Concordance Test Report

PROJECT NAME	Psomagen Concordance Test
STATISTICAL SERVICE	Generated by Olink® Concordance Test app (v. 5.1)
REPRESENTATIVE	support@olink.com
DATE	April 4, 2025

Contents

Overview

An Olink® Concordance Test was performed to assess the performance between labs. The Olink® Concordance Test (batch 1017463 (B2)) comprised 40 samples, ran on Target 48 (Olink Cytokine) at both Psomagen and Analysis Service (AS) Uppsala. To assess the performance between the sites, Olink® Concordance Test compared detectability, CV, correlation and regression. After evaluation of the results, Psomagen **passed the Concordance Test**.

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
AS Uppsala	0 (0)
Psomagen	0 (0)

PCA

Scatter plots along the first two principal components were generated to compare global data performance (Figure 1). Figure 1 displays PCA plots of AS Uppsala and Psomagen data separately.

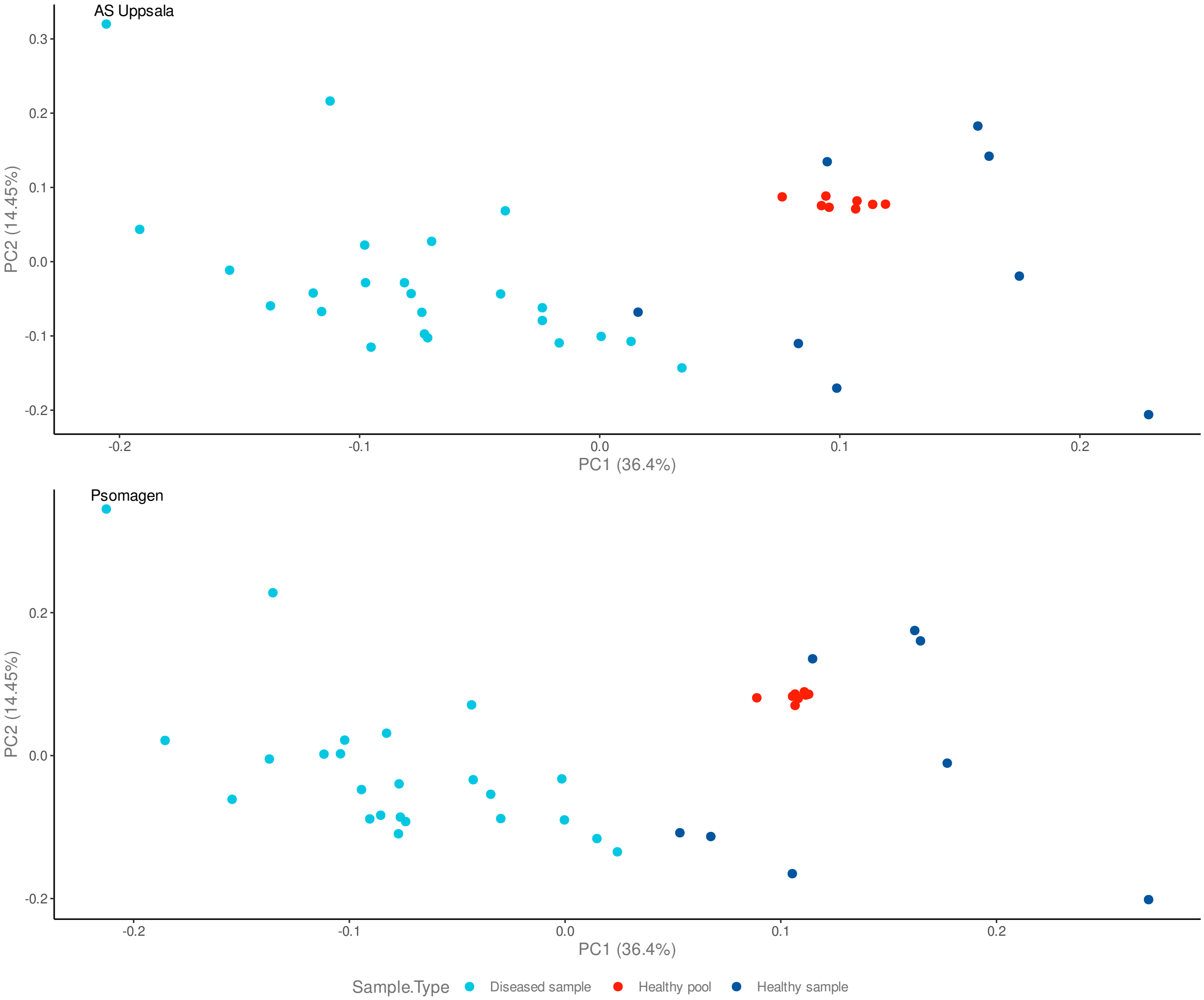

Figure 1: Separated PCA plots of data from AS Uppsala and Psomagen, colored by sample type. Each point represents one sample. The position of the point is based on all measured protein values. The percentages displayed show the percentage of explained variance per principal component.

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: Average detectability by site (%).

Panel	AS Uppsala	Psomagen
Olink Cytokine	84.2	84.2

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 15.0% is preferred.

Table 3: Average intra CV by site (%).

Panel	AS Uppsala	Psomagen
Olink Cytokine	7.3	6.9

Correlation

Correlation of absolute concentrations in pg/mL between AS Uppsala and Psomagen were calculated on a per assay basis (healthy pools excluded, see Figure 2).

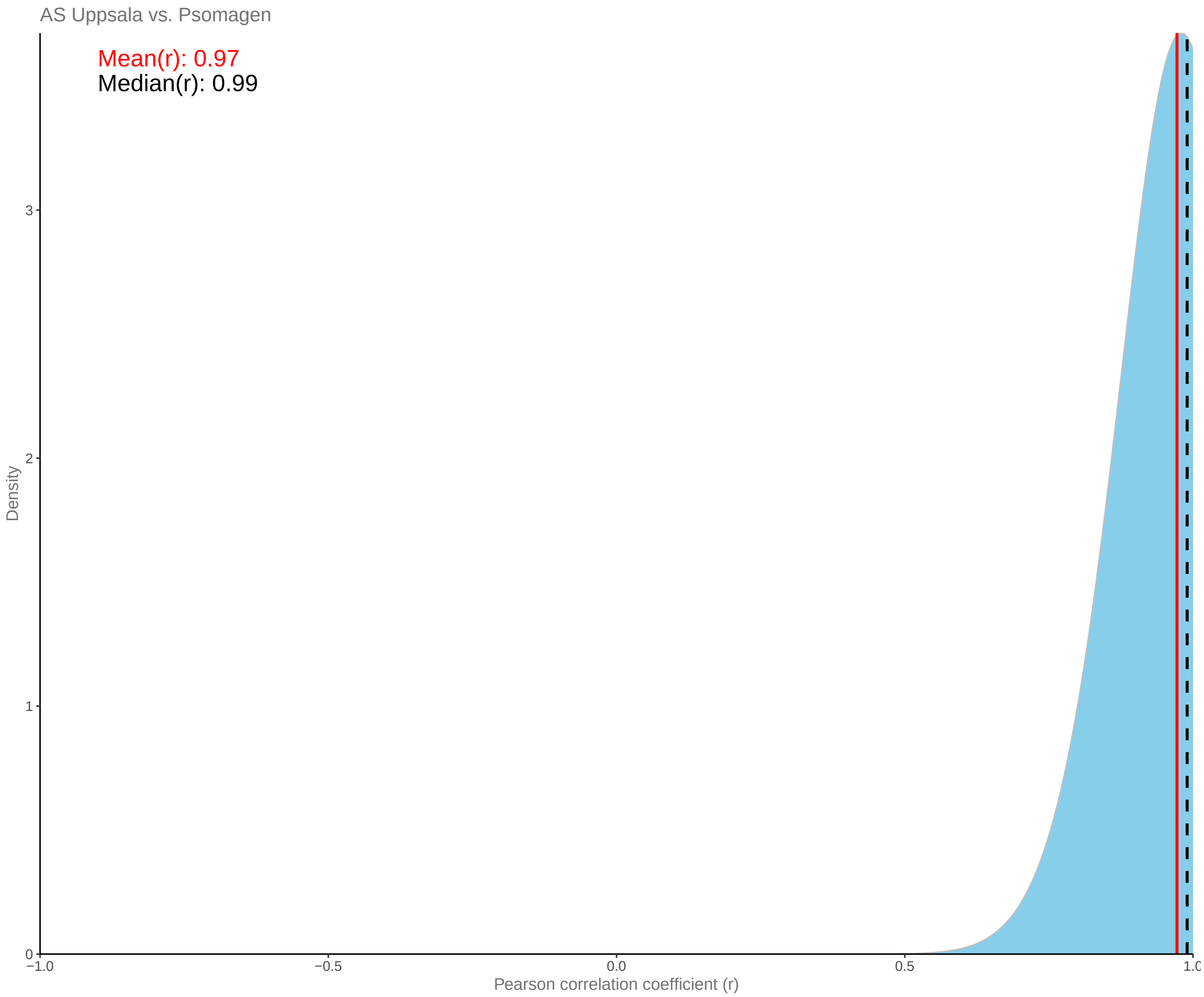

Figure 2: Density plot of Pearson correlation coefficients between two sites. The solid red line represents the mean of the correlation coefficients, serving as a central reference point, while the dashed black line indicates the median, providing insight into the distribution's central position. This 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 3 shows the NPX values from AS Uppsala on the x-axis and from Psomagen on the y-axis. The regression line is fitted using a linear model.

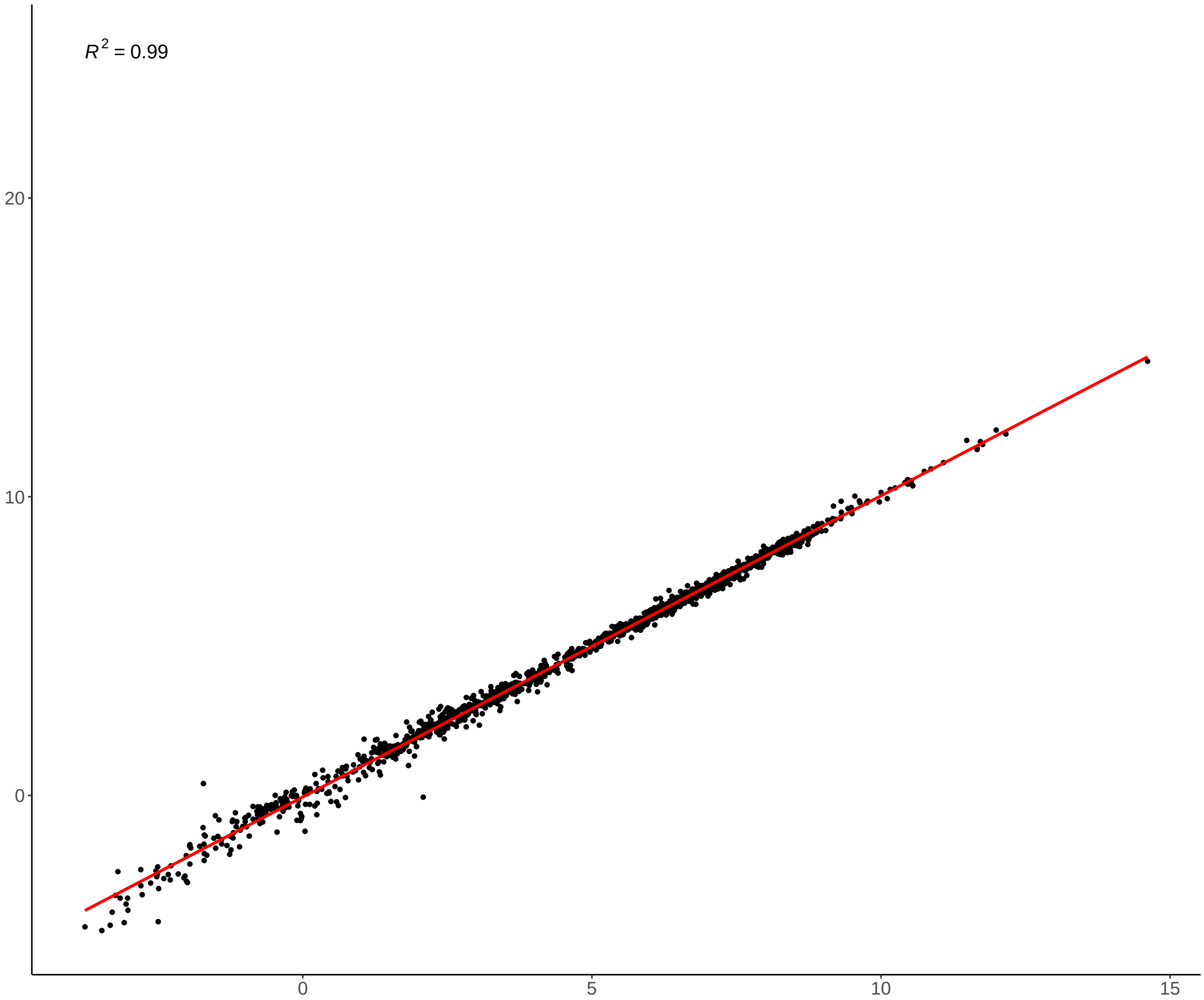

Figure 3: Scatter plot of data from both sites with a regression line fitted to present the linear relationship between two sites. In addition to the best-fit line, the figure includes the R-squared (R^2) value, which quantifies the goodness of fit of the regression model.

Summary

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

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

Psomagen scored 84.2 % detectibility (minimum 75.0 % allowed). Hence, **passing** the detectability criteria.

Psomagen scored 6.9 % intra CV (maximum 15.0 % allowed). Hence, **passing** the CV criteria.

Both mean (0.97) and median (0.99) correlation coefficient (r) of Psomagen vs. AS Uppsala scored more than the minimum allowed value (0.85). Hence, **passing** the correlation criteria.

Psomagen scored a coefficient of determination (R^2) of 0.99 (minimum 0.89 allowed). Hence, **passing** the regression criteria.

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

Appendix

R Session Information

- R version 4.4.2 (2024-10-31), `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`
- Time zone: `America/New_York`
- TZcode source: `system (glibc)`
- Running under: `Ubuntu 20.04.6 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 1.1.3, DT 0.30, extrafont 0.19, forcats 1.0.0, ggplot2 3.4.4, ggpubr 0.6.0, gtsummary 1.7.2, kableExtra 1.3.4, knitr 1.45, lubridate 1.9.3, OlinkAnalyze 4.1.2, plotly 4.10.3, purrr 1.0.2, readr 2.1.4, readxl 1.4.3, shiny 1.7.5.1, shinycssloaders 1.0.0, stringr 1.5.0, tibble 3.2.1, tidyr 1.3.0, tidyverse 2.0.0
- 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, base64enc 0.1-3, bit 4.0.5, bit64 4.0.5, broom 1.0.5, broom.helpers 1.14.0, bslib 0.5.1, ca 0.71.1, cachem 1.0.8, callr 3.7.3, car 3.1-2, carData 3.0-5, cellranger 1.1.0, cli 3.6.3, codetools 0.2-19, colorspace 2.1-0, compiler 4.4.2, config 0.3.2, cowplot 1.1.1, crayon 1.5.2, crosstalk 1.2.0, data.table 1.14.8, dendextend 1.17.1, desc 1.4.2, digest 0.6.33, ellipsis 0.3.2, emmeans 1.8.9, estimability 1.4.1, evaluate 0.22, extrafontdb 1.0, fansi 1.0.5, farver 2.1.1, fastmap 1.1.1, fontawesome 0.5.2, foreach 1.5.2, fs 1.6.3, generics 0.1.3, ggrepel 0.9.4, ggsignif 0.6.4, glue 1.6.2, golem 0.4.1, grid 4.4.2, gridExtra 2.3, gt 0.10.0, gtable 0.3.4, heatmaply 1.5.0, hms 1.1.3, htmltools 0.5.6.1, htmlwidgets 1.6.2, httpuv 1.6.12, httr 1.4.7, iterators 1.0.14, janitor 2.2.0, jquerylib 0.1.4, jsonlite 1.8.7, labeling 0.4.3, later 1.3.1, lattice 0.22-5, lazyeval 0.2.2, lifecycle 1.0.3, magrittr 2.0.3, Matrix 1.6-1.1, memoise 2.0.1, mgcv 1.9-1, mime 0.12, munsell 0.5.0, mvtnorm 1.2-3, nlme 3.1-167, npxexplorer 8.0.0, pillar 1.9.0, pkgbuild 1.4.2, pkgconfig 2.0.3, pkgload 1.3.3, plyr 1.8.9, polynom 1.4-1, prettyunits 1.2.0, processx 3.8.2, promises 1.2.1, ps 1.7.5, R.methodsS3 1.8.2, R.oo 1.25.0, R.utils 2.12.2, R6 2.5.1, RColorBrewer 1.1-3, Rcpp 1.0.11, registry 0.5-1, rematch 2.0.0, repr 1.1.6, rlang 1.1.1, rmarkdown 2.25, rprojroot 2.0.3, rstatix 0.7.2, rstudioapi 0.15.0, Rttf2pt1 1.3.12, rvest 1.0.3, sass 0.4.7, scales 1.2.1, seriation 1.5.1, shinyalert 3.0.0, shinyjs 2.1.0, shinythemes 1.2.0, shinyWidgets 0.8.0, skimr 2.1.5, snakecase 0.11.1, splines 4.4.2, stringi 1.7.12, svglite 2.1.2, systemfonts 1.0.5, tidyselect 1.2.0, timechange 0.2.0,

tinytex 0.48, tools 4.4.2, TSP 1.2-4, tzdb 0.4.0, usethis 2.2.2, utf8 1.2.4, uuid 1.1-1, vctrs 0.6.4, viridis 0.6.4, viridisLite 0.4.2, webshot 0.5.5, withr 2.5.2, xfun 0.40, xml2 1.3.5, xtable 1.8-4, yaml 2.3.7, zip 2.3.0