SUPPLEMENTARY MATERIAL
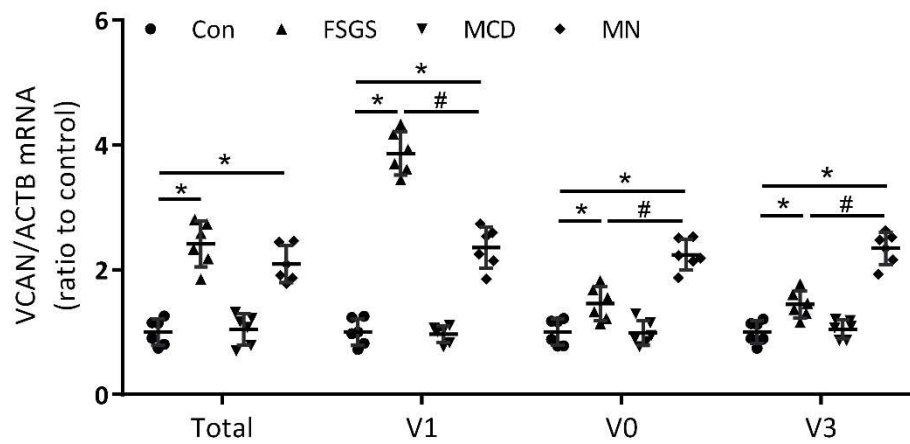

Figure S1. RT-PCR analysis of total versican, versican V1, V0 and V3 levels in the tubulointerstitial tissues of normal controls (Con), focal segmental glomerulosclerosis (FSGS), minimal change disease (MCD) and membranous nephropathy (MN) patients (n=6). For statistical analysis, one-way ANOVA with Tukey's post hoc test was used. *, $P<0.05$ compared with control. #, $P<0.05$ compared with FSGS patients.

Table S1. Clinical and pathological parameters in the discovery and validation cohorts

Disease type	Discovery cohort		Validation cohort	
	Normal	FSGS	Normal	FSGS
patients	8	8	20	20
Age (years)	35.8±7.5	30.9±10.8	35.3±6.5	33.1±16.0
Gender (% female)	50	50	40	40
Disease course (months)	-	11.0 (1.2-24.3)	-	9.0 (0.9-22.5)
Proteinuria (g/24h)	-	8.2±3.4	-	7.0±4.0
serum albumin (g/L)	45.2±3.3	22.6±2.8	45.8±3.5	25.1±7.6
serum creatinine (mg/dl)	0.68±0.12	1.82±1.74	0.75±0.18	1.64±1.22
focal segmental lesions (%)	-	16.1 (13.5-16.7)	-	22.8 (11.5-32.8)
tubulointerstitial fibrosis	-	1.0 (0.0-2.0)	-	1.0 (0.0-2.0)

Table S2. Relationship between DEG level and eGFR decline rate in FSGS patients

DEGs	Correlation coefficient	P value
VCAN	-0.854	0.007
VCAM1	-0.847	0.008
POSTN	-0.844	0.008
ADAMTS9	-0.840	0.009
TGM2	-0.800	0.017
ARG2	-0.791	0.020
ITGAV	-0.790	0.020
CDH6	-0.751	0.032
GBP2	-0.743	0.035
STAT1	-0.743	0.035
FBN1	-0.740	0.036
C3	-0.734	0.038
HAVCR2	-0.730	0.040
ICAM1	-0.721	0.043
UGT1A6	-0.716	0.046
LRRK2	-0.707	0.050
DNPH1	0.710	0.049
RN7SKP137	0.710	0.048
TECRP2	0.712	0.048
SNORD8	0.715	0.046
SNORD9	0.719	0.045
SNORD65	0.720	0.044
HAUS4	0.723	0.043
UBL5P2	0.727	0.041
ACOT4	0.730	0.040
GADD45G	0.731	0.040
RHCG	0.736	0.037
SNORD15A	0.738	0.037
LAMTOR5P1	0.741	0.036
RNA5S9	0741	0.035
SNORD116-1	0.747	0.033
MISP3	0.747	0.033
EPHX1	0.753	0.031
FXYD2	0.756	0.030
ECHDC3	0.767	0.026
RPL29P4	0.776	0.024
RNY4P7	0.780	0.022
TMEM256	0.784	0.021
HBB	0.794	0.019
RPL10P16	0.795	0.018
PM20D1	0.819	0.013
RNY1P13	0.821	0.013
AHCY	0.874	0.005

Table S3. Primers

	Primer list
Hs-VCAN-total forward primer	TTCAACCTTAATAGTAACCCATGC
Hs-VCAN-total reverse primer	AAGGTAGGCTGACTTTTCCAGAG
Hs-VCAN-V1 forward primer	TCGTTTTGAGAACCAGACAGG
Hs-VCAN-V1 reverse primer	CTCAAATCACTCATTCGACGTT
Hs-VCAN-V0 forward primer	CAGCAAGCACAAAATTTCACC
Hs-VCAN-V0 reverse primer	CTCAAATCACTCATTCGACCTG
Hs-VCAN-V3 forward primer	TTGAGAACCAGACAGGCT
Hs-VCAN-V3 reverse primer	CAGCGATCAGGTCGTTTA
Hs-ACTB forward primer	CTTGACAAAACCTAACTTGCG
Hs-ACTB reverse primer	TGCTGTCACCTTCACCGTTC
Hs-COL1A1 forward primer	GAGGGCCAAGACGAAGACATC
Hs-COL1A1 reverse primer	CAGATCACGTCATCGCACAAC
Hs-VCAN-V0/V1 forward primer	AGGTGGTCTACTTGGGGTGA
Hs-VCAN -V0/V1 reverse primer	TGGGGTGGTTGTCACATCAG
Mm-VCAN-total forward primer	TGGCCCAGAACGGAAATATCA
Mm-VCAN-total reverse primer	ACTAGCCCGGAGTTTGACCAT
Mm-VCAN-V1 forward primer	TCGTTTTGAGAACCAGACATG
Mm-VCAN-V1 reverse primer	ATCATATCACTCAATCGACGTT
Mm-VCAN-V0 forward primer	GGTCAGAGAAAACAAGACAGGTCG
Mm-VCAN-V0 reverse primer	TGTTTCTTCACTGCAAGGTTCCTCT
Mm-VCAN-V3 forward primer	TGCTTCCCTCTCCCTGATAG
Mm-VCAN-V3 reverse primer	TGCAGAGATCAGGTCGTTTA
Mm-ACTB forward primer	GTGACGTTGACATCCGTAAAGA
Mm-ACTB reverse primer	GCCGGACTCATCGTACTCC
Hs-VCAN-Chip-forward	CTTTCCCTCTAGGTCCCCGA
Hs-VCAN-Chip-reverse	ACTTCTTCTCGGGAGCACAC
Hs-VCAN-RIP-forward	GCACTTAACAAACACTGGGC
Hs-VCAN-RIP-reverse	TGATGCAGTTTCTGCGAGGAT
Hs-VCAN-RAP-probe	GAATACACCCATACTTTCAAGAATCTTAAGTCCTGAA
Hs-VCAN-RAP-forward	AATACTCCCTACAAAATACTCAGGA
Hs-VCAN-RAP-reverse	AAACTTGTATGCCCAGTGTTTGTT
Hs-LNA antisense site 1	ATTTCAAAGAGTTGATTAGA
Hs-LNA antisense site 2	TCTAACTTCTTATGAAACAT
Mm-VCAN-Chip-forward	AGGAAAGACGCGGATTTGTG
Mm-VCAN-Chip-reverse	AGTCCTTAGGAGCGGACGG
Mm-VCAN-RIP-forward	CTGGTCGTGCAACCCCTTA
Mm-VCAN-RIP-reverse	CTGGGTGATGAAGTTTCTGCG
Mm-VCAN-RAP-probe	TATATGTATACAACTGCAGTTTCAAAAATCTTACATTA
Mm-VCAN-RAP-forward	GTCCAATTAAAAATACAGAGCCAC
Mm-VCAN-RAP-reverse	AAGGGGTTGCACGACCA

Table S4. Antibodies used in this study

Antibody	Catalog no.	Company	Reactivity	Application (dilution)
Versican	ab19345	Abcam	Human, Mouse	IHC (1:150), western (1 µg/ml)
Collagen I	14695	Proteintech	Human, Mouse	Western (1:2000)
CD44	217594	Merck Millipore	Human, Mouse	Western (1:1000)
p-smad3	9520	Cell Signaling Technology	Human, Mouse	Western (1:1000)
Smad3	9523	Cell Signaling Technology	Human, Mouse	Western (1:1000)
C3a	ab11873	Abcam	Human	IF (1:50)
C3a	558250	BD Biosciences	Mouse	IF (1:50)
uPAR	MAB807	R&D Systems	Human	Blocking study (10µg/ml)
uPAR	sc-10815	Santa Cruz	Human, Mouse	IHC (1:150), IF (1:75), IP (5µg/mg protein)
ITGB6	ab240302	Abcam	Human, Mouse	IF (1:75), western (1:2000)
β-catenin	66379	Proteintech	Human, Mouse	western (1:2000), ChIP (2µg per 15µg chromatin)
SRp40	06-1365	Merk Millipore	Human, Mouse	IF (1:75), western (1:500), RIP (5µg per immunoprecipitation)
Rac1	ab33186	Abcam	Human, Mouse	IF (1:50), western (1 µg/mL), IP (5µg/mg protein), RIP (5µg per immunoprecipitation)
U2AF1	ab86305	Abcam	Human	RIP (5µg per immunoprecipitation)
Akt	9272	Cell Signaling Technology	Human, Mouse	western (1:1000)
p-AKT	9271	Cell Signaling Technology	Human, Mouse	western (1:1000)
Histone H3	05-928	Merck Millipore	Human, Mouse	western (1:2000)