Table S1. B cell recovery: Characteristics of TLI-ATG patients with no post-transplant rituximab, n=19 versus trial patients, n=35.

	TLI-ATG pts with no post-transplant R N=19	**TLI-ATG pts with post-transplant R N= 35**
Disease	AML: 10 2^{o} AML: 2 MDS: 5 NHL: 1 HL: 1	CLL: 22 MCL: 13
Recipient age, median (range)	57 (25-65)	57 (31-66)
Recipient sex	7F, 12M	12F, 23M
Donor sex	15F, 4M	17F, 18M
F donor→M recipient pairs	10	10
RD/URD	11/8	19/16
Prior rituximab	0	35

Table S2. Characteristics of male patients with female donors who were tested for H-Y antibody development.

	F donor →M recipient pairs in TLI-ATG with no post-transplant R N=25	**F donor→M recipient pairs in TLI-ATG with post-transplant R N=10**
Disease	AML: 6 2^{o} AML: 3 MDS: 1 NHL: 11 HL: 1 MF: 1 CLL: 2	CLL: 7 MCL: 3
Recipient age, median (range)	56 (26-66)	56 (31-65)
F donor→M recipient pairs	25	10
MRD/ URD	17/8	5/5
Prior rituximab	12	10
Prior auto	3	0
Chronic GVHD	13	0
H-Y Ab detected	14	0
H-Y Ab+/cGVHD+ H-Y Ab+/cGVHD- H-Y Ab-/cGVHD+ H-Y Ab-/cGVHD-	11* 3 2 9	-
Alive/Dead	25/0	7/3

*H-Y Ab detection associates with chronic GVHD (P<0.005; Fisher's exact test).

AML= acute myeloid leukemia, 2^{o} AML=secondary AML, MDS= myelodysplastic syndrome, NHL= non-Hodgkin's lymphoma, HL= Hodgkin lymphoma, MF= myelofibrosis, CLL= chronic lymphocytic leukemia, MRD= matched related donor, URD= unrelated donor, auto= autologous transplant

Supplementary Figure Legends

Figure S1. Rituximab detected preHCT predicts low donor B cell recovery at day 56. Blood collected immediately before conditioning was measured by ELISA for rituximab concentration (μg/ml; X-axis). Each preHCT rituximab level was related to the respective absolute donor $CD19^{+}CD5^{-}$ B cell measured 56 days after HCT (Y-axis). The patients with detectable rituximab pretransplant had fewer day 56 donor B cells than those who had no detectable rituximab at the time of transplant (Figure 2b). CLL patients receiving alemtuzumab treatment before transplant (□) also had impaired day 56 donor B cell engraftment.

Figure S2. Rituximab-related neutropenia.
Every WBC measured for all 35 patients is graphically related to the number of days following transplant. Overall, 14 patients tested neutropenic (■; neutrophils<500/μl blood) one or more times after the day 56 rituximab infusion; ten of these 14 were neutropenic before day 56 rituximab as well. Eleven patients never developed neutropenia before or after day 56 rituximab infusion. Day 56, 63, 70, and 77 rituximab infusion times are represented by red vertical lines.

Figure S3. CMV reactivation and CMV disease. CMV reactivation (●) occurred before rituximab infusion in the majority of patients. Only two patients (SPN 3926, 3855) reactivated CMV after rituximab. One patient (SPN 3975) developed CMV disease (▲).

Figure S1.

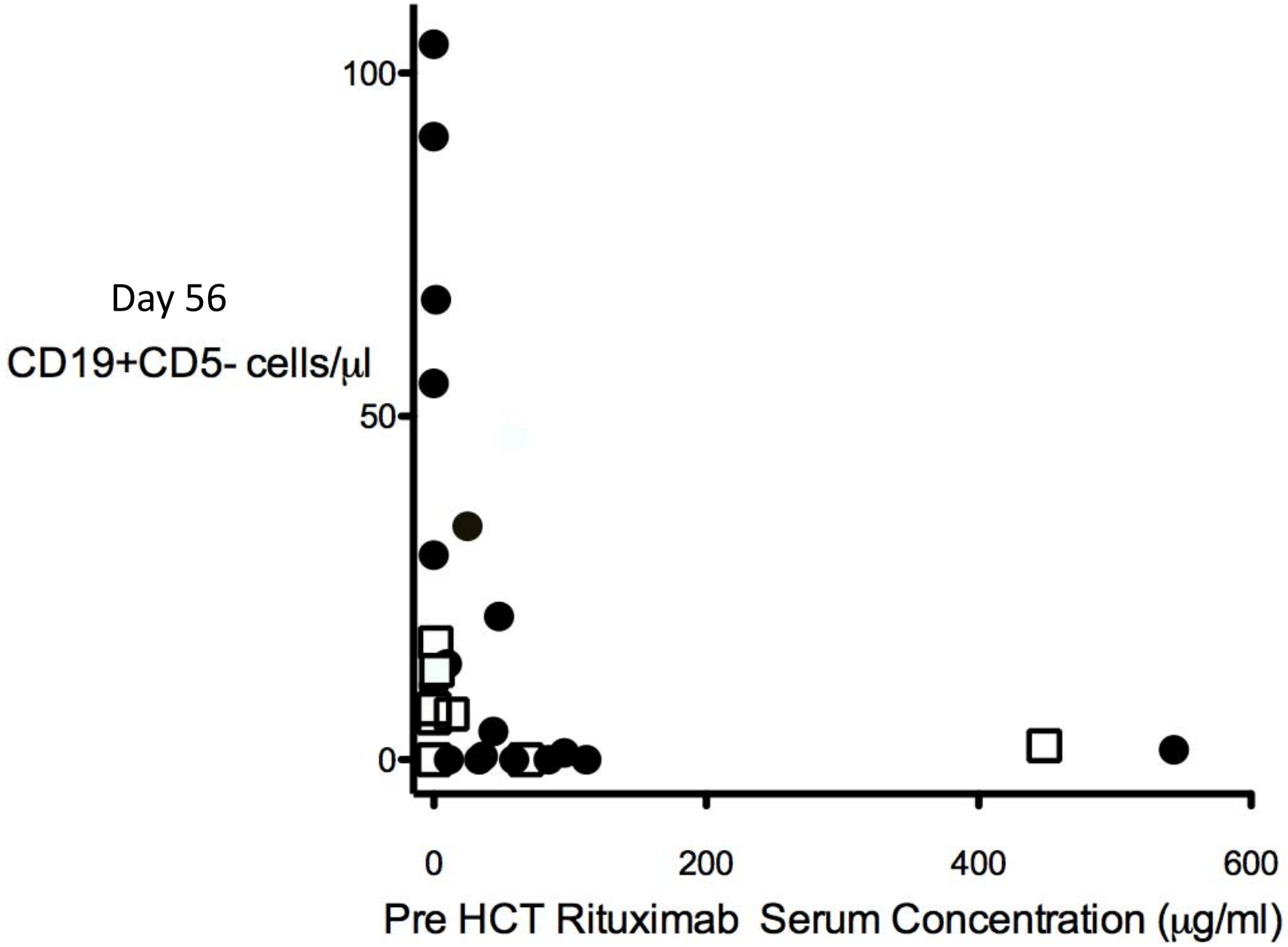

Day 56
CD19+CD5- cells/μl
100
50
0
0
200
400
600
Pre HCT Rituximab Serum Concentration (μg/ml)

Figure S2.

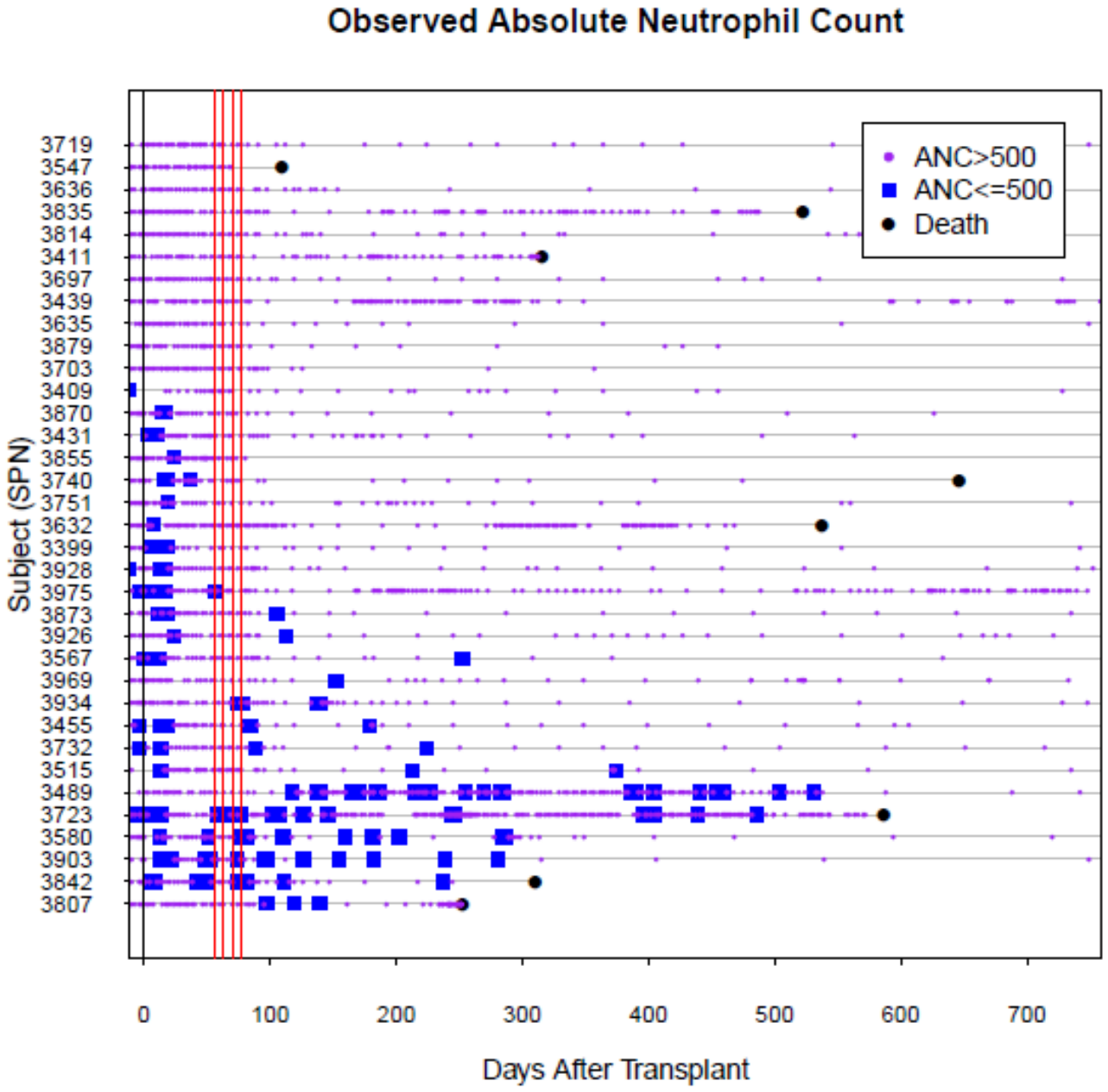
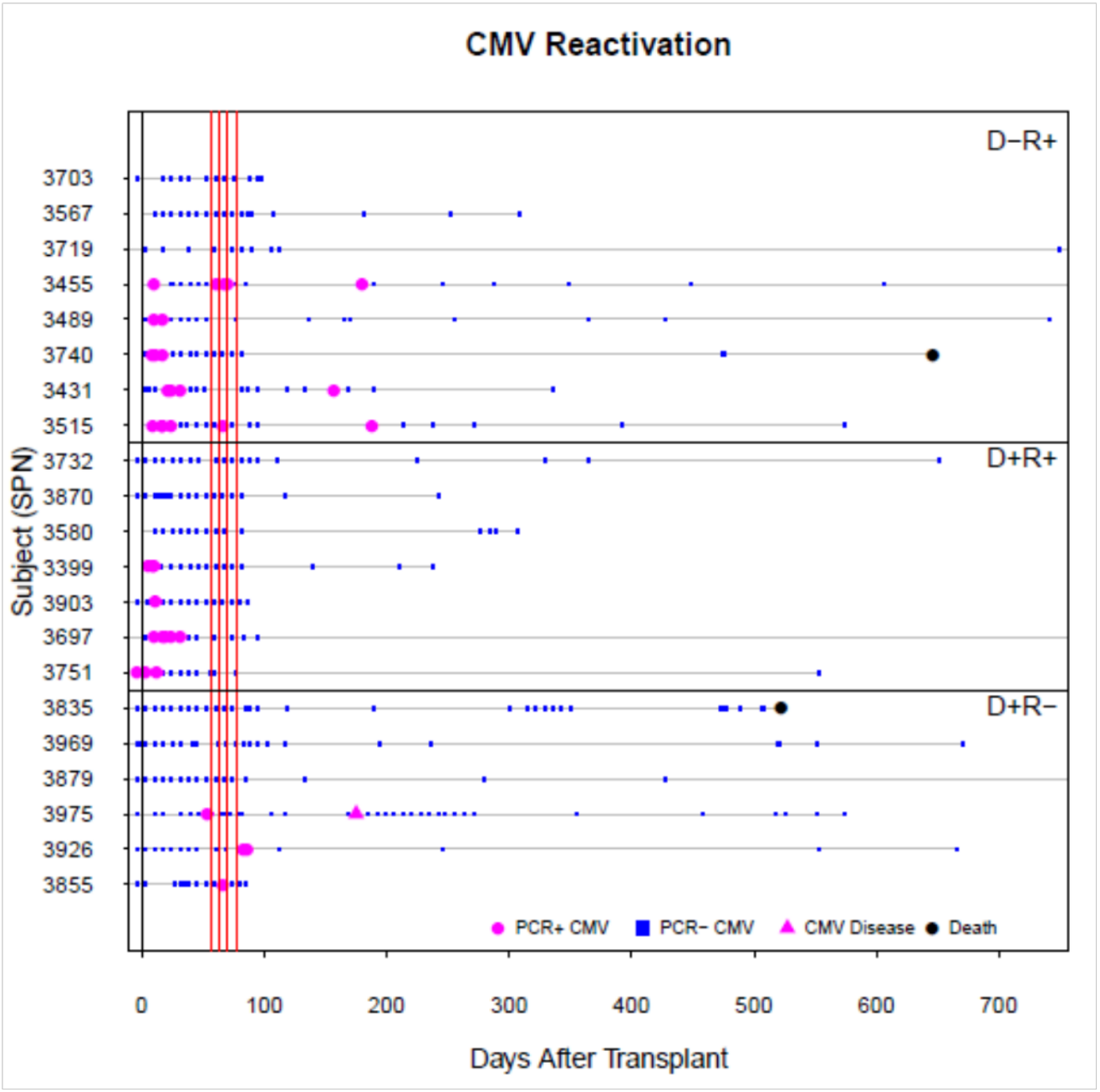

Observed Absolute Neutrophil Count
ANC>500
ANC<=500
Death
Subject (SPN)
3719
3547
3636
3835
3814
3411
3697
3439
3635
3879
3703
3409
3870
3431
3855
3740
3751
3632
3399
3928
3975
3873
3926
3567
3969
3934
3455
3732
3515
3489
3723
3580
3903
3842
3807
0
100
200
300
400
500
600
700
Days After Transplant

Figure S3.


CMV Reactivation
D−R+
D+R+
D+R−
Subject (SPN)
3703
3567
3719
3455
3489
3740
3431
3515
3732
3870
3580
3399
3903
3697
3751
3835
3969
3879
3975
3926
3855
PCR+ CMV
PCR− CMV
CMV Disease
Death
0
100
200
300
400
500
600
700
Days After Transplant