

SUPPLEMENTARY TABLES

Supplementary Table 2. Characteristics of control subjects and patients with diabetic kidney disease (DKD).

	Control (n = 9)	DKD (n = 8)
Demographics		
Age (years)	54 ± 3.94	56.63 ± 5.41
Sex (male/female)	5/4	5/3
BMI (kg/m ²)	21.47 ± 1.71	24.86 ± 2.42
Diabetes duration (years)	N/A	14.63 ± 5.85
DKD duration (years)	N/A	5.21 ± 2.17
Retinopathy (yes/no)	0/9	5/3
SBP (mmHg)	119.78 ± 3.80	141.13 ± 10.18
DBP (mmHg)	75.33 ± 4.16	87.25 ± 14.78
Laboratory data		
UAE (mg/24 h)	N/A	3293.66 (1000–6530)
eGFR (CKD-EPI) (ml/min/1.73 m ²)	132.81 ± 7.00	72.01 ± 31.76
HbA1c (%)	N/A	8.15 ± 1.12
Serum cholesterol (mmol/L)	4.51 ± 0.86	4.73 ± 2.21
Serum triglyceride (mmol/L)	1.25 ± 0.18	3.22 ± 3.06
HDL-C (mmol/L)	1.55 ± 0.22	1.09 ± 0.45
LDL-C (mmol/L)	2.78 ± 0.45	2.58 ± 2.03
Medications		
Insulin (yes/no)	0/9	5/3
ACEI or ARB (yes/no)	0/9	3/5

Abbreviations: ACEI: angiotensin-converting enzyme inhibitor; ARB: angiotensin II receptor blocker; BMI: body mass index; DBP: diastolic blood pressure; eGFR: estimated glomerular filtration rate; HbA1c: hemoglobin A1C; N/A: not available; SBP: systolic blood pressure; UAE: urinary albumin excretion; HDL-C: high density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol.

Supplementary Table 3. Body weight, kidney weight and kidney to body weight ratios in each group ($\bar{x} \pm$ standard deviation).

Characteristics	m/m (n = 5)	db/db + AAV9- Vector-GFP (n = 4)	db/db + AAV9- BDH1-GFP (n = 4)	db/db + SD (n = 4)	db/db + KD (n = 4)	m/m (n = 5)	db/db + Vehicle (n = 5)	db/db + β OHB (n = 5)
Body weight (g)	27.02 ± 2.28	49.65 ± 2.77	52.6 ± 5.43	48.73 ± 1.47	57.18 ± 5.35	23.74 ± 1.38	63.68 ± 5.37	60.16 ± 4.52
Kidney weight (g)	0.18 ± 0.01	0.23 ± 0.02	0.24 ± 0.03	0.2 ± 0.01	0.14 ± 0.01	0.17 ± 0.02	0.25 ± 0.03	0.23 ± 0.04
Kidney weight/ Body weight (mg/g)	6.64 ± 0.83	4.62 ± 0.54	4.5 ± 0.28	4.12 ± 0.29	2.52 ± 0.41**	6.94 ± 0.79	4.04 ± 0.68	3.87 ± 0.54

** $p < 0.01$.

Supplementary Table 4. List of primers used in this study.

Species	NCBI Gene ID	Gene name	Sequence (5' to 3')	Length of product (bp)
Mus	71911	<i>Bdh1</i>	F: CGGCTAGTGGCAAAGCTATC R: GTTGCAGACATTGAGCTGGA	194
	67041	<i>Oxct1</i>	F: CATAAGGGGTGTGTCTGCTACT R: GCAAGGTTGCACCATTAGGAAT	106
	110446	<i>Acat1</i>	F: CAGGAAGTAAGATGCCTGGAAC R: TTCACCCCTTGGATGACATT	228
	208715	<i>Hmgcs1</i>	F: AACTGGTGCAGAAATCTCTAGC R: GGTTGAATAGCTCAGAAGCTAGCC	180
	23942	<i>Mta2</i>	F: TGTACCGGGTGGGAGATTAC R: CCTTCGCCGAAAAGACAG	134
	14630	<i>Gclm</i>	F: AGGAGCTTCGGGACTGTATCC R: GGGACATGGTGCATTCCAAAA	105
	625249	<i>Gpx4</i>	F: GATGGAGCCCATTCTGAACC R: CCCTGTACTTATCCAGGCAGA	185
	20656	<i>Sod2</i>	F: CAGACCTGCCTTACGACTATGG R: CTCGGTGGCGTTGAGATTGTT	113
11461	<i>β-Actin</i>	F: ACCTCTATGCCAACACAGTG R: GGACTCATCGTACTCCTGCT	221	
Homo	622	<i>BDH1</i>	F: GACAGCCTAAACAGTGACCGA R: GAGCGGACAATCTCCACCA	89
	9219	<i>MTA2</i>	F: GCGCAGGGACATTTCTAGTAG R: TGGGTGGCTGGTAATGATTCA	162
	2730	<i>GCLM</i>	F: TGTCTTGGAAATGCACTGTATCTC R: CCCAGTAAGGCTGTAAATGCTC	239
	2879	<i>GPX4</i>	F: GAGGCAAGACCGAAGTAAACTAC R: CCGAACTGGTTACACGGGAA	100
	6648	<i>SOD2</i>	F: GCTCCGGTTTTGGGGTATCTG R: GCGTTGATGTGAGGTTCCAG	92
	3553	<i>IL-1β</i>	F: ATGATGGCTTATTACAGTGGCAA R: GTCGGAGATTCGTAGCTGGA	132
	3606	<i>IL-18</i>	F: TCTTCATTGACCAAGGAAATCGG R: TCCGGGGTGCATTATCTCTAC	75
	60	<i>β-ACTIN</i>	F: CATGTACGTTGCTATCCAGGC R: CTCCTTAATGTCACGCACGAT	250