

Supplemental Information

**Investigating Blood-Brain Barrier Penetration and Neurotoxicity of Natural Products for
Central Nervous System Drug Development**

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Table S4: Comparison of molecular descriptors between different PAMPA-BBB categories for NP constituents and NCATS-synthesized compounds. Data shown as mean $\pm$ SD. A two-tailed t-test with unequal variance was performed to determine statistical significance

	TPSA	SLogP	HBD	HBA	MW
NP Low	115.15 $\pm$ 89.14	1.31 $\pm$ 2.64	3.86 $\pm$ 3.44	5.89 $\pm$ 4.57	350.47 $\pm$ 214.51
NP Mod-High	68.27 $\pm$ 54.52	2.81 $\pm$ 1.57	1.66 $\pm$ 2.08	3.82 $\pm$ 2.95	320.91 $\pm$ 172.79
p-Value	<0.001	<0.001	<0.001	<0.001	0.055
NP Low	115.15 $\pm$ 89.14	1.31 $\pm$ 2.64	3.86 $\pm$ 3.44	5.89 $\pm$ 4.57	350.47 $\pm$ 214.51
NCATS Low	102.11 $\pm$ 67.85	2.82 $\pm$ 2.59	2.13 $\pm$ 2.31	6.15 $\pm$ 3.53	454.38 $\pm$ 184.69
p-Value	0.016	<0.001	<0.001	0.34	<0.001
NP Mod-High	68.27 $\pm$ 54.52	2.81 $\pm$ 1.57	1.66 $\pm$ 2.08	3.82 $\pm$ 2.95	320.91 $\pm$ 172.79
NCATS Mod-High	73.80 $\pm$ 33.93	4.01 $\pm$ 1.56	1.33 $\pm$ 1.20	5.26 $\pm$ 2.04	432.09 $\pm$ 107.46
p-VALUE	0.117	<0.001	0.014	<0.001	<0.001
NCATS Low	102.11 $\pm$ 67.85	2.82 $\pm$ 2.59	2.13 $\pm$ 2.31	6.15 $\pm$ 3.53	454.38 $\pm$ 184.69
NCATS Mod-High	73.80 $\pm$ 33.93	4.01 $\pm$ 1.56	1.33 $\pm$ 1.20	5.26 $\pm$ 2.04	432.09 $\pm$ 107.46
p-Value	<0.001	<0.001	<0.001	<0.001	0.008