Figure S1

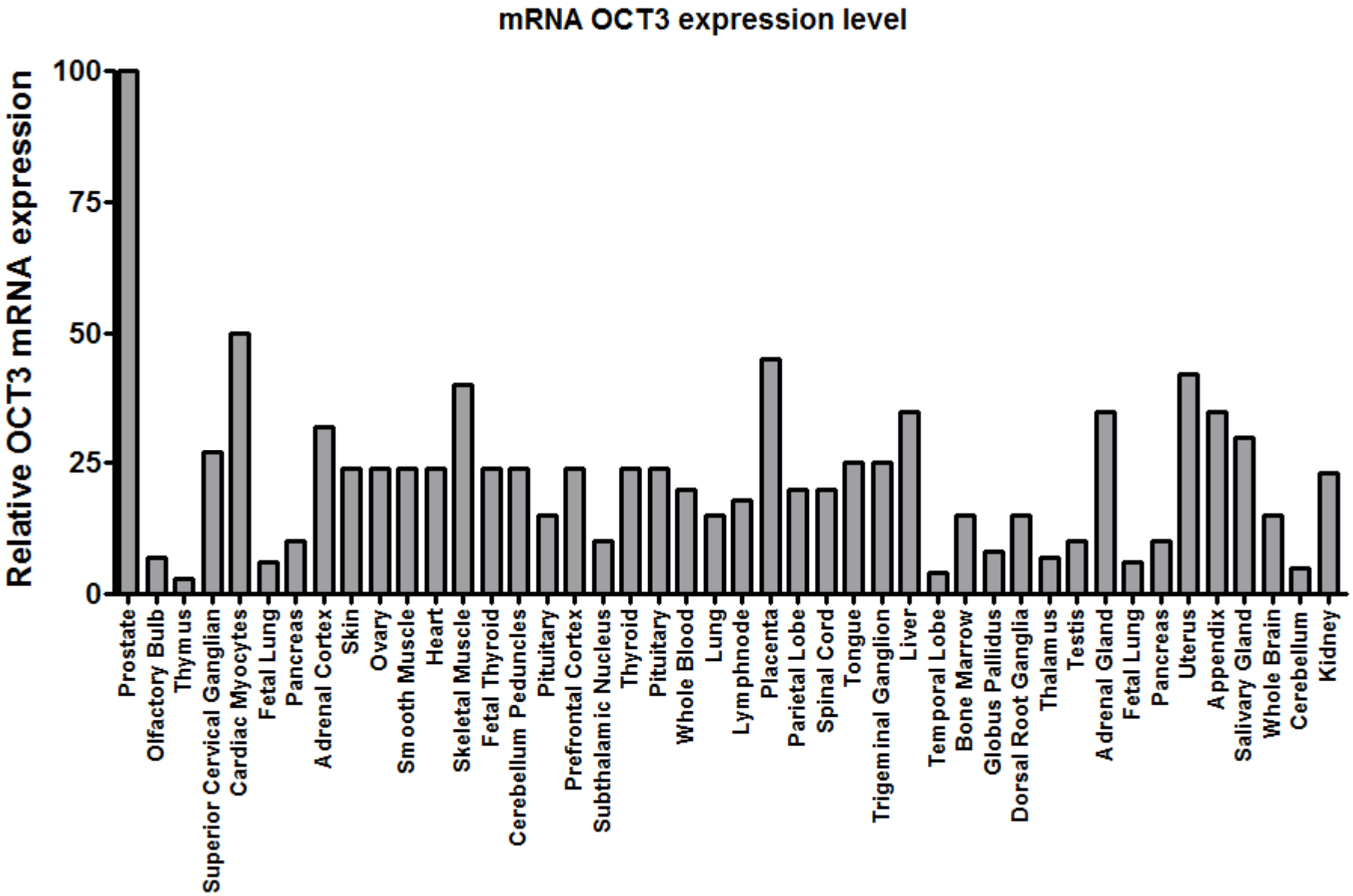
mRNA OCT3 expression level
Relative OCT3 mRNA expression
100
75
50
25
0
Prostate
Olfactory Bulb
Thymus
Superior Cervical Ganglian
Cardiac Myocytes
Fetal Lung
Pancreas
Adrenal Cortex
Skin
Ovary
Smooth Muscle
Heart
Skeletal Muscle
Fetal Thyroid
Cerebellum Peduncles
Pituitary
Prefrontal Cortex
Subthalamic Nucleus
Thyroid
Pituitary
Whole Blood
Lung
Lymphnode
Placenta
Parietal Lobe
Spinal Cord
Tongue
Trigeminal Ganglion
Liver
Temporal Lobe
Bone Marrow
Globus Pallidus
Dorsal Root Ganglia
Thalamus
Testis
Adrenal Gland
Fetal Lung
Pancreas
Uterus
Appendix
Salivary Gland
Whole Brain
Cerebellum
Kidney

Figure S2

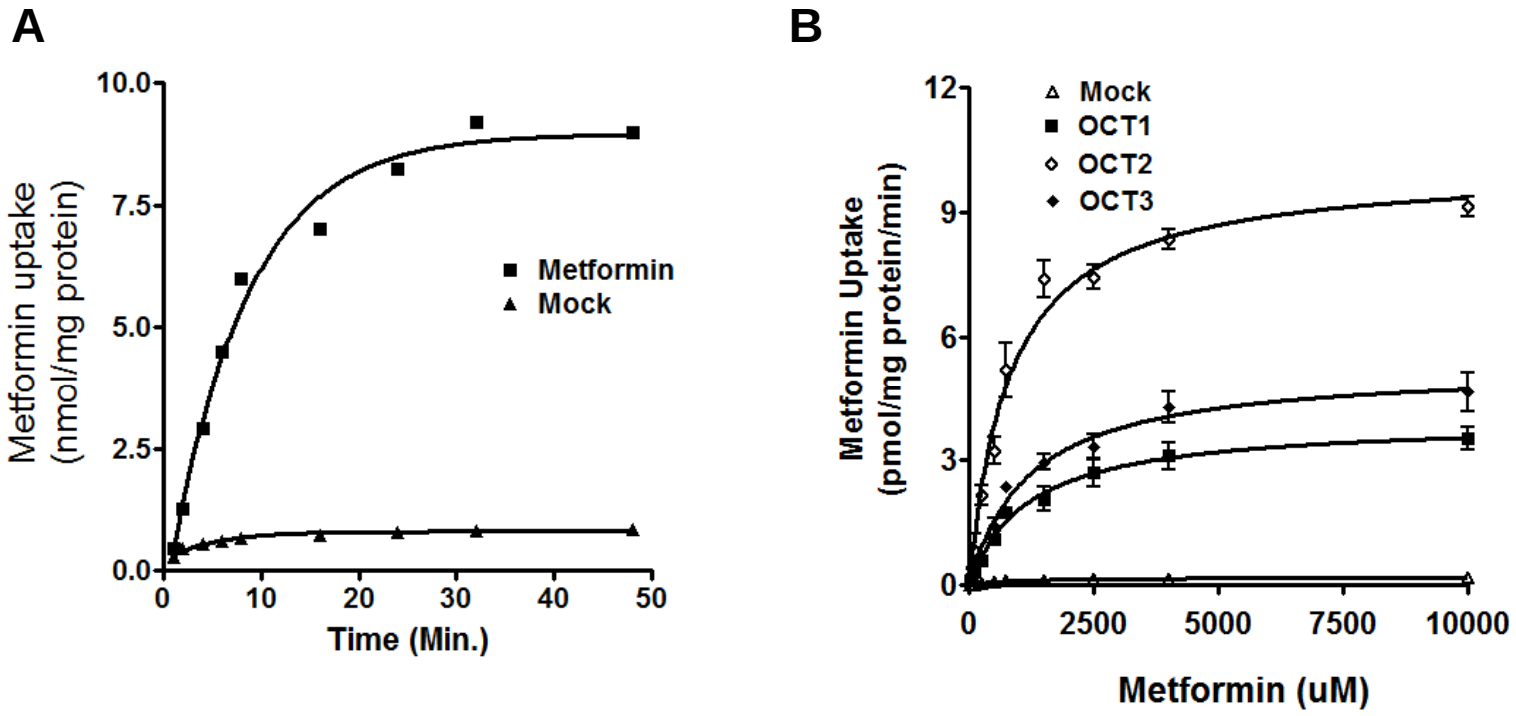
A
Metformin uptake
(nmol/mg protein)
10.0
7.5
5.0
2.5
0.0
0
10
20
30
40
50
Time (Min.)
Metformin
Mock
B
Metformin Uptake
(pmol/mg protein/min)
12
9
6
3
0
0
2500
5000
7500
10000
Metformin (uM)
Mock
OCT1
OCT2
OCT3

Figure S3

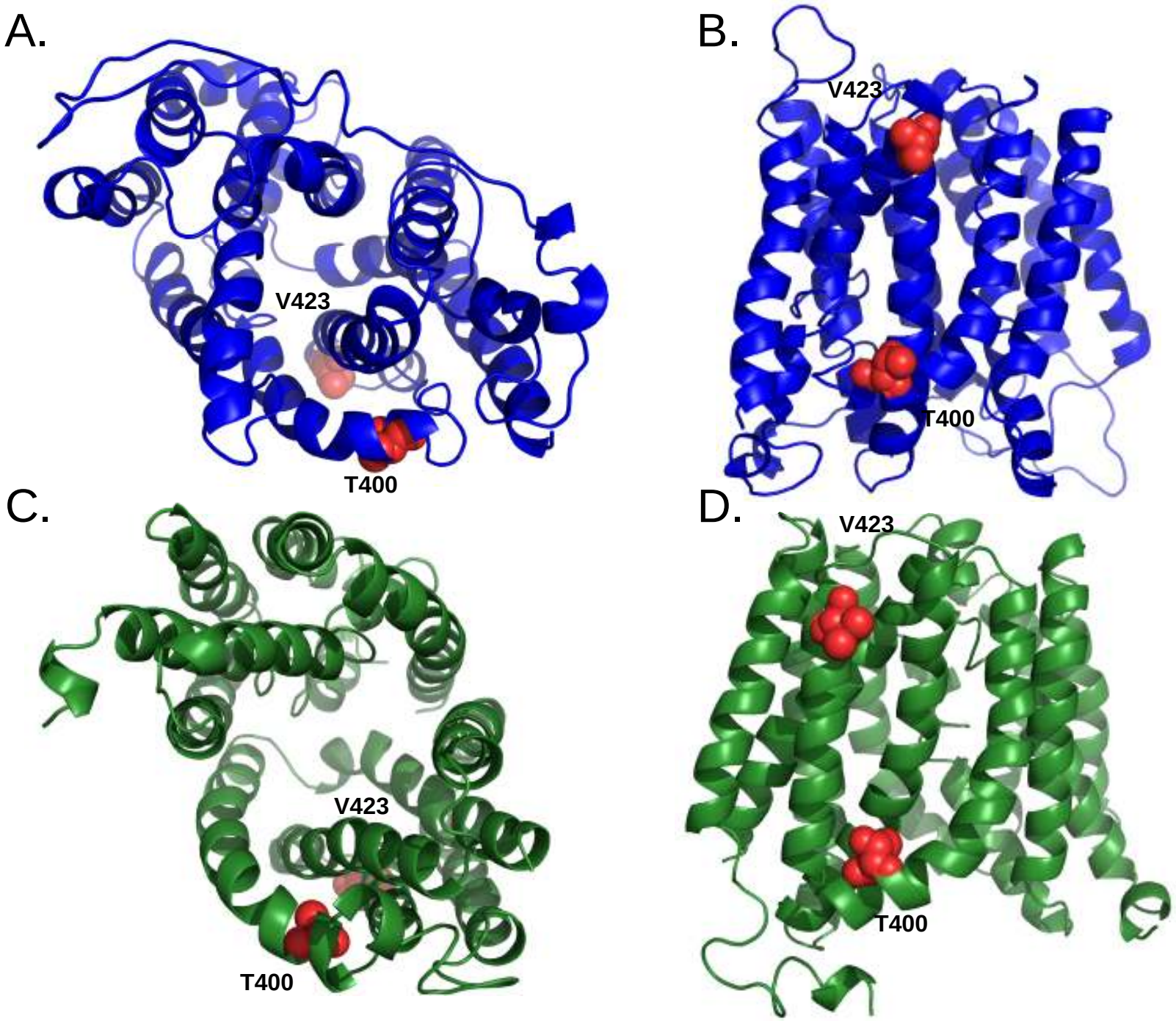

Table 1S. Comparison of kinetic parameters of metformin among OCT1-3;

Kinetic parameter	OCT1	OCT2	OCT3
V_{max}(nmol/mg protein/min)	3.96 ± 0.44	10.11 ± 0.72	4.72 ± 0.54
K_m(mM)	1.18 ± 0.18	0.81 ± 0.32	1.09 ± 0.21
Ratio (V_{max}/K_m)	3.36	11.97	4.33

Figure S1. TaqMan quantitative PCR analysis of OCT3 mRNA expression level in 44 different human tissues listed in the figure. The highest expression of OCT3 mRNA was in the prostate. For each tissue, OCT3 mRNA expression is normalized to prostate expression level (100%).

Figure S2. A.The uptake of metformin versus time in the HEK293 cells expressing OCT3-reference. B, Metformin kinetics in HEK293 cells expressing reference OCT1, 2 and 3. Michaelis-Menten parameters were calculated and are shown in Table 3A.

Figure S3. Structural models of OCT3 based on both glycerol-3-phosphate (PDB identifier 1PW4) and lactose permease (LacY, PDB identifier 2CFQ) structures. Intra-cellular and side views of cartoon representation of two different OCT3 models were shown: (A) and (B) show the model based on the glycerol-3-phosphate transporter structure, downloaded from MODBASE. (C) and (D) show the OCT3 model based on the lactose permease (LacY) structure (29), relying on MODELLER and a comprehensive alignment of the OCTs and LacY (30). T400 and V423 are illustrated by red spheres.