

Supplemental Table 1. Criteria and corresponding grade of non-CNS EMD response to CAR T-cells.

Complete response (CR)	Partial response (PR)	Stable disease (SD)	Progressive disease (PD)
No evidence of non-CNS EMD identifiable on FDG PET-CT imaging.	Evidence of interval disease reduction with residual FDG-avid non-CNS EMD identifiable on FDG PET-CT imaging.	Evidence of persistent or unchanged FDG-avid non-CNS EMD seen at initial presentation to our institution identifiable on FDG PET-CT imaging.	Evidence of new or worsened sites of non-CNS EMD identifiable on FDG PET-CT imaging.
CAR, chimeric antigen receptor; FDG PET-CT, 18-fluorodeoxyglucose positron emission tomography-computed tomography; non-CNS EMD, non-central nervous system extramedullary disease.			

Supplemental Table 2. Response to one dose of pembrolizumab following CAR T-cell infusion in select patients with B-ALL non-CNS EMD (n=3).

Patient	Demographics; Non-CNS EMD at Presentation	Peripheral Blood CAR Expansion	Response to CAR	Pembrolizumab rationale	Pembrolizumab administration	Immune- related Adverse Events	Response to pembrolizumab
14	18yo M; retroperitoneal and pelvic wall lymph nodes, pancreas, testes	Max: 12.7% (d+13) 0.2% prior to pembrolizumab	PD: medullary MRD CR, worsened non-CNS EMD (lymph node, pancreas, testes)	Augment circulating CAR against CD19+/CD22+ new non-CNS EMD	Day +84	None	Non-CNS EMD PD 3 weeks after administration
40# (2 nd)	30yo F; mandible, maxilla, breast, kidney, lymph nodes, bones	Max: 21% (d+6) 0% prior to pembrolizumab	MRD-negative CR, early loss of CAR	Induce re-expansion of CAR as bridge to HSCT	Day +22	None	Peripheral blood PD 11 days after administration
41# (2 nd)	8yo M; mandible, kidney, scapula, sternum, costochondral region, femur	Max: 1.8% (d+13) 0% prior to pembrolizumab	PD: medullary PD, stable non-CNS EMD	Augment CAR expansion given suboptimal expansion and response to first CAR infusion	Day -16	Persistent fevers of unclear etiology	PD: stable non-CNS EMD with medullary PD

CAR, chimeric antigen receptor; CR, complete response/complete remission; HSCT, hematopoietic stem cell transplantation; non-CNS EMD, non-central nervous system extramedullary disease; PD, progressive disease. Patients 40# and 41# were recently treated after study cutoff of 5/1/2020. "2nd" indicates treatment with a re-infusion of the same CAR T-cell product.