



Concordance Test Report

PROJECT NAME

Radox_1 Concordance Test

STATISTICAL SERVICE

Generated by Olink® Concordance Test app

REPRESENTATIVE

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DATE

November 23, 2023

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Overview

An Olink® Concordance Test was performed to assess the performance between labs. The Olink® Concordance Test (batch B32104) comprised 50 samples, ran on Explore (Cardiometabolic) at both Randox_1 and Analysis Service Uppsala. To assess the performance between the sites, Olink® Concordance Test compared detectability, CV, correlation and regression.

QC Warning

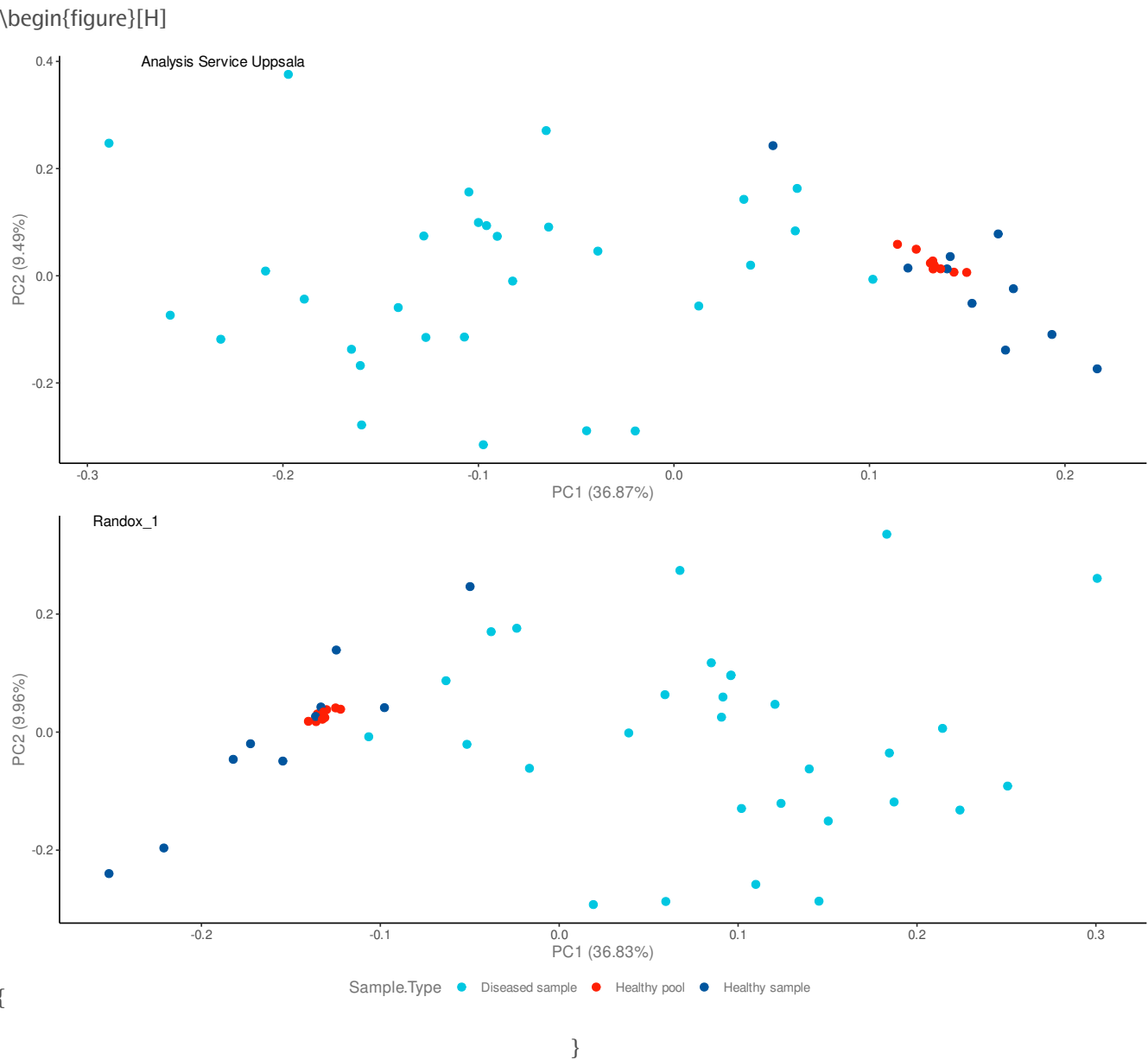
The number and percentage of samples with QC warning status was calculated and summarized in Table 1.

Table 1: The number and (percentage) of samples with a QC warning per site.

Site	Warnings
Analysis Service Uppsala	0 (0)
Randox_1	0 (0)

PCA

Scatter plots along the first two principal components were generated to compare global data performance (Figure). Figure displays PCA plots of Analysis Service Uppsala and Randox_1 data separately.



\caption{Separated PCA plots of data from Analysis Service Uppsala and Randox_1 , colored by sample type. Each point represents one sample. The position of the point is based on all measured protein values. The percentages displayed show the percentage of explained variance per principal component.} \end{figure}

Detectability

Detectability of each assay was calculated as the percentage of samples with results above the estimated limit of detection (LOD) (see Table 2).

Table 2: The average detectability by site (%).

Panel	Analysis Service Uppsala	Randox_1
Cardiometabolic	96.6	97.2

Coefficient of Variation

The coefficient of variance (CV) was calculated on a per assay basis, using the control samples that were included in each run (see Table 3). Intra CV less than 15 is preferred.

Table 3: The average intra CV by site.

Panel	Analysis Service Uppsala	Randox_1
Cardiometabolic	8.8	9

Correlation

Correlation of NPX values between Analysis Service Uppsala and Randox_1 were calculated on a per assay basis (healthy pools excluded, see Figure 1).

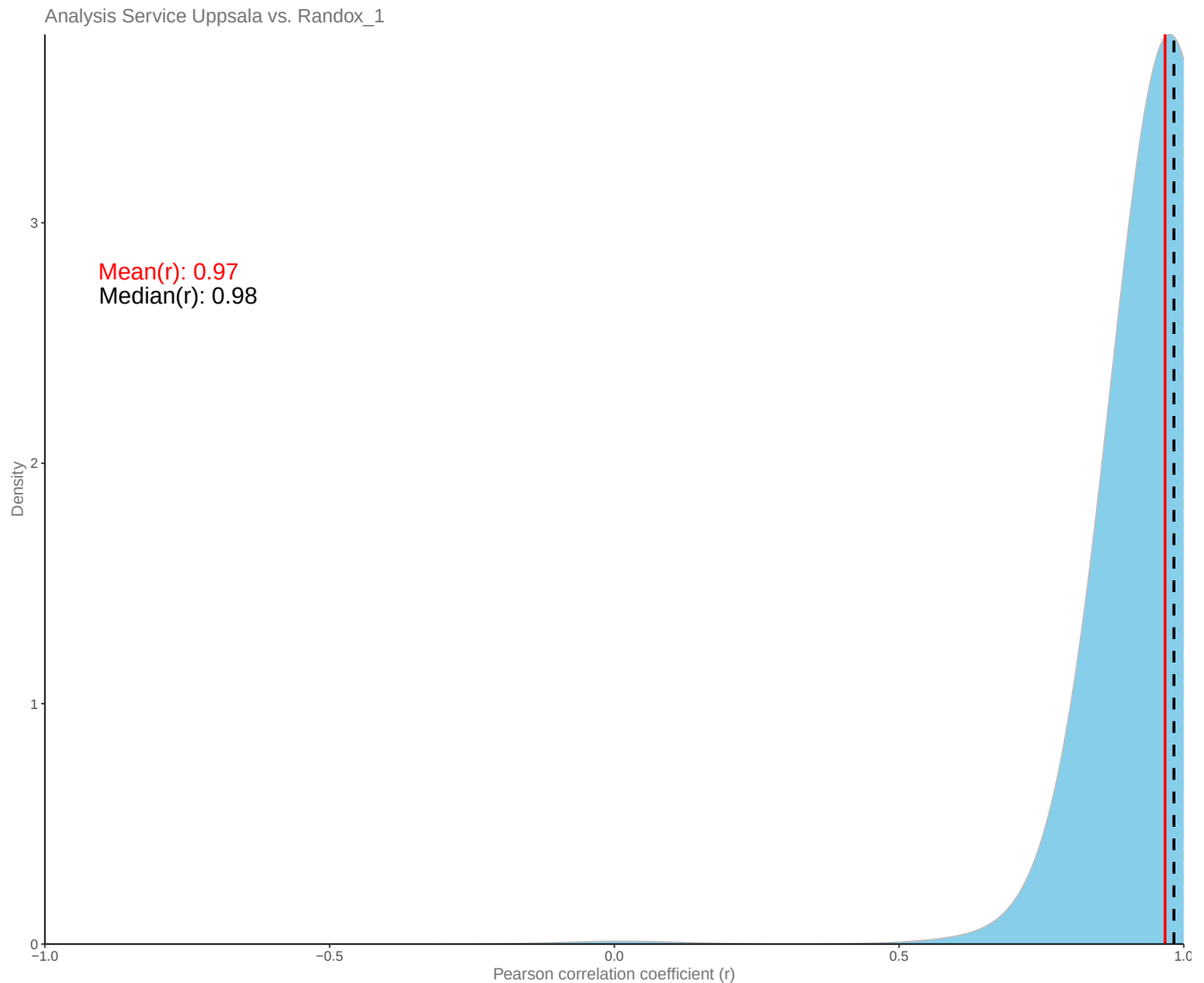


Figure 1: Density plot of Pearson correlation coefficients between two sites. The solid red line represents the mean of the correlation coefficients, serving as a central reference point, while the dashed black line indicates the median, providing insight into the distribution's central position. This figure provides a powerful tool for understanding complex interdependencies within the dataset, facilitating the identification of underlying patterns and trends in variable relationships.

Regression

Figure 2 shows the NPX values from Analysis Service Uppsala on the x-axis and from Randox_1 on the y-axis. The regression line is fitted using a linear model.

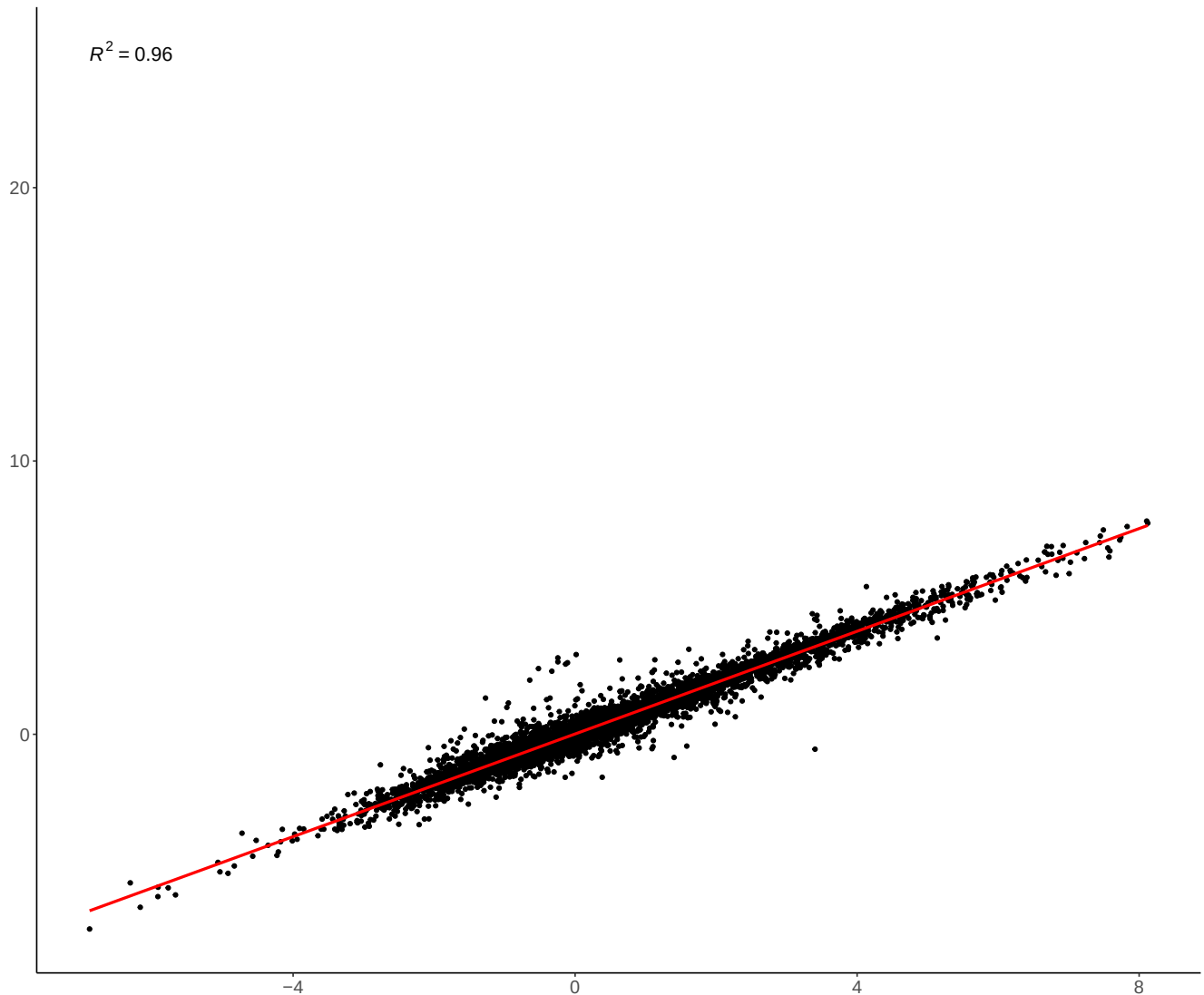


Figure 2: Scatter plot of data from both sites with a regression line fitted to present the linear relationship between two sites. In addition to the best-fit line, the figure includes the R-squared (R^2) value, which quantifies the goodness of fit of the regression model.

Summary

Detectability, CV, correlation and regression analysis were performed to compare the concordance of data generated with the same set of samples at Analysis Service Uppsala and Randox_1.

Randox_1 had 0 % QC warnings (maximum 16 % allowed). Hence, **passing** the QC warning criteria.

Randox_1 scored 97.2 % detectability (minimum 85 % allowed). Hence, **passing** the detectability criteria.

Randox_1 scored 9 % intra CV (maximum 15 % allowed). Hence, **passing** the CV criteria.

Median (0.98) correlation coefficient (r) of Randox_1 vs. Analysis Service Uppsala scored more than the minimum allowed value (0.9). Hence, **passing** the correlation criteria.

Randox_1 scored a coefficient of determination (R^2) of 0.96 (minimum 0.9 allowed). Hence, **passing** the regression criteria.

In total, Randox_1 failed 0 QC criterias (maximum 1 fail allowed). Hence, **passing the Concordance Test**.

Appendix

R Session Information

- R version 4.1.2 (2021-11-01), x86_64-pc-linux-gnu
- Locale: LC_CTYPE=en_US.UTF-8, LC_NUMERIC=C, LC_TIME=en_US.UTF-8, LC_COLLATE=en_US.UTF-8, LC_MONETARY=en_US.UTF-8, LC_MESSAGES=en_US.UTF-8, LC_PAPER=en_US.UTF-8, LC_NAME=C, LC_ADDRESS=C, LC_TELEPHONE=C, LC_MEASUREMENT=en_US.UTF-8, LC_IDENTIFICATION=C
- Running under: Ubuntu 20.04.4 LTS
- Matrix products: default
- BLAS: /usr/lib/x86_64-linux-gnu/blas/libblas.so.3.9.0
- LAPACK: /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3.9.0
- Base packages: base, datasets, graphics, grDevices, methods, stats, utils
- Other packages: cicerone 1.0.4, Concordance 0.0.0.9000, dplyr 1.1.2, DT 0.23, extrafont 0.18, forcats 1.0.0, ggplot2 3.4.2, ggpubr 0.4.0, gtsummary 1.7.1, kableExtra 1.3.4, knitr 1.43, OlinkAnalyze 3.6.0, plotly 4.10.0, purrr 1.0.1, readr 2.1.2, readxl 1.4.1, shiny 1.7.1, shinycssloaders 1.0.0, stringr 1.5.0, tibble 3.2.1, tidyr 1.3.0, tidyverse 1.3.1
- Loaded via a namespace (and not attached): abind 1.4-5, arrow 13.0.0.1, assertthat 0.2.1, attempt 0.3.1, backports 1.4.1, bit 4.0.4, bit64 4.0.5, boot 1.3-28, brio 1.1.3, broom 1.0.5, broom.helpers 1.13.0, bslib 0.3.1, cachem 1.0.6, car 3.0-12, carData 3.0-5, cellranger 1.1.0, cli 3.6.1, codetools 0.2-18, colorspace 2.0-3, compiler 4.1.2, config 0.3.1, cowplot 1.1.1, crayon 1.5.2, crosstalk 1.2.0, data.table 1.14.4, DBI 1.1.2, dbplyr 2.1.1, dendextend 1.15.2, desc 1.4.1, digest 0.6.29, ellipsis 0.3.2, emmeans 1.7.2, estimability 1.3, evaluate 0.15, extrafontdb 1.0, fansi 1.0.3, farver 2.1.0, fastmap 1.1.0, fontawesome 0.5.1, foreach 1.5.2, fs 1.6.2, generics 0.1.3, ggrepel 0.9.1, ggsignif 0.6.3, glue 1.6.2, golem 0.3.3, grid 4.1.2, gridExtra 2.3, gt 0.9.0, gtable 0.3.0, haven 2.4.3, heatmaply 1.3.0, hms 1.1.2, htmltools 0.5.5, htmlwidgets 1.6.2, httpuv 1.6.5, httr 1.4.6, iterators 1.0.14, jquerylib 0.1.4, jsonlite 1.8.0, labeling 0.4.2, later 1.3.0, lattice 0.20-45, lazyeval 0.2.2, lifecycle 1.0.3, lme4 1.1-28, lmerTest 3.1-3, lubridate 1.8.0, magrittr 2.0.3, MASS 7.3-55, Matrix 1.4-0, memoise 2.0.1, mgcv 1.8-38, mime 0.12, minqa 1.2.4, modelr 0.1.8, munsell 0.5.0, mvtnorm 1.1-3, nlme 3.1-155, nloptr 2.0.0, numDeriv 2016.8-1.1, pillar 1.9.0, pkgconfig 2.0.3, pkgload 1.2.4, plyr 1.8.6, polynom 1.4-0, promises 1.2.0.1, R6 2.5.1, RColorBrewer 1.1-2, Rcpp 1.0.10, registry 0.5-1, reprex 2.0.1, rlang 1.1.1, rmarkdown 2.22, roxygen2 7.2.0, rprojroot 2.0.2, rstatix 0.7.0, rstudioapi 0.14, Rttf2pt1 1.3.10, rvest 1.0.2, sass 0.4.6, scales 1.2.1, seriation 1.3.4, shinyalert 3.0.0, shinyjs 2.1.0, shinythemes 1.2.0, shinyWidgets 0.7.0, splines 4.1.2, stringi 1.7.8, svglite 2.1.0, systemfonts 1.0.4, testthat 3.1.2, tidyselect 1.2.0, tinytex 0.37, tools 4.1.2, TSP 1.2-0, tzdb 0.4.0, usethis 2.1.6, utf8 1.2.2, uuid 1.0-4, vctrs 0.6.3, viridis 0.6.2, viridisLite 0.4.0, webshot 0.5.2, withr 2.5.0, xfun 0.39, xml2 1.3.3, xtable 1.8-4, yaml 2.3.5, zip 2.2.2