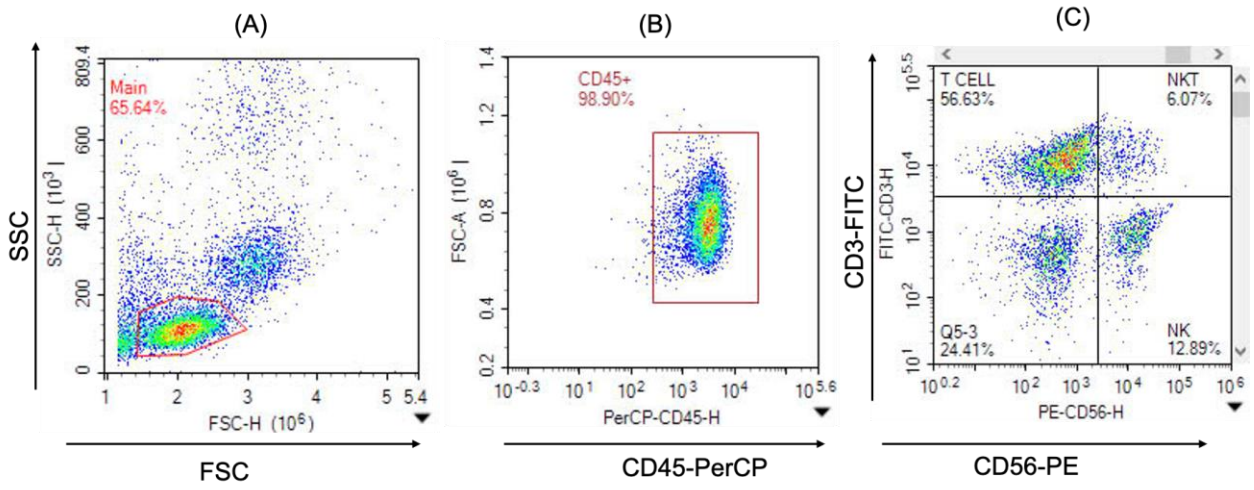
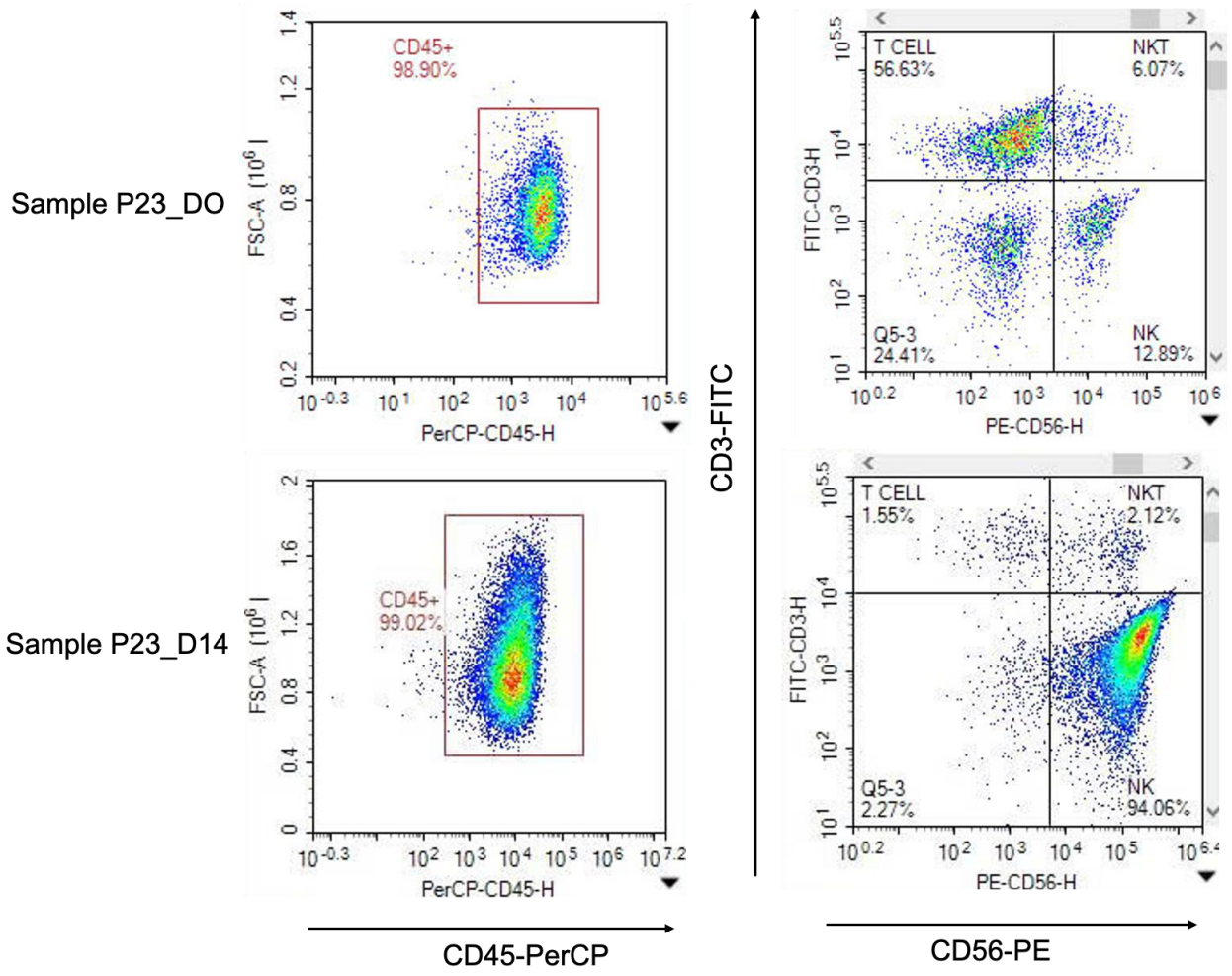


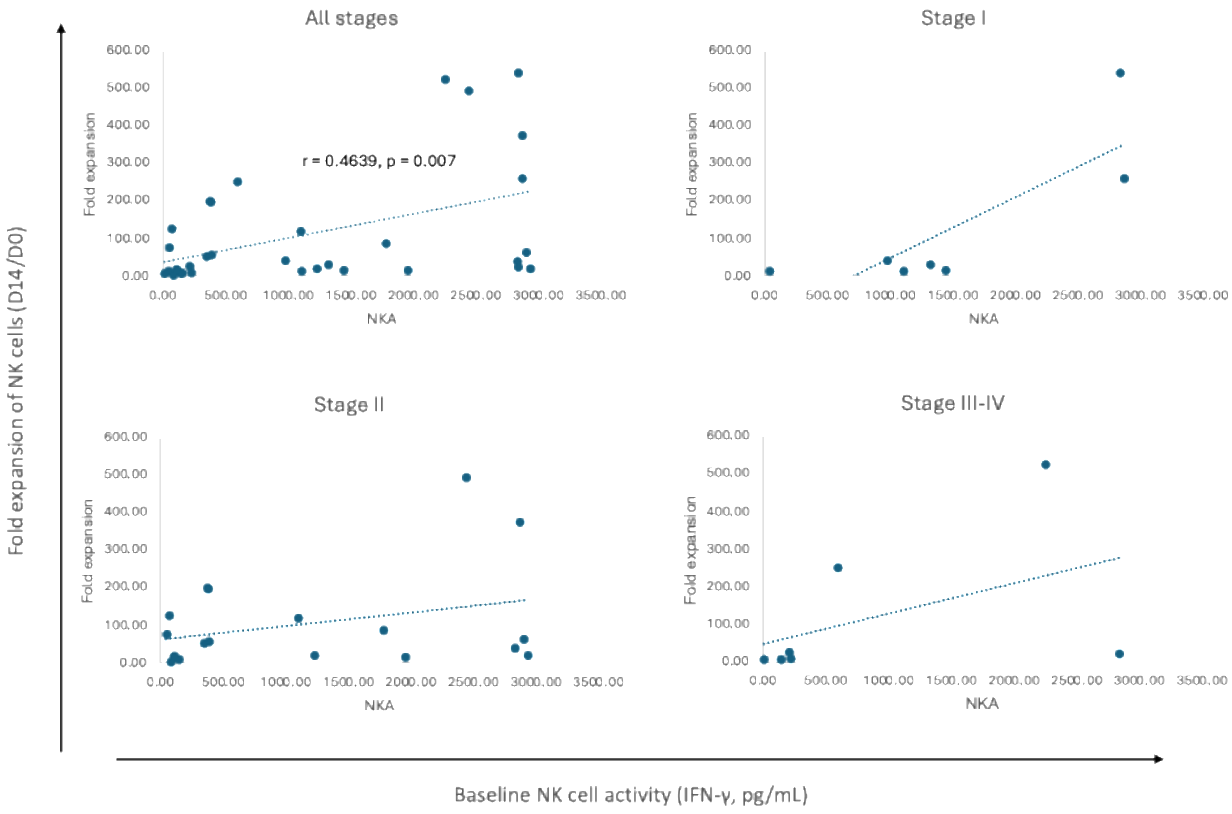
Supplementary Figure S1. Representative flow cytometric gating strategy for peripheral blood NK-cell identification.

(A) Lymphocyte gate established according to forward scatter (FSC) and side scatter (SSC) characteristics. (B) Selection of $CD45^+$ leukocytes from the lymphocyte population. (C) Identification of NK cells as $CD3^-CD56^+$ lymphocytes. NK-cell frequency was expressed as the percentage of $CD3^-CD56^+$ cells among total peripheral blood lymphocytes.



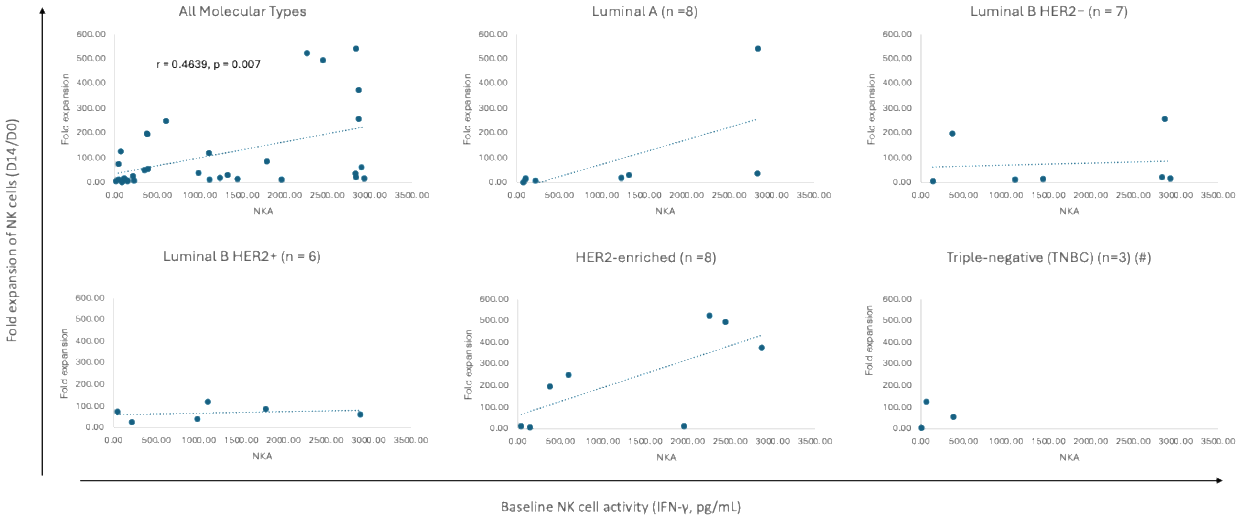
Supplementary Figure S2. Representative flow cytometric assessment of NK-cell purity before and after ex vivo expansion.

Representative CD3 versus CD56 dot plots showing NK-cell frequency before culture (upper panels) and after 14 days of ex vivo expansion (lower panels). NK cells were defined as $CD3^{-}CD56^{+}$ lymphocytes. The expanded cell product demonstrated marked enrichment of the NK-cell population with concomitant depletion of $CD3^{+}$ T cells. Percentages indicate the proportion of cells within each gated population.



Supplementary Figure S3. Association between baseline NK-cell activity and ex vivo NK-cell expansion according to disease stage.

Scatter plots showing the relationship between baseline NK-cell activity, measured by IFN-γ release using the NKA-VUE assay, and NK-cell fold expansion after 14 days of ex vivo culture in the overall study population (All stages) and according to disease stage (Stage I, Stage II, and Stage III–IV). Dotted lines indicate fitted linear regression lines. The figure provides an exploratory visualization of the relationship between baseline NK-cell functional activity and ex vivo NK-cell expansion across disease-stage groups.



Supplementary Figure S4. Association between baseline NK-cell activity and ex vivo NK-cell expansion according to molecular subtype.

Scatter plots showing the relationship between baseline NK-cell activity, measured by IFN-γ release using the NKA-VUE assay, and NK-cell fold expansion after 14 days of ex vivo culture in the overall study population (All Molecular Types) and according to breast cancer molecular subtype: Luminal A (n = 8), Luminal B HER2− (n = 7), Luminal B HER2+ (n = 6), HER2-enriched (n = 8), and triple-negative breast cancer (TNBC; n = 3). Dotted lines indicate fitted lines for each group. The figure provides an exploratory visualization of the relationship between baseline NK-cell functional activity and ex vivo NK-cell expansion across molecular subtypes.