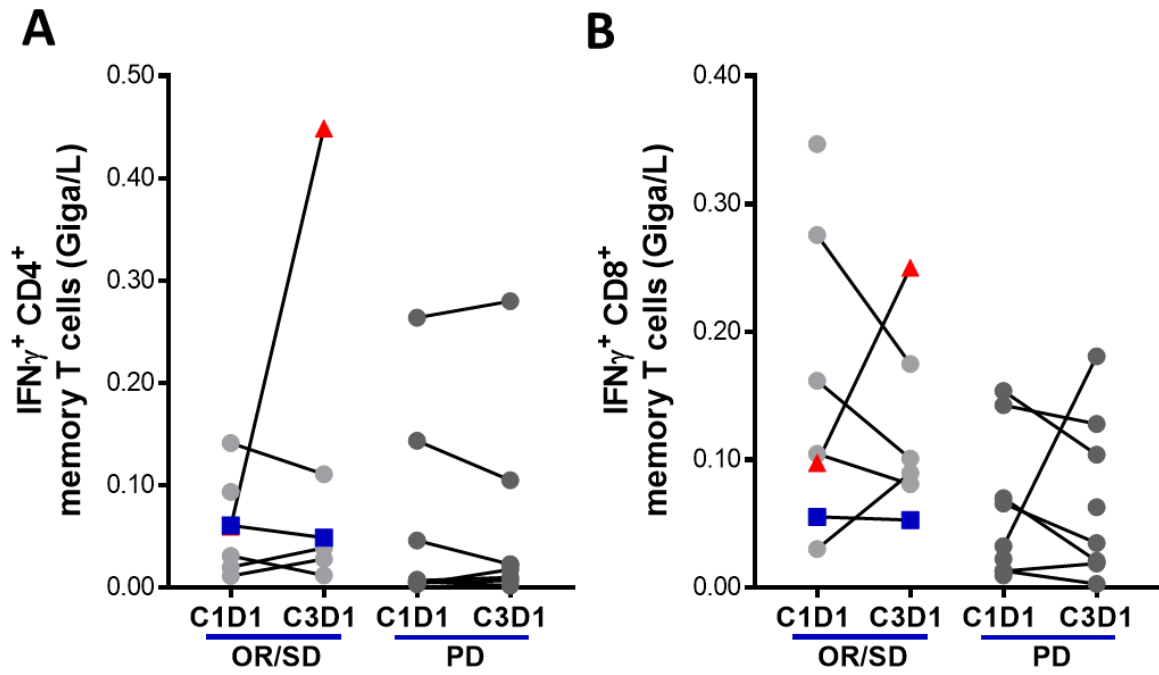


Supplementary Figure S1: At inclusion, patients present blood T and B cell subsets lymphopenia

At inclusion time, absolute number of total Lymphocytes based on clinical blood counts (A), total CD4⁺ (B), total CD8⁺ (C), memory CD4⁺ (D) and CD8⁺ (E) T cells, B cells (F) and Treg cells (G) based on FACS analysis for healthy donors (HD), patients who presented a stable disease or responded (OR/SD) or progressed (PD) during treatment. Patients who responded to treatment were highlighted as blue square for partial responder (PR) (02-003) and red triangle for complete responder (CR) (01-005). Statistical analysis: one-way ANOVA (* p<0,05; ** p<0,005; *** p<0.001, **** p<10⁻⁴).



Supplementary Figure S2: Evolution of the absolute numbers of IFN γ -producing CD4⁺ and CD8⁺ T cells

Quantification of absolute number of memory CD4⁺ (A) and CD8⁺ (B) T cells that produce IFN γ after PMA ionomycin short term reactivation.

Supplementary Table 1 – Adverse Events

No. (%) of patients with at least one	All Grades	Grade ≥2	Grade ≥3	Grade ≥4
AE Related to Pembrolizumab	14 (70.0%)	4	3	0
AE Related to Cyclophosphamide	16 (80.0%)	11	8	1
Serious AE	3 (10.0%)	1	2	0
IrAE	0 (0.0%)	-	-	-
Grade ≥ 2 related AE (Preferred term)				
Lymphocytes count decreased		11	5	1*
PAL increase		2	1	0
Abdominal pain		1	1	0
Fatigue		1	0	0
ASAT increase		1	1	0
GGT increase		1	1	0
Cystitis		1	0	0
IRR		1	0	0

AE : adverse events, irAE : immune-related AE, PAL: Phosphatase alkaline, ASAT: **aspartate aminotransferase**, IRR: infusion related reactions, related : to at least one study drug, * Severe toxicity reported during the safety run