

Supplementary Table 1. The primer pairs used for quantitative real-time PCR.

Species origins	Genes	Forward 5'-3'	Rewersed 3'-5'
Human	β -ACTIN	AGAGCTACGAGCTGCCTGAC	AGCACTGTGTTGGCGTACAG
Human	CYP4A11	TACATACAGGCCATTAGTGACC	CTGTAGATGGTGTCAATTCTGGT
Human	SOD1	ATCCTCTATCCAGAAAAACACGG	GCGTTTCCTGTCTTTGTACTTT
Human	GSK3 β	TGGTAGCATGAAAGTTAGCAGA	CTCTCGGTTCTTAAATCGCTTG
Human	BCL2L1	GCATATCAGAGCTTTGAACAGG	GAAGGAGAAAAAGGCCACAATG
Huamn	ITGA9	CTCATCGCTGGAAGAACATCTA	ACTCTTCATAGCAAGGGATCAG
Human	ITGAV	ATCTGTGAGGTCGAAACAGGA	TGGAGCATACTCAACAGTCTTTG
Human	GLUT2	ACTCAACCAGCATTTTTTCAGAC	CACAAACAAACATCCCCTCAT
Human	CREB5	GATTTTGGACACGGTTATG	TCTGTTTTTATTGAAGGAA
Human	LAMA1	GTCAGCGACTCAGAGTGTTTG	CTTGGGTGAAAGATCGTCAGC
Human	CSF1R	GGGAATCCCAGTGATAGAGCC	TTGGAAGGTAGCGTTGTTGGT
Human	EPHA2	AGAGGCTGAGCGTATCTTCAT	GGTCCGACTCGGCATAGTAGA
Human	FOXO1	TCGTCATAATCTGTCCCTACACA	CGGCTTCGGCTCTTAGCAAA

Supplementary Table 2. Basic characteristics of 24 randomized subjects in preeclampsia and control groups involved in measurements of 20-HETE, SOD and MDA levels.

Characteristics	Preeclampsia (n=12)	Controls (n=12)	<i>p</i> -value
Maternal age (y)	28.1 $\pm$ 2.4	28.2 $\pm$ 1.9	0.96
Pre-pregnant BMI (kg/m ²)	22.1 $\pm$ 2.0	22.4 $\pm$ 1.7	0.77
Conception mode			>0.99
Natural conception	12 (100.0%)	11 (91.7%)	
IVF-ET	0	1 (8.3%)	
Blood pressure			
Systolic blood pressure (mm Hg)	152.9 $\pm$ 11.9	104.2 $\pm$ 14.7	<0.01
Diastolic blood pressure (mm Hg)	91.0 $\pm$ 7.7	69.0 $\pm$ 7.2	<0.01
Proteinuria (g/24 h)	2.19 $\pm$ 0.7	NA	NA
Parity (times)			0.64
Nulliparous	10 (83.3%)	8 (66.7%)	
Multiparous	2 (16.7%)	4 (33.3%)	
Gestational week at delivery (wks)	37.0 $\pm$ 2.3	38.8 $\pm$ 1.1	<0.01
Neonatal birth weight (g)	2766.0 $\pm$ 449.0	3200.0 $\pm$ 433.9	<0.01

Note: Data were described as means $\pm$ SD and numbers (%) for normally distributed and categorical data, respectively. *P*-values were derived from Student's *t*-tests of continuous variables and Pearson χ^2 tests of % variables. IVF-ET, in vitro fertilization embryo transfer; BMI, body mass index.

Supplementary Table 3. The CYP4A11 mRNA expression and the 20-HETE, MDA and SOD levels in 24 randomized subjects participating in correlation analysis.

Group	CYP4A11 mRNA expression (relative to control)	20-HETE concentration (pmol/mg wet weight of tissue)	MDA concentration (nmol/mg wet weight of tissue)	SOD concentration (U/mg wet weight of tissue)
Control	1.8233	0.048	3.99	51.24
Control	1.7706	0.044	3.31	51.02
Control	1.4429	0.031	3.29	75.3
Control	1.7605	0.046	3.98	67.9
Control	0.4936	0.029	2.85	81.06
Control	0.731	0.039	2.76	87.2
Control	1.2025	0.039	2.9	82.1
Control	1.7187	0.051	4.01	46.4
Control	0.3881	0.039	1.98	90.7
Control	1.3966	0.04	3.06	70.6
Control	0.6811	0.034	2.92	90.7
Control	1.0122	0.04	3	82.1
Preeclampsia	2.6602	0.059	4.21	41.2
Preeclampsia	2.19	0.061	2.3	33
Preeclampsia	3.0714	0.052	4	49.7
Preeclampsia	2.0911	0.047	3.02	44.71
Preeclampsia	1.7031	0.044	3.54	47.11
Preeclampsia	1.4498	0.029	3.11	88.92
Preeclampsia	2.8754	0.062	4.33	34.3
Preeclampsia	1.5493	0.043	3.01	69.9
Preeclampsia	2.5198	0.049	4.17	39.2
Preeclampsia	2.0279	0.047	3.32	66
Preeclampsia	1.3954	0.044	2.77	74.7
Preeclampsia	1.2074	0.039	2.96	71.7

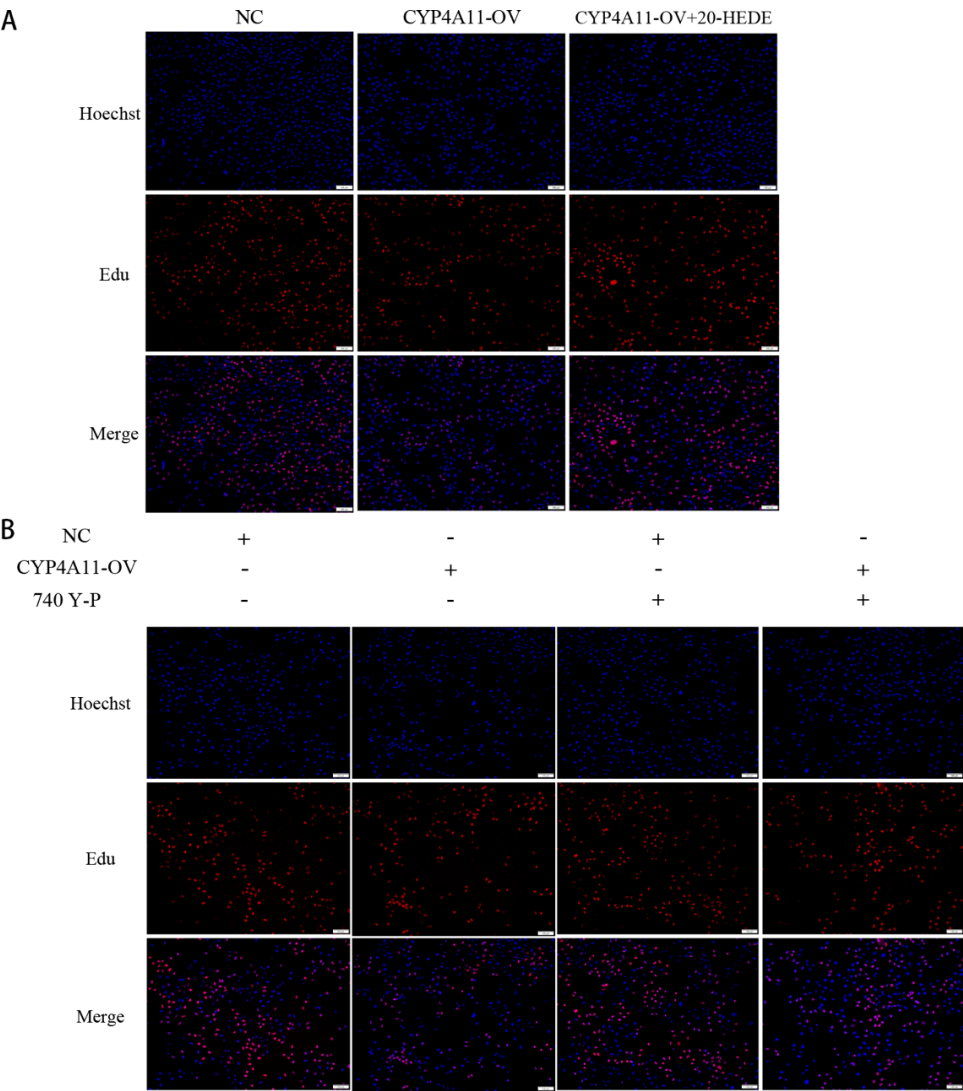
Supplementary Table 4. Multivariable adjusted association of preeclampsia risk with placental CYP4A11 mRNA expression, 20-HETE, SOD and MDA levels.

Items	Group	n	Unadjusted OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Analysis of CYP4A11 mRNA expression	Control	30	1		1	
	Preeclampsia	30	1.31 (1.10-2.23)	< 0.05	1.12 (1.01-3.14) ^a	< 0.05
Analysis of 20-HETE concentration	Control	12	1		1	
	Preeclampsia	12	2.03 (1.01-3.17)	< 0.01	1.87 (1.15-3.66) ^a	< 0.05
Analysis of MDA concentration	Control	12	1		1	
	Preeclampsia	12	2.37 (1.09-3.45)	< 0.01	2.31 (1.02-3.60) ^a	< 0.01
Analysis of SOD concentration	Control	12	1		1	
	Preeclampsia	12	0.23 (0.01-0.66)	< 0.01	0.31 (0.01-0.82) ^a	< 0.01

Note: a, adjusted for maternal age, pre-pregnant BMI and gestational week at delivery in the multivariable conditional logistic regression analysis.

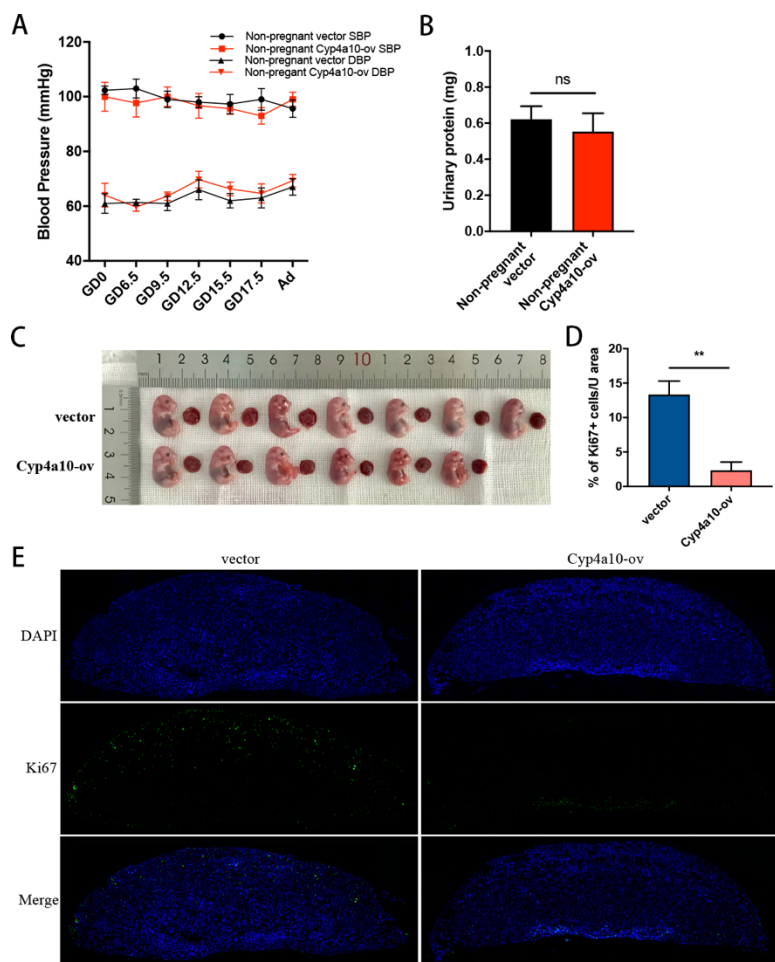
n, numbers; CYP4A11, cytochrome P450 subfamily 4A polypeptide 11; 20-HETE, 20-Hydroxyeicosatetraenoic acid; MDA, malondialdehyde; SOD, superoxide dismutase; ORs, odd ratios; CIs, confidence intervals.

Supplementary Figure 1. The representative photographs of proliferation assays in different groups of transfected cells.



Note: A, Representative photographs of the proliferation results of HTR-8/SVneo cells transfected with NC, CYP4A11-OV (without or with the present of 20-HEDE) after 48h. B, HTR-8/SVneo cells were pretreated with 740 Y-P for 8h, and then transfected with NC or CYP4A11-OV for 48h. Representative photographs of the proliferation results from different groups of HTR-8/SVneo cells. Scale bar: 100 μ m.

Supplementary Figure 2. Partial results of pregnant mice experiments.



Note: A, Vector or Cyp4a10-ov injection through tail vein did not affect either the systolic blood pressure or the diastolic blood pressure in non-pregnant mice ($n=8$, respectively). B, the 24 h total urinary protein of non-pregnant mice in vector and Cyp4a10-ov groups showed no significant difference. C, The representative photographs of fetuses on GD17.5 of pregnant mice in vector and Cyp4a10-ov groups. D-E, Representative photographs of the Ki67 immunofluorescence staining in mice placentas of vector or Cyp4a10-ov groups. $*P < 0.05$, $**P < 0.01$, $***P < 0.001$, $****P < 0.0001$.