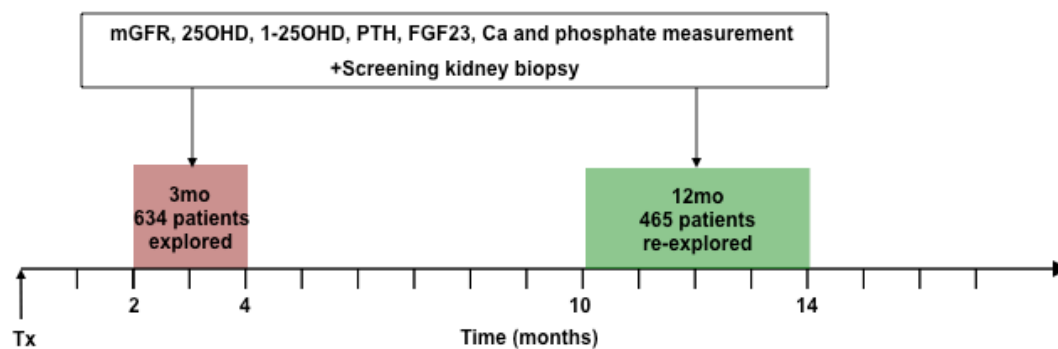**Supplementary Figure 1:** Flow chart.

Supplementary tables

Supplementary table 1: Association of the baseline variables with measured glomerular filtration rate at 12 months (12mo-mGFR) using multiple linear regressions. Only the variables independently associated with 12mo-mGFR are presented (final model after backward selection procedure).

Full model[#] + 3mo-25OHD splitted in two classes	coefficient±sd	*p*-value
Intercept	18.0±3.93	
Male gender	3.32±1.00	0.001
Donor age*	-0.22±0.03	<0.001
Preemptive transplantation	2.86±1.39	0.04
3mo-BMI*	0.28±0.12	0.02
3mo-mGFR*	0.70±0.03	<0.001
3mo-25OHD≥15	3.15±0.96	0.001

[#] The full model includes: recipient gender, age at transplantation, donor type, donor age, preemptive transplantation, delayed graft function, 3 months body mass index and 3 months glomerular filtration rate (3mo-mGFR).

*For an increase of 1 unit of the variable.

Supplementary table 2: Patients characteristics at 3 months post transplantation of the subgroup included in the study of interstitial fibrosis/tubular atrophy (IF/TA) progression

Characteristics	Patients analyzed for IF/TA progression (265 patients)
Age at transplantation (years)	48.4±13.5
Male gender	56.2% (149)
Cause of end-stage renal disease	
Primary glomerulonephritis	22.3% (59)
Cystic nephropathy	18.5% (49)
Uropathy	10.6% (28)
Diabetes	6% (16)
Vascular nephropathy	5.7% (15)
Interstitial nephropathy	3% (8)
Others	15.5% (41)
Unknown	18.5% (49)
Preemptive transplantation	18.5% (49)
Treated by hemodialysis before transplantation	77.7% (206)
Treated by peritoneal dialysis before transplantation	3.8% (10)
Time on dialysis before transplantation (months)	33 (11-75)
Parathyroïdectomy before transplantation	12.5% (33)
Repeat transplantation (number of first transplantations)	78.3% (206)
Living Donor	23.8% (62)
Donor age	51±15
Extended Criteria Donor	50.8% (123)
Cold ischemia. (min).	1080 [660-1491]
Delayed graft function	25.7% (68)
Induction treatment	96.1% (249)
Basiliximab	63% (167)
Antilymphocyte globulins	29.8% (79)
Others	1.1% (3)
Calcineurin inhibitor based regimen	97.7% (258)
Acute T cell mediated before 3 months	10.2% (27)
Acute antibody mediated rejection before 3 months	6.4% (17)
Body mass index (kg/m^2)	134±17
Systolic blood pressure (mmHg)	78±10
Diastolic blood pressure (mmHg)	59±14
Measured GFR (mL/min)	59±14
Ionized calcium (mmol/L)	1.26±0.09
Phosphate (mmol/L)	0.77±0.19
25OHD (ng/mL)	13 (9-19)
1-25OHD (pg/mL)	36 [24-48]
PTH (ng/mL)	90 [60-148]
FGF23 (RU/mL)	63 [44-101]
Cinacalcet treament	8.7% (23)

Values are reported as % (number of patients), means ± SD, median [interquartile range] as appropriate.

Supplementary table 3: Association of 25OH vitamin D at 3 months (3mo-25OHD) with biopsy proven acute rejection in the year following 3mo-25OHD measurement (number of patients with acute rejection/number at risks)

Acute rejection	25OHD<15ng/mL	25OHD ≥15ng/mL	*p*-values
Acute antibody mediated rejection	5/348	5/286	0,13
Acute T cell mediated rejection	8/348	12/286	0,75