

## **Supplemental Material**

Table S1. Details of Analysis for Table 1: Comparison of Two Biopsies from the Same Kidney

Table S2. Details of Analysis for Table 2: Comparison of Biopsies from Discarded and Paired Control Kidneys from the Same Donor

Table S3. Details of Analysis for Table 3: Comparison of Biopsies from Discarded Kidneys and Randomly Matched Controls

Table S4. Details of Analysis for Table 4: Comparison of Anatomical Abnormalities from Discarded and Paired Control Kidneys from the Same Donor

Table S5. Details of Analysis for Table 5: Comparison of Anatomical Abnormalities from Discarded Kidneys and Randomly Matched Controls

## Supplemental Material

Table S1. Details of Analysis for Table 1: Comparison of Two Biopsies from the Same Kidney

	First Biopsy, Fraction or Mean $\pm$ SD ( <i>n</i> = 64)	Second Biopsy, Fraction or Mean $\pm$ SD ( <i>n</i> = 64)	Odds Ratio (First vs. Second Biopsy, 95% CI, <i>P</i> ) <sup>1</sup>	Pseudomedian Paired Difference (First – Second Biopsy) ( <i>P</i> ) <sup>2</sup>
Type of biopsy, if indicated				
Wedge (vs. needle)	40/48 (83.3%)	10/48 (20.8%)	19.00 (0.7.69-46.96, < 0.001)	--
Tissue processing, if indicated				
Frozen tissue (vs. paraffin- embedded)	37/39 (94.9%)	37/39 (94.9%)	NE	--
Number of glomeruli assessed (64 pairs)	53.8 $\pm$ 28.4	49.7 $\pm$ 40.0	--	6.00 (0.81)
Percent global sclerosis (%) (64 pairs)	11.5 $\pm$ 10.7	11.0 $\pm$ 10.9	--	0.50 (0.84)
Biopsy findings, if reported				
Tubular atrophy <sup>3</sup> (36 pairs)	0.61 $\pm$ 0.73	1.03 $\pm$ 0.29	--	-1.00 (0.01)
Interstitial fibrosis <sup>3</sup> (62 pairs)	0.68 $\pm$ 0.70	1.02 $\pm$ 0.42	--	-1.00 (0.01)
Interstitial inflammation <sup>2</sup> (3 pairs)	1.00 $\pm$ 0.00	0.33 $\pm$ 0.58	--	NE
Vascular damage <sup>3</sup> (55 pairs)	0.91 $\pm$ 0.82	1.11 $\pm$ 0.50	--	0.00 (0.19)
Arteriolar hyalinosis <sup>3</sup> (3 pairs)	0.33 $\pm$ 0.58	0.33 $\pm$ 0.58	--	NE
Acute tubular necrosis <sup>3</sup> (7 pairs)	0.29 $\pm$ 0.49	0.29 $\pm$ 0.49	--	NE
Missing biopsy information (%)				
Wedge versus needle biopsy	11/64 (17.2%)	5/64 (7.8%)	2.45 (0.75-8.04, 0.14)	--
Tissue processing method not indicated	23/64 (35.9%)	4/64 (6.3%)	8.41 (2.81-25.24, < 0.001)	--
Tubular atrophy	23/64 (35.9%)	8/64 (12.5%)	3.93 (1.61-9.61, 0.003)	--
Interstitial fibrosis	2/64 (3.1%)	0/64 (0.0%)	NE	--
Interstitial inflammation	32/64 (50.0%)	57/64 (89.1%)	0.12 (0.05-0.32, < 0.001)	--
Vascular damage	7/64 (10.9%)	2/64 (3.1%)	3.81 (0.73-19.91, 0.11)	--
Arteriolar hyalinosis	39/64 (60.9%)	54/64 (84.4%)	0.29 (0.12-0.69, 0.01)	--
Acute tubular necrosis	48/64 (75.0%)	49/64 (76.6%)	0.91 (0.46-1.83, 0.81)	--

<sup>1</sup>Odds ratios estimated from logistic regression for repeated measures using generalized estimating equations and taking into account the nested correlation induced by kidney laterality within donor (1).

<sup>2</sup>Hodges-Lehmann estimator of the pseudomedian; signed rank test on the matched case-control differences for clustered data (2).

<sup>3</sup>0 = none, 1 = mild, 2 = moderate, 3 = severe.

SD, standard deviation; CI, confidence interval; NE, not estimable due to too few discordant pairs.

Table S2. Details of Analysis for Table 2: Comparison of Biopsies from Discarded and Paired Control Kidneys from the Same Donor

Biopsy Characteristic	Kidney Discarded for Biopsy Findings ( $n = 83$ )	Comparison to Contralateral Kidney Not Discarded ( $n = 83$ )		
	Fraction (%) or Mean $\pm$ SD	Fraction (%) or Mean $\pm$ SD	Conditional Odds Ratio for Discard (95% CI, $P$ ) <sup>1</sup>	Pseudomedian Paired Difference (Discarded Kidney – Control Kidney) ( $P$ ) <sup>2</sup>
Type of biopsy, if indicated				
Wedge (vs. needle)	42/63 (66.7%)	47/63 (74.6%)	0.17 (0.02-1.38, 0.10)	--
Tissue processing, if indicated				
Frozen tissue (vs. paraffin-embedded)	49/50 (98.0%)	49/50 (98.0%)	NE	--
Number of glomeruli assessed (83 pairs)	53.5 $\pm$ 40.9	55.2 $\pm$ 39.8	--	-2.00 (0.50)
Percent global sclerosis (83 pairs) (%)	17.1 $\pm$ 15.3	9.0 $\pm$ 6.6	--	8.00 (< 0.001)
Percentage global sclerosis > 20%	27/83 (32.5%)	4/83 (4.8%)	8.67 (2.62-28.63, < 0.001)	--
Biopsy findings, if reported				
Tubular atrophy <sup>3</sup> (52 pairs)	1.00 $\pm$ 0.56	0.87 $\pm$ 0.49	--	1.00 (0.08)
Interstitial fibrosis <sup>3</sup> (80 pairs)	0.95 $\pm$ 0.55	0.78 $\pm$ 0.57	--	1.00 (0.01)
Interstitial inflammation <sup>3</sup> (37 pairs)	0.81 $\pm$ 0.57	0.65 $\pm$ 0.54	--	1.00 (0.07)
Vascular damage <sup>3</sup> (75 pairs)	1.01 $\pm$ 0.73	0.87 $\pm$ 0.62	--	0.74 (0.04)
Arteriolar hyalinosis <sup>3</sup> (35 pairs)	0.63 $\pm$ 0.60	0.69 $\pm$ 0.72	--	NE
Acute tubular necrosis <sup>3</sup> (32 pairs)	0.72 $\pm$ 0.81	0.69 $\pm$ 0.64	--	0.35 (0.85)
Missing biopsy information				
Wedge versus needle biopsy	18/83 (21.7%)	17/83 (20.5%)	1.50 (0.25-8.98, 0.66)	--
Tissue processing method not	29/83 (34.9%)	32/83 (38.6%)	0.25 (0.03-2.24, 0.22)	--

indicated				
Tubular atrophy	27/83 (32.5%)	29/83 (34.9%)	0.50 (0.09-2.73, 0.42)	--
Interstitial fibrosis	2/83 (2.4%)	3/83 (3.6%)	NE	--
Interstitial inflammation	43/83 (51.8%)	39/83 (47.0%)	2.33 (0.60-9.02, 0.22)	--
Vascular damage	6/83 (7.2%)	8/83 (9.6%)	NE	--
Arteriolar hyalinosis	44/83 (53.0%)	44/83 (53.0%)	1.00 (0.25-4.00, 1.00)	--
Acute tubular necrosis	47/83 (56.6%)	50/83 (60.2%)	0.25 (0.03-2.24, 0.22)	--

<sup>1</sup>Mantel-Hanzel odds ratio and Wald 95% CIs derived from conditional logistic regression for matched pairs data. NE indicates not estimable due to 0 discordant pairs in at least 1 discordant grouping (1).

<sup>2</sup>Hodges-Lehmann estimator of the pseudomedian; Wilcoxon signed rank test for matched pairs data testing the null hypothesis that the median difference is 0 (2).

<sup>3</sup>0 = none, 1 = mild, 2 = moderate, 3 = severe.

SD, standard deviation; CI, confidence interval; NE, not estimable due to too few discordant pairs.

Table S3. Details of Analysis for Table 3: Comparison of Biopsies from Discarded Kidneys and Randomly Matched Controls

Biopsy Characteristic	Kidney Discarded for Biopsy Findings ( <i>n</i> = 83)		Comparison to Randomly Matched Controls ( <i>n</i> = 166 kidneys)	
	Fraction (%) or Mean ± SD	Fraction (%) or Mean ± SD	Conditional Odds Ratio for Discard (95% CI, <i>P</i> ) <sup>1</sup>	Pseudomedian Paired Difference (Discarded Kidney – Control Kidney) ( <i>P</i> ) <sup>2</sup>
Type of biopsy, if indicated				
Wedge (vs. needle)	34/51 (66.7%)	72/101 (71.3%)	0.77 (0.32-1.82, 0.55)	--
Tissue processing, if indicated				
Frozen tissue (vs. paraffin-embedded)	32/33 (97.0%)	57/65 (87.7%)	NE	--
Number of glomeruli assessed (164 pairs)	53.8 ± 41.1	51.4 ± 32.9	--	1.00 (0.86)
Percent global sclerosis (164 pairs) (%)	17.1 ± 15.4	5.0 ± 5.9	--	11.00 (< 0.001)
Percentage global sclerosis > 20%	27/83 (32.5%)	5/166 (3.0%)	25.53 (6.04-107.85, < 0.001)	--
Biopsy findings, if reported				
Tubular atrophy <sup>3</sup> (80 pairs)	1.07 ± 0.47	0.60 ± 0.54	--	1.00 (< 0.001)
Interstitial fibrosis <sup>3</sup> (150 pairs)	0.97 ± 0.52	0.54 ± 0.56	--	1.00 (< 0.001)
Interstitial inflammation <sup>3</sup> (38 pairs)	0.75 ± 0.55	0.45 ± 0.50	--	1.00 (0.04)
Vascular damage <sup>3</sup> (127 pairs)	1.05 ± 0.76	0.64 ± 0.63	--	1.00 (0.001)
Arteriolar hyalinosis <sup>3</sup> (24 pairs)	0.38 ± 0.51	0.58 ± 0.65	--	-0.50 (0.51)
Acute tubular necrosis <sup>3</sup> (18 pairs)	0.78 ± 0.97	0.28 ± 0.46	--	1.00 (0.22)
Missing biopsy information				

Wedge versus needle biopsy	18/83 (21.7%)	38/166 (22.9%)	0.90 (0.42-1.95, 0.79)	--
Tissue processing method not indicated	29/83 (34.9%)	64/166 (38.6%)	0.81 (0.43-1.53, 0.51)	--
Tubular atrophy	27/83 (32.5%)	51/166 (30.7%)	1.13 (0.56-2.29, 0.72)	--
Interstitial fibrosis	2/83 (2.4%)	12/166 (7.2%)	0.23 (0.05-1.18, 0.08)	--
Interstitial inflammation	43/83 (51.8%)	85/166 (51.2%)	1.03 (0.56-1.92, 0.92)	--
Vascular damage	6/83 (7.2%)	29/166 (17.5%)	0.25 (0.09-0.72, 0.01)	--
Arteriolar hyalinosis	44/83 (53.0%)	99/166 (59.6%)	0.72 (0.40-1.30, 0.27)	--
Acute tubular necrosis	47/83 (56.6%)	119/166 (71.7%)	0.42 (0.22-0.80, 0.01)	--

<sup>1</sup>Mantel-Hanzel odds ratio and Wald 95% confidence intervals derived from conditional logistic regression for matched pairs data with adjustment for laterality of the case and control kidneys (1).

<sup>2</sup>Hodges-Lehmann estimator of the pseudomedian; signed rank test on the matched case-control differences for clustered data (2).

<sup>3</sup>0 = none, 1 = mild, 2 = moderate, 3 = severe.

SD, standard deviation; CI, confidence interval; NE, not estimable due to too few discordant pairs.

Table S4. Details of Analysis for Table 4: Comparison of Anatomical Abnormalities from Discarded and Paired Control Kidneys from the Same Donor

Anatomical Characteristic	Kidney Discarded for Biopsy Findings ( <i>n</i> = 83)	Comparison to Contralateral Kidney Not Discarded ( <i>n</i> = 83)		
	Fraction (%) or Mean ± SD	Fraction (%) or Mean ± SD	Conditional Odds Ratio for Discard (95% CI, <i>P</i> ) <sup>1</sup>	Pseudomedian Paired Difference (Discarded Kidney – Control Kidney) ( <i>P</i> ) <sup>2</sup>
Aortic plaque <sup>3</sup> (49 pairs)	1.49 ± 1.14	1.45 ± 1.12	--	NE
Aortic plaque not mentioned	32/83 (38.6%)	28/83 (33.7%)	3.00 (0.61-14.86, 0.18)	--
Renal artery plaque <sup>3</sup> (55 pairs)	0.75 ± 0.99	0.75 ± 1.02	--	0.00 (1.00)
Renal artery plaque not mentioned	26/83 (31.3%)	24/83 (28.9%)	2.00 (0.37-10.92, 0.42)	--
Cysts noted	27/83 (32.5%)	18/83 (21.7%)	2.80 (1.01-7.77, 0.048)	--
Capsular tear/hematoma noted	2/83 (2.4%)	2/83 (2.4%)	1.00 (0.14-7.10, 1.00)	--
Normal, no anatomic abnormalities	29/83 (34.9%)	37/83 (44.6%)	0.27 (0.08-0.98, 0.046)	--

<sup>1</sup>Mantel-Hanzel odds ratios and Wald 95% CIs derived from conditional logistic regression for matched pairs data (1).

<sup>2</sup>Hodges-Lehmann estimator of the pseudomedian; Wilcoxon signed rank test for matched pairs data testing the null hypothesis that the median difference is 0 (2).

<sup>3</sup>0 = none, 1 = mild, 2 = moderate, 3 = severe.

SD, standard deviation; CI, confidence interval; NE, not estimable due to too few discordant pairs.



Table S5. Details of Analysis for Table 5: Comparison of Anatomical Abnormalities from Discarded Kidneys and Randomly Matched Controls

Anatomical Characteristic	Kidney Discarded for Biopsy Findings ( <i>n</i> = 83)		Comparison to Randomly Matched Controls ( <i>n</i> = 166 kidneys)	
	Fraction (%) or Mean ± SD	Fraction (%) or Mean ± SD	Conditional Odds Ratio for Discard (95% CI, <i>P</i> ) <sup>1</sup>	Pseudomedian Paired Difference (Discarded Kidney – Control Kidney) ( <i>P</i> ) <sup>2</sup>
Aortic plaque <sup>3</sup> (61 pairs)	1.37 ± 1.29	1.30 ± 1.01	--	0.00 (0.93)
Aortic plaque not mentioned	32/83 (38.6%)	64/166 (33.6%)	1.00 (0.53-1.89, 0.99)	--
Renal artery plaque <sup>3</sup> (78 pairs)	0.63 ± 0.86	0.82 ± 1.05	--	-0.50 (0.61)
Renal artery plaque not mentioned	26/83 (31.3%)	57/166 (34.3%)	0.81 (0.41-1.63, 0.56)	--
Cysts noted	27/83 (32.5%)	22/166 (13.3%)	3.87 (1.83-8.18, < 0.001)	--
Capsular tear/hematoma noted	2/83 (2.4%)	3/166 (1.8%)	1.33 (0.22-7.98, 0.75)	--
Normal, no anatomic abnormalities	29/83 (34.9%)	91/166 (54.8%)	0.35 (0.19-0.66, 0.001)	--

<sup>1</sup>Mantel-Hanzel odds ratio and Wald 95% CIs derived from conditional logistic regression for matched pairs data with adjustment for laterality of the case and control kidneys (1).

<sup>2</sup>Hodges-Lehmann estimator of the pseudomedian; signed rank test on the matched case-control differences for clustered data (2).

<sup>3</sup>0 = none, 1 = mild, 2 = moderate, 3 = severe.

SD, standard deviation; CI, confidence interval.

## References

1. Hollander M, Wolfe DA: Nonparametric Statistical Methods, 2nd ed. John Wiley & Sons, 1999
2. Datta S, Satten GA: A signed-rank test for clustered data. *Biometric* 64:501-507, 2008