

**Supplemental Information**

***In Vivo* Expansion and Antitumor Activity  
of Coinfused CD28- and 4-1BB-Engineered  
CAR-T Cells in Patients with B Cell Leukemia**

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**Supplementary table 1: Information on patients' prior treatment history, preconditioning regimen, and time for CAR-T production**

Patient	Prior therapies	Pre-conditioning	CAR-T production time (days)	
			CD28	4-1BB
1	(1) 11/2011-03/2012: VDLDEXCAT and HD-MTX+6MP, 6 cycles, CR; (2) 05/2012: relapse; (3) 05/2012: multiple therapies (VDLDEX, CAT, HD-MTX+6MP, CAM, VDLDEX, CAT, COAP, CA, VDLP and CAM), SD; (4) 11/2015: CNS relapse	CTX 300mg D-4; Flu 25mg D-4 to D-2	9	9
2	(1) 03/2014-05/2014: CHOP, 6 cycles, CR; (2) 02/2016: relapse; (3) 02/2016: ECHOP, 1 cycle, SD	CTX 500mg D-4; Flu 45mg D-4 to D-2	10	10
3	(1) 09/2013-03/2014: VDP, 4 cycles, CR; (2) 03/2014: allo-HSCT, CR; (3) 03/2016/03: relapse	CTX 400mg D-4; Flu 40mg D-4 to D-2	10	10
4	(1) 04/2012: VDLP, VDCP, 5 cycles, CR; (2) 11/2014: CNS relapse; (3) 11/2014: Intrathecal chemotherapy, 3 cycles, CR; (4) 06/2015: relapse; (5) 06/2015-02/2016: VDCLP + Intrathecal chemotherapy, CR; (6) 03/2016: relapse	CTX 500mg D-4; Flu 50mg D-4 to D-2	9	9
5	(1) 03/2014: VDLP, CR; (2) 05/2014-01/2016: VDCP, HD-MT, EOACP, VDCLP, EAOCP, sequential chemotherapy, CR; (3) 03/2016: relapse; (4) 03/2016: EOACP, PD	None	6	6
6	(1) 12/2015-01/2016: VDCP, 1 cycle, CAM, 1 cycle, CR; (2) 03/2016: relapse; (3) 03/2016: VDPC, PD; (4) 05/2016: CNS relapse	CTX 500mg D-4; Flu 50mg D-4 to D-2	6	6
7	(1) 08/2014-12/2014: CODP, 1 cycle, CODP, CODP+L, COMP, 3 cycles, CR; (2) 01/2015: relapse; (3) 01/2015: MTX-3g, 1 cycle, blast cell 3.5%; (4) 03/2015: CODP, 1 cycle, blast cell 4.5%; (5) 04/2015: Medium dose cytarabine, 1 cycle, blast cell 1.5%; (6) 06/2015: COMP, 1 cycle, blast cell 3%; (7) 08/2015: MTX-3g, 1 cycle, blast cell 2.5%; (8) 11/2015: CODP+L, 1 cycle, blast cell 4%; (9) 01/2016: Medium dose cytarabine, 1 cycle, Intrathecal chemotherapy, 12cycle; (10) 04/2016: relapse, testicular leukemia; (11) 05/2016: ID-Ara-C, 1 cycle, orchiectomy; (12) 2016/06 relapse	CTX 500mg D-4; Flu 50mg D-4 to D-2	7	7