

Table S1. Clinical, biochemical, and imaging data before kidney retransplantation and during the 60 months of follow-up in Patient 1.

| | Pretransplant | At transplant | 7 days | 1 month | 6 months | 12 months | 24 months | 36 months | 60 months |
|--|---------------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Weight, kg | 17 | 17.5 | 18.5 | 20 | 22.6 | 27.3 | 28.5 | 35.2 | 45.9 |
| (percentile) | (10 th) | (10 th) | (10 th) | (25 th) | (50 th) | (75 th) | (75 th) | (>75 th) | (90 th) |
| Height, cm | 102 | 102 | 102 | 108 | 112 | 119.8 | 129 | 134.5 | 146 |
| (percentile) | (<3 rd) | (<3 rd) | (<3 rd) | (3 rd) | (10 th) | (25 th) | (50 th) | (50 th) | (75 th) |
| Growth speed, cm/year | 9.0 | - | - | 9.2 | 12.3 | 8.4 | 9.8 | 6.4 | 9.0 |
| (percentile) | (>97 th) | - | - | (>97 th) | (>97 th) | (>97 th) | (>97 th) | (90 th) | (>97 th) |
| Creatinine, mg/dL | HD 4 hours x 3 times/week | HD before KT | 0.84 | 0.5 | 0.57 | 0.67 | 0.59 | 0.69 | 0.72 |
| eGFR, ml/min/1.73m² | 0 | 0 | 50.1 | 89 | 81 | 74 | 93 | 81 | 84 |
| Proteinuria, mg/mg creatinine | - | - | 0.5 | 0.15 | 0.2 | 0.17 | 0.14 | 0.11 | 0.18 |
| Hemoglobin, g/dL | 10.4 | 10.3 | 12.8 | 10.9 | 11.6 | 9 | 10.8 | 9.9 | 13.3 |
| Platelets, 10⁹/L | 257 | 331 | 268 | 734 | 558 | 658 | 591 | 434 | 382 |
| Total lymphocytes, 10⁹/L | 2.36 | 1.6 | 0.48 | 0.91 | 2.30 | 6.27 | 3.15 | 8.29 | 11.24 |
| B lymphocytes, absolute number / % | 474/18% | nd | 0/ 0% | 0/ 0% | 165/ 12% | 985/ 19% | 685/17% | 1474/26% | - |
| T lymphocytes, absolute number / % | 2046/78% | - | - | 893/94% | 1110/81% | 4130/77.3% | 3058/76% | 3879/70% | - |
| CMV viremia, IU/ml | neg | neg | neg | neg | 300 | neg | neg | neg | neg |
| EBV viremia, IU/ml | neg | neg | neg | neg | neg | neg | neg | <600 | neg |
| BKV viremia, IU/ml | neg | neg | neg | neg | neg | 1700 | neg | neg | neg |

| Largest accessory spleen remnant diameter by US evaluation, mm | 12 | 13 | 13 | 22 | 27 | 32 | 37 | 40 | 47 |
|--|-------------|-------------|----|----|------------|------------|---------|---------|---------|
| cPRA total/class I/class II | 99%/27%/98% | 99%/27%/98% | - | - | 20%/0%/20% | 61%26%/42% | 0%/0%0% | 0%/0%0% | 0%/0%0% |
| DSA | - | - | - | - | neg | neg | neg | neg | neg |

BKV, BK virus; CMV, cytomegalovirus; cPRA, calculated panel-reactive antibody; DSA, donor-specific antibodies; EBV, Epstein-Barr virus; eGFR, estimated glomerular filtration rate; HD, hemodialysis; KT, kidney transplantation; nd, no data; neg, negative; US, ultrasound.

VIDEO S1. Surgical procedure performed in patient 1. Splenectomy with preservation of two accessory spleens and mobilization of the distal pancreas - to expose the splenic vein and artery - is visible. The kidney graft is then implanted with a venous end-to-side and an arterial end-to-end anastomosis between renal and splenic vessels. Lastly, a tension-free uretero-vesical anastomosis (ureteroneocystostomy) on a double J-stent is performed.