Figure S1: Summary of the probe-free ddPCR methodology that was used to measure dscfDNA in this study. Adapted from Goh et al. Clinical Chemistry (2017).

## STEP 1: GENOTYPING

Pre-transplant
Organ Donor
Blood Sample

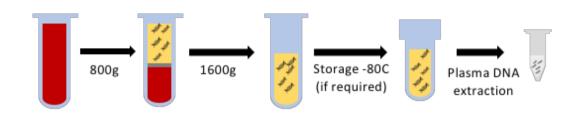
(Buffy Coat or Serum)

(Buffy Coat or Serum)

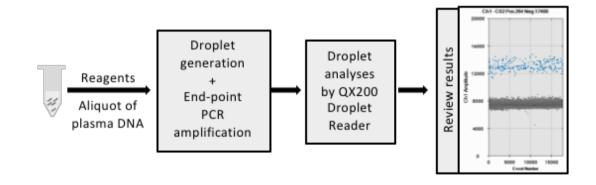
Genotype using a panel of DIPs by HRMA

BTR	DONOR-RECIPIENT PAIR ^			
LOCUS	DONOR	RECIPIENT	INFORM	
02	SHORT	SHORT	nil	
03	HET	SHORT	LONG	
06	LONG	HET	nil	
08	LONG	SHORT	LONG *	
09	HET	HET	nil	
12	LONG	HET	nil	
16	LONG	SHORT	LONG	
17	LONG	LONG	nil	
18	SHORT	LONG	SHORT	

## STEP 2: POST-TRANSPLANT RECIPIENT SAMPLE PREPARATION



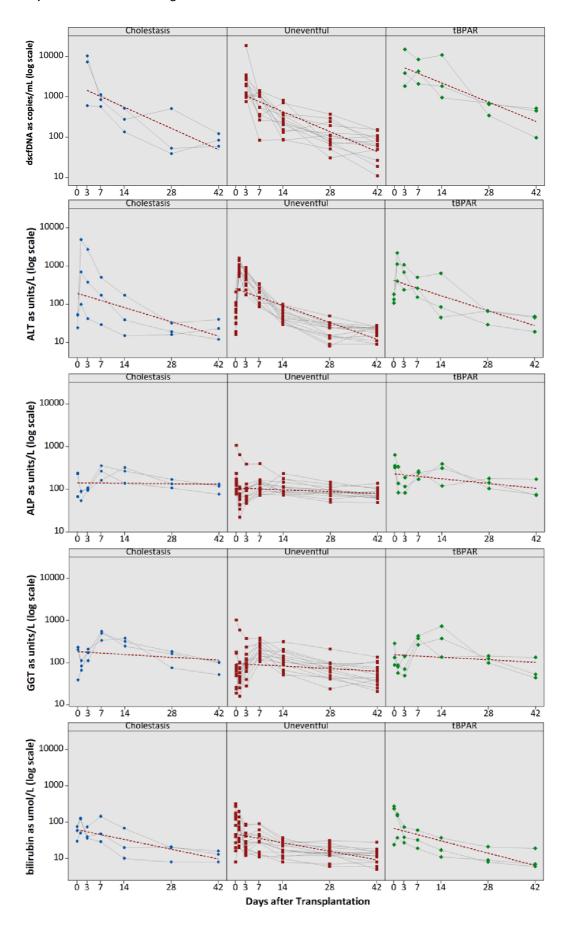
## STEP 2: QUANTIFICATION OF dscfDNA



<sup>\*</sup> BTR08-LONG assay will amplify donor-specific DNA with LONG alleles that are absent in the recipient.

<sup>^</sup> Genotypes: SHORT (deletion/deletion), LONG (insertion/insertion) and HET (insertion/deletion).

Figure S2: Serial monitoring of dscfDNA, ALT, ALP, GGT and bilirubin of the longitudinal cohort (Cohort A). All values are presented in the log scale.



**Table S1**: Overall and pairwise comparison of dscfDNA, ALT, ALP, GGT and bilirubin across the 3 different subgroups over days 3, 7, 14, 28 and 42 of the longitudinal cohort (Cohort A). Only significant p- values (p<0.05) are presented.

Day (dscfDNA)	Median across 3 subgroups	Cholestasis vs tBPAR	Uneventful vs Cholestasis	tBPAR vs Uneventful
3	n.s.	-	-	-
7	0.026	0.042	n.s.	0.008
14	0.026	n.s. (0.053)	n.s.	0.007
28	0.046	0.035	n.s.	0.019
42	n.s.	-	-	-

Day (ALT)	Median across 3 subgroups	Cholestasis vs tBPAR	Uneventful vs Cholestasis	tBPAR vs Uneventful
0	n.s.	-	-	-
1	n.s.	-	-	-
3	n.s.	-	-	-
7	n.s.	-	-	-
14	n.s.	-	-	-
28	n.s.	-	-	-
42	n.s.	-	-	-

Day (ALP)	Median across 3 subgroups	Cholestasis vs tBPAR	Uneventful vs Cholestasis	tBPAR vs Uneventful
0	n.s.	-	-	-
1	n.s.	-	-	-
3	n.s.	-	-	-
7	0.020	n.s.	0.028	0.035
14	0.020	n.s.	0.035	0.028
28	0.020	n.s.	0.035	0.028
42	n.s.	-	-	-

Day (GGT)	Median across 3 subgroups	Cholestasis vs tBPAR	Uneventful vs Cholestasis	tBPAR vs Uneventful
0	n.s.	-	-	-
1	n.s.	-	-	-
3	n.s.	-	-	-
7	0.013	n.s.	0.010	0.063
14	0.012	n.s.	0.016	0.032
28	n.s.	-	-	-
42	n.s.	-	-	-

Day (bilirubin)	Median across 3 subgroups	Cholestasis vs tBPAR	Uneventful vs Cholestasis	tBPAR vs Uneventful
0	n.s.	-	-	-
1	n.s.	-	-	-
3	n.s.	-	-	-
7	n.s.	-	-	-
14	n.s.	-	-	-
28	n.s.	-	-	-
42	n.s.	-	-	-

Figure S3: Boxplot of dscfDNA, ALT, ALP, GGT, bilirubin of recipients with tBPAR (n=6), those without tBPAR (n=10), those who were clinically stable at least 1 year after LT (n=4), and those who were clinically stable at day 42 (n=14 from the longitudinal cohort).

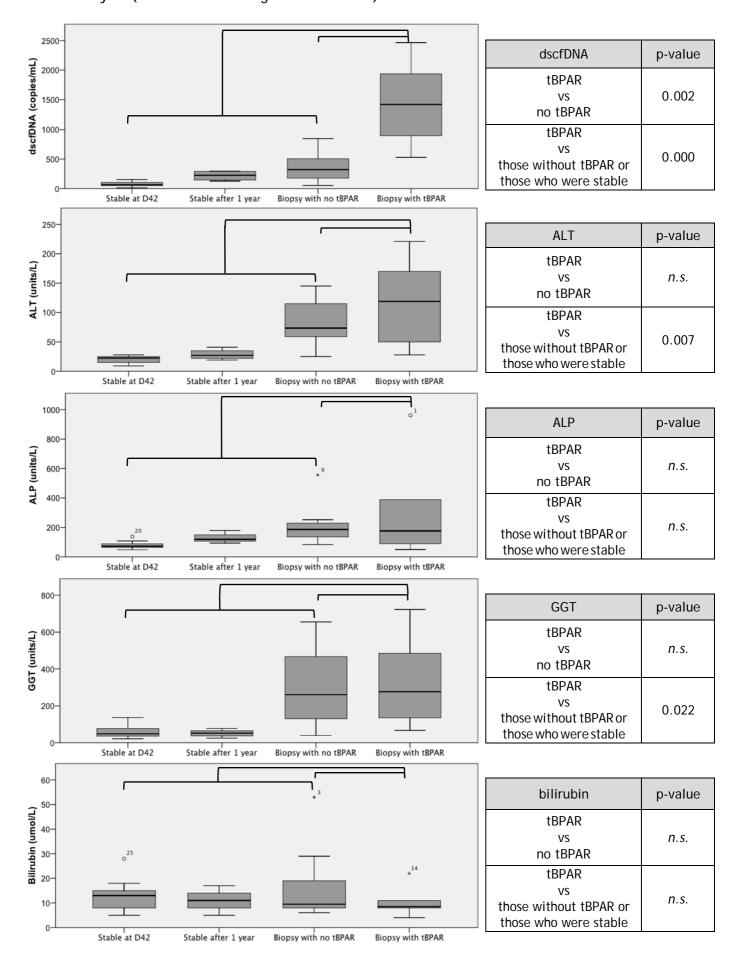
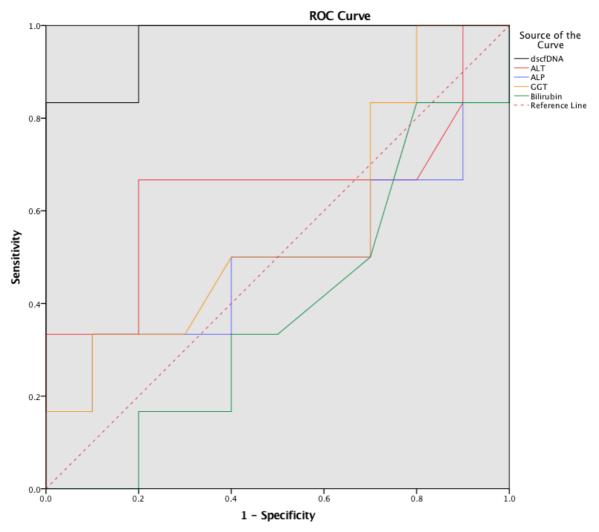


Figure S4: ROC analysis of dscfDNA, ALT, ALP, GGT, bilirubin to discriminate recipients with tBPAR (n=6) from those without tBPAR (n=10).



Diagonal segments are produced by ties.

Figure 55: ROC analysis of dscfDNA, ALT, ALP, GGT, bilirubin to discriminate the recipients with tBPAR (n=6) from those without tBPAR or those who were clinically stable (n=28).

