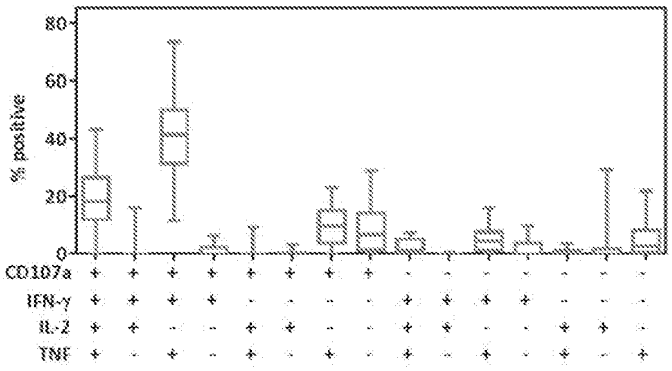
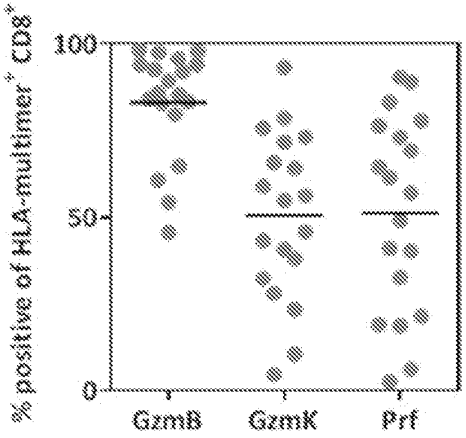
Figure 1

A


% positive
80
60
40
20
0
CD107a + + + + + + + + - - - - - - -
IFN-γ + + + + - - - - + + + + - - -
IL-2 + + - - + + - - + + - - + + -
TNF + - + - + - + - + - + - + - +

B


% positive of HLA-multimer+ CD8+
100
50
0
GzmB
GzmK
Prf

C

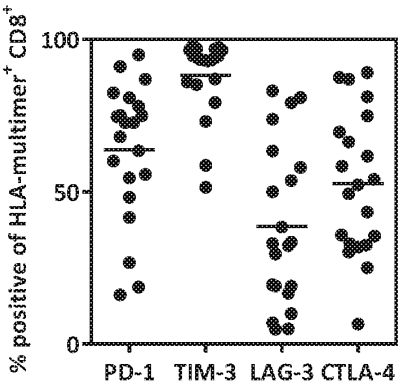
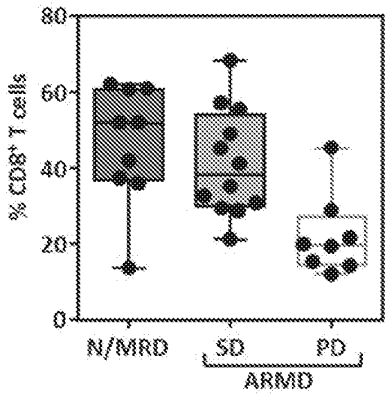

% positive of HLA-multimer+ CD8+
100
50
0
PD-1
TIM-3
LAG-3
CTLA-4

Figure 2

A


80
60
40
20
0
% CD8+ T cells
N/MRD
SD
PD
ARMD

B

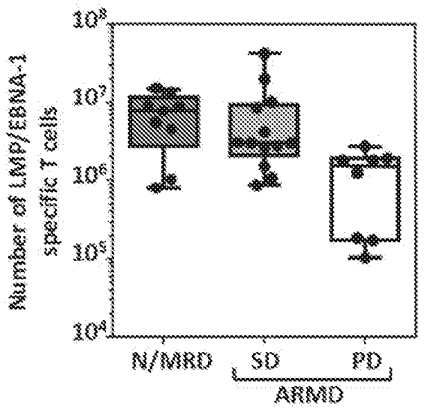
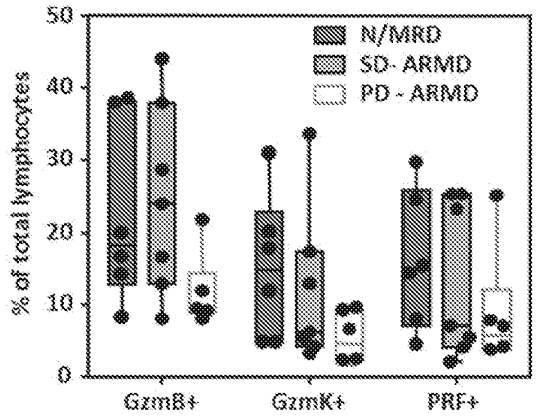

10^8
10^7
10^6
10^5
10^4
Number of LMP/EBNA-1 specific T cells
N/MRD
SD
PD
ARMD

Figure 3

A


50
40
30
20
10
0
% of total lymphocytes
N/MRD
SD- ARMD
PD - ARMD
GzmB+
GzmK+
PRF+

B

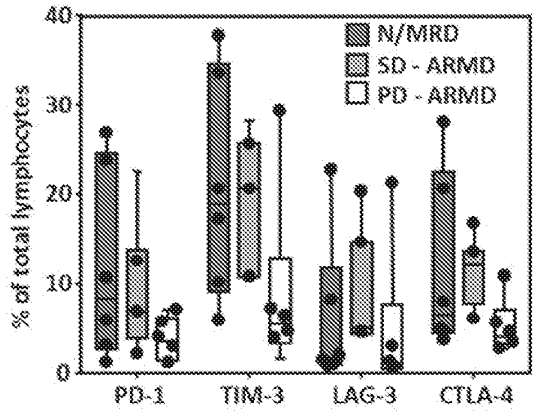

40
30
20
10
0
% of total lymphocytes
N/MRD
SD - ARMD
PD - ARMD
PD-1
TIM-3
LAG-3
CTLA-4

Figure 4

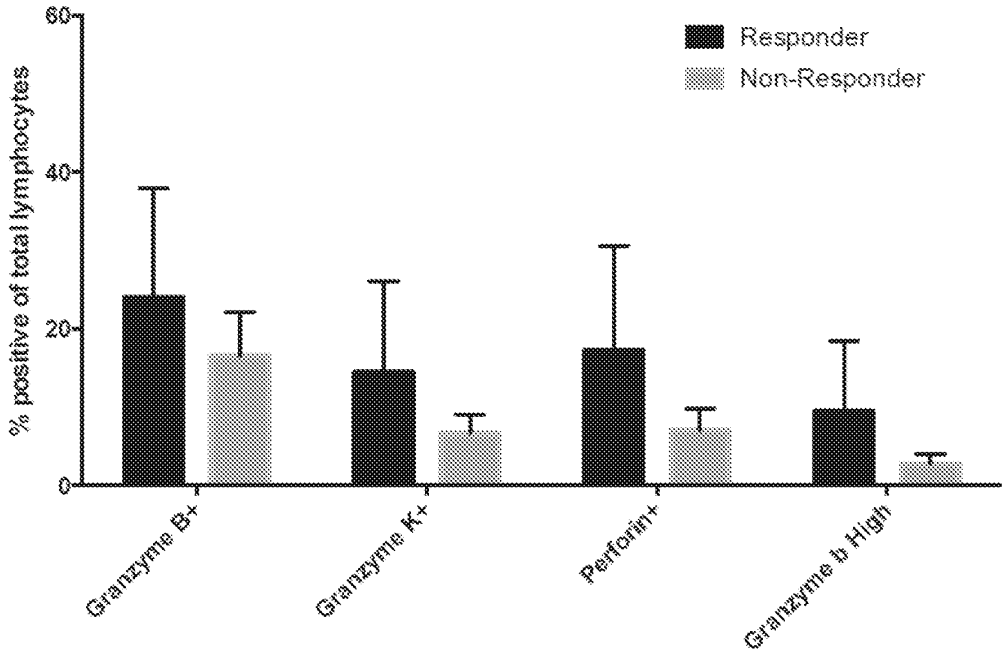

60
40
20
0
% positive of total lymphocytes
Responder
Non-Responder
Granzyme B+
Granzyme K+
Perforin+
Granzyme b High

Figure 5

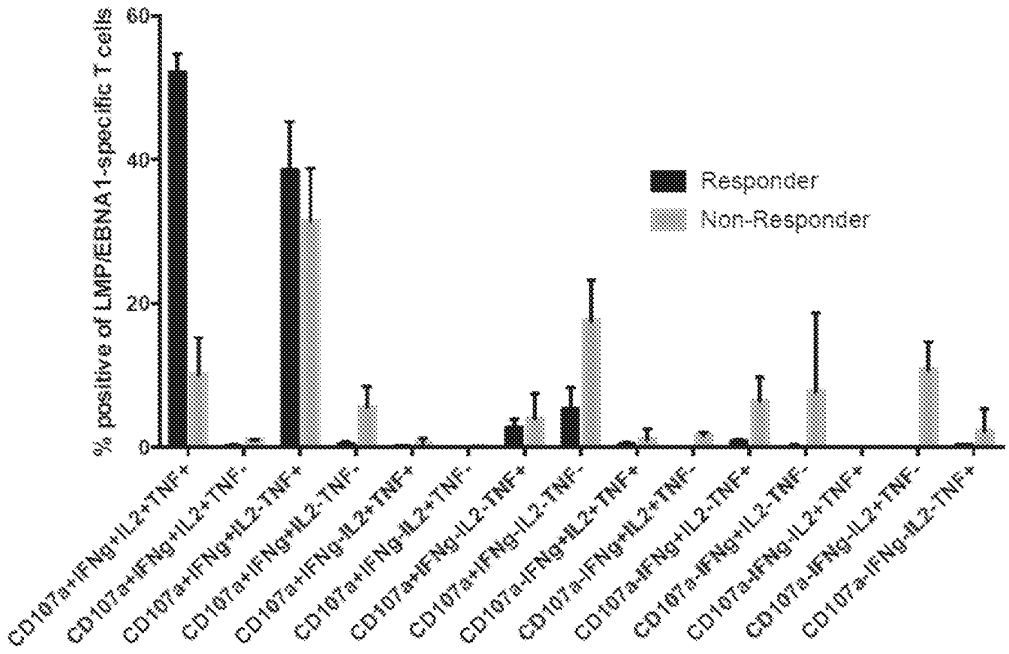

% positive of LMP/EBNA1-specific T cells
60
40
20
0
Responder
Non-Responder
CD107a+IFNg+IL2+TNF+
CD107a+IFNg+IL2+TNF-
CD107a+IFNg+IL2-TNF+
CD107a+IFNg+IL2-TNF-
CD107a+IFNg-IL2+TNF+
CD107a+IFNg-IL2+TNF-
CD107a+IFNg-IL2-TNF+
CD107a+IFNg-IL2-TNF-
CD107a-IFNg+IL2+TNF+
CD107a-IFNg+IL2+TNF-
CD107a-IFNg+IL2-TNF+
CD107a-IFNg+IL2-TNF-
CD107a-IFNg-IL2+TNF+
CD107a-IFNg-IL2+TNF-
CD107a-IFNg-IL2-TNF+

Figure 6

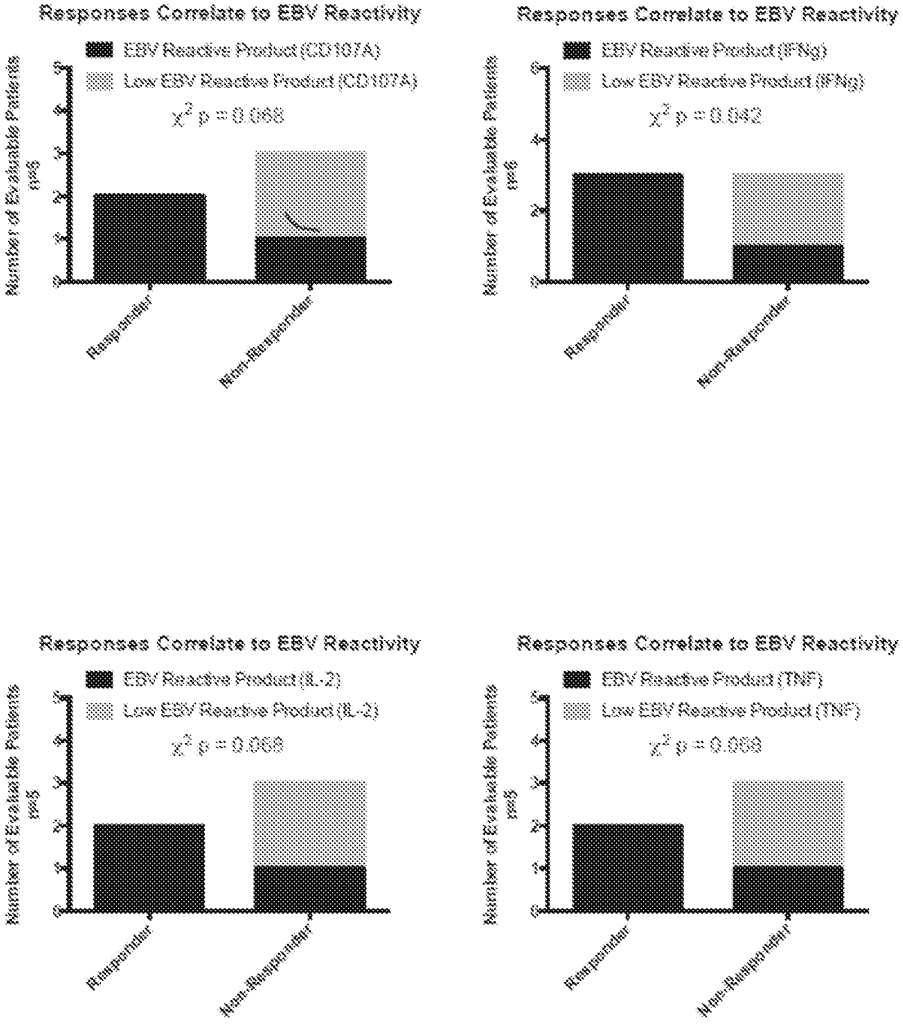

Responses Correlate to EBV Reactivity
EBV Reactive Product (CD107A)
Low EBV Reactive Product (CD107A)
χ^2 p = 0.068
Number of Evaluable Patients
n=6
Responder
Non-Responder
Responses Correlate to EBV Reactivity
EBV Reactive Product (IFNg)
Low EBV Reactive Product (IFNg)
χ^2 p = 0.042
Number of Evaluable Patients
n=6
Responder
Non-Responder
Responses Correlate to EBV Reactivity
EBV Reactive Product (IL-2)
Low EBV Reactive Product (IL-2)
χ^2 p = 0.068
Number of Evaluable Patients
n=6
Responder
Non-Responder
Responses Correlate to EBV Reactivity
EBV Reactive Product (TNF)
Low EBV Reactive Product (TNF)
χ^2 p = 0.068
Number of Evaluable Patients
n=6
Responder
Non-Responder

Figure 7

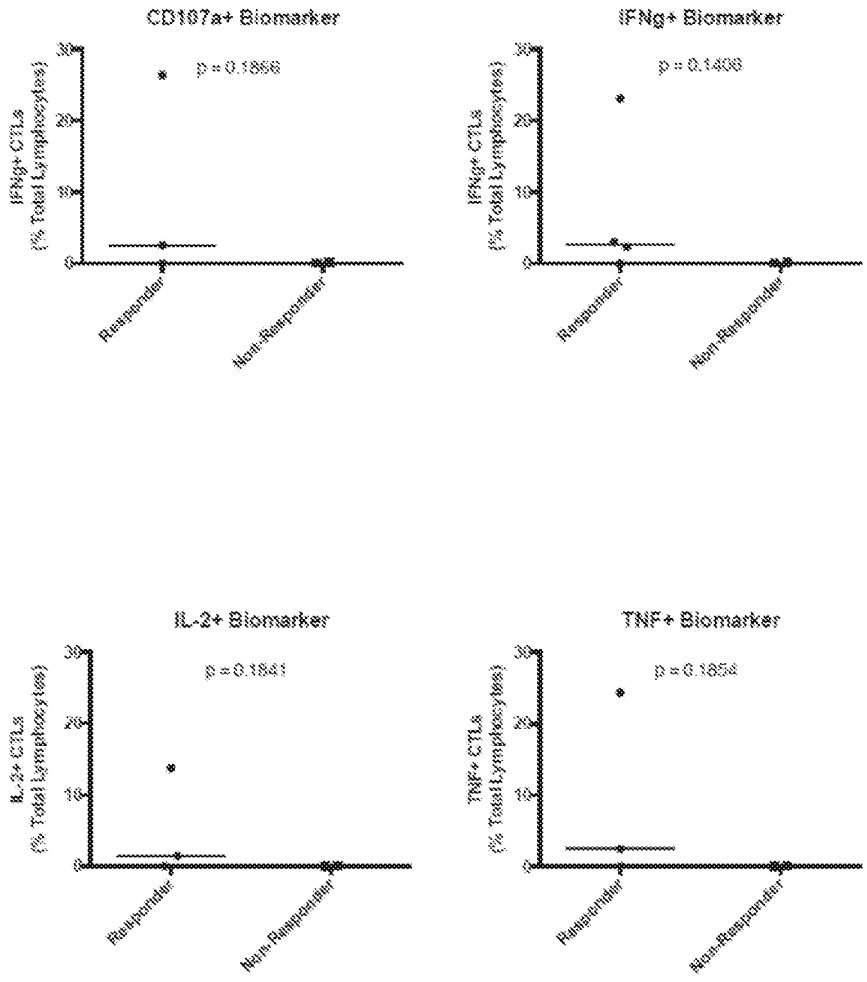

CD107a+ Biomarker
p = 0.1866
IFNg+ CTLs (% Total Lymphocytes)
30
20
10
0
Responder
Non-Responder
IFNg+ Biomarker
p = 0.1408
IFNg+ CTLs (% Total Lymphocytes)
30
20
10
0
Responder
Non-Responder
IL-2+ Biomarker
p = 0.1841
IL-2+ CTLs (% Total Lymphocytes)
30
20
10
0
Responder
Non-Responder
TNF+ Biomarker
p = 0.1854
TNF+ CTLs (% Total Lymphocytes)
30
20
10
0
Responder
Non-Responder

Figure 8

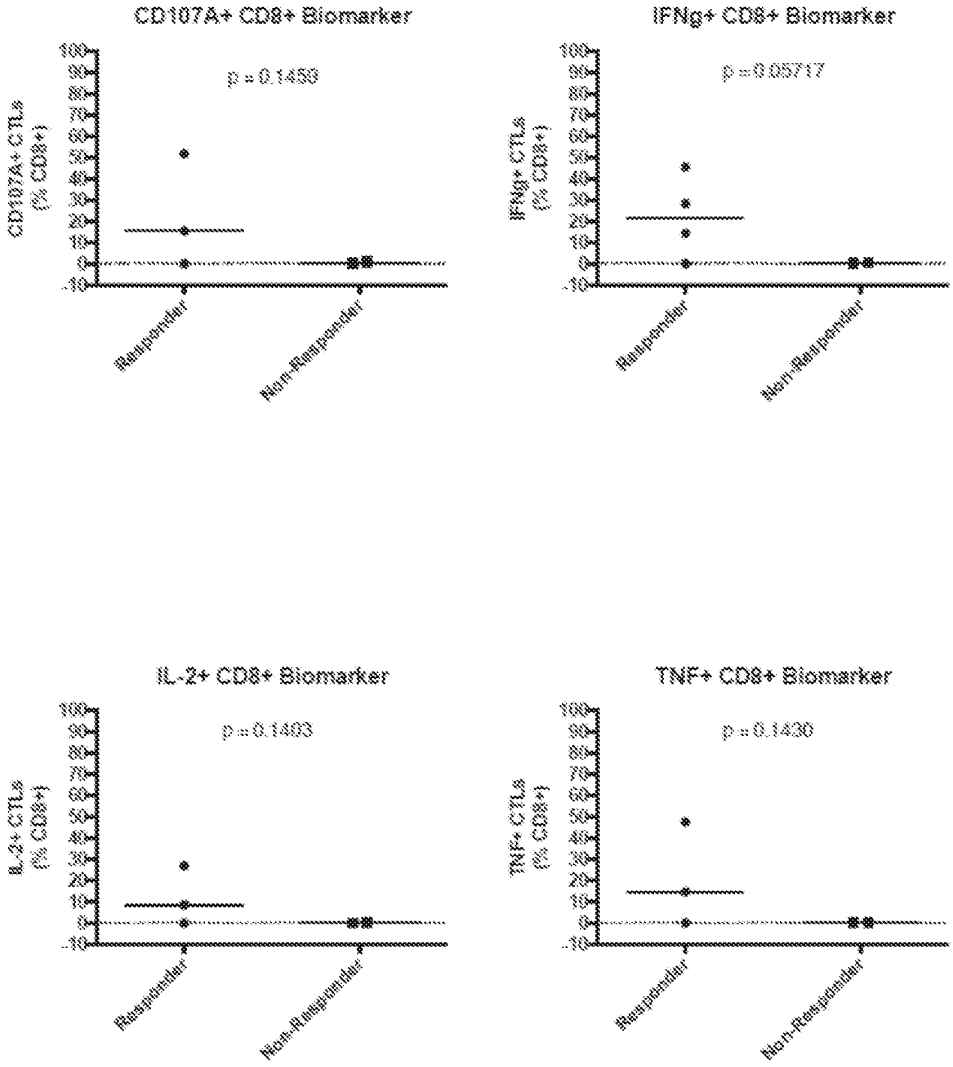
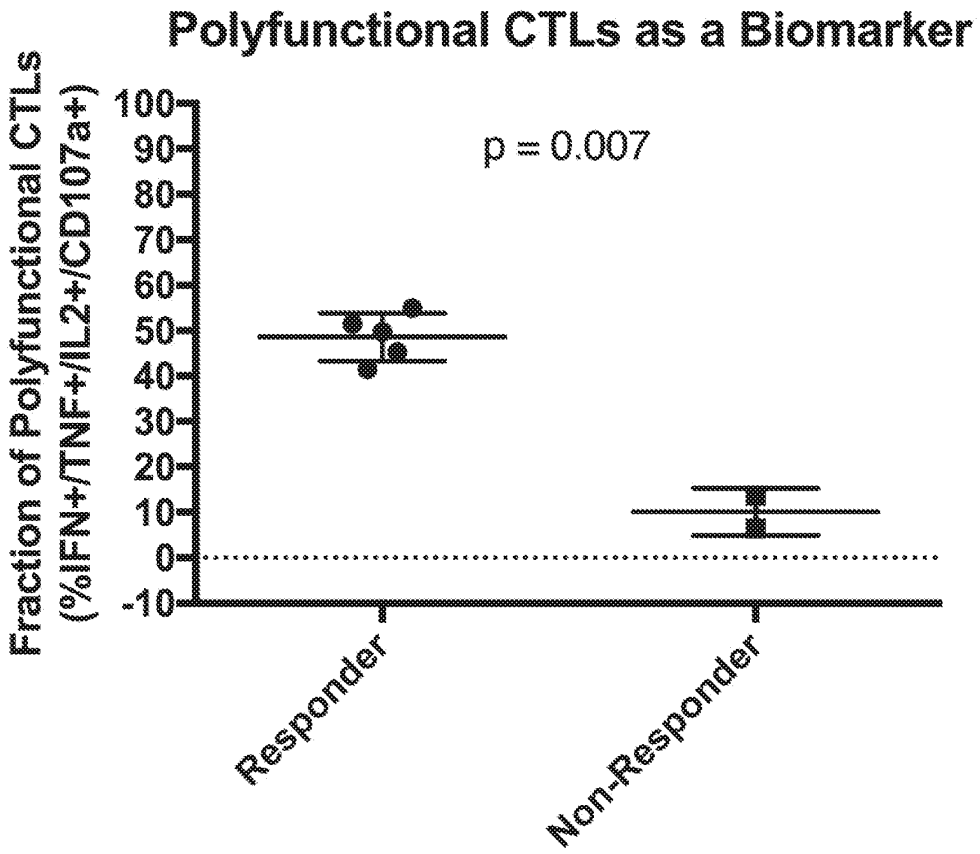

CD107A+ CD8+ Biomarker
p = 0.1459
CD107A+ CTLs (% CD8+)
Responder
Non-Responder
IFNg+ CD8+ Biomarker
p = 0.05717
IFNg+ CTLs (% CD8+)
Responder
Non-Responder
IL-2+ CD8+ Biomarker
p = 0.1403
IL-2+ CTLs (% CD8+)
Responder
Non-Responder
TNF+ CD8+ Biomarker
p = 0.1430
TNF+ CTLs (% CD8+)
Responder
Non-Responder

Figure 9


Polyfunctional CTLs as a Biomarker
Fraction of Polyfunctional CTLs
(%IFN+/TNF+/IL2+/CD107a+)
100
90
80
70
60
50
40
30
20
10
0
-10
p = 0.007
Responder
Non-Responder