Immunophenotypic changes in leukemic blasts in children with relapsed/refractory B-cell precursor acute lymphoblastic leukemia after treatment with CD19-directed chimeric antigen receptor (CAR)-expressing T cells

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Table S1. Characteristics of patients

| n   | 39  |
|-----|-----|
| Sex, m/f | 25/14 |
| Age | 9,0 years (range 0,6 - 20,0 years) |

**Diagnosis**

|   |   |
|---|---|
| BI-ALL | 5 |
| BII-ALL | 32 |
| BIII-ALL | 1 |
| BIV-ALL | 1 |

**Chromosomal aberration**

|   | 34/37 (91,9%) |
|---|-------------|
| KMT2A rearranged | 7 |
| TCF3 rearranged | 4 |
| t(12;21)(p13;q22)/ETV6-RUNXI | 5 |
| IgH rearranged | 3 |
| CRLF2 rearranged | 3 |
| Complex karyotype | 2 |
| Hyperdiploid | 6 |
| Hypodiploid | 2 |

Other aberrations (Intrachromosomal amplification of RUNXI, del9p)

|   |   |
|---|---|
| No well-established chromosomal aberrations | 3 |
| No data | 2 |

**Previous therapy**

|   |   |
|---|---|
| no HSCT/blinatumomab | 15 |
| blinatumomab only | 4 |
| HSCT only | 5 |
| blinatumomab + HSCT | 15 |

**Blasts in bone marrow before CD19 CAR-T infusion**

|   |   |
|---|---|
| < 0,01% | 0 |
| ≥ 0,01% and < 5%* | 14 |
| ≥ 5%** | 25 |

* median 0.952%, range 0.057 – 3.235%;
** median 34.122%, range 6.414 – 99.112%.
Table S2. List of antibodies used in the study

| Antibody name | Clone     | Fluorochrome | Manufacturer |
|---------------|-----------|--------------|--------------|
| CD19          | SJ25C1    | APC          | BD           |
|               |           | PE-Cy7       |              |
|               | J3-119    | PE-Cy7       | BC           |
| CD10          | HI10a     | PE           | BD           |
|               |           | BB515        |              |
|               |           | BV421        |              |
|               | ALB1      | PE-Cy5.5     | BC           |
| CD34          | 581       | ECD          | BC           |
|               | 8G12      | PE-Cy7       | BD           |
|               |           | APC          |              |
|               |           | PE-CF594     |              |
| CD20          | L27       | PerCP        | BD           |
|               |           | APC-H7       |              |
|               | B9.E9     | APC-Alexa750 | BC           |
| CD45          | 2D1       | APC-Cy7      | BD           |
|               |           | PerCP        |              |
|               | J.33      | Krome Orange | BC           |
|               |           | APC-Alexa750 |              |
| CD38          | HIT2      | APC-R700     | BD           |
|               |           | BV510        |              |
|               | LS198-4-3 | APC-Alexa700 | BC           |
| CD58          | AICD58    | FITC         | BC           |
|               | 3C1       | FITC         | BD           |
| CD22          | S-HCL-1   | PE           | BD           |
|               |           | PerCP-Cy5.5  |              |
|               | HIB22     | BV650        |              |
| CD24          | ML5       | BV786        | BD           |
|               | ALB9      | APC          | BC           |
| CD79a         | HM47      | APC          | BD           |

BD – Becton Dickinson, SJ, US;  
BC – Beckman Coulter, FL, US.
Figure S1. Changes in CD19-status of residual leukemic cells at MRD-level and at subsequent relapse in 16 patients with bone marrow relapse occurred. Panel A shows CD19-positive relapses (n=5), panel B – CD19-negative relapses (n= 11). CD19-negativity was defined as less than 20% of tumor cells found to be CD19-positive, CD19-positivity – as more than 75% of leukemic blasts are CD19-positive and CD19+ partially was dimed if number of CD19-positive leukemic blasts was between 20% and 75%.