Supplementary Table S1: A description of the transcriptome data sets used in the study. This table provides information regarding the brain regions investigated by the original studies as well as the data collection platform used. The references provided are for the studies published in GEO associated with the studies. In some instances, the original data publishers in GEO are different from authors of the associated studies.

Accession No.	Description	Genotype	Gender	Age	Diagnosis	Platform
GSE19587	DON ION	NA	M - F	78±3.15	Control-5 PD-6	Affymetrix Human Genome U133A 2.0 Array
GSE34516	LOC		M-3 F-7	75±13.26	Control-4 PD-6	Affymetrix Human Exon 1.0 ST Array [transcript (gene) version]
GSE136666	SN PU		M F	78±3.15	Control PD	Illumina HiSeq 2000 (Homo sapiens)
GSE54282	ST SN CO		M-17 F-18	76.9±3.15	Control-19 PD-14	Affymetrix Human Gene 1.0 ST Array [HuGene10stv1_Hs_ENTREZG_15.0.0]
GSE28894	CO ST FCX ME		M-53 F-61	76.89±9.12	Control-59 PD-55	Illumina humanRef-8 v2.0 expression beadchip
GSE24378	SN		NA	73.69±10.7	Control-9 PD-8	Affymetrix Human X3P Array
GSE23290	mPU iPU		M-5 F-9	75.71±11.48	Control-6 PD-8	Affymetrix Human Exon 1.0 ST Array [transcript (gene) version]
GSE7621	SN		M-17 F-8	NA	Control-9 PD-16	Affymetrix Human Genome U133 Plus 2.0 Array
GSE114517	SN		M-19	78.69±9.11	Control-12	Illumina NextSeq 500 (Homo

	AM MTG		F-10		PD-17	sapiens)
GSE20146	GP		M-12 F-8	NA	Control-10 PD-10	Affymetrix Human Genome U133 Plus 2.0 Array
GSE20314	CE		M-6 F-2	83.88±2.53	Control-4 PD-4	Affymetrix Human Genome U133A Array
GSE20163	SN		NA	72.42±10.1	Control-9 PD-8	Affymetrix Human Genome U133A Array
GSE20164	SN		M-5 F-6	81.1±6.2	Control-5 PD-6	Affymetrix Human Genome U133A Array
GSE20333	SN		M-7 F-5	78±6.99	Control-6 PD-6	Affymetrix Human HG-Focus Target Array
GSE20141	SN		NA	NA	Control-8 PD-10	Affymetrix Human Genome U133 Plus 2.0 Array
GSE20292	SN		M-19 F-10	70.1±12.46	Control PD	Affymetrix Human Genome U133A Array
GSE20291	PU		M-24 F-11	70.83±12.46	Control-20 PD-15	Affymetrix Human Genome U133A Array
GSE20168	PCX		M-18 F-11	74±9.44	Control-15 PD-14	Affymetrix Human Genome U133A Array
GSE8397	SFG LSN MSN		M-31 F-16	76.21±9.85	Control-17 PD-30	Affymetrix Human Genome U133A Array
GSE135036	PCX		M-32 F-4	75.3±5.15	Control-12 PD-24	Illumina NextSeq 500 (Homo sapiens)
GSE26927	SN		M-12 F-8	74.7±13.49	Control-8 PD-12	Illumina humanRef-8 v2.0 expression beadchip
GSE49036	SN		NA	NA	Control-8 PD-15	Affymetrix Human Genome U133 Plus 2.0 Array

GSE4773	SK-N-MC exposed to rotenone					Affymetrix Human Genome U133 Plus 2.0 Array
GSE17204	DJ-1 mutant SH-SY5Y cell lines					Affymetrix Human Genome U133A 2.0 Array
GSE20153	EBV transformed cell lines					Affymetrix Human Genome U133 Plus 2.0 Array
GSE35642	SK-N-MC exposed to rotenone					Affymetrix Human Genome U133A Array
GSE36321	LRRK2 mutant neural stem cells					Affymetrix Human Genome U133A 2.0 Array
GSE101534	LRRK2-G2019S mutant hNES cells					Affymetrix Human Gene 2.0 ST Array [transcript (gene) version]
GSE4788	SN exposed to MPTP					Affymetrix Murine Genome U74A Array
GSE4758	WB aSYN mouse line					Affymetrix Mouse Genome 430 2.0 Array
GSE7707	PCX-ST-					Affymetrix Mouse Genome 430 2.0

	MB exposed to MPTP					Array
GSE8030	ST Exposed to MPTP and METH					Affymetrix Mouse Expression 430A Array
GSE13033	CX Mutant HtrA2					Affymetrix Mouse Genome 430 2.0 Array
GSE17542	SN-VTA Exposed to MPTP					Affymetrix Mouse Genome 430 2.0 Array
GSE60080	ST Exposed to MPTP-HCI, Saline					Affymetrix Mouse Gene 1.0 ST Array [transcript (gene) version]
GSE60414	CE-MB-ST Mutant Pink1 /A53T-SNCA					Affymetrix HT MG-430 PM Array Plate
GSE66730	VMB Mutant Tfr1					Affymetrix Mouse Genome 430 2.0 Array
GSE52584	ST Mutant LRRK2					Affymetrix Mouse Gene 1.0 ST Array [transcript (gene) version]
GSE24233	ST Exposed to					Illumina ratRef-12 v1.0 expression beadchip

	6-OHDA/Saline					
GSE58710	SN Exposed to 6-OHDA, Vehicle					Affymetrix Rat Gene 1.0 ST Array [transcript (gene) version]
GSE74382	DST Exposed to saline					Affymetrix Rat Genome 230 2.0 Array
GSE93695	ST Exposed to L-DOPA					Affymetrix Rat Gene 2.0 ST Array [transcript (gene) version]
GSE71968	HMB Mutant DJ-1					Illumina HiSeq 2000 (Rattus rattus)
GSE150646	PCX Mutant SNCA					Illumina HiSeq 2500 (Rattus norvegicus)

SN: Substantia nigra, **ST**: Striatum, **PU**: Putamen, **GP**: Globus pallidus, **AM**: Amygdala, **CE**: Cerebellum, **ME**: Medulla oblangata, **LC**: Locus coeruleus, **DON**: Dorsal motor nucleus of the vagus, **ION**: Inferior olivary nucleus, **PCX**: Prefrontal cortex, **CX**: Whole cortex, **MTG**: Medial temporal gyrus and **SFG**: Superior frontal gyrus, **WB:** Whole Brain, **MB:** Midbrain, **VTA**: Ventral Tegmental Area, V**MB:** Ventral Midbrain, **DST**: Dorsal Striatum, **HMB**: Hemibrain. **MPTP**: 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine, **6-OHDA**: 6-hydoxy-dopamine, **METH**: Methamphetamine, **L-DOPA**: levo-dopamine, M: male, F: female.