**Supplemental Table 1.** Release criteria.

**Supplemental Table 2.** Patient and tumor characteristics at time of diagnosis.

**Supplemental Figure 1.** CD171 tissue expression in human shown by TMA.

**Supplemental Figure 2.** CD171 tissue expression in rhesus shown by TMA.

**Supplemental Figure 3.** Monitoring of NHPs after CAR T cell infusion. **A)** CAR surface expression as detected with an antibody against the IgG Fab fragment. **B)** Laboratory parameters measured in the peripheral blood before and the indicated days after CAR T cell infusion remained in normal ranges. (Shaded areas=normal ranges) **C)** Plasma IL-6 and IFN-γ levels measured in the peripheral blood before and at the indicated days after CAR T cell infusion.

**Supplemental Figure 4.** Phenotypic analysis of initial and final patient products. **A)** Flow cytometric quantification of expression of several surface markers determining phenotype in initial apheresis products after CD4+ selection. **B)** Flow cytometric quantification of expression of several surface markers determining phenotype in initial apheresis products after CD8+ selection. **C)** Flow cytometric quantification of expression of several surface markers determining phenotype in final CD4+ product. **D)** Flow cytometric quantification of expression of several surface markers determining phenotype in final CD8+ product.