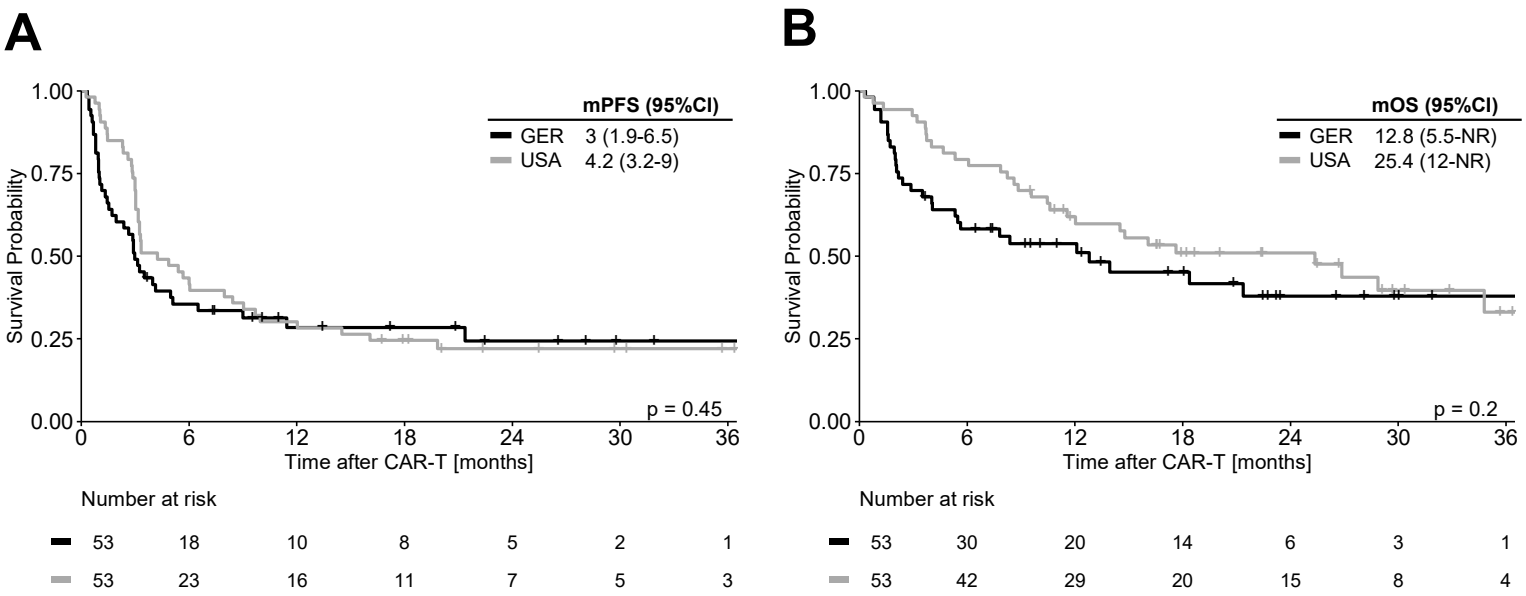

Fig. S1 Survival outcomes of CD19.CAR-T r/r LBCL patients are similar in Germany and the USA. Kaplan Meier estimates. Kaplan-Meier estimates of progression-free survival (**A**) and overall survival (**B**) stratified by treatment location (black line = Germany, grey line = USA). The p-value of the Mantel-Cox Log-rank test is denoted on the graph inset. Abbreviations: 95%CI = 95% confidence interval, mPFS = median progression-free survival, mOS = median overall survival.

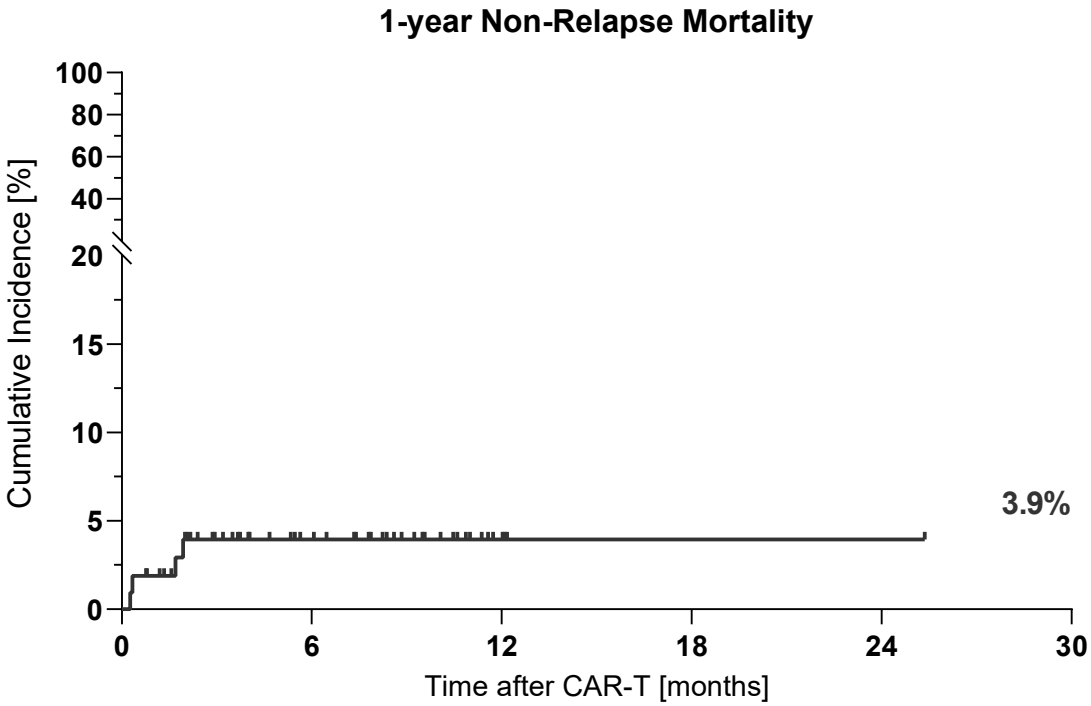

Fig. S2 Cumulative incidence of non-relapse mortality.

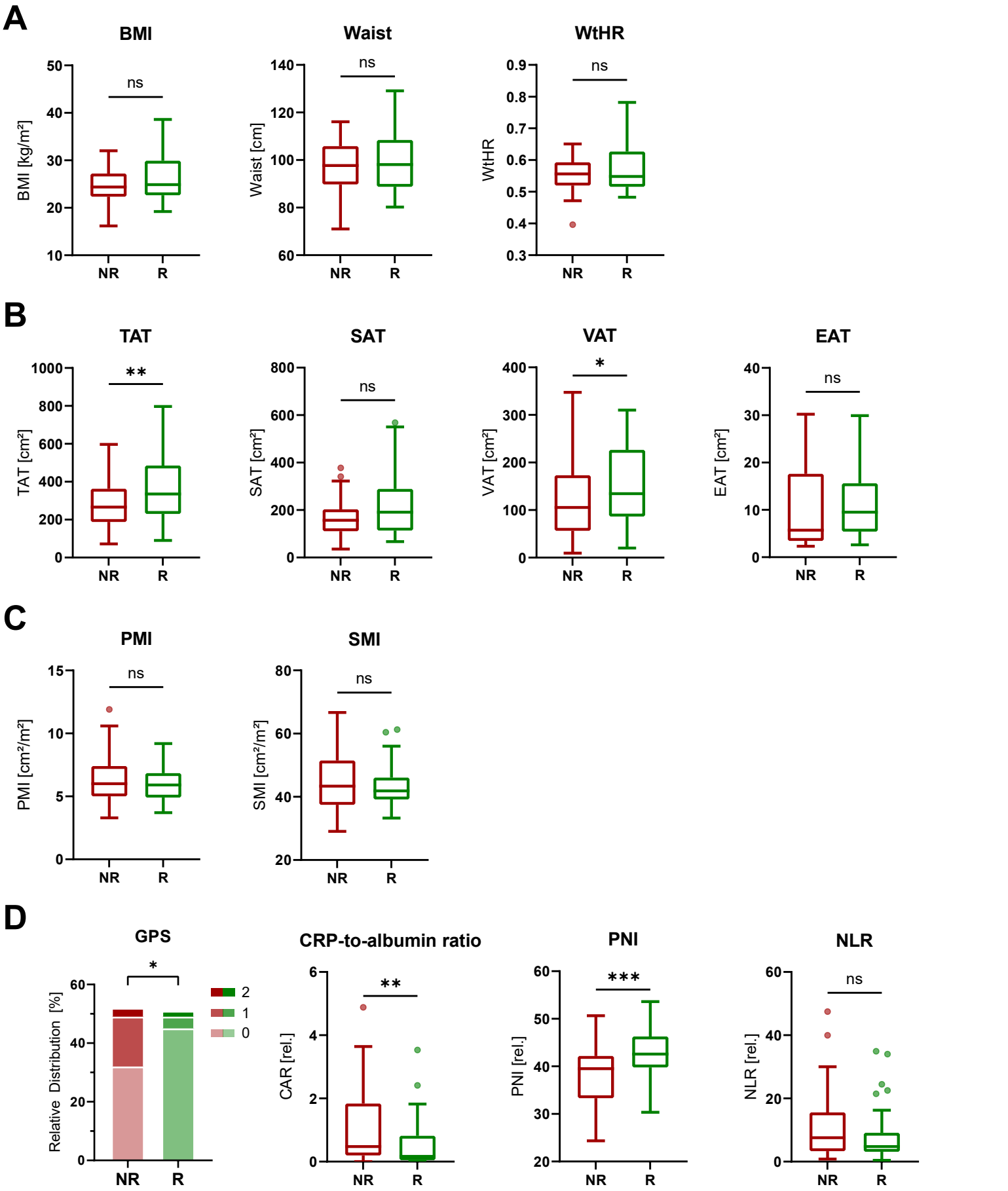

Fig. S3 Early responders to CD19.CAR-T display increased adipose tissue deposits and favorable nutritional inflammation scores. Box plots comparing early (day 90) responders (R) vs. non-responders (NR) to CD19.CAR-T in terms of (A) anthropometric features, (B) adipose tissue distribution, (C) muscle tissue distribution, (D) and nutritional inflammation scores. A From left to right: body mass index (BMI), waist circumference (Waist), Waist-to-Height-ratio (WtHR). B From left to right: total (TAT), subcutaneous (SAT), visceral (VAT), and epicardial adipose tissue (EAT) deposits. C From left to right: psoas muscle index (PMI) and skeletal muscle index (SMI). D From left to right: Glasgow Prognostic Score (GPS), CRP-to-Albumin ratio (CAR), Prognostic Nutritional Index (PNI), and Neutrophil-to-Lymphocyte ratio (NLR). Box and whiskers indicate the median and 95% confidence interval; respective p-values are denoted above the graph (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ns = not significant).

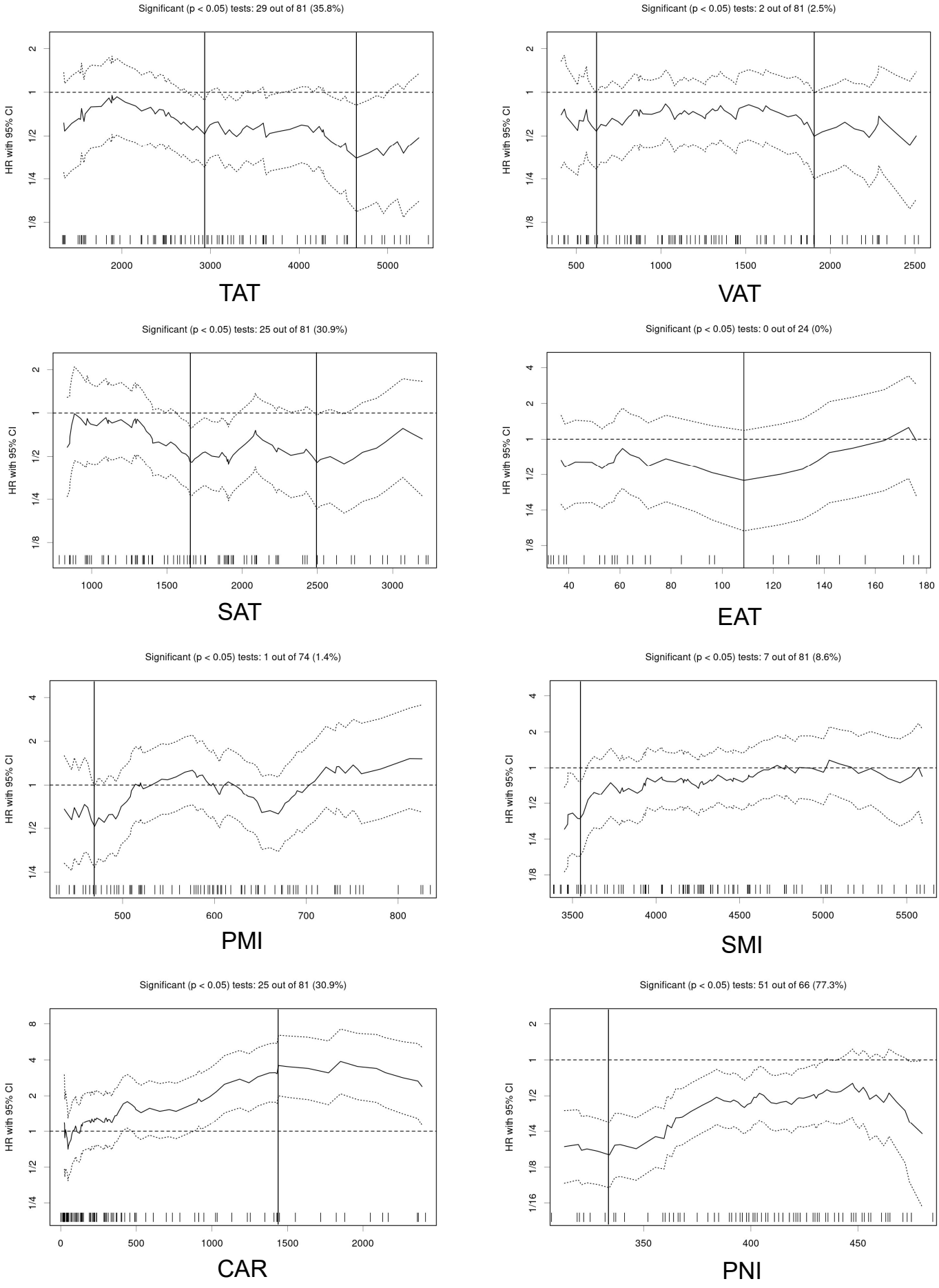

Fig. S4 Definition of cut-offs based on a optimal log rank test-based separation of the patient cohort. Body composition cut-offs were defined with the free-to-use webtool "Cutoff Finder" (https://molpathoheidelberg.shinyapps.io/CutoffFinder_v1/, last accessed: 11/08/22). Patient cohorts were defined based on optimal separation in the log-rank test when compared for overall survival. Hazard Ratio (HR) and 95% Confidence Intervals as well as number of (significant) performed tests over the entire span of parameter values are shown. Abbreviations: CAR = CRP-to-albumin ratio, HR = hazard ratio, P/SMI = psoas/skeletal muscle index, PNI = Prognostic Nutritional Index, T/S/V/EAT = total/subcutaneous/visceral/epicardial adipose tissue.

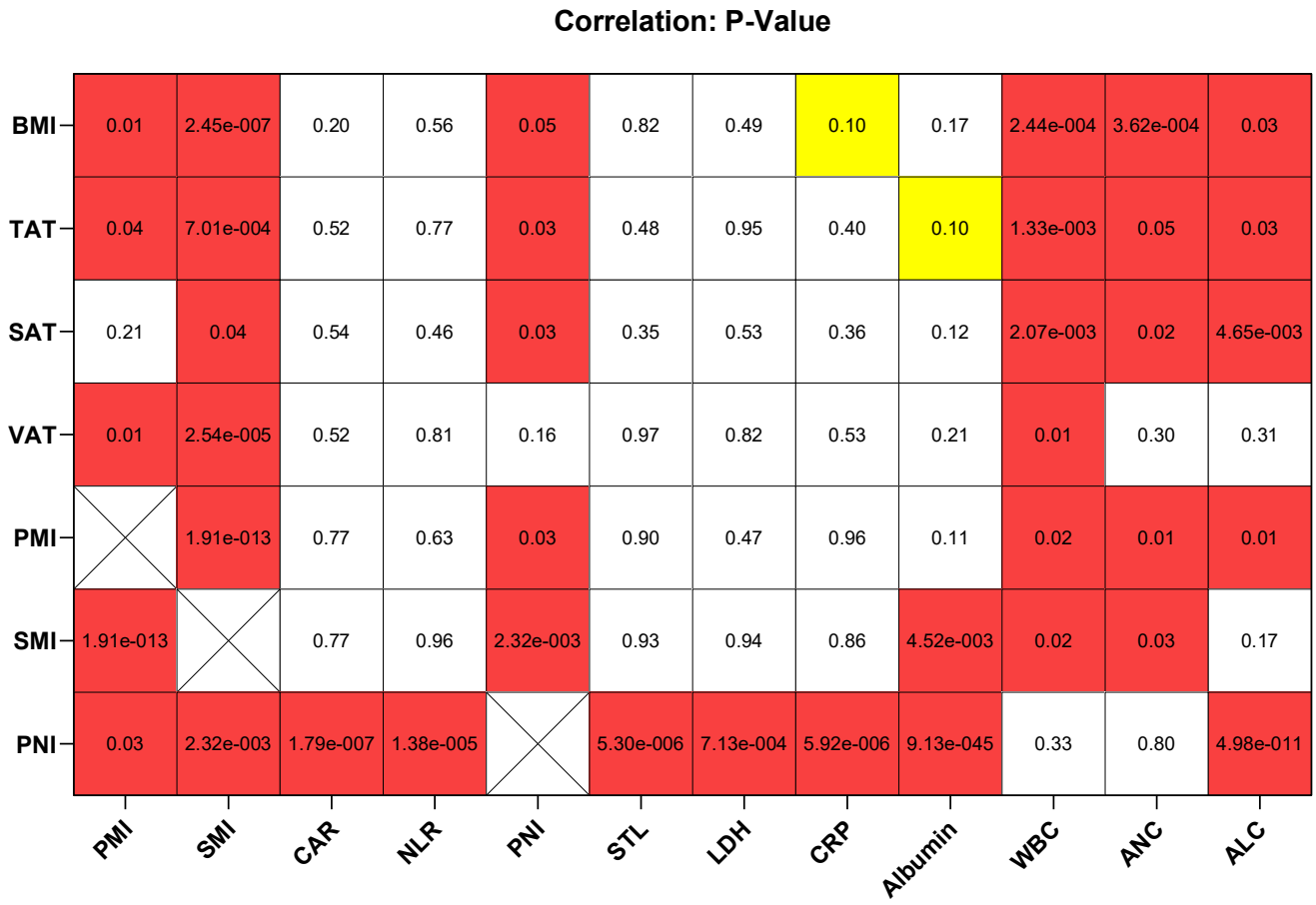

Fig. S5 Heatmap showing p-values to respective Spearman correlation coefficient (linked to Figure 5A in manuscript). Numbers display p-value to Spearman correlation of the investigated variables. Yellow filled squares display correlations with p-values < 0.1. Red filled squares display corrleations with p-values < 0.05.

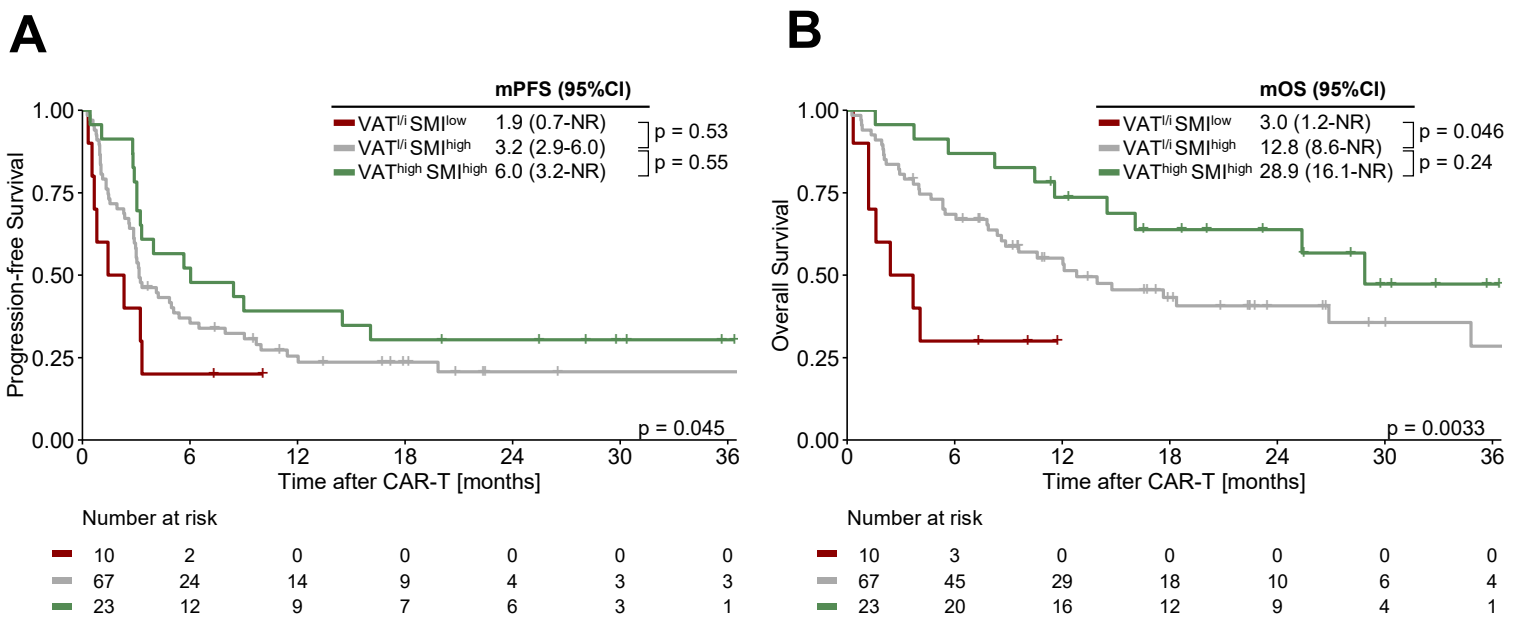

Fig. S6 A higher amount of muscle mass combined with increased visceral adipose tissue is associated with a superior survival in CD19.CAR-T patients. Kaplan-Meier estimates of progression-free survival (**A**) and overall survival (**B**) stratified by a combination of visceral adipose tissue (VAT) and skeletal muscle index (SMI). VAT low-intermediate (l/i) was defined as <190 cm² and SMI low was defined as <34.5 cm². The respective median survival in months is depicted above the graph. The p-value of the Mantel-Cox Log-rank test is denoted on the graph inset. Abbreviations: 95%CI = 95% confidence interval, mOS = median overall survival, mPFS = median progression-free survival.