

Exposure to commercial cigarette smoke produces psychomotor sensitization via hyperstimulation of glutamate response in the dorsal striatum

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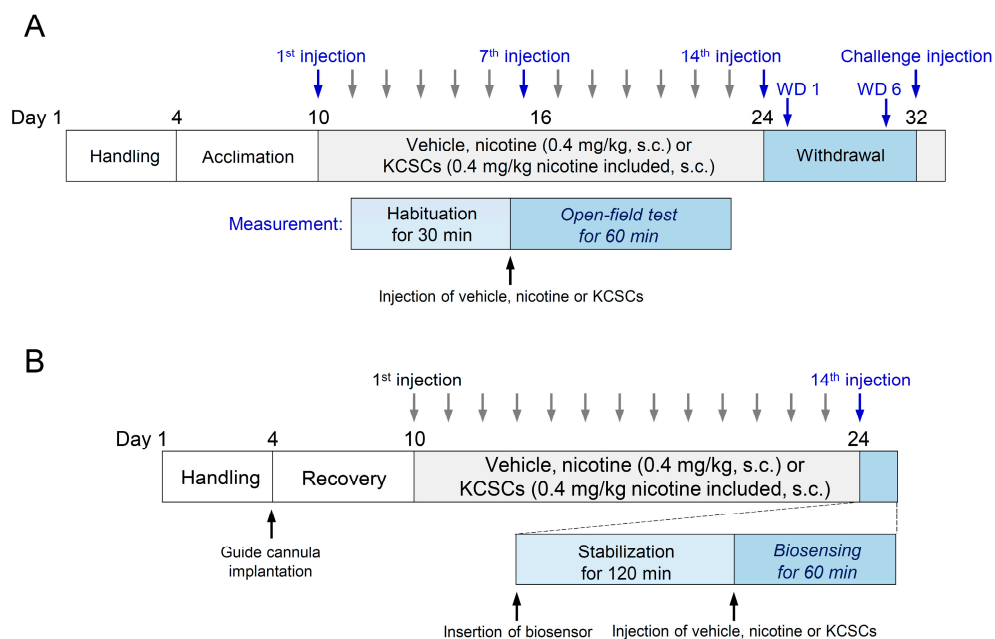
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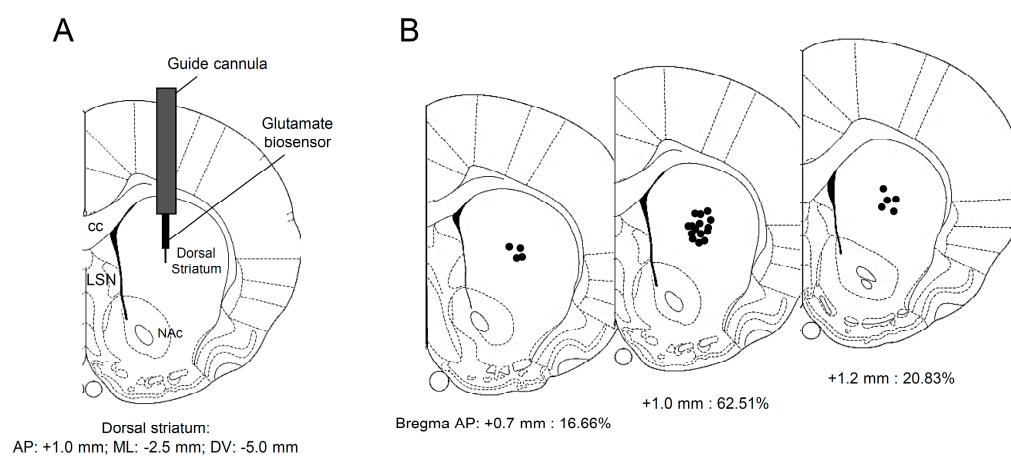
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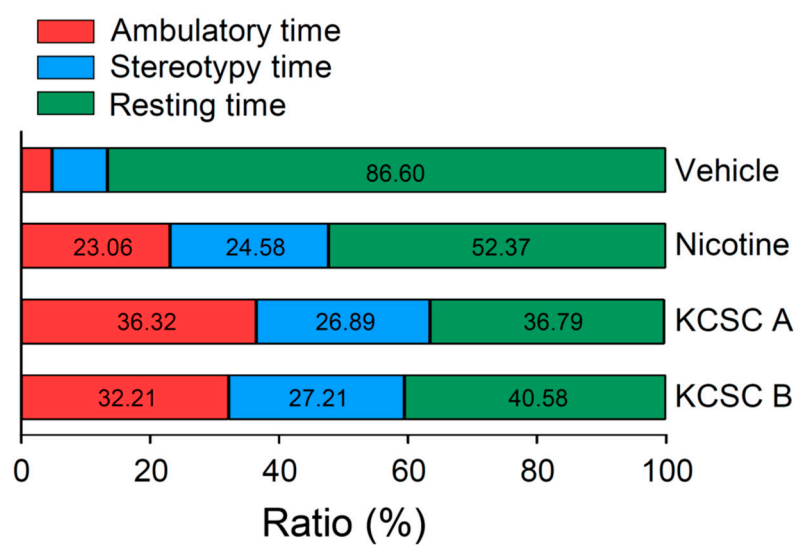
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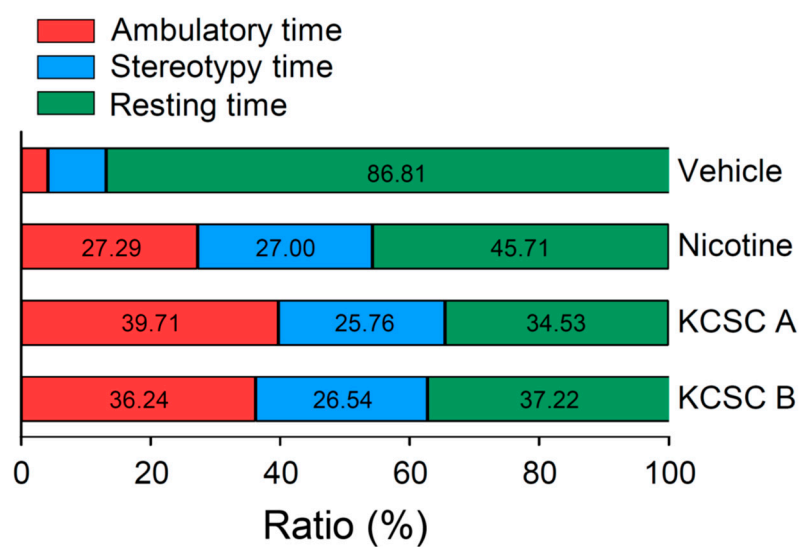
Supplementary Figure S1. Timelines for open-field test (A) and glutamate biosensing (B).



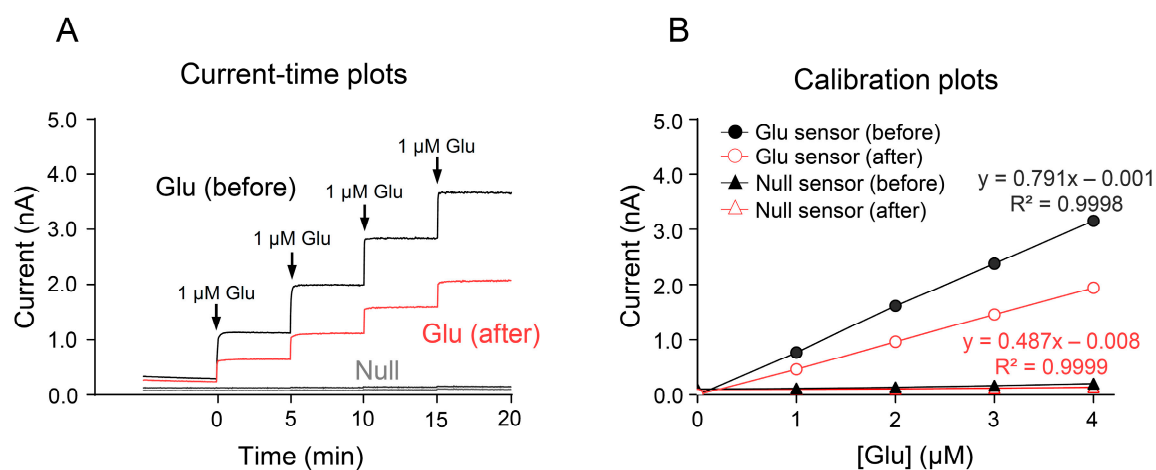
Supplementary Figure S2. Implantation (A) and placements (B) of a glutamate biosensor in the center of dorsal striatum. AP, anterior to the bregma; ML, right of the midline; DV, below the surface of the skull; cc, corpus callosum; LSN, lateral septic nucleus; NAc, nucleus accumbens.



Supplementary Figure S3. Relative ratios of time spent in behavioral states after the 14th administration of vehicle, nicotine, KCSC A, and KCSC B. The number in each bar represents relative percentage of each behavioral state during a 60 min test session.



Supplementary Figure S4. Relative ratios of time spent in behavioral states after the challenge administration of vehicle, nicotine, KCSC A, and KCSC B. The number in each bar represents relative percentage of each behavioral state during a 60 min test session.



Supplementary Figure S5. In vitro current-time (A) and calibration (B) plots. [Glu], glutamate concentration.

Supplementary Table S1. Accumulative changes in ambulatory, stereotypy, and resting time at P1, P2, and P3 after 14 days repeated administration of vehicle, nicotine, KCSC A and KCSC B

Groups	A. Ambulatory time								
	0 – 20 min			20 – 40 min			40 – 60 min		
14 days of repeated vehicle	131.83	±	33.05	30.33	±	19.82	9.67	±	2.33
14 days of repeated nicotine	510.50	±	38.59 [#]	227.83	±	34.56 [#]	150.00	±	41.81 [#]
14 days of repeated KCSC A	604.33	±	16.15 [*]	343.50	±	44.23 [*]	363.17	±	43.67 ^{*,+}
14 days of repeated KCSC B	607.33	±	32.07 [*]	288.00	±	28.79 [*]	264.33	±	11.85 ^{*,+}
Groups	B. Stereotypy time								
	0 – 20 min			20 – 40 min			40 – 60 min		
14 days of repeated vehicle	210.83	±	26.19	69.17	±	33.18	48.17	±	15.25
14 days of repeated nicotine	952.17	±	15.64 [#]	355.17	±	40.16 [#]	238.17	±	52.32 [#]
14 days of repeated KCSC A	1052.00	±	23.84 [*]	349.83	±	8.06 [*]	319.67	±	10.80 [*]
14 days of repeated KCSC B	905.50	±	9.45 [*]	344.33	±	29.55 [*]	354.17	±	30.51 [*]
Groups	C. Resting time								
	0 – 20 min			20 – 40 min			40 – 60 min		
14 days of repeated vehicle	908.67	±	49.33	1099.83	±	52.67	1116.17	±	17.75
14 days of repeated nicotine	343.50	±	29.94 [#]	617.00	±	68.92 [#]	811.83	±	93.41 [#]
14 days of repeated KCSC A	352.67	±	82.23 [*]	538.83	±	71.54 [*]	549.00	±	61.07 ^{*,+}
14 days of repeated KCSC B	311.50	±	30.90 [*]	567.67	±	52.00 [*]	581.50	±	33.64 ^{*,+}

Statistical significance was determined by two-way RM-ANOVA and multiple comparison test with Bonferroni's post-hoc test. [#]p<0.05, repeated vehicle group vs. repeated nicotine group; ^{*}p<0.05, repeated vehicle group vs. repeated KCSC groups; ⁺p<0.05, repeated nicotine group vs. repeated KCSC groups. n=6 per group.

Supplementary Table S2. Accumulative changes in ambulatory, stereotypy, and resting time at P1, P2, and P3 after the challenge administration of vehicle, nicotine, KCSC A and KCSC B

Groups	A. Ambulatory time								
	0 – 20 min			20 – 40 min			40 – 60 min		
Vehicle challenge	109.33	±	23.16	27.17	±	19.73	13.67	±	4.09
Nicotine challenge	496.50	±	27.38 [#]	285.83	±	64.95 [#]	200.17	±	59.18 [#]
KCSC A challenge	611.00	±	37.24 ^{*,+}	405.50	±	53.08 [*]	413.17	±	63.14 ^{*,+}
KCSC B challenge	645.50	±	40.87 ^{*,+}	345.50	±	57.57 [*]	313.67	±	41.36 [*]
Groups	B. Stereotypy time								
	0 – 20 min			20 – 40 min			40 – 60 min		
Vehicle challenge	178.67	±	28.36	51.83	±	23.39	35.83	±	6.11
Nicotine challenge	350.83	±	11.77 [#]	348.33	±	25.82 [#]	272.83	±	65.33 [#]
KCSC A challenge	283.50	±	24.62 [*]	318.17	±	16.96 [*]	325.83	±	18.62 [*]
KCSC B challenge	273.17	±	12.34 [*]	332.67	±	25.43 [*]	349.67	±	31.67 [*]
Groups	C. Resting time								
	0 – 20 min			20 – 40 min			40 – 60 min		
Vehicle challenge	911.83	±	64.42	1121.00	±	43.06	1150.50	±	9.41
Nicotine challenge	352.67	±	22.96 [#]	565.83	±	83.72 [#]	727.00	±	114.59 [#]
KCSC A challenge	305.50	±	24.90 [*]	476.33	±	48.37 [*]	455.17	±	44.14 ^{*,+}
KCSC B challenge	294.83	±	17.63 [*]	512.83	±	74.48 [*]	538.50	±	49.47 [*]

Statistical significance was determined by two-way RM-ANOVA and multiple comparison test with Bonferroni's post-hoc test. [#]p<0.05, vehicle challenge group vs. nicotine challenge group; ^{*}p<0.05, vehicle challenge group vs. KCSC challenge groups; ^{*,+}p<0.05, nicotine challenge group vs. KCSC challenge groups. n=6 per group.