

Whole Blood or PBMCs?

How **mass cytometry immune profiling data** from whole blood compares to data from cryopreserved PBMCs.

Methodology

Blood draw in EDTA vacutainer blood collection tube

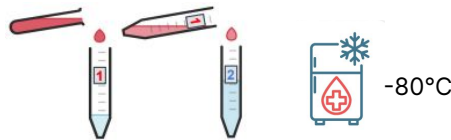


3 healthy donors

Tube split

Tube split

Blood processing - whole blood or PBMC isolation



Whole blood processing through Smart Tube StableLyse + StableStore protocol



PBMC isolation through Ficoll

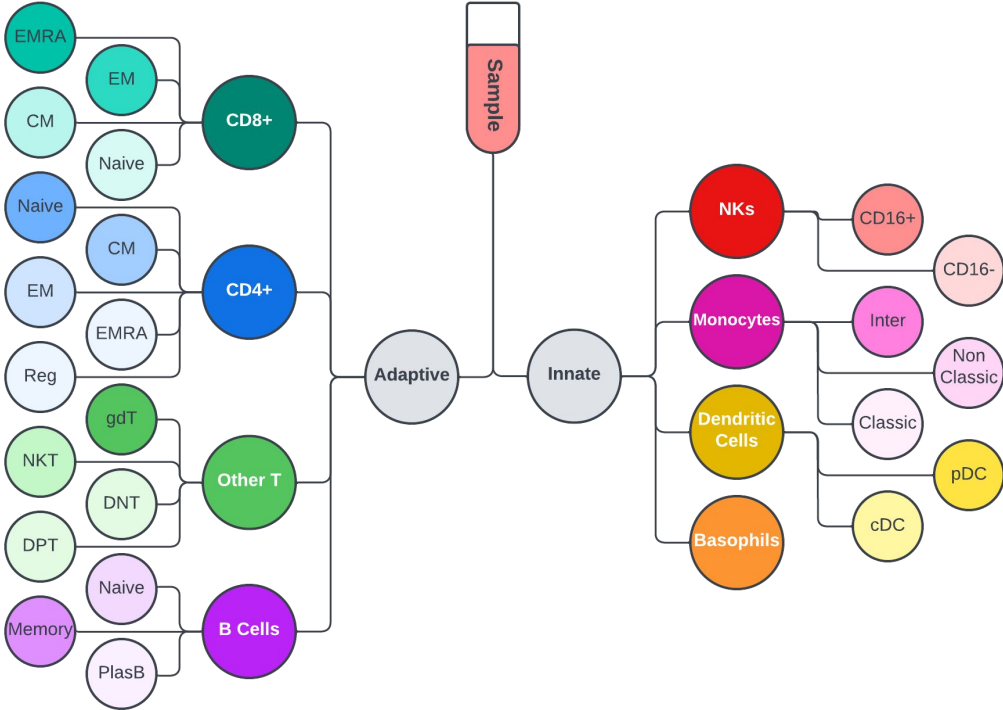
Viability assessment, PFA fixation

Sample processing and CyTOF acquisition



Processing and acquisition on CyTOF

CyTOF Panel with 43 markers



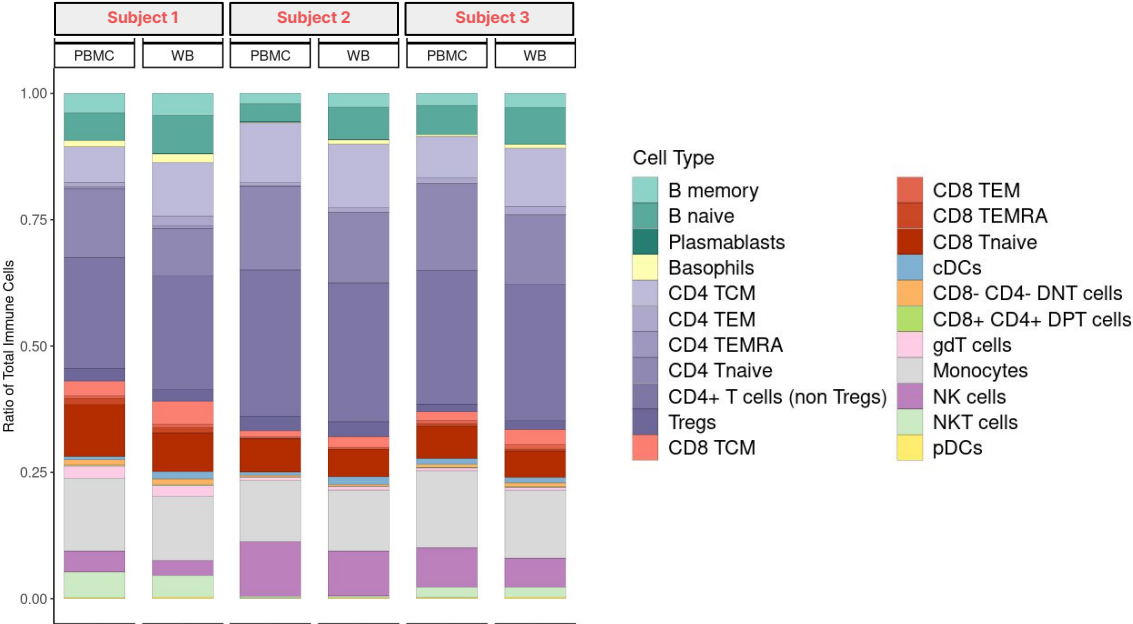
Summary Whole Blood vs. PBMC

Comparable immune cell frequencies observed in whole blood and PBMCs processed with identical 43-marker CyTOF panel.

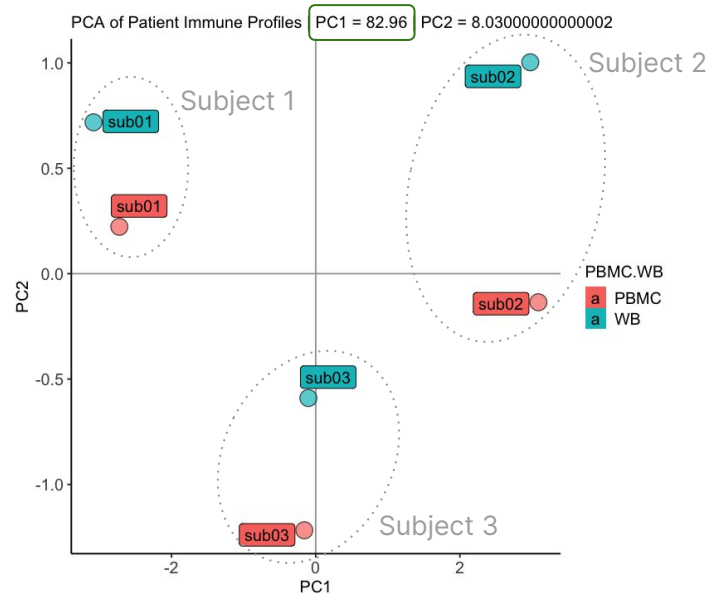
**3 Subjects - 1 whole blood & 1 PBMC sample per subject
1 CyTOF panel**

- Comparable immune cell compositions between whole blood and PBMCs, with greater variability observed between subjects.
 - Immune population frequencies in whole blood and PBMCs are highly correlated.
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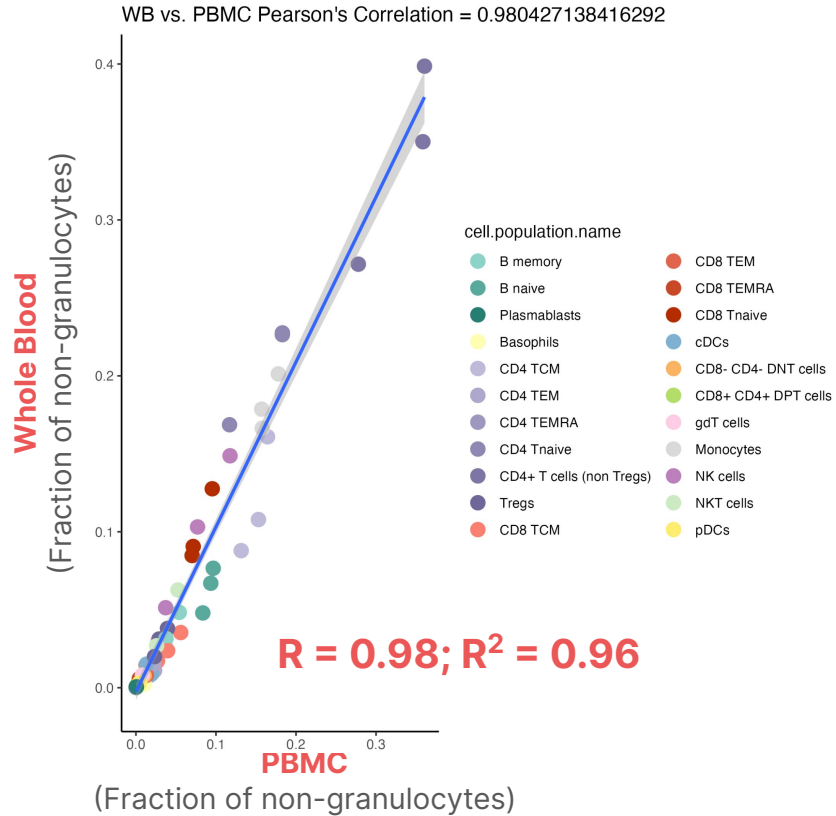
Comparable immune cell compositions between sample types, with greater variability observed between subjects



Separation between samples driven primarily by differences in immune cell composition between subjects (PC1: 83%), compared to sample type (PC2: 8%)

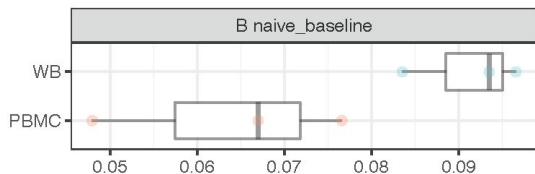


Highly correlated immune cell frequencies in whole blood and PBMC

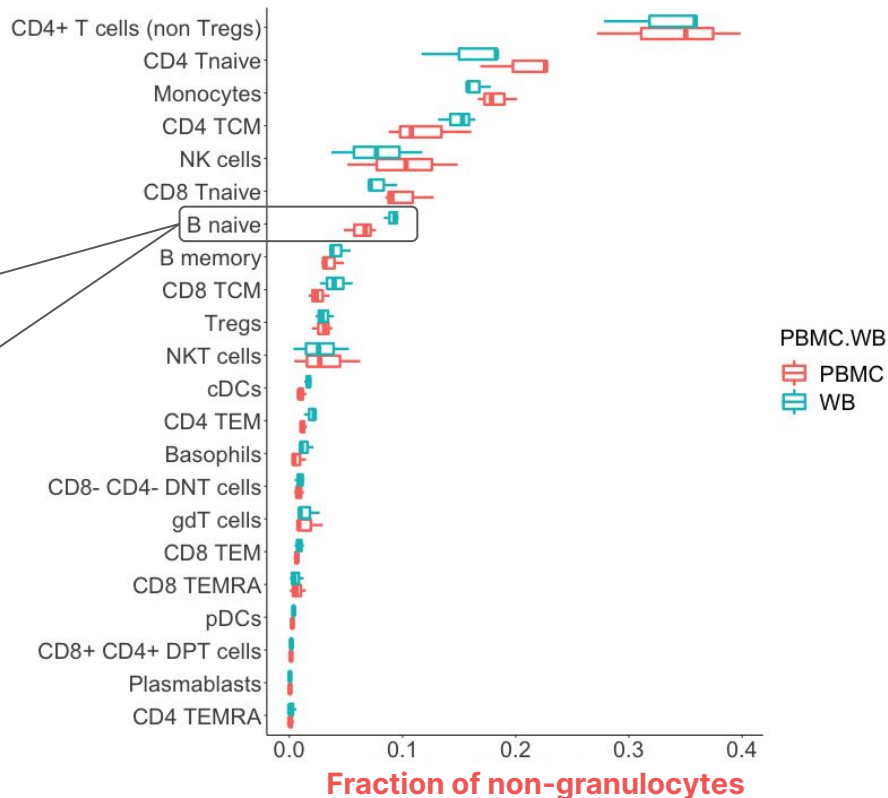


All comparisons of immune cell frequencies between whole blood and PBMCs were statistically not significant, except for naive B cells

$\Delta 2.5\%$, FDR: 0.01



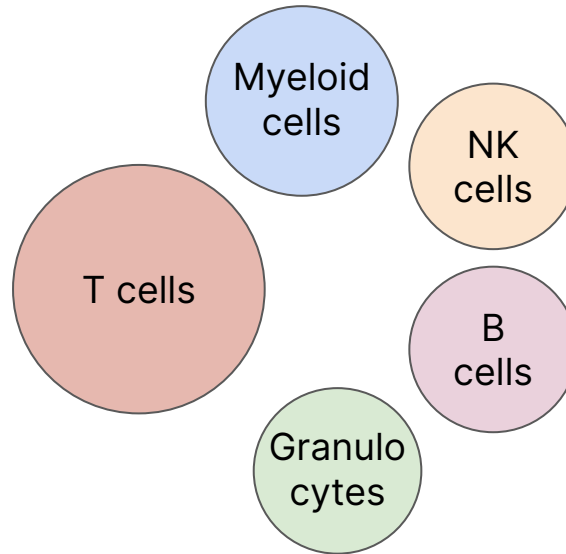
Fraction of non-granulocytes



Other differences between PBMCs and whole blood

PBMCs

- Good quality data
- Cryopreservation → stable for years



Whole Blood

- Similar quality data
- Additional information on granulocytes
- Preserves fragile cell types
- Easy isolation protocol

Teiko's whole blood rapid onsite protocol makes blood collection easy



Our whole blood protocol takes **~20 minutes** and requires:

- (1) A Stable-Lyse buffer step
- (2) A 15-minute incubation period
- (3) A Stable-Store buffer step

Samples can then be stored in **-80C** for **6+ months** before shipment.

Teiko can supply TokuKits that contain materials needed for sites to perform all protocol steps.

**Want to learn more?
Teiko.bio/contact**