

Supplementary Table 1: Dopamine release defects in PD models (extended)

Mutation type	TRANS GENE	MODEL	DA RELEASE DEFECT?	METHOD OF DA DETECTION	CELL DEATH?	MAJOR MOTOR SYMPTOM S?	Ref.
Autosomal dominant	LRRK2	Human R1441G BAC transgenic mouse	Decreased release	In vivo microdialysis with nomefensine (DAT blocker)	None by 9-10 months	Present at 6-12 months	Li, 2009
		R1441G BAC transgenic mouse	None at 6-8 weeks	Single-pulse & pulse-train FCV	Not investigated	Not investigated	Sanchez, 2014
		R1441C and G2019S BAC transgenic rat	Decreased release at 18-21 months	Single-pulse FCV	None by 18-21 months	Present at 18-21 months	Sloan, 2016
		G2019S BAC transgenic mouse	Decreased release at 12 months	Single-pulse FCV in brain slices	None by 20 months	None	Li, 2010
		Human BAC G2019S mouse	Decreased at 8-10 months	In vivo microdialysis with amphetamine challenge	None by 22-24 months	None by 7-8 months	Melrose, 2010
		G2019S KI mouse	Decreased release and basal levels at 12 months (but not 6 months)	In vivo microdialysis with amphetamine challenge	None by 20 months	None by 12 months	Yue, 2015
		Midbrain-specific (PitX3) overexpression of G2019S mouse	Decreased release at 12 months but not 1 month	Single-pulse FCV in brain slices	None by 20 months	None by 18 months	Liu, 2015
		G2019S KI mouse	None at 12 months	In vivo microdialysis with 10 and 20 mM KCl	None by 19 months	Not investigated	Longo, 2017
		G2019S KI mouse	Increased release at 3 months	Single pulse FCV in brain slices	Not investigated	Not investigated	Volta, 2017
		iPSC-derived DANs with I2020T	Decreased release at 86 DIV	Evoked with 56 mM KCl coupled to HPLC-ECD	n/a	n/a	Ohta, 2015
		iPSC-derived DANs with I723V and M23497T	Decreased release at 37 DIV	Evoked with 56 mM KCl detected with ELISA	n/a	n/a	Luo, 2020
	VPS35	D620N KI mouse	Decreased release by 20-28 weeks	In vivo microdialysis with 120 mM KCl	None by 70 weeks	None by 12 weeks	Ishizu, 2016
		D620N KI mouse	Increased release at 3 months	Single-pulse FCV in brain slices	None by 3 months	None by 3 months	Cataldi, 2018
	SNCA	BAC human SNCA overexpression mouse	Decreased release by 3 months and present until atleast 18 months	Single-pulse FCV in brain slices	Present at 18 months	Present at 18 months	Janezic, 2013
		A30P and SNCA overexpression AAV rat	Decreased release 9 weeks post injection for WT OVX but not A30P	Amperometry with 70 mM KCl	None	Present 4 months post injection (WT overexpression not A30P)	Gaugler, 2012
		AAV human SNCA rat	Decreased release	In vivo amperometry with KCl	Present	Not investigated	Lundblad, 2012
		SNCA overexpression mouse	Increased release early, later normalized	In vivo microdialysis	Present at 14 months of age	Present at 14 months of age	Lam, 2011
		Midbrain-specific (PitX3) expression of A53T mouse	Decreased release at 3-4 months	In vivo microdialysis and FCV in brain slices	Present	Present, severe by 12 months	Lin, 2012

		Human A53T overexpression mouse	Altered release at 6-12 months	FCV in brain slices	Not investigated	Not investigated	<i>Platt, 2012</i>
		A30P BAC transgenic mouse	Decreased release	FCV in brain slices	None by 18 months of age	None	<i>Taylor, 2014</i>
		Human A30P mouse	Decreased release	FCV in brain slices	None	Present by 6 months	<i>Yavich, 2005</i>
Autosomal recessive	Parkin	Parkin KO mouse	Decreased release between 3 -6months	In vivo voltammetry	None by 12 months	None by 12 months	<i>Oyama, 2010</i>
		Parkin KO mouse	Decreased release between 8-16 weeks	Single pulse amperometry	Not investigated	Not investigated	<i>Kitada, 2009</i>
		Parkin KO mouse	Decreased release	In vivo microdialysis	None by 24 months	Present	<i>Goldberg, 2003</i>
		Parkin KO mouse	None at 6-8 weeks	Single pulse FCV	Not investigated	Not investigated	<i>Sanchez, 2014</i>
		Parkin KO rat	None	In vivo microdialysis with KCl	None	None	<i>Creed, 2019</i>
		Parkin KO iPSC-derived DANs	Increased release	Evoked with KCl coupled to HPLC-ECD	n/a	n/a	<i>Jiang, 2012</i>
	Pink1	Pink1 KO mouse	Decreased release	Amperometry	None	Not investigated	<i>Kitada, 2007</i>
		Pink1 KO mouse	Decreased release	FCV in brain slices	None by 14 months	Not investigated	<i>Zhi, 2019</i>
		Pink1 KO mouse	None at 6-8 weeks	Single pulse FCV +/- Norefensine	Not investigated	Not investigated	<i>Sanchez, 2014</i>
		Pink1 KO mouse	Increased release	In vivo microdialysis with KCl	Present by 8 months	Present by 8 months	<i>Creed, 2019</i>
	DJ-1	DJ-1 KO rat	None	In vivo microdialysis with KCl	Present by 8 months	Present by 8 months	<i>Creed, 2019</i>
		DJ-1 KO mouse	Decreased release	Amperometry with norefensine challenge	None	Present	<i>Goldberg, 2005</i>
		DJ-1 KO mouse	None at 6-8 week	Single pulse FCV +/- Norefensine	Not investigated	Not investigated	<i>Sanchez, 2014</i>
DJ-1 KO mouse		None at 6 months	In vivo microdialysis with KCl	None by 28 months	Present	<i>Chandran, 2008</i>	
Risk Factor	GBA	Wildtype mice with CBE treatment	Decreased release	In vivo microdialysis	Not investigated	Present (data not shown)	<i>Ginns, 2014</i>
		iPSC-derived DANs with N370S	Decreased release	Evoked with KCl coupled to HPLC-ECD	n/a	n/a	<i>Woodard, 2014</i>