V2 DBS Tractography Atlas

Structures

Former filename[1]	Complete anatomical name	New filename[2]	Source/ Defined by	Based on	ROI	Evolution from V1
Ca	Caudate	Cd	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
EXA	Extended amygdala	EA	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
HN	Habenula	Hb	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
HTH	Hypothalamus	Hy	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
MN	Mammillary body	MB	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
NAC	Nucleus accumbens	Ac	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
PBP	Parabrachial pigmented nucleus	PBP	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
Pu	Putamen	Pu	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
SNc	Substantia nigra, pars compacta	SNc	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
SNr	Substantia nigra, pars reticulata	SNr	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
VeP	Ventral pallidum	VP	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
VTA	Ventral tegmental area	VTA	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	-
GPe	External pallidum	GPe	DISTAL ([3])	ICBM 152 2009a & b (nonlinear;[4])	see [3]	-
GPi	Internal pallidum	GPi	DISTAL ([3])	ICBM 152 2009a & b (nonlinear;[4]	see [3]	-
GPi_temporal		GPi_temporal	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	+
GPi_sensory		GPi_sensory	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	+
GPi_sensorimotor		GPi_sensorimotor	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3] Sensorimotor = grouped motor/premotor/sensory zones	+
GPi_primarymotor		GPi_primarymotor	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	+
GPi_premotor		GPi_premotor	DISTAL ([3])	Structural connectivity,	see [3]	+

[1] until 07/2023
[2] from 07/2023

				Parcellation according to Oxford Thalamic Connectivity Atlas ([5])		
GPi_prefrontal		GPi_prefrontal	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	+
GPi_postparietal		GPi_postparietal	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	+
GPi_occipital		GPi_occipital	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	+
RN	Red nucleus	RN	DISTAL ([3])	ICBM 152 2009a & b (nonlinear;[4]	see [3]	-
STN	Subthalamic nucleus	STN	DISTAL ([3])	ICBM 152 2009a & b (nonlinear;[4]	see [3]	-
STN_associative		STN_associative	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	-
STN_motor		STN_motor	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	-
STN_limbic		STN_limbic	DISTAL ([3])	Structural connectivity, Parcellation according to Oxford Thalamic Connectivity Atlas ([5])	see [3]	-
PPN	Pedunculopontine nucleus	PPN	see [6]	DTI fractional anisotropy (FA) maps from in vivo and in situ post-mortem magnetic resonance images (MRI) & histological evaluation	See [6]	+
STH	Subthalamic nucleus	STH	CIT168 ([1])	i.a. HCP S500 subject release ([2])	see [1]	+

Tracts

Former filename	Complete anatomical name	New filename	Defined by	Based on	ROI	Evolution from V1
ansa_lenticularis	Ansa lenticularis	al	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	updated
ATR	Anterior Thalamic Radiation	atr	[10]	HCP 1021	Th-PC	-
DRTT_v1	Dentatorubrothalamic Tract	drtt-SMA	[10]	HCP 1021	DN–RN– VO – SMA (BA6)	-
DRTT	Dentatorubrothalamic Tract	drtt-M1	Rajamani et al. (2023, in prep.)	HCP 1021	DN–RN – VIM – M1 (BA4)	+
NDRTT	Non-decussating Dentatorubrothalamic Tract	ndrtt	[10]	HCP 1021	DN–RN – VIM – M1 (BA4)	-
lenticular_fasciculus	Fasciulus lenticularis	lenf	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	updated
MFB	Medial Forebrain Bundle	mfb	[10]	HCP 1021	VTA-Ac-OC	-
stn2gpi_sm	Subthalamic nucleus to globus pallidus internus connection (sensorimotor fibres)	STN-GPi-sensorimotor	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	+
stn2gpi_ass	Subthalamic nucleus-to globus pallidus internus connection (associative fibres)	STN-GPi-associative	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	+
stn2gpe_sm	Subthalamic nucleus to globus pallidus externus connection (sensorimotor fibres)	STN-GPe-sensorimotor	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	+
stn2gpe_ass	Subthalamic nucleus-to globus pallidus externus connection (associative fibres)	STN-GPe-associative	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	+
gpe2stn_sm	Globus pallidus externus to subthalamic nucleus connection (sensorimotor fibres)	GPe-STN-sensorimotor	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	+
gpe2stn_ass	Globus pallidus externus to subthalamic nucleus connection (associative fibres)	GPe-STN-associative	[7]	Expert neuroanatomist's definition, foundation: Morel atlas ([8,9]) & CIT168 ([1])	see [7]	+
STN-SNr	Subthalamic nucleus to substantia nigra	STN-SNr	[11]	HCP 1065	see [11]	+

	pars reticulata connection					
STN-SNc	Subthalamic nucleus to substantia nigra pars compacta connection	STN-SNc	[11]	HCP 1065	see [11]	+
vtaPP_slMFB	VTA projection pathway (formerly slMFB: supero-lateral branch of the medial forebrain bundle)	VTApp	[10]	HCP 1021	DN-VTA-SFG-MFG-lateral OFV	-
GPi_PPN	Globus pallidus internus to pedunculopontine nucleus connection	GPi-PPN	Rajamani et al. (2023, in prep.)	HCP 1065	GPi-PPN (PPN segmentation according to [6])	+
CMPf_PPN	Centro-median-parafascicular nucleus to pedunculopontine nucleus connection	PPN-Th	Rajamani et al. (2023, in prep.)	HCP 1065	CMPf-PPN (PPN segmentation according to [6])	+
PPN_Cerebellum	Pedunculopontine nucleus to cerebellum connection	PPN-CB	Rajamani et al. (2023, in prep.)	HCP 1065	PPN-Cerebellum (PPN segmentation according to [6])	+
PPN2Precentral	Pedunculopontine nucleus to M1 connection	PPN-M1	Rajamani et al. (2023, in prep.)	HCP 1021	PPN–M1 (BA4)	+
PPN2SMA	Pedunculopontine nucleus to SMA connection	PPN-SMA	Rajamani et al. (2023, in prep.)	HCP 1021	PPN–SMA (BA6)	+
PPN2GP	Pedunculopontine nucleus to globus pallidus connection	PPN-GP	(Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
STN_PPN	Subthalamic nucleus to pedunculopontine nucleus connection	STN-PPN	Rajamani et al. (2023, in prep.)	HCP 1065	STN-PPN (PPN segmentation according to [6])	+
CST_pathway	Corticospinal tract	cst	Rajamani et al. (2023, in prep.)	HCP 1065	Motor & Premotor regions defined by HMAT atlas ([12] – manual midbrain slice	+
Ventral_Trigeminal	Ventral trigeminothalamic tract	vttt	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
Dorsal_Trigeminal	Dorsal trigeminothalamic tract	dttt	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
Rubro_Cortical	Rubrocortical tract	rct	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
Rubro_Spinal	Rubrospinal tract	rst	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
Rubro_Cerebellar	Rubrocerebellar tract	rct	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
Rubro_Olivary	Rubroolivary tract	rot	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
Med_Lemniscus	Medial lemniscus	ml	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
MRF2GPi	Mesencephalic reticular formation (MRF) to GPi connection	MRF-GPi	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
MRF2Precentral	Mesencephalic reticular formation (MRF) to M1 connection	MRF-M1	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+

MRF2SMA	Mesencephalic reticular formation (MRF) to SMA connection	MRF-SMA	Rajamani et al. (2023, in prep.)	HCP 1021	Manual ROI definitions	+
BA8	STN to Brodman area 8 connection	STN-BA8	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN -frontal eye fields	+
BA6	STN to Brodman area 6 connection	STN-BA6	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN -Supplementary Motor Area	+
BA45_47	STN to Brodman area 45 and 47 connections	STN-BA45BA47	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN - Inferior Frontal Gyrus	+
BA4	STN to Brodman area 4 connection	STN-BA4	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN - Primary Motor Cortex	+
BA25	STN to Brodman area 25 connection	STN-BA25	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN -subgenual anterior cingulate cortex	+
BA24_32	STN to Brodman area 24 & 32 connection	STN-BA24BA32	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN - Dorsal anterior Cingulate Cortex & Preguneal Anterior Cingulate Cortex	+
BA1_2_3	STN to Brodman area 1 & 2 & 3 connection	STN-BA1BA2BA3	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN -Somatosensory Cortex (1° , 2°, 3°)	+
BA13	STN to Brodman area 13 connection	STN-BA13	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN - Insular cortex	+
BA10	STN to Brodman area 10 connection	STN-BA10	Rajamani et al. (2023, in prep.)	Cortical Atlas by [13] & HCP 1065	STN - Fronto-Parietal cortex	+

Abbreviations: Ac = Nucleus accumbens, BA = Brodman area, DN = Dentate nucleus, Drtt = Dentatorubrothalamic tract, GPe = Globus pallidus externus, GPi = Globus pallidus internus, M1 = Primary motor cortex, MC = motor cortex, MFG = Middle frontal gyrus, OC = Olfactory cortex, OFC = Orbitofrontal cortex, OFV = Orbitofrontal cortex, PC = Prefrontal cortex, PPN = Pedunculopontine nucleus, RN = red nucleus, SFG = Superior frontal gyrus, SMA = Supplementary motor area, SN = Substantia nigra, STN = Subthalamic nucleus, Th = Thalamus, VIM = Ventral intermedius nucleus, VO = Ventralis oralis nucleus, VOa = ventralis oralis anterior, VOp = ventralis oralis posterior, VTA = Ventral tegmental area, vtaPP = Projection pathway from the ventral tegmental area. '-' = no change to Version 1, '+' = added to Version 1.

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