Figure S1: Representative histologic staining of cellular infiltrates in a cutaneous SCC biopsy. Staining for infiltrating CD8+ T cells (A), CD20+ B cells (B), CD56+ NK cells (C) and FoxP3+ Tregs (D).

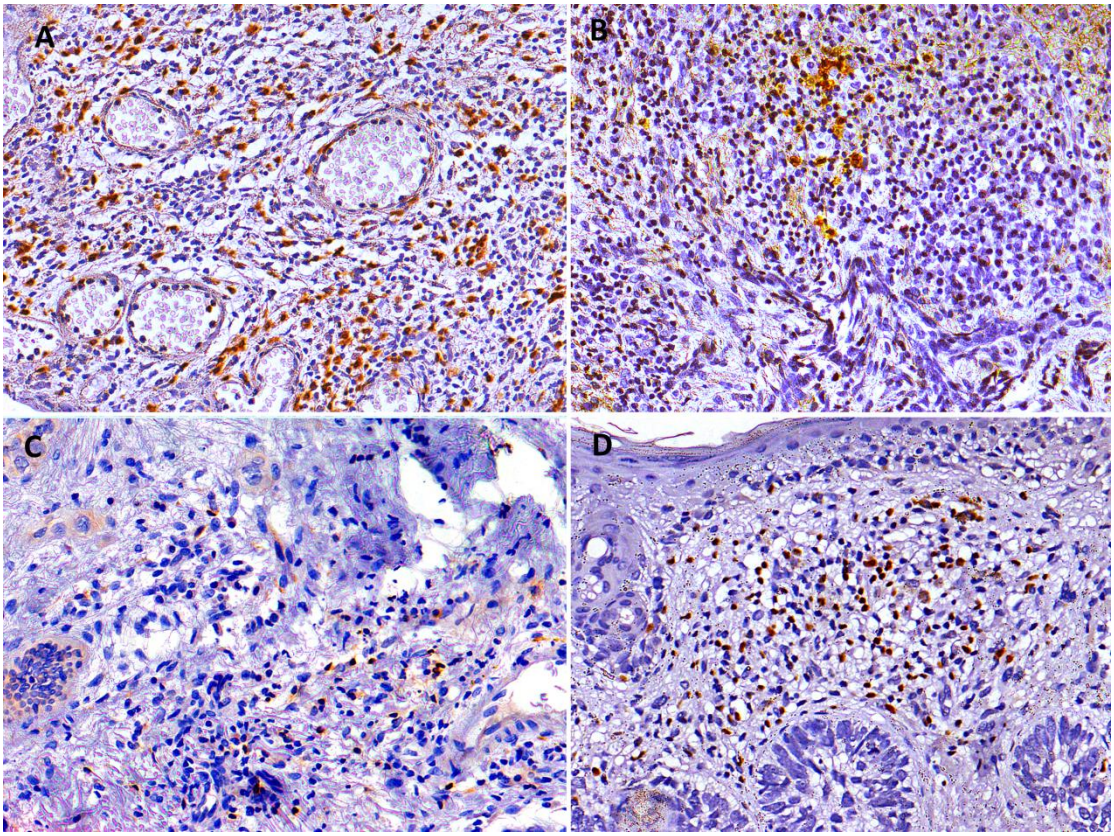

Figure S2. A representative experiment performed with PBMCs of a KT-SCC patient. Different cell subsets were assessed in PBMCs and quantified using the following strategy: Cells in the lymphocyte light scatter gate were evaluated for the expression of the lineage markers CD3+ (A) and CD19+ (B). CD3+ cells were divided into CD4+ and CD8+ cells and percentages were calculated from CD3+ cells (C). To identify CD56hi NK cells the gate was set on CD3- cells (D). Foxp3+Tregs were quantified gating FoxP3+CD127low on a CD4+CD25hi cells plot (given as % over CD4+ T cells).

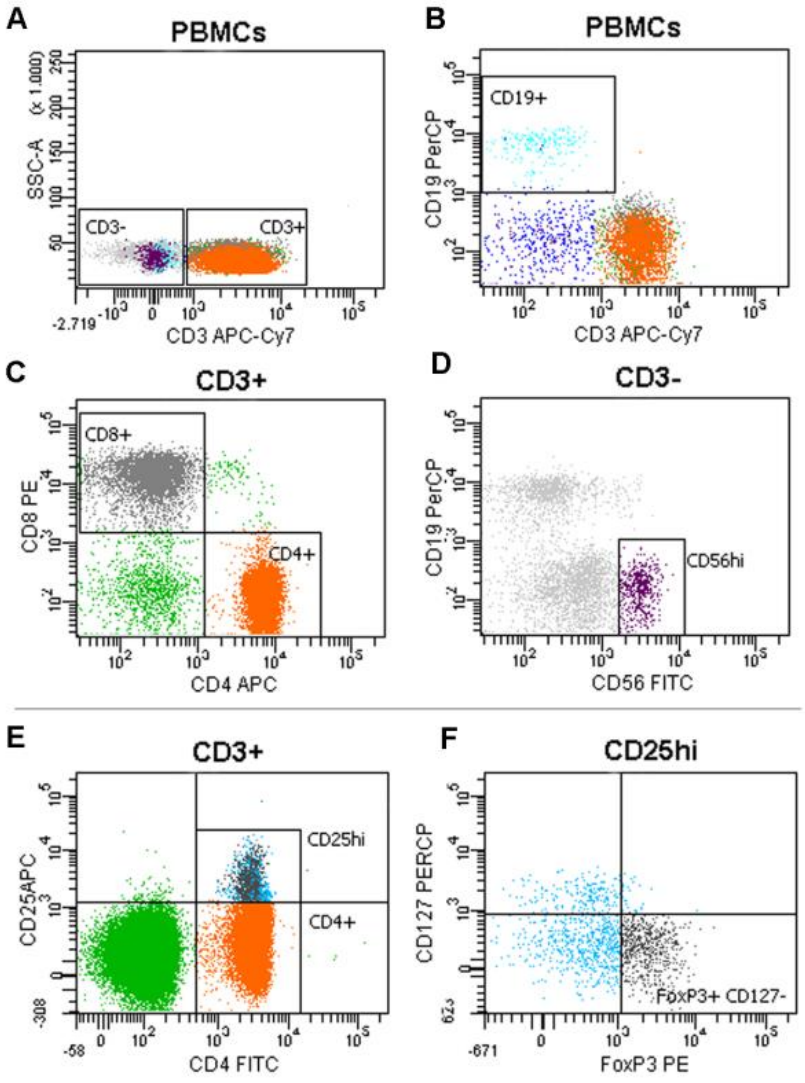

Figure S3. Analysis of different immune-cell phenotypes circulating in peripheral blood in KT-SCC, NoKT-SCC and HC. No differences between KT-SC, NoKT-SC and HC regarding the different cell subsets in peripheral blood. (489.69±261.56 vs 473.37±358.30 vs 478.44±60.46 for CD8+ T cells (p=0.98), 696.66±427.50 vs 951.13±728.48 vs 1105.74±83.48 for CD4+ T cells (p=0.16), 75.21±58.01 vs 88.08±54.30 vs 125.56±71.62 for B cells (p=0.06), 954.65±468.23 vs 1070.37±768.46 vs 875.28±305.84 for NK cells (p=0.78) and 8.96±12.60 vs 10.77±6.88 vs 5.94±5.06 for FoxP3+Tregs (p=0.723) in KT-SCC, NoKT-SCC and HC, respectively).

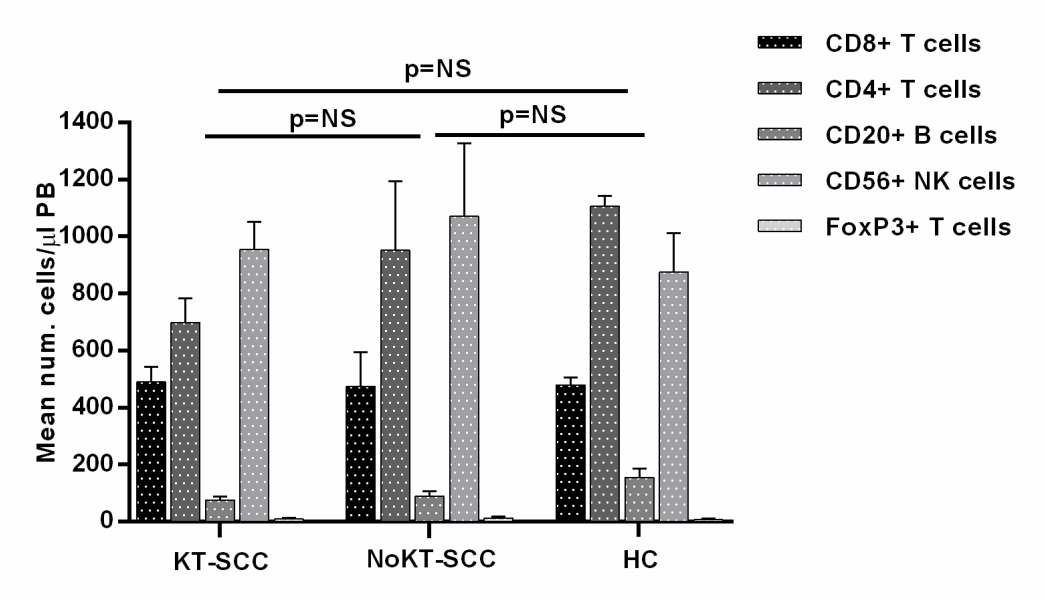

Figure S4: Tumor-specific T cell responses against all SCC antigens were lower in patients with SCC relapses as compared to patients without tumor recurrences (KT-CNI-SCC with relapses vs no relapses: 9.5±14.5 vs 15.33±16., p=0.3; 8±17.67 vs 11.44±13, p=0.067; 4.44±13.36 vs 13.33±23.7, p=0.07; 4.38±8 vs 12.67±17, p=0.058; 3.56±6.8 vs 11.11±19, p=0.03 IFN-γ spots/3x10^5PBMC for MAGE-A1, MAGE-A3, P53, Htert and Survivin, respectively).