



Supplementary Material

Interaction Profiles of Central Nervous System Active Drugs at Human Organic Cation Transporters 1–3 and Human Plasma Membrane Monoamine Transporter

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Supplementary Materials

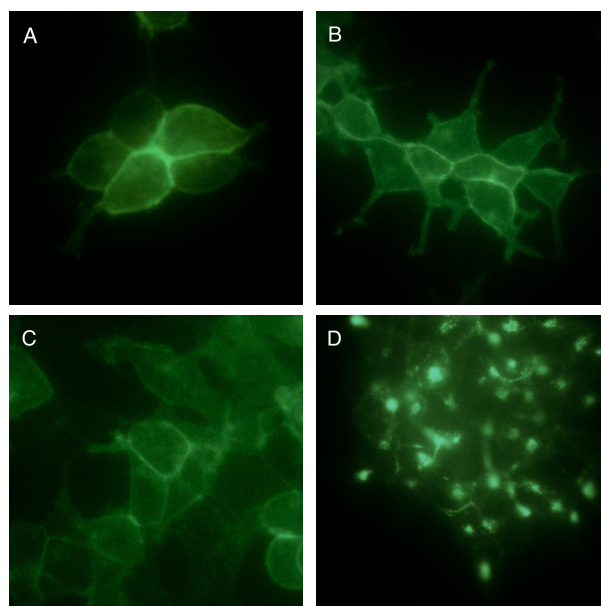


Figure S1. Microscopy images depicting cells expressing YFP-tagged transporters of interest: (A): hOCT1, (B): hOCT2, (C): hOCT3 and (D): hPMAT.

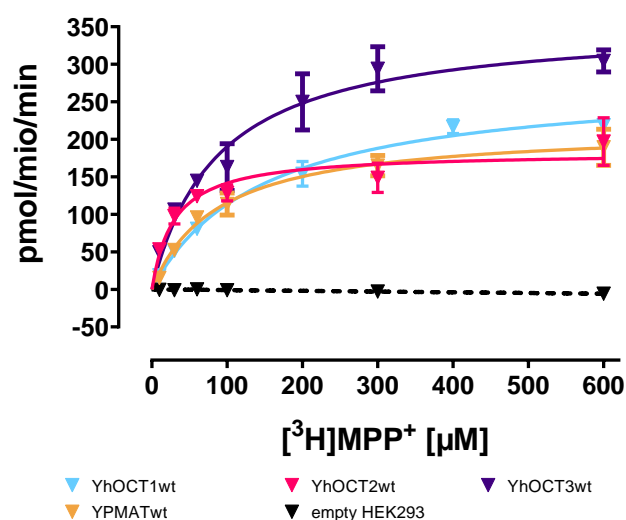


Figure S2. Representative experiments depicting concentration dependant uptake of tritiated MPP^+ by the transporters (hOCT1 light blue, hOCT2 red, hOCT3 violet and hPMAT orange, all transiently transfected) of interest and empty HEK293 cells (dashed line) as control.

Table S1. IC_{50} comparison table. Red boxes indicate that no respective data for comparison was found. n.s. = non-significant. Red text color: experiments were performed with ASP^+ as substrate. Orange text color: values show the percentage of inhibition at 100 μM of the respective compound. Blue text color: K_i (μM) values were measured.

	Substance	hOCT1		hOCT2		hOCT3		hPMAT	
		IC_{50} literature	IC_{50} [μM] (95%-CI)	IC_{50} literature	IC_{50} [μM] (95%-CI)	IC_{50} literature	IC_{50} [μM] (95%-CI)	IC_{50} literature	IC_{50} [μM] (95%-CI)
Antidepressants	Bupropion	161.00 [1]	5.36 [4.19–6.85]	28.60 [1] 32.20 [2]	32.86 [21.55–50.10]	738.00 [1]	185.60 [9.36–3681]	115.00 [3]	96.96 [56.01–167.80]
	S-Citalopram		7.15 [5.59–9.15]		59.90 [34.26–104.70]		n.s.		159.80 [83.29–306.50]
	R-Citalopram		5.11 [4.11–6.37]		46.63 [25.56–85.07]		n.s.		58.32 [37.46–90.79]
	Citalopram	13.2 [1]		115.00 [1]		188.00 [1]		116.67 [4]	
Antiepileptics	Diazepam	5.0% [5]	n.s.		917.30 [229.70–3663]	2.00 [6] 40.00 (mOCT3) [6]	44.46 [36.04–54.85]		29.81 [18.41–48.27]
	Phenobarbital	−6.0% [5]	n.s.		n.s.		n.s.		1027 [39.71–26584]
Psychostimulants	d-Amphetamine	202 ± 68 [7] 96.7 ± 37 [8]	8.39 [6.90–10.20]	10.5 ± 2.6 [7] 20.30 ± 16.9 [8]	2.21 [1.70–2.87]	460 ± 140 [7] 363 ± 56.4 [8] 42 ± 7 [9] 41.5 ± 7.5 (DA) 24.1 ± 70 (5-HT)[10] n.a. [11]	336.6 [179.70–630.40]		71.77 [46.81–110.00]
	Cocaine	85 ± 22 [7]	6.66 [5.28–8.39]	113 ± 21 [7]	27.80 [19.17–40.32]	n.a. [7] [12] 1631 [13] >1000 [14]	n.s.		n.s.
	α -PVP	1.31 [13]		17.5 ± 2.5 [14]				13.42 [13]	
	R- α -PVP		2.15 [1.59–2.90]	5.62 [13]	13.09 [9.89–17.32]		1016 [364.90–2826]		n.s.
	S- α -PVP		1.07 [0.81–1.40]		15.02 [11.28–20.00]		456.7 [144.90–1439]		n.s.
Emerging Therapeutics	Ketamine	114.5 ± 43.7 [7] 73.9 ± 15.2 (K_m) [15]	23.47 [13.34–41.37]	22.7 ± 6.3 [7] 33.5 ± 20.3 (K_m) [15]	12.46 [9.71–15.98]	225.7 ± 65 [7] 440 [6] 52.9 ± 15.0 (K_m) [15]	1028 [589.40–1792]		134.60 [54.70–331.20]
	2-Fluoro-deschloroketamine		14.07 [10.11–19.56]		19.18 [14.89–24.70]		265.5 [167.60–420.50]		n.s.
	MDMA	24.20 ± 9.20 [7]	1.14 [0.90–1.44]	1.63 ± 0.62 [7]	2.71 [2.22–3.31]	73.60 ± 50.30 [7]	153.90 [87.41–270.90]		7.77 [5.92–10.21]
	Psilocin		63.48 [44.97–89.62]		n.s.		n.s.		698.20 [88.81–5488]
Analgesics	Tramadol	60.2% [5] 30 [16]	5.60 [4.65–6.75]		64.10 [39.58–103.80]		n.s.		74.19 [32.67–168.50]
	O-Desmethyl tramadol	172 [16]	24.16 [19.12–30.54]		371.90 [44.37–3116]		n.s.		n.s.
Drugs for Narcolepsy and ADHD	Methylphenidate		0.36 [0.27–0.46]		28.80 [15.11–54.90]		n.s.		n.s.
	Modafinil		n.s.		n.s.		n.s.		n.s.
Control	Decynium-22		2.66 [2.049–3.44]		4.56 [3.786–5.496]		0.16 [0.1358–0.1904]		0.35 [0.2439–0.5042]

Experiments with MPP^+	Experiments with ASP^+	% inhibition at 100 μM	K_i (μM) Values	no data available
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