

Table S1. Significance matrix presenting the significant differences ($p < 0.05$) in mice plasma and brain between the three intranasal formulations studied and between intranasal formulations, intravenous and oral (normalized concentrations) administration routes at the different post-administration times. Statistical analysis performed by a two-way ANOVA with Tukey's multiple comparisons post-hoc test.

Mice matrix.	Time (min)	Significance matrix			
		IN formulations	FS6+0.25%CH	FS6+0.25%CH+1%BSA	IV Oral (normalized)
Plasma	5	FS6	ns	ns	<0.0001 0.0024
		FS6+0.25%CH	--	ns	0.0029 ns
		FS6+0.25%CH+1%BSA	--	--	<0.0001 0.0023
	10	FS6	ns	ns	0.0221 0.0048
		FS6+0.25%CH	--	ns	ns ns
		FS6+0.25%CH+1%BSA	--	--	ns ns
	15	FS6	0.0292	ns	0.0008 0.0015
		FS6+0.25%CH	--	ns	ns Ns
		FS6+0.25%CH+1%BSA	--	--	0.0255 0.0134
	30	FS6	ns	ns	0.0469 0.0343
		FS6+0.25%CH	--	ns	ns 0.0395
		FS6+0.25%CH+1%BSA	--	--	0.0283 0.0230
	45	FS6	ns	ns	ns ns
		FS6+0.25%CH	--	--	ns ns
		FS6+0.25%CH+1%BSA	--	--	ns ns
	60	FS6	ns	ns	ns ns
		FS6+0.25%CH	--	ns	0.0332 0.0292
		FS6+0.25%CH+1%BSA	--	--	ns ns
	90	FS6	ns	ns	ns ns
		FS6+0.25%CH	--	ns	0.0018 0.0099
		FS6+0.25%CH+1%BSA	--	--	0.0401 0.0373
	120	FS6	ns	ns	0.0141 0.0183
		FS6+0.25%CH	--	ns	ns ns
		FS6+0.25%CH+1%BSA	--	--	0.0353 0.0438
	180	FS6	ns	ns	ns ns
		FS6+0.25%CH	--	0.0017	0.0011 0.0005
		FS6+0.25%CH+1%BSA	--	--	0.0429 ns
	240	FS6	ns	ns	ns ns
		FS6+0.25%CH	--	ns	0.0278 ns
		FS6+0.25%CH+1%BSA	--	--	ns ns
	360	FS6	ns	0.0029	ns ns
		FS6+0.25%CH	--	ns	0.0235 0.0192
		FS6+0.25%CH+1%BSA	ns	ns	0.0029 0.0011
	480	FS6	ns	ns	0.0199 ns
		FS6+0.25%CH	--	ns	ns ns
		FS6+0.25%CH+1%BSA	--	--	ns ns
	600	FS6	ns	ns	0.0304 ns
		FS6+0.25%CH	--	ns	ns ns
		FS6+0.25%CH+1%BSA	--	--	ns ns
	720	FS6	ns	ns	0.0305 0.0411
		FS6+0.25%CH	--	ns	ns ns
		FS6+0.25%CH+1%BSA	--	--	ns ns
Brain	5	FS6	ns	ns	0.0105 ns
		FS6+0.25%CH	--	ns	0.0080 0.0251
		FS6+0.25%CH+1%BSA	--	--	0.0074 0.0433
	10	FS6	0.0223	ns	0.0074 0.0033
		FS6+0.25%CH	--	ns	ns 0.0062

	FS6+0.25%CH+1%BSA	--	--	ns	ns
	FS6	0.0292	ns	0.0276	0.0140
15	FS6+0.25%CH	--	0.0195	ns	0.0095
	FS6+0.25%CH+1%BSA	--	--	0.0394	0.0065
	FS6	ns	ns	ns	0.0115
30	FS6+0.25%CH	--	ns	ns	0.0318
	FS6+0.25%CH+1%BSA	--	--	ns	0.0072
	FS6	ns	ns	ns	ns
45	FS6+0.25%CH	--	ns	ns	ns
	FS6+0.25%CH+1%BSA	--	--	ns	0.0075
	FS6	ns	ns	0.0389	0.0087
60	FS6+0.25%CH	--	ns	0.0476	0.0142
	FS6+0.25%CH+1%BSA	--	-	ns	ns
	FS6	ns	ns	ns	ns
90	FS6+0.25%CH	--	ns	0.0299	0.0014
	FS6+0.25%CH+1%BSA	--	--	0.0243	0.0087
	FS6	ns	ns	ns	ns
120	FS6+0.25%CH	--	ns	0.0304	0.0065
	FS6+0.25%CH+1%BSA	--	--	ns	ns
	FS6	--	--	--	0.0102
180	FS6+0.25%CH	--	--	--	0.0102
	FS6+0.25%CH+1%BSA	--	--	--	0.0102
	FS6	--	ns	--	<0.0001
240	FS6+0.25%CH	--	ns	--	<0.0001
	FS6+0.25%CH+1%BSA	--	--	ns	ns
	FS6	--	0.0062	--	--
360	FS6+0.25%CH	--	0.0062	--	--
	FS6+0.25%CH+1%BSA	--	--	0.0062	0.0062
	FS6	--	0.0147	--	--
480	FS6+0.25%CH	--	0.0147	--	--
	FS6+0.25%CH+1%BSA	--	--	0.0147	0.0147
	FS6	--	--	--	--
600	FS6+0.25%CH	--	--	--	--
	FS6+0.25%CH+1%BSA	--	--	--	--
	FS6	--	--	--	--
720	FS6+0.25%CH	--	--	--	--
	FS6+0.25%CH+1%BSA	--	--	--	--