

Table S1

Drivers	Strategy (n's)			Cell body location							Projections																	
	I	II	III	SNC	RR	VTA	IF	CLi	DR/PG	CPr	CPi	CPc	CPT	ACB core	ACB msh	ACB lsh	OT	CEA c	CEA m	CEA l	BLA	IA	BST ov	LS	PFC	ENT		
Dat-ires-Cre ¹	3			✓	✓	✓	✓	✓	✓	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
		2 (SNC/VTA)		✓	□	✓	✓	□	□	+	+	+	+	+	+	+	+	+	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-
			2	✓	✓	✓	✓	✓	✓	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	#	#	+	
Aldh1a1-CreERT ²	2			✓	□	✓	✓	✓	□	+	+	+	+/-	-	+	+/-	+/-	-	-	-	-	-	-	-	+	-	-	
		6 (SNC)		✓	□	□	□	□	□	+	+	+	+/-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		6 (VTA)		□	□	✓	✓	✓	□	-	-	-	-	-	+	+/-	+/-	-	-	-	-	-	-	-	+	-	-	
			3	✓	□	✓	✓	✓	□	+	+	+	+/-	-	+	+/-	+/-	-	-	-	-	-	-	-	+	-	-	
Adcyap1-Cre ²	3 (Frepe)			✓	✓	✓	✓	✓	□	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
		3 (VTA)		□	□	✓	✓	✓	□	-	-	-	-	+/-	+	+/-	+/-	-	-	-	+/-	-	-	+	+/-	+/-	+/-	
Calb1-Cre		3 (SNC)		✓	□	✓	□	□	□	+	+	+	+	+/-	-	-	-	+/-	-	-	+/-	+/-	-	-	+/-	+/-	+/-	
			3	✓	✓	✓	✓	✓	✓	+	+	+	+	+/-	+/-	+/-	+/-	+/-	-	+/-	+/-	+/-	-	-	-	-	-	
Cck-Cre ³	2 (Frepe & Ai65)			✓	□	✓	✓	✓	✓	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
		2 (VTA)		□	□	✓	✓	□	□	+	+/-	-	-	+	+	+	+	-	-	-	+	-	-	+	+	+	+	
Ndnf-dgCre ⁴	3			✓	✓	✓	□	□	□	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
			3	✓	✓	✓	□	□	□	+	+	+	+/-	+	-	+/-	-	-	-	-	-	-	-	-	-	-	-	
Sox6-FSF-Cre	5 (Frepe)			✓	✓	✓	□	□	□	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
		2 (VTA/SNC)		✓	□	✓	□	□	□	+	+	+/-	-	+	-	+	+/-	-	-	-	-	-	-	-	-	-	-	
		2 (SNC)		✓	□	□	□	□	□	+	+	+	+/-	+/-	-	+/-	+/-	-	-	-	-	-	-	-	-	-	-	
Vglut2-Cre ⁵	3 (Frepe)			✓	✓	✓	✓	✓	✓	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	
		5 (VTA)		□	□	✓	✓	□	□	-	-	-	-	+/-	+	+/-	+	-	-	-	+	-	-	+	+/-	+/-	+/-	
		3 (SNC)		✓	□	□	□	□	□	-	+/-	+/-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	
Vip-Cre ³	3			□	□	□	□	□	✓	-	-	-	-	-	-	-	-	-	+/-	+	-	-	+	-	-	-		
			3	□	□	□	□	□	✓	-	-	-	-	-	-	-	-	-	+/-	+	-	-	+	-	-	-		

n = the number of mice used in independent experiment.

+ = dense projections; +/- = fibers present; - = fibers absent; # = not analyzed due to recombination outside midbrain; ## = not analyzed due to the lack of recombination.

References

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Table S2

DA neuron subtypes	Preferred Strategy	Mouse drivers
Aldh1a1+/Sox6+ (SNc)	Viral injection (CreON,FlpON) in SNc	Aldh1a1-CreER ^{T2} ; Th-2A-Flpo
Calb1+/Sox6+ (SNc)	Viral injection (CreON,FlpON) in SNc	Calb1-Cre; Th-2A- Flpo
Vglut2+ (SNc)	Viral injection (CreON,FlpON) in SNc	Vglut2-Cre; Th-2A- Flpo
Sox6+/Calb1+ (VTA)	Viral injection (CreON,FlpON) in VTA	Sox6-FSF-Cre; Th-2A-Flpo
Vglut2+/Otx2+ (VTA)	Viral injection (CreON,FlpON) in VTA	Vglut2-Cre; Th-2A- Flpo
Aldh1a1+/Otx2+ (VTA)	Viral injection (CreON,FlpON) in VTA	Aldh1a1-CreER ^{T2} ; Th-2A-Flpo
Vip+ (DR/PAG)	Transgenic reporter (e.g. Ai65)	Vip-Cre; Th-2A-Flpo