Table S1. A select list of transcription factors important mDA neurons

Symbol	Gene Accession#	Known function in mDA neuron
Mash1	BC031299	Mash1 belongs to proneural bHLH gene family with neuronal determination functions ¹⁻³ and contributes to the generation of mDA neurons in cooperation with Nurr1,Ngn2in the developing midbrain, activating mDA neuronal maturation ^{4, 5} .
Ngn2	BC036847	Ngn2 belongs to proneural bHLH gene family with neuronal determination ^{3, 6} functions and requires for the development of mDA neurons ^{5, 7} .
Sox2	BC013923	Sox2 is a marker of the nervous system from the beginning of its development and maintenance of neurons in selected brain areas ¹ .
Nurr1	CV028069	Nurr1 has a crucial role in the development of mDA neurons, maintenance of mature mDA neurons and their expression of later differentiation markers ^{2, 4} .
PITX3	BC011642	PITX3 is important for the differentiation and maintenance of mDA neurons during development and supports long-term survival of mDA neurons ⁸ .
Lmx1A	BC066353	Lmx1A is an early activator in mDA neuronal differentiation and is crucial for activating Msx1. The pathway starting with Lmx1A through to Msx1 and Ngn2 is essential for the normal development of mDA neurons ⁵ .
Lmx1B	BC113491	Essential for the generation of properly differentiated of mDA neurons and maintenance for mature mDA neurons ^{2, 5} .
EN1	BC111840	Essential for generation and maintenance of mDA neurons. EN1 is widely expressed in of mDA neurons ^{2, 5} .

References

- 1 Ferri AL, Cavallaro M, Braida D *et al.* Sox2 deficiency causes neurodegeneration and impaired neurogenesis in the adult mouse brain. *Development* 2004; **131**:3805-3819.
- 2 Ang SL. Transcriptional control of midbrain dopaminergic neuron development. *Development* 2006; **133**:3499-3506.
- 3 Bertrand N, Castro DS, Guillemot F. Proneural genes and the specification of neural cell types. *Nat Rev Neurosci* 2002; **3**:517-530.
- 4 Park CH, Kang JS, Kim JS *et al.* Differential actions of the proneural genes encoding Mash1 and neurogenins in Nurr1-induced dopamine neuron differentiation. *J Cell Sci* 2006; **119**:2310-2320.
- 5 Smidt MP, Burbach JP. How to make a mesodiencephalic dopaminergic neuron. *Nat Rev Neurosci* 2007; **8**:21-32.
- 6 Fode C, Ma Q, Casarosa S, Ang SL, Anderson DJ, Guillemot F. A role for neural determination genes in specifying the dorsoventral identity of telencephalic neurons. *Genes Dev* 2000; **14**:67-80.
- 7 Kele J, Simplicio N, Ferri AL *et al.* Neurogenin 2 is required for the development of ventral midbrain dopaminergic neurons. *Development* 2006; **133**:495-505.
- 8 Li J, Dani JA, Le W. The role of transcription factor Pitx3 in dopamine neuron development and Parkinson's disease. *Curr Top Med Chem* 2009; **9**:855-859.