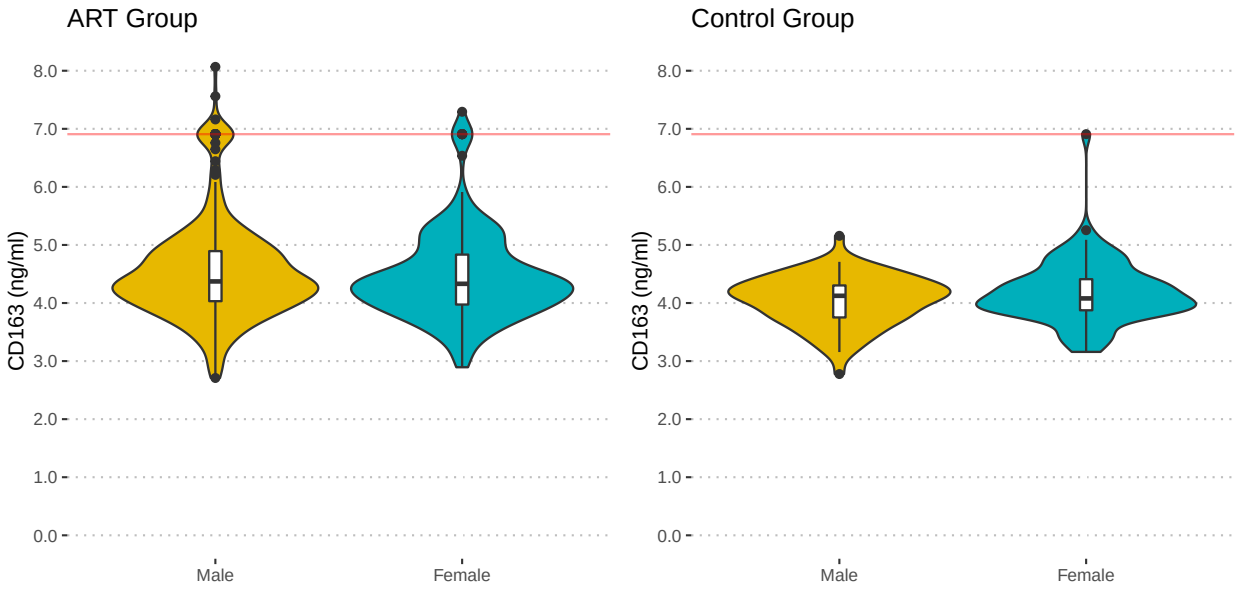


CD163: Gender and ART status

The ART and the control groups do not seem to be impacted differently by gender.

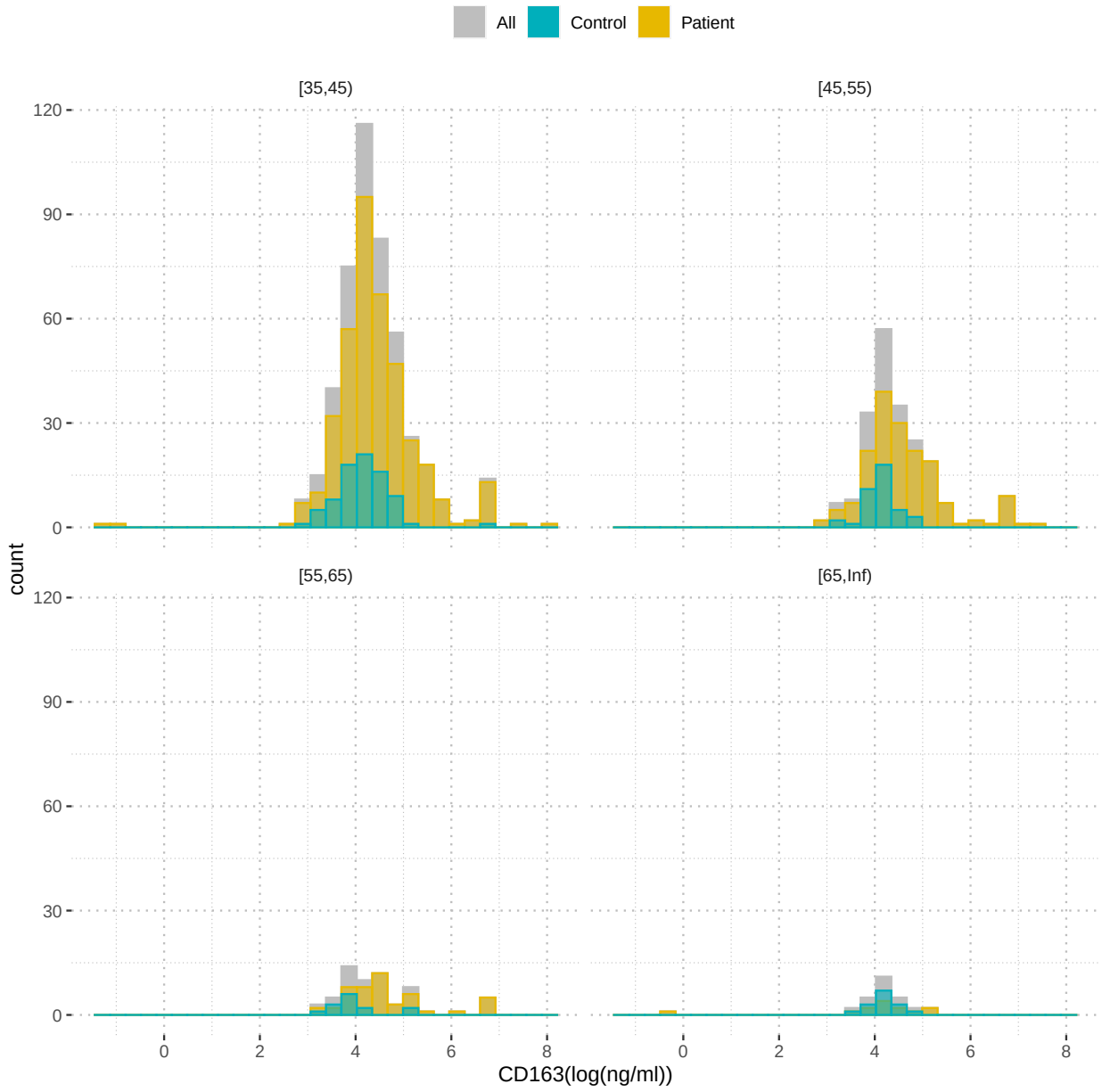


Log Scale



CD163: Age (Log Scale)

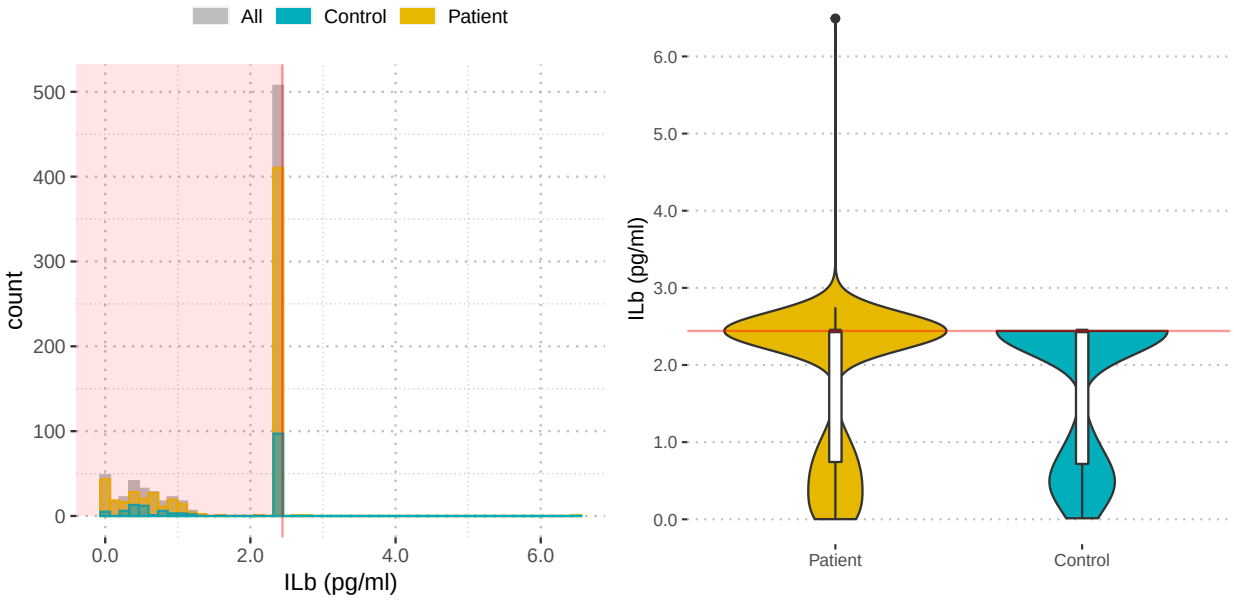
There does not appear to be a difference in distributions between age groups



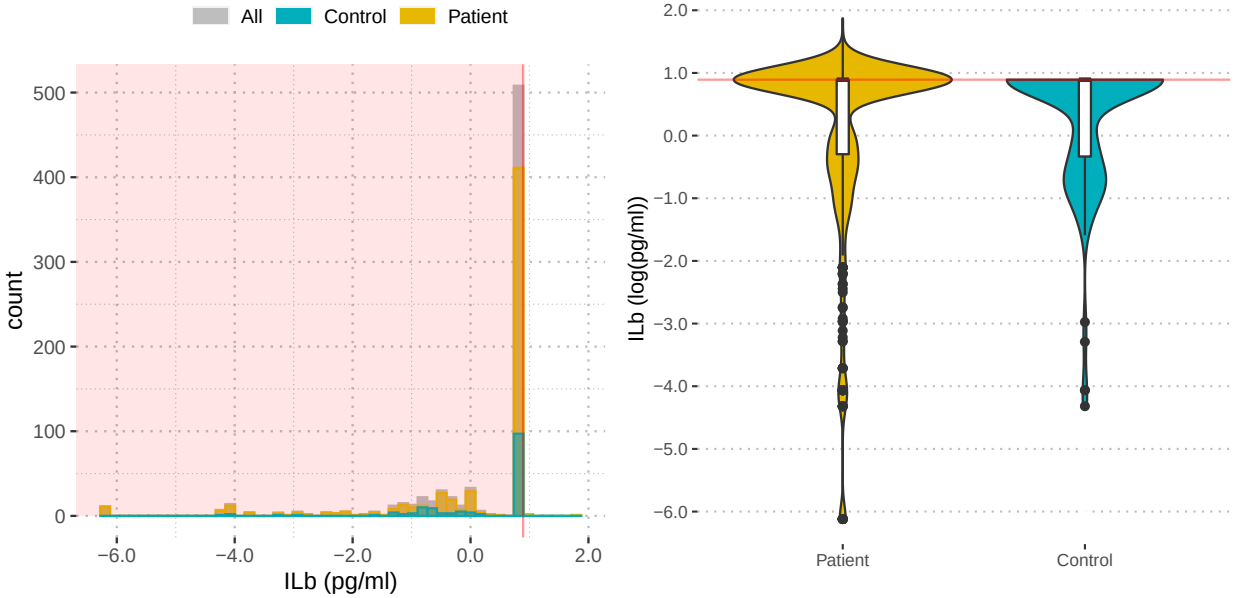
ILb: ART vs Control

We see that the charts are dominated by a large peak at x=2.44140625, the lower detection limit for this biomarker, as a result of the fact that 507 out of 766 values (about 2/3 of the data) were given as "<2.44140625". The vast majority of the remaining values actually fall below the lower detection limit as well, although these can be presumed to still be valid.

The relatively small number of non-censored observations makes discerning patterns in the distributions difficult, but the distributions for ART and control patients do seem similar.

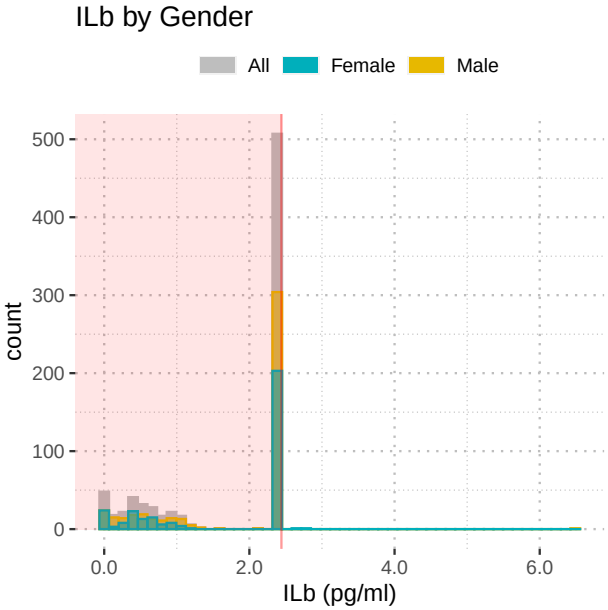


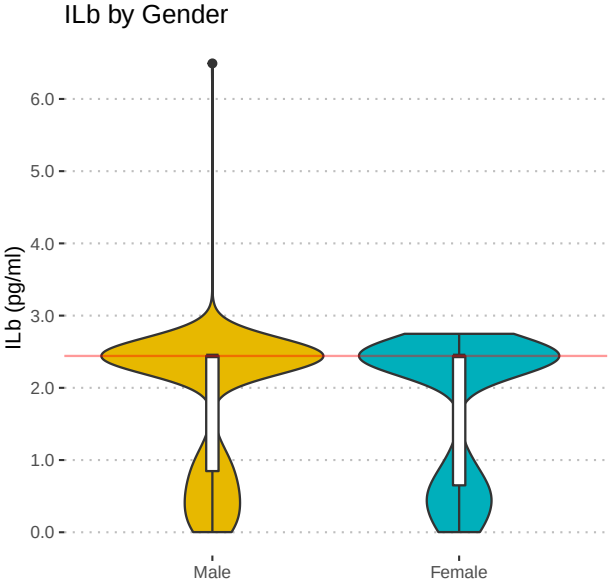
Log Scale



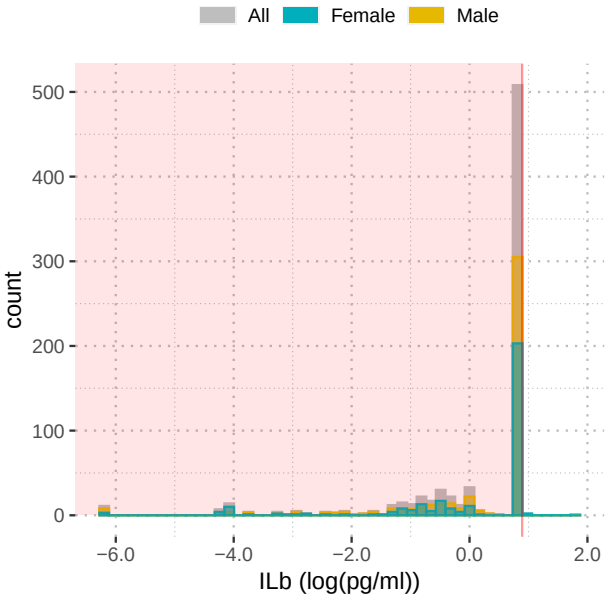
ILb: Gender

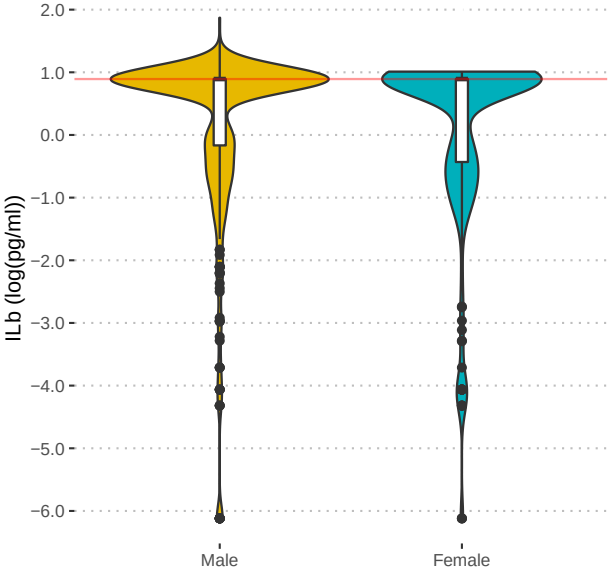
The data, when separated by ART status and gender, do not seem to show significant differences in distribution.





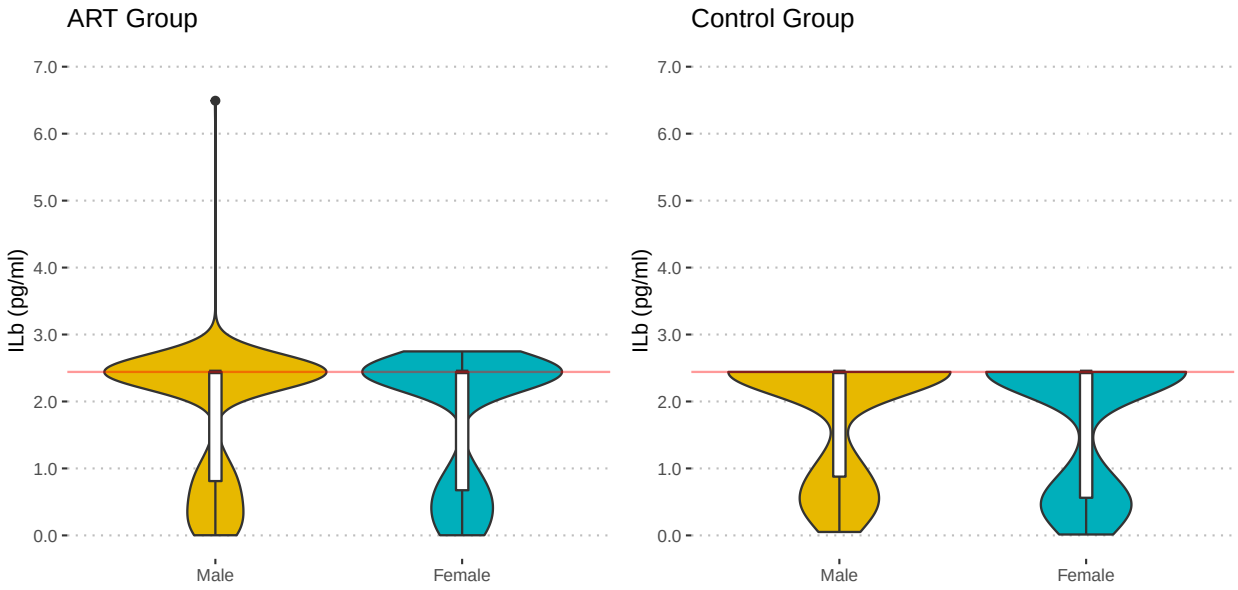
Log Scale





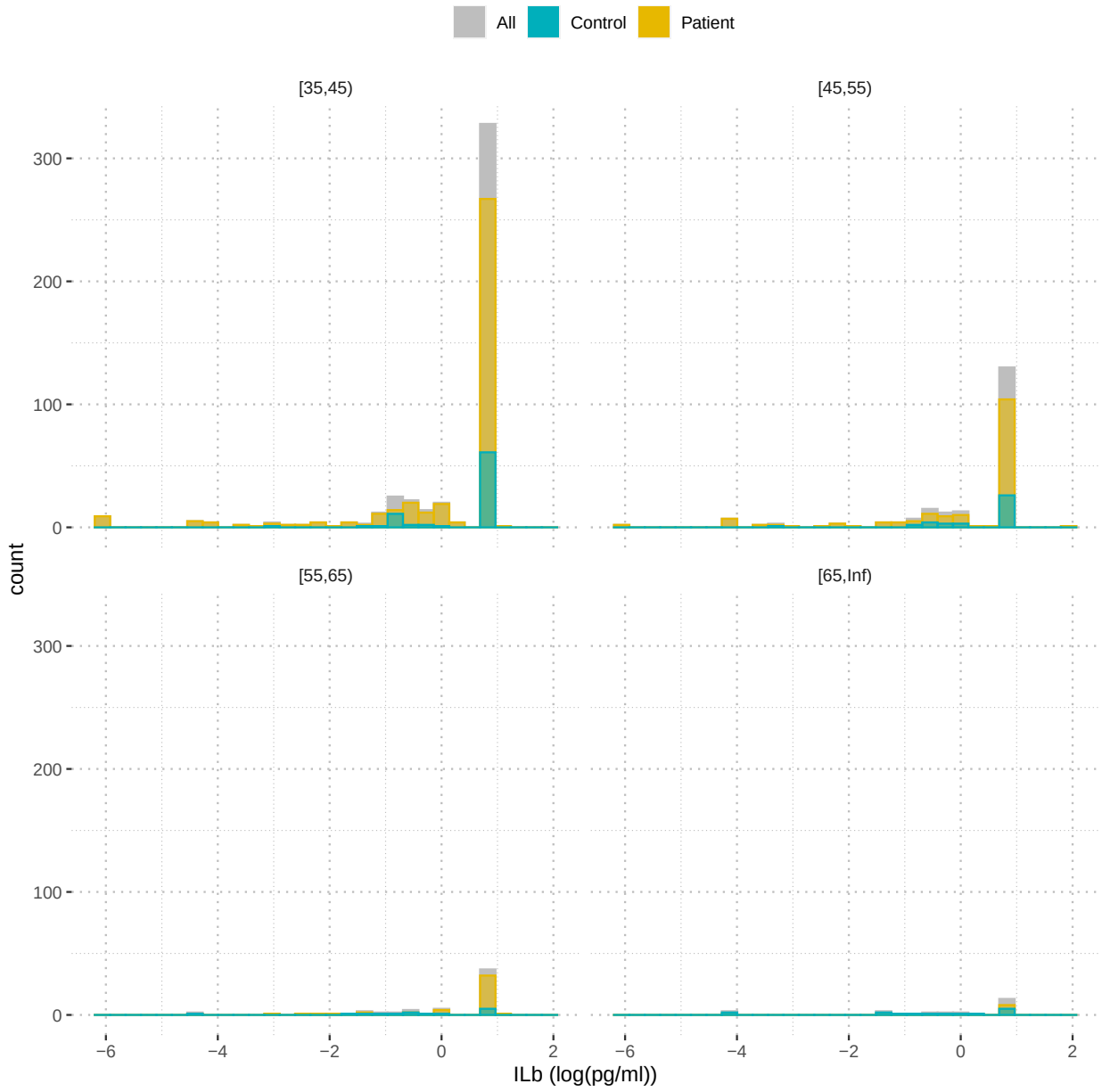
ILb: Gender and ART status

The ART and control groups do not seem to be impacted differently by gender.



ILb: Age (Log Scale)

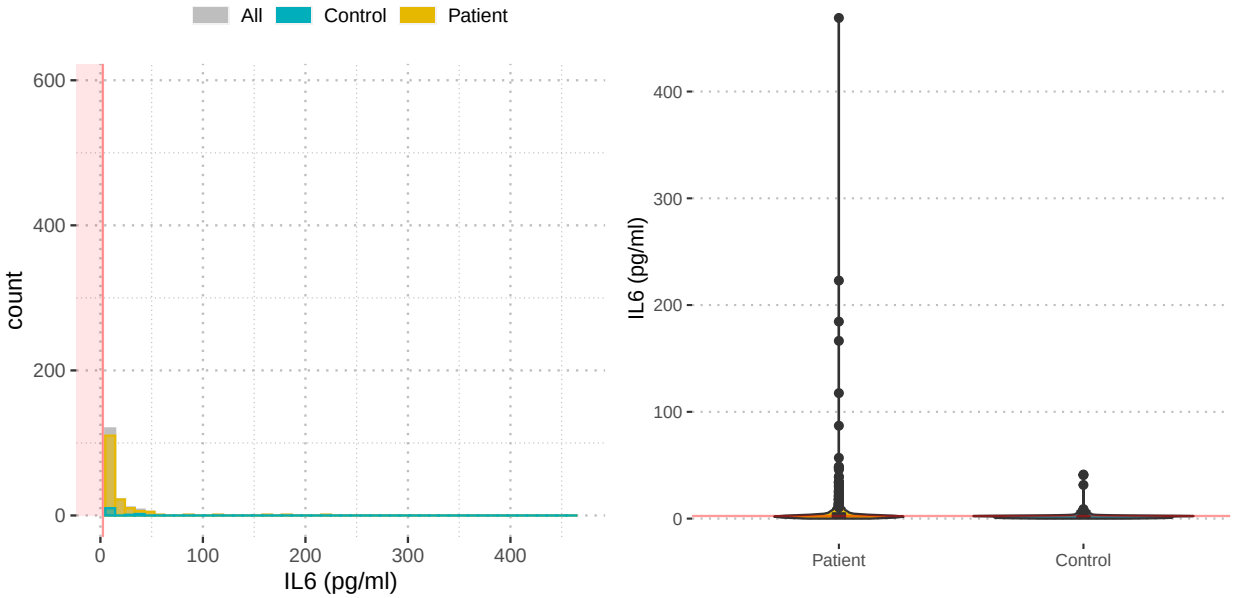
Separating by age group does not seem to show significant differences in distribution.



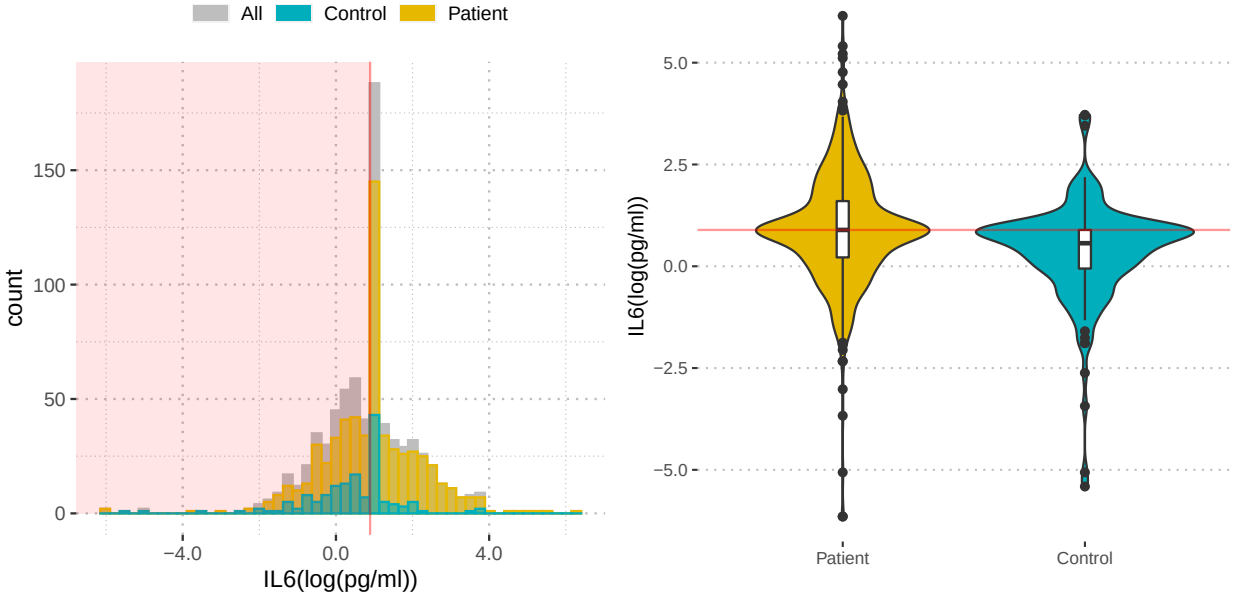
IL6: ART vs Control

We see that the IL6 samples display a very strong rightwards skew. Most of the data lies below 30 pg/ml, with the third quartile value being 4.0689, although the highest values are in the hundreds, but these extreme values do not seem to be errors as they do fit in with the overall shape of the distribution.

Although both distributions are right-skewed, we see distinctly higher values for ART patients than we do for control subjects. When plotted on a log10 scale we see a peak at log(2.441406) pg/ml, the lower detection limit, as 147 of the samples (around 1/5 of the data) are censored at this limit.

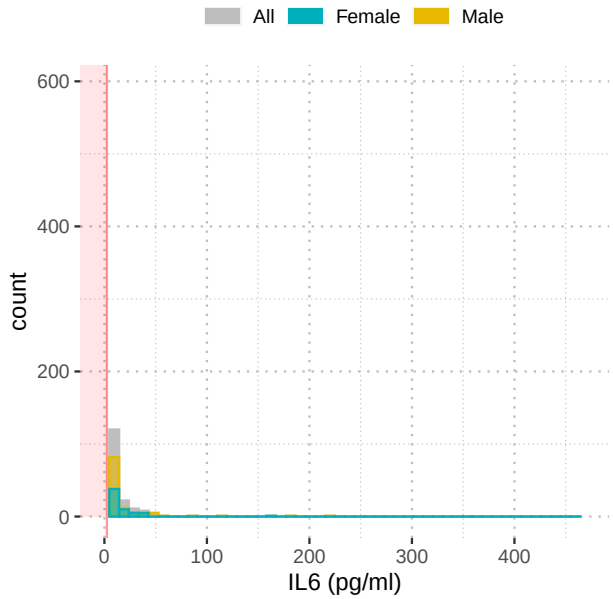


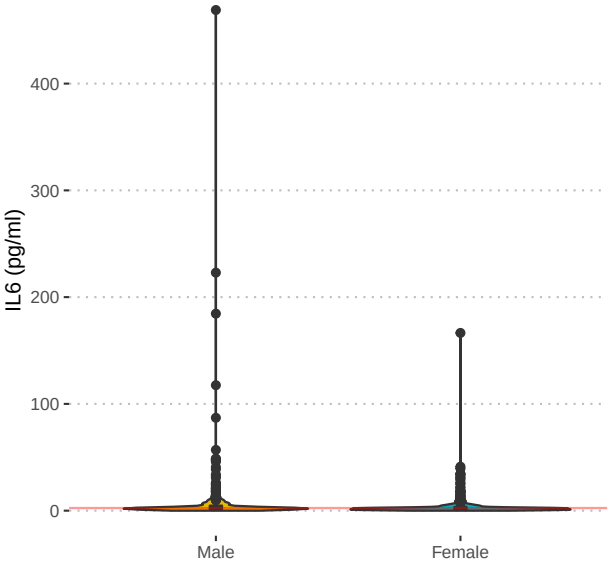
Log Scale



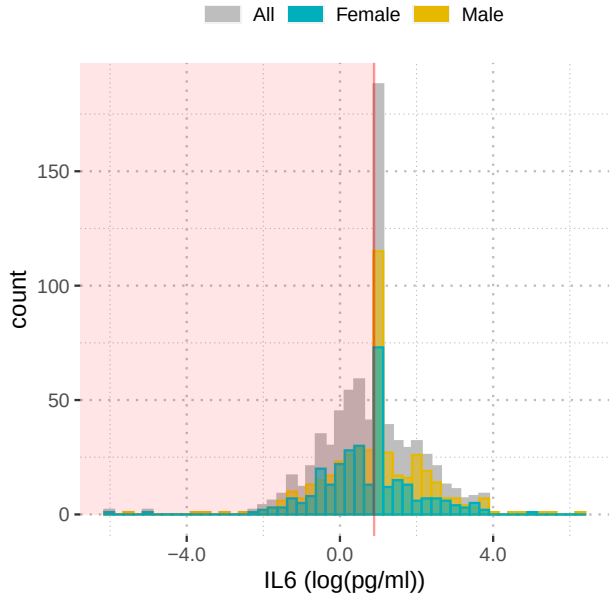
IL6: Gender

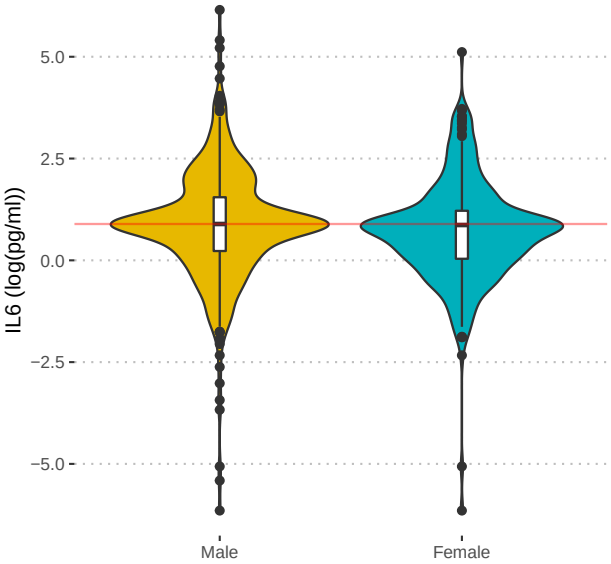
We see both genders experiencing significantly higher IL6 levels among ART patients than among control subjects, though the graphs don't seem to show an overall difference between genders.





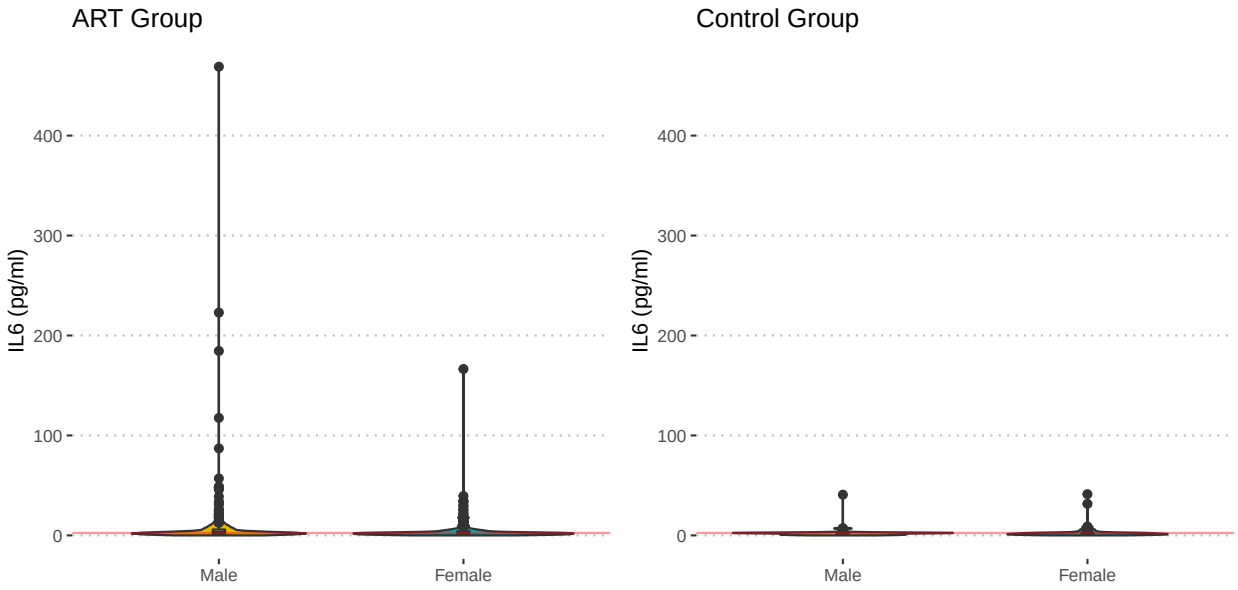
Log Scale



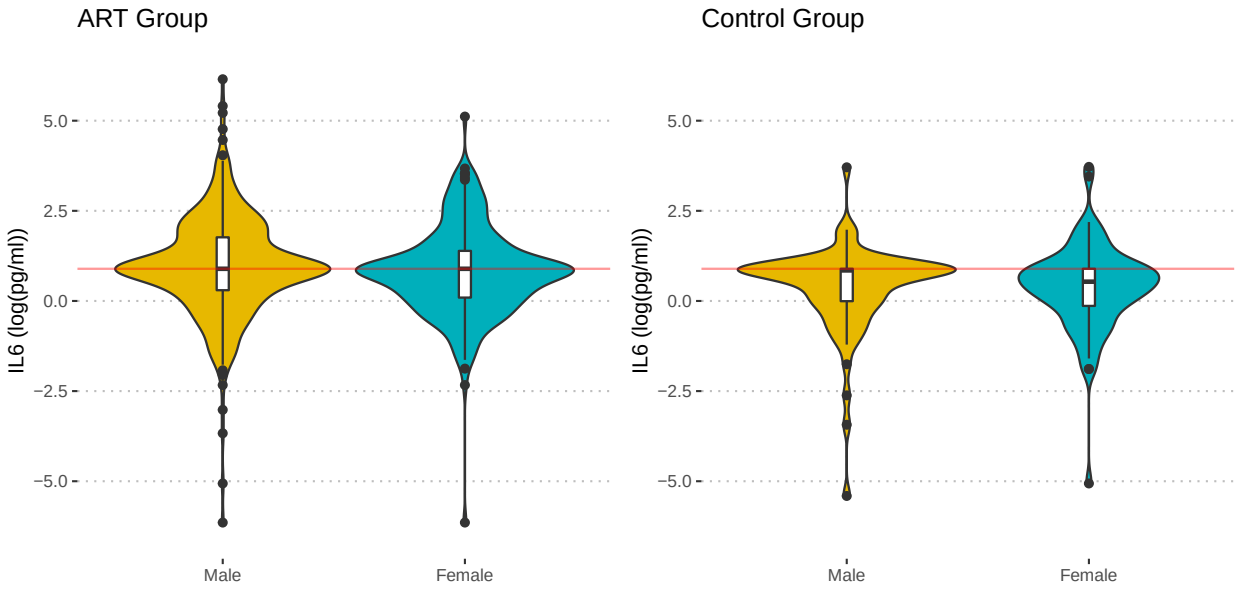


IL6: Gender and ART Status

The ART and control groups do not seem to be impacted differently by gender.



Log Scale



IL6: Age (Log Scale)

Separating by age group does not seem to show significant differences in distribution