**Table S1.** **Panel of flow-cytometry antibodies used during the whole recruitment period in a cohort of pediatric liver recipients.**

|  |  |
| --- | --- |
| **FC panel** | **Fluorochromes** |
| **FITC** | **PE** | **ECD** | **PerCP (BD) / PC5.5 (BC)** | **PeCy7** | **APC** | **APC-H7 (BD) / APC-AF750 (BC)** | **APC-AF700** | **BV421 (BD) / PB (BC)** | **BV510 (BD) / KO (BC)** | **BV605 (BD)** | **BV650 (BD)** | **BV786 (BD)** |
| **From January 2019 to December 2020 (BD)** | **Tube 1** | CD3(clone UCHT1)  | CD16(clone 3G8)CD56(clone NCAM16.2) |  | CD4(clone SK3) | CD19(clone SJ25C1)TCRγδ(clone 11F2) | CD45(clone HI30) | CD45RO(clone UCHL1) |  | CD27(clone M-T271) | CD8(clone SK1) |  |  |  |
| **Tube 2** | HLA-DR(clone G46-6) | CD31(clone WM59) |  | CD4(clone SK3) | CD127(clone HIL-7R-M21) | CD25(clone 2A3) | CD45RA(clone 5H9) |  | CD3(clone UCHT1) | CD8(clone SK1) |  |  |  |
| **From January 2021 to May 2021 (BC)** | **Tube 1** | CD45RO(clone UCHL1) | CD31(clone 1F11) | CD3(clone UCHT1) | CD27(clone 1A4CD27) | CD19(clone J3-119)TCRgd(clone IMMU510) | CD16(clone 3G8)CD56(clone N901) | CD4(clone 13B8.2) | CD8(clone B9.11) | HLA-DR(clone Immu357) | CD45(clone J33) | CD45RA(clone HI100) | CD25(clone M-A251) | CD127(clone HIL-7R-M21) |
| **From June 2021****to July 2024 (BC)** | **Tube 1** | CD45RO(clone UCHL1) | CD27(clone 1A4CD27) | CD3 (clone UCHT1) |  | CD19(clone J3-119)TCRγδ(clone IMMU510) | CD16(clone 3G8)CD56(clone N901) | CD4(clone 13B8.2) | CD8(clone B9.11) |  | CD45(clone J33) |  |  |  |
| **Tube 2** | CD25(clone B1.49.9) | CD31(clone 1F11) | CD3(clone UCHT1) |  | CD45RA(clone 2H4) | CD127(clone R34.34) | CD4(clone 13B8.2) | CD8(clone B9.11) | HLA-DR(clone Immu357) | CD45(clone J33) |  |  |  |

BC, Beckman Coulter S.L.; BD, Beckton Dickinson Biosciences S.A.; FC, flow-cytometry; FITC, Fluorescein isothiocyanate; PE, Phycoerythrin; PeCy7, Phycoerythrin-Cyanine 7; APC, Allophycocyanin; APC-AF700, Allophycocyanin-Alexa Fluor 700; APC-AF750, Allophycocyanin-Alexa Fluor 750; APC-H7, Allophycocyanin-Hilite 7; BV421, Brilliant Violet 421; BV510, Brilliant Violet 510; BV600, Brilliant Violet 600; BV650, Brilliant Violet 650; BV780, Brilliant Violet 780; ECD, Energy Coupled Dye (Phycoerythrin-Texas Red); FITC, Fluorescein isothiocyanate; KO, Krome Orange; PB, Pacific Blue; PC5.5, Peridinin-Chlorophyll 5.5; PerCP, Peridinin-Chlorophyll; PeCy7, Phycoerythrin-Cyanine 7; PE, Phycoerythrin

**Table S2. Pathogens responsible for early and late infections in a cohort of pediatric liver recipients, categorized by bacteria, fungi, and viruses.**

|  |  |
| --- | --- |
| Early infections (n=41) | Number of patients, n  |
| Bacterial infection | *Klebsiella pneumoniae* | 4 |
| *Enterobacter cloacae* | 2 |
| *Enterococcus faecalis + Escherichia coli* | 2 |
| *Escherichia coli* | 2 |
| *Bacteroides fragilis* | 1 |
| *Bacteroides vulgatus* | 1 |
| *Chryseobacterium sp.+ Stenotrophomonas maltophilia* | 1 |
| *Clostridium difficile* | 1 |
| *Elizabethkingia meningoseptica + Klebsiella pneumoniae* | 1 |
| *Enterococcus cecorum* | 1 |
| *Enterococcus faecalis + Enterococcus gallinarum + Escherichia coli* | 1 |
| *Enterococcus faecalis + Serratia marcescens* | 1 |
| *Enterococcus gallinarum* | 1 |
| *Escherichia coli + Enterococcus avium* | 1 |
| *Escherichia coli + Klebsiella pneumoniae* | 1 |
| *Klebsiella variicola* | 1 |
| *Stenotrophomonas maltophilia* | 1 |
| Fungal infection | *Candida parapsilosis* | 5 |
| *Trichosporon inkin* | 2 |
| Fungal + bacterial infection | *Candida albicans + Enterococcus faecalis* | 1 |
| Viral infection | Rhinovirus  | 2 |
| SARS-CoV-2 | 2 |
| Adenovirus | 1 |
| Astrovirus | 1 |
| Bocavirus + HCoV-OC43 | 1 |
| HCoV-NL63 | 1 |
| Norovirus | 1 |
| Rotavirus | 1 |
| Late infections (n=39) |   |
| Bacterial infection | *Klebsiella pneumoniae* | 3 |
| *Clostridium difficile* | 2 |
| *Escherichia coli* | 2 |
| *Escherichia coli + Klebsiella pneumoniae* | 2 |
| *Enterococcus faecalis* | 1 |
| *Enterococcus faecium* | 1 |
| *Stenotrophomonas maltophilia* | 1 |
| Viral infection | SARS-CoV-2 | 6 |
| Rotavirus | 5 |
| Influenzavirus A | 3 |
| Norovirus | 3 |
| Rinovirus | 3 |
| Epstein-Barr | 2 |
| Adenovirus | 1 |
| Adenovirus + Norovirus | 1 |
| Enterovirus + Rinovirus | 1 |
| Norovirus + Rhinovirus | 1 |
| Norovirus + Rinoviurs + Sapovirus | 1 |

HCoV-NL63, Human coronavirus NL63; HCoV-OC43, Human coronavirus OC43; SARS-CoV-2, Severe Acute Respiratory Syndrome Coronavirus 2

**Table S3. Number of pediatric liver recipients with lymphopenia or hypogammaglobulinemia at each timepoint of the follow-up.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Lymphopenia, n (%)** | **PreTx** | **1M** | **3M** | **6M** | **9M**  | **12M** |
| **n=79** | **n=89** | **n=85** | **n=82** | **n=67** | **n=64** |
| **Total** | 63 (78) | 32 (36) | 30 (35) | 23 (28) | 24 (36) | 9 (14) |
| **T cell CD3+** | 64 (81) | 33 (37) | 24 (28) | 18 (22) | 13 (19) | 3 (5) |
| **T cell CD3+CD4+** | 64 (81) | 26 (29) | 28 (33) | 22 (27) | 25 (37) | 9 (14) |
| **T cell CD3+CD8+** | 60 (76) | 28 (31) | 20 (24) | 18 (22) | 13 (19) | 4 (6) |
| **B cell CD19+** | 33 (42) | 10 (11) | 13 (15) | 16 (20) | 14 (21) | 9 (14) |
| **NK cell CD3-CD16+CD56+** | 5 (6) | 0 (0) | 3 (4) | 1 (1) | 0 (0) | 0 (0) |
| **Hypogammaglobulinemia, n (%)** | **PreTx** | **1M** | **3M** | **6M** | **9M** | **12M** |
| **n=76** | **n=89** | **n=85** | **n=82** | **n=67** | **n=64** |
| **IgG** | 0 (0) | 18 (20) | 15 (18) | 16 (20) | 5 (7) | 2 (3) |
| **IgA** | 2 (3) | 19 (21) | 18 (21) | 11 (13) | 2 (3) | 2 (3) |
| **IgM** | 0 (0) | 17 (19) | 22 (26) | 19 (23) | 6 (9) | 7 (11) |

1M, 1 month post-transplantation; 3M, 3 months post-transplantation; 6M, 6 months post-transplantation; 9M, 9 months post-transplantation; 12M, 12 months post-transplantation; Ig, immunoglobulin; PreTx, pre-transplantation**.**

**Table S4. Lymphocyte subpopulation scores in a cohort of pediatric liver recipients segregated according to their indication for transplantation.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Score** | **Cholestasis /biliary atresia** | **Metabolic diseases** | **Liver tumours** | **Cirrhosis (other)** | **Severe acute liver failure** |  |
| **(n=50)** | **(n=12)** | **(n=8)** | **(n=6)** | **(n=3)** | **p-value** |
| **Lymphocytes** | -0.81 (-0.96 to -0.56) | -0.80 (-0.89 to -0.24) | -0.63 (-0.89 - to -0.37) | -1.06 (-1.08 to -1.03) | -0.73 (-0.87 to -0.68) | 0.192 |
| **T-cell CD3+** | -0.76 (-0.93 to -0.60) | -0.73 (-0.81 to -0.44) | -0.73 (-0.91 - to -0.25) | -1.10 (-1.15 to -0.98) | -0.71 (-0.80 to -0.66) | 0.120 |
| **T-cell CD3+CD4+** | -0.74 (-0.86 to -0.58) | -0.68 (-0.84 to -0.36) | -0.67 (-0.86 - to -0.17) | -0.97 (-1.01 to -0.89) | -0.76 (-0.82 to -0.67) | 0.192 |
| **T-cell CD3+CD8+** | -0.71 (-0.79 to -0.53) | -0.70 (-0.80 to -0.44) | -0.53 (-0.65 - to -0.30) | -0.82 (-0.85 to -0.81) | -0.55 (-0.64 to -0.53) | 0.109 |
| **B-cell CD19+** | -0.43 (-0.57 to -0.22) | -0.52 (-0.60 to -0.25) | -0.52 (-0.62 - to -0.07) | -0.58 (-0.70 to -0.50) | -0.38 (-0.46 to -0.15) | 0.446 |
| **NK-cell CD3-CD16+CD56+** | -0.34 (-0.44 to -0.21) | -0.30 (-0.33 to -0.21) | -0.11 (-0.34 - to 0.19) | -0.44 (-0.46 to -0.40) | -0.40 (-0.44 to -0.39) | 0.056 |