

1	STATUS	Final Text
2	Date of Last Update	2015/01/06
3	Person Assigned	David Clunie
4		mailto:dclunie@dclunie.com
5	Submitter Name	James Reuss
6		mailto:jreuss@prismclinical.com
7	Submission Date	2014/05/06

8	Correction Number CP-1407	
9	Log Summary: Add diffusion tractography related sites	
10	Name of Standard	
11	PS 3.16 2014c	
12	Rationale for Correction:	
13	White matter tracts and related structures (as represented with MR diffusion tensor tractography) need to be described with a higher	
14	degree of anatomical precision as well as a different concepts (tracts that span regions) than is currently defined for other applications	
15	such as segmentation. In addition, the technique is used in various other parts of the body (such as in skeletal and cardiac muscle),	
16	and tested using phantoms. The terminology is applicable to both humans and non-human primates, and in future may need to be	
17	extended for other research species.	
18	The new context groups may be used, for example, as finding sites for segmentations, parameteric maps, measurements or in the	
19	proposed tractography object (Sup 181).	
20	Correction Wording:	

Add new Context Groups to DICOM PS 3.16 Annex B Context Groups as follows:

CID 7701 Fiber Tracts In Brainstem

Type: Extensible
Version: 20150106

Table CID 7701. Fiber Tracts In Brainstem

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
SRT	T-A6620	superior cerebellar peduncle	11089000	C0152391
SRT	T-A6630	middle cerebellar peduncle	33723005	C0152392
SRT	T-A6640	inferior cerebellar peduncle	67701001	C0152393
SRT	T-D07EA	corticospinal tract in brainstem	360568007	C1283381
SRT	T-A5271	medial lemniscus	30114003	C0228420
SRT	T-A5272	lateral lemniscus	86136007	C0152375
SRT	T-A5250	medial longitudinal fasciculus	28390009	C0152373

Note

Organized as described in Wakana, Setsu, Hangyi Jiang, Lidia M. Nagae-Poetscher, Peter C. M. van Zijl, and Susumu Mori. "Fiber Tract-based Atlas of Human White Matter Anatomy." Radiology 230, no. 1 (January 1, 2004): 77–87. doi:10.1148/radiol.2301021640.

CID 7702 Projection and Thalamic Fibers

Type: Extensible
Version: 20150106

Table CID 7702. Projection and Thalamic Fibers

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
NEU	1319	corticobulbar tract		C1184617
NEU	1320	corticospinal tract		C0936236
SRT	T-A3700	internal capsule	85637007	C0152341
SRT	T-A3800	external capsule	10517005	C0228313
SRT	T-D0829	auditory (acoustic) radiation (geniculotemporal tract)	410726006	C1455736
SRT	T-A2880	optic radiation (geniculo-calcarine tract, geniculostriate pathway)	70105001	C0228277
NEU	1466	inferior optic radiation (Meyer's loop)		C3498430
NEU	3473	superior optic radiation (Baum's loop)		
NEU	1726	anterior thalamic radiation		C2338170
NEU	2081	superior thalamic radiation		C3498751
NEU	2082	inferior thalamic radiation		C2332665
NEU	2083	posterior thalamic radiation		C2336194

Note

1. SNOMED has codes for the corticobulbar and corticospinal tracts and thalamic radiations in specific regions (e.g., internal capsule), but not generic codes independent of their regional location, so they are not used.

CID 7703 Association Fibers

Type: Extensible
Version: 20150106

Table CID 7703. Association Fibers

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
NEU	2080	superior longitudinal fasciculus		
DCM	110703	superior longitudinal fasciculus I		
DCM	110704	superior longitudinal fasciculus II		
DCM	110705	superior longitudinal fasciculus III		
NEU	2063	arcuate fasciculus		
SRT	T-A2850	inferior longitudinal fasciculus	55233005	C0228273
SRT	T-A2860	superior fronto-occipital fasciculus	13958008	C0228274
SRT	T-A2861	inferior fronto-occipital fasciculus	35664009	C0228275
SRT	T-A2830	uncinate fasciculus	26230003	C0228271
SRT	T-A2870	vertical occipital fasciculus	80434005	C0228276
SRT	T-A2861	inferior fronto-occipital fasciculus	35664009	C0228275
SRT	T-A2860	superior fronto-occipital fasciculus	13958008	C0228274

Note

The SLF is distinguished from the AF (even though SNOMED and UMLS treat them as synonymous), per Makris N, et al. "Segmentation of Subcomponents within the Superior Longitudinal Fascicle in Humans: A Quantitative, In Vivo, DT-MRI Study." Cerebral Cortex 15, no. 6 (June 1, 2005): 854–69. doi:10.1093/cercor/bhh186. Hence the SNOMED concept for SLF/AF (T-A2820, 89202009, C0228270) is not used. NeuroNames does not describe the other subcomponents of the SLF than the AF, so DCM codes are assigned.

CID 7704 Limbic System Tracts

Type: Extensible
Version: 20150106

Table CID 7704. Limbic System Tracts

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
SRT	T-A2840	cingulum	37035000	C0228272
SRT	T-A2970	fornix	87463005	C0152334
NEU	286	stria terminalis		C0175243

CID 7705 Commissural Fibers

Type: Extensible
Version: 20150106

Table CID 7705. Commissural Fibers

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
SRT	T-A2980	anterior commissure	62872008	C0152335
SRT	T-A2700	corpus callosum	88442005	C0010090
SRT	T-A2730	genu of corpus callosum	70215001	C0152321
SRT	T-A2710	splenium of corpus callosum	23347006	C0152319
SRT	T-A2781	tapetum of corpus callosum	60105000	C1744614
SRT	T-A2760	forceps minor	42932006	C0152325
SRT	T-A2750	forceps major	80049006	C0809941
SRT	T-A2790	posterior commissure	28997003	C0152327
SRT	T-A4950	habenular commissure	6866008	C0152363

CID 7706 Cranial Nerves

Type: Extensible
Version: 20150106

Table CID 7706. Cranial Nerves

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
SRT	T-A2920	olfactory tract	3960005	C0162435
SRT	T-A8040	optic nerve	18234004	C0029130
SRT	T-A8070	oculomotor nerve	56193007	C0028864
SRT	T-A8110	trochlear nerve	39322007	C0041159
SRT	T-A8150	trigeminal nerve	27612005	C0040996
SRT	T-A8130	abducens nerve	80622005	C0000741
SRT	T-A8410	facial nerve	56052001	C0015462
SRT	T-A8500	vestibulocochlear nerve	8598002	C0001162
SRT	T-A8570	glossopharyngeal nerve	21161002	C0017679
SRT	T-A8640	vagus nerve	88882009	C0042276
SRT	T-A8780	accessory nerve	15119000	C0000905
SRT	T-A8820	hypoglossal nerve	37899009	C0020614

CID 7707 Spinal Cord Fibers

Type: Extensible
Version: 20150106

Table CID 7707. Spinal Cord Fibers

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
SRT	T-A7081	dorsal funiculus	59752008	C0228576
SRT	T-A7061	ventral funiculus	31701002	C0228570
SRT	T-A7091	lateral funiculus	14892003	C0228583

CID 7710 Tractography Anatomic Sites

Type: Extensible
Version: 20150106

Table CID 7710. Tractography Anatomic Sites

Coding Scheme Designator	Code Value	Code Meaning	SNOMED-CT Concept ID	UMLS Concept Unique ID
<i>Include CID 7701 "Fiber Tracts In Brainstem"</i>				
<i>Include CID 7702 "Projection and Thalamic Fibers"</i>				
<i>Include CID 7703 "Association Fibers"</i>				
<i>Include CID 7704 "Limbic System Tracts"</i>				
<i>Include CID 7705 "Commissural Fibers"</i>				
<i>Include CID 7706 "Cranial Nerves"</i>				
<i>Include CID 7707 "Spinal Cord Fibers"</i>				
SRT	T-A6080	Cerebellar white matter	33060004	C0152381
SRT	T-A2030	Cerebral white matter	68523003	C0152295
SRT	T-A7070	Spinal cord white matter	27088001	C0458457
SRT	T-A0095	White matter of brain and spinal cord	389080008	C1300311
DCM	110706	Perilesional White Matter		
SRT	T-A0500	Peripheral nerve	84782009	C0031119
SRT	T-D0684	Skeletal muscle	127954009	C0242692
SRT	T-1300D	Cardiac muscle	122448007	C0027061
DCM	113681	Phantom		C0282611

Amend DICOM PS3.16 - Content Mapping Resource - Controlled Terminology Definitions to add the following new concepts:

Table D-1. DICOM Controlled Terminology Definitions

Code Value	Code Meaning	Definition	Notes
110703	superior longitudinal fasciculus I	The dorsal component of the SLF originating from the medial and dorsal parietal cortex and ending in the dorsal and medial part of the frontal lobe. See Makris N, et al. "Segmentation of Subcomponents within the Superior Longitudinal Fascicle in Humans: A Quantitative, In Vivo, DT-MRI Study." Cerebral Cortex 15, no. 6 (June 1, 2005): 854–69. doi:10.1093/cercor/bhh186.	
110704	superior longitudinal fasciculus II	The major component of the SLF, derived from the caudal–inferior parietal region corresponding to the angular gyrus in the human and terminating within the dorsolateral frontal region. See Makris N, et al. "Segmentation of Subcomponents within the Superior Longitudinal Fascicle in Humans: A Quantitative, In Vivo, DT-MRI Study." Cerebral Cortex 15, no. 6 (June 1, 2005): 854–69. doi:10.1093/cercor/bhh186.	
110705	superior longitudinal fasciculus III	The ventral component of the SLF, originating from the supramarginal gyrus and terminating predominantly in the ventral premotor and prefrontal areas. See Makris N, et al. "Segmentation of Subcomponents within the Superior Longitudinal Fascicle in Humans: A Quantitative, In Vivo, DT-MRI Study." Cerebral Cortex 15, no. 6 (June 1, 2005): 854–69. doi:10.1093/cercor/bhh186.	

Code Value	Code Meaning	Definition	Notes
110706	Perilesional White Matter	White matter that surrounds a lesion of interest. E.g., to identify the otherwise unclassified white matter that surrounds a tumor to be surgically resected.	

Amend DICOM PS3.6 - Context Group UID Values to add the following new Context Groups:

Table A-3. Context Group UID Values

Context UID	Context Identifier	Context Group Name
1.2.840.10008.6.1.1013	CID 7701	Fiber Tracts In Brainstem
1.2.840.10008.6.1.1014	CID 7702	Projection and Thalamic Fibers
1.2.840.10008.6.1.1015	CID 7703	Association Fibers
1.2.840.10008.6.1.1016	CID 7704	Limbic System Tracts
1.2.840.10008.6.1.1017	CID 7705	Commissural Fibers
1.2.840.10008.6.1.1018	CID 7706	Cranial Nerves
1.2.840.10008.6.1.1019	CID 7707	Spinal Cord Fibers
1.2.840.10008.6.1.1020	CID 7710	Tractography Anatomic Sites