**Supplementary Material**

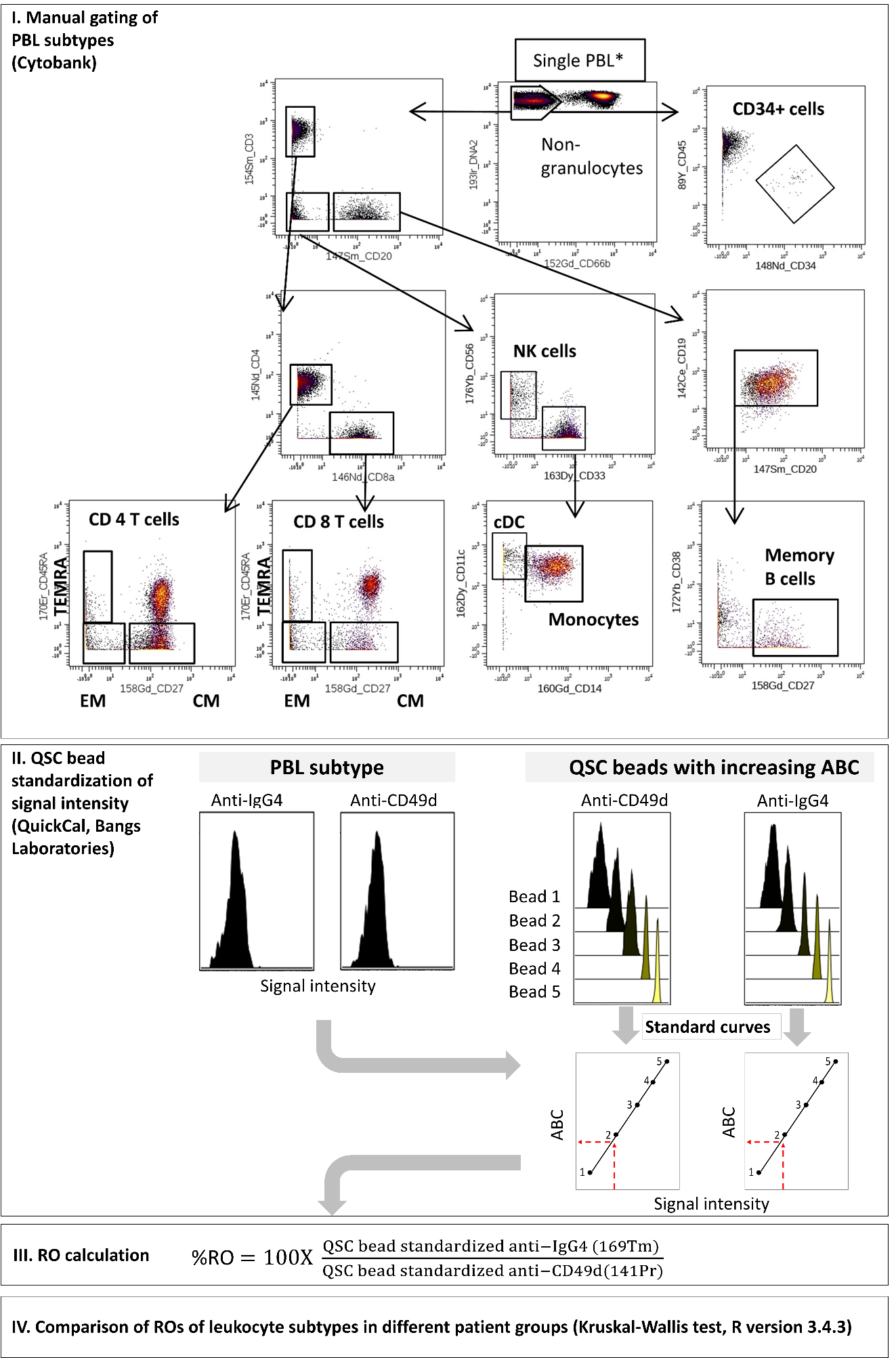
**Table e-1:** Antibody panel

|  |  |  |  |
| --- | --- | --- | --- |
| **Metal isotope tag** | **Target** | **Clone** | **Company** |
| 141Pr | CD49d | 9F10 | Fluidigm |
| 142Nd | CD19 | HIB19 | Fluidigm |
| 143Nd | HLA-DR | L243 | Fluidigm |
| 144Nd | CD146 | P1H12 | Biolegend |
| 145Nd | CD4 | RPA-T4 | Fluidigm |
| 146Nd | CD8a | RPA-T8 | Fluidigm |
| 147Sm | CD20 | 2H7 | Fluidigm |
| 148Nd | CD34 | 581 | Fluidigm |
| 149Sm | CD25 (IL-2R) | 2A3 | Fluidigm |
| 150Nd | CD61 | VI-PL2 | Fluidigm |
| 151Eu | CD278/ICOS | C398.4A | Biolegend |
| 152Sm | CD66b | 80H3 | Fluidigm |
| 153Eu | CD194 (CCR4) | 205410 | Fluidigm |
| 154Sm | CD3 | UCHT1 | Fluidigm |
| 155Gd | CD161 | HP-3G10 | Biolegend |
| 156Gd | CD184 (CXCR4) | 12G5 | Fluidigm |
| 158Gd | CD27 | L128 | Fluidigm |
| 159Tb | CD45RO | UCHL1 | Biolegend |
| 160Gd | CD14 | M5E2 | Fluidigm |
| 161Dy | CD183 (CXCR3) | G025H7 | Biolegend |
| 162Dy | CD11c | Bu15 | Fluidigm |
| 163Dy | CD33 | WM53 | Fluidigm |
| 164Dy | CD15 | W6D3 | Fluidigm |
| 165Ho | CD127 (IL7-Ra) | A019D5 | Fluidigm |
| 166Er | CD123 (IL-3R) | AO19D5 | Biolegend |
| 167Er | CD162 | KPL-1 | Fluidigm |
| 168Er | CD185 (CXCR5) | 51505 | R&D Systems |
| 169Tm | Human IgG4 | HP6025 | Abcam |
| 170Er | CD45RA | HI100 | Fluidigm |
| 172Yb | CD38 | HIT2 | Fluidigm |
| 173Yb | CD196/CCR6 | G034E3 | Biolegend |
| 174Yb | CD279 (PD-1) | EH12.2H7 | Fluidigm |
| 175Lu | CD235ab (Glycophorin) | HIR2 | Fluidigm |
| 176Yb | CD56 | NCAM16.2 | Fluidigm |
| 209Bi | CD16 | 3G8 | Fluidigm |
| 89Y | CD45 | HI30 | Fluidigm |

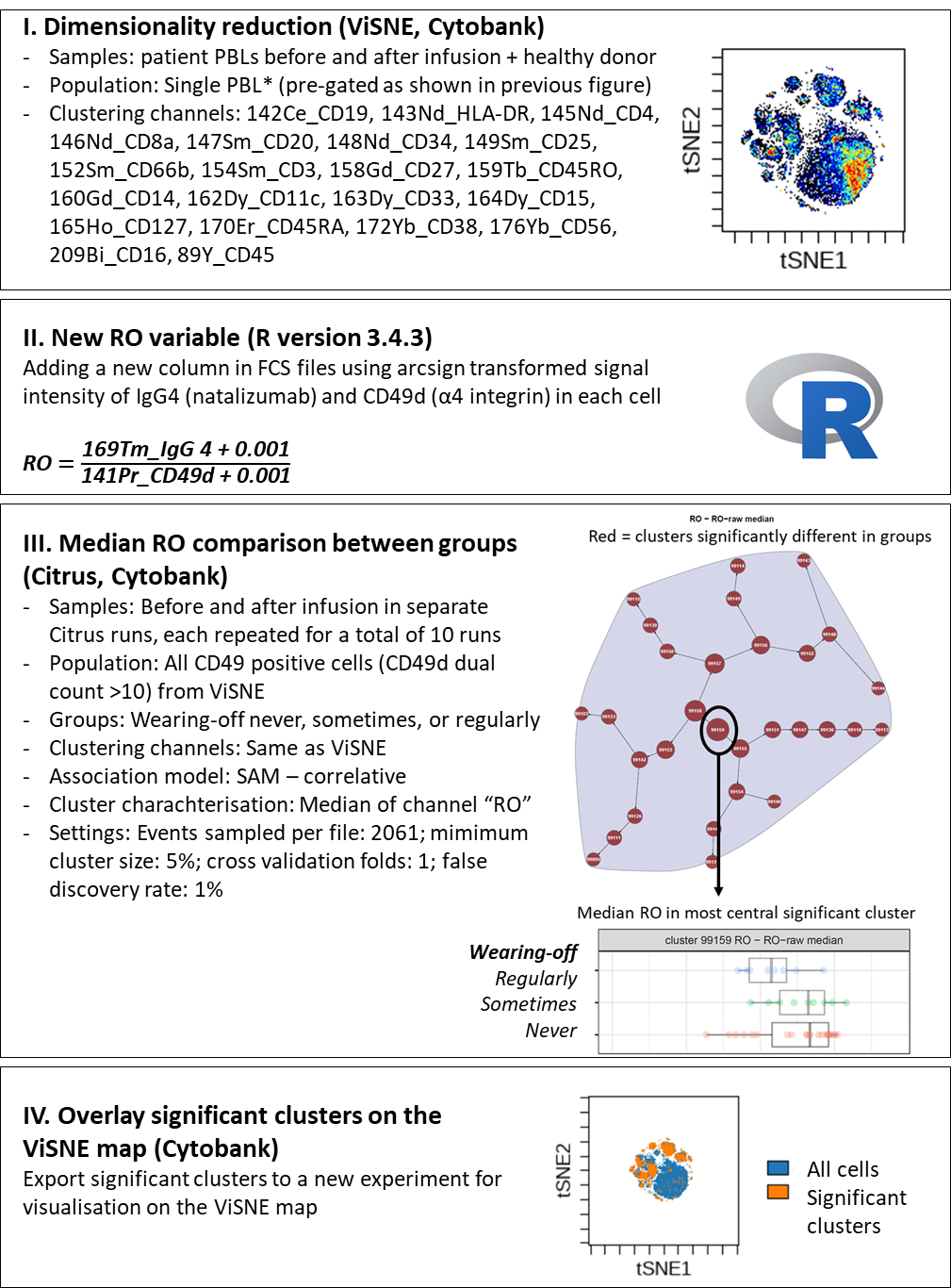
**Figure e-1.** Data analysis of peripheral blood leukocyte (PBL) samples. **A)** Clean-up gating into single PBLs. RBC = red blood cells. **B)** Manual workflow: gating of 11 PBL subtypes, QSC bead standardization, and RO calculation. ABC = antibody binding capacity. **C)** Unsupervised workflow: dimensionality reduction for visualization with ViSNE, automated clustering and significance testing with SAM analysis in CITRUS, and visualization of clusters with significantly different median ROs in the three patient groups on the ViSNE map.

A close up of a map

Description automatically generated



C.



**Figure e-2.** Natalizumab RO in CD8+ and CD4+ T cells not stratified further into subtypes before (green) and after (orange) natalizumab infusion. P (based on Kruskal-Wallis test) comparing RO in patients reporting wearing-off symptoms never, sometimes, and regularly.