

Swanson, L.W. (2004) Brain maps: structure of the rat brain, 3rd edition

This file has the third Annotated Nomenclature Table. In the book, the list of terms was in the left column, and footnote annotations were nearby in the right column (instead of at the end, as here).

TABLE C. BASIC FIBER SYSTEMS OF THE RAT CNS

1. CRANIAL NERVES (crn), SPINAL NERVES (spin), & RELATED [1]
 - terminal nerve (tn) [2]
 - vomeronasal nerve (von) [3]
 - olfactory nerve (In) [4]
 - lateral olfactory tract, general (lotg) [5]
 - lateral olfactory tract, body (lot)
 - dorsal limb (lotd) [6]
 - accessory olfactory tract (aolt) [7]
 - anterior commissure, olfactory limb (aco) [8]
 - optic nerve (IIIn) [9]
 - accessory optic tract (aot) [10]
 - brachium of the superior colliculus (bsc) [11]
 - superior colliculus commissure (csc) [12]
 - optic chiasm (och) [13]
 - optic tract (opt) [14]
 - tectothalamic pathway (ttp) [15]
 - oculomotor nerve (IIIIn) [16]
 - medial longitudinal fascicle (mlf) [17]
 - posterior commissure (pc) [18]
 - trochlear nerve (IVn) [19]
 - trochlear nerve decussation (IVd)
 - abducens nerve (VIIn) [19]
 - trigeminal nerve (Vn) [20]
 - motor root of the trigeminal nerve (moV) [21]
 - sensory root of the trigeminal nerve (sV) [22]
 - midbrain tract of the trigeminal nerve (mtV) [23]
 - spinal tract of the trigeminal nerve (sptV) [24]
 - facial nerve (VIIIn) [25]
 - intermediate nerve (iVIIIn) [26]
 - genu of the facial nerve (gVIIIn)
 - vestibulocochlear nerve (VIIIIn) [27]
 - efferent cochleovestibular bundle (cvb) [28]
 - vestibular nerve (vVIIIIn) [29]
 - cochlear nerve (cVIIIIn) [30]
 - trapezoid body (tb) [31]
 - intermediate acoustic stria (ias) [32]
 - dorsal acoustic stria (das) [32]
 - lateral lemniscus (ll) [33]

- inferior colliculus commissure (cic) [34]
- brachium of the inferior colliculus (bic) [35]
- glossopharyngeal nerve (IXn) [36]
- vagus nerve (Xn) [37]
 - solitary tract (ts) [38]
- accessory spinal nerve (XIn) [39]
- hypoglossal nerve (XIIn) [40]
- ventral roots (vrt) [41]
- dorsal roots (drt) [42]
 - cervicothalamic tract (cett) [43]
 - dorsolateral fascicle (dl) [44]
 - dorsal commissure of the spinal cord (dcm)
 - ventral commissure of the spinal cord (vc) [45]
 - fasciculus proprius (fpr)
 - dorsal column (dc) [46]
 - cuneate fascicle (cuf)
 - gracile fascicle (grf)
 - internal arcuate fibers (iaf) [47]
 - medial lemniscus (ml) [47]
 - spinothalamic tract (stt) [48]
 - lateral spinothalamic tract (sttl) [49]
 - ventral spinothalamic tract (sttv) [49]
 - spinocervical tract (scrt) [50]
 - spino-olivary pathway (sop) [51]
 - spinoreticular pathway (srp) [52]
 - spino-vestibular pathway (svp) [53]
 - spinotectal pathway (stp) [54]
 - spinohypothalamic pathway (shp) [55]
 - spino-encephalic pathway (step) [56]
 - hypothalamohypophysial tract (hht) [57]
- 2. CEREBELLUM RELATED FIBER TRACTS (cbf)
 - cerebellar commissure (cbc) [58]
 - cerebellar peduncles (cbp) [58]
 - superior cerebellar peduncle (scp) [58]
 - superior cerebellar peduncle decussation (dscp) [59]
 - uncinate fascicle (uf) [60]
 - ventral spinocerebellar tract (sctv) [61]
 - middle cerebellar peduncle (mcp) [61]
 - inferior cerebellar peduncle (icp) [62]
 - dorsal spinocerebellar tract (sctd) [63]
 - cuneocerebellar tract (cct) [64]
 - juxtarestiform body (jrb) [65]
 - bulbocerebellar tract (bct)
 - olivocerebellar tract (oct) [66]
 - reticulocerebellar tract (rct) [67]
 - trigemino-cerebellar tract (tct) [68]

- arbor vitae (arb) [69]
- 3. LATERAL FOREBRAIN BUNDLE SYSTEM (lfbs) [70]
 - corpus callosum (cc) [71]
 - anterior forceps (fa)
 - external capsule (ec)
 - extreme capsule (ee)
 - genu (cgg)
 - posterior forceps (fp)
 - rostrum (ccr)
 - splenium (ccs)
 - corticospinal tract (cst) [71]
 - internal capsule (int) [72]
 - cerebral peduncle (cpd) [73]
 - corticotectal tract (cte) [74]
 - corticorubral tract (crt) [75]
 - corticopontine tract (cpt) [76]
 - corticobulbar tract (cbt) [77]
 - pyramid (py) [78]
 - pyramidal decussation (pyd) [79]
 - corticospinal tract, crossed (cstc) [80]
 - corticospinal tract, uncrossed (cstu) [81]
 - thalamus related (lfbst)
 - external medullary lamina of the thalamus (em) [82]
 - internal medullary lamina of the thalamus (im) [83]
 - middle thalamic commissure (mtc) [84]
 - thalamic peduncles (tp) [85]
- 4. EXTRAPYRAMIDAL FIBER SYSTEMS (eps)
 - cerebral nuclei related (epsc)
 - pallidothalamic pathway (pap) [86]
 - nigrostriatal tract (nst) [87]
 - nigrothalamic fibers (ntt) [88]
 - pallidotegmental fascicle (ptf) [89]
 - striatonigral pathway (snp) [90]
 - subthalamic fascicle (stf) [91]
 - tectospinal pathway (tsp) [92]
 - direct tectospinal pathway (tspd)
 - dorsal tegmental decussation (dtd)
 - crossed tectospinal pathway (tspc)
 - rubrospinal tract (rust) [93]
 - ventral tegmental decussation (vtd)
 - rubroreticular tract (rrt)
 - central tegmental bundle (ctb) [94]
 - reticulospinal tract (rst) [95]
 - reticulospinal tract , lateral part (rstl) [96]
 - reticulospinal tract, medial part (rstm) [97]
 - vestibulospinal pathway (vsp) [98]

5. MEDIAL FOREBRAIN BUNDLE SYSTEM (mfbs) [99]
- cerebrum related (mfbc)
 - amygdalar capsule (amc) [100]
 - ansa peduncularis (apd) [101]
 - anterior commissure, temporal limb (act) [102]
 - cingulum bundle (cing) [103]
 - fornix system (fxs) [104]
 - alveus (alv) [105]
 - dorsal fornix (df) [106]
 - fimbria (fi) [107]
 - precommissural fornix, general (fxprg)
 - precommissural fornix [108]
 - diagonal band (db) [109]
 - postcommissural fornix (fxpo)
 - medial corticothalamic tract (mct) [110]
 - columns of the fornix (fx) [111]
 - hippocampal commissures (hc)
 - dorsal hippocampal commissure (dhc) [112]
 - ventral hippocampal commissure (vhc) [113]
 - perforant path (per) [114]
 - angular bundle (ab) [115]
 - longitudinal association bundle (lab) [116]
 - stria terminalis (st) [117]
 - hypothalamus related (mfbshy)
 - medial forebrain bundle (mfb) [118]
 - ventrolateral hypothalamic tract [119]
 - preoptic commissure (poc) [120]
 - supraoptic commissures (sup) [121]
 - anterior (supa)
 - dorsal (supd)
 - ventral (supv)
 - preammillary commissure (pmx) [122]
 - supramammillary decussation (smd) [123]
 - proprio-hypothalamic pathways (php) [124]
 - dorsal (phpd)
 - lateral (phpl)
 - medial (phpm)
 - ventral (phpv)
 - periventricular bundle of the hypothalamus (pvbh) [125]
 - mammillary related (mfbsma)
 - principal mammillary tract (pm) [126]
 - mammillothalamic tract (mtt) [127]
 - mammillotegmental tract (mtg) [128]
 - mammillary peduncle (mp) [129]
 - dorsal thalamus related (mfbst)
 - periventricular bundle of the thalamus (pvbt) [130]

epithalamus related (mfbse)
 stria medullaris (sm) **[131]**
 fasciculus retroflexus (fr) **[132]**
 habenular commissure (hbc) **[133]**
 pineal stalk (PIS)
midbrain related (mfbsm)
 dorsal longitudinal fascicle (dlf) **[134]**
 dorsal tegmental tract (dt) **[135]**

Table C Annotations

- 1 Table C is an expanded version of Table A.c.w (Central nervous system white matter). All craniospinal nerves have at least a short segment within the CNS. Fiber systems within the CNS are difficult to see clearly in Nissl-stained material like that used for the Atlas (although darkfield illumination helps considerably). For photomicrographs of fiber-stained sections illustrating most of the structures listed here see Kruger et al. 1995.
- 2 Bojsen-Møller 1975; Schwanzel-Fukuda et al. 1985; Demski and Schwanzel-Fukuda 1987.
- 3 Vaccarezza et al. 1981; Halpern 1987. It may be thought of as a specialization of the olfactory nerve from a specialized region of the olfactory epithelium, the vomeronasal organ. It ends in the accessory olfactory bulb, whose axons travel through a localized region of the lateral olfactory tract called the accessory olfactory tract (Scalia and Winans 1975).
- 4 Switzer et al. 1985; Doucette 1991.
- 5 Gurdjian 1925.
- 6 Switzer et al. 1985.
- 7 Scalia and Winans 1975, see note 3.
- 8 Gurdjian 1925; Haberly and Price 1978b.
- 9 Crespo et al. 1985; Reese 1987a.
- 10 Hayhow et al. 1960; Terubayashi and Fujisawa 1984.
- 11 Optic tract fibers that continue on past the lateral geniculate complex.
- 12 Bucher and Nauta 1954; Jen and Au 1986.
- 13 Jeffery 1989.
- 14 Reese 1987b.

- 15 Taylor et al. 1986; Harting et al. 1991a.
- 16 Hebel and Stromberg 1986.
- 17 Rhines and Windle 1941.
- 18 Bucher and Nauta 1954.
- 19 Hebel and Stromberg 1986.
- 20 Erzurumlu and Killackey 1983; Hebel and Stromberg 1986.
- 21 Jacquin et al. 1983.
- 22 Torvik 1956; Marfurt and Rajchert 1991.
- 23 Rokx et al. 1986a.
- 24 Torvik 1956; Marfurt and Rajchert 1991.
- 25 Martin et al. 1977; Hebel and Stromberg 1986.
- 26 Contreras et al. 1980; Hebel and Stromberg 1986.
- 27 Hebel and Stromberg 1986.
- 28 Strutz 1982; White and Warr 1983; Osen et al. 1984.
- 29 Mehler and Rubertone 1985.
- 30 Harrison and Feldman 1970; Webster 1985.
- 31 Zeman and Innes 1963; Harrison and Feldman 1970; Adams and Warr 1976.
- 32 Harrison and Feldman 1970.
- 33 Zeman and Innes 1963; Irvine 1986.
- 34 Fay-Lund and Osen 1985.
- 35 Zeman and Innes 1963.
- 36 Contreras et al. 1980; Hebel and Stromberg 1986; Furusawa et al. 1991.
- 37 Torvik 1956; Contreras et al. 1980; Hebel and Stromberg 1986; Altschuler et al. 1991.

- 38 Torvik 1956; Contreras et al. 1980.
- 39 Brichta et al. 1987.
- 40 Müntener et al. 1980.
- 41 Waibl 1973; Hebel and Stromberg 1986.
- 42 Waibl 1973; Hebel and Stromberg 1986; Neuhuber and Zenker 1989; Arvidsson and Pfaller 1990; Rivero-Melián and Grant 1990; Silverman and Kruger 1990; LaMotte et al. 1991.
- 43 Giesler et al. 1988.
- 44 Chung et al. 1987.
- 45 Waibl 1973.
- 46 Cliffer and Giesler 1989.
- 47 Massopust et al. 1985.
- 48 Giesler et al. 1981; Burstein et al. 1990a.
- 49 Giesler et al. 1981.
- 50 Baker and Giesler 1984; Giesler et al. 1988.
- 51 Swenson and Castro 1983; Molinari and Starr 1989.
- 52 Nahin 1987.
- 53 Mehler and Rubertone 1985.
- 54 Yeziarski 1988; Lima and Coimbra 1989; Zhang et al. 1990; Yeziarski and Mendez 1991.
- 55 Burstein et al. 1987, 1990b.
- 56 Burstein et al 1987; Burstein and Giesler 1989.
- 57 Swanson 1987. The correct spelling of this term (with an “i”) is explained in footnote 1 of Rioch et al. 1940.
- 58 Voogd 1995; Voogd et al. 1996.

- 59 Caughell and Flumerfelt 1977.
- 60 Voogd 1995; Voogd et al. 1996.
- 61 Yamada et al. 1991.
- 62 Voogd 1995; Voogd et al. 1996.
- 63 Yamada et al. 1991.
- 64 Massopust et al. 1985.
- 65 Voogd 1995; Voogd et al. 1996.
- 66 Azizi and Woodward 1987.
- 67 Chan-Palay et al. 1977.
- 68 Huerta et al. 1983; Mantle-St. John and Tracey 1987.
- 69 Williams et al. 1989.
- 70 Gurdjian 1927.
- 71 Carpenter and Sutin 1983; Williams et al. 1989.
- 72 Saper 1984. The internal capsule in the rat corresponds to the posterior limb of the internal capsule in humans.
- 73 Gurdjian 1927.
- 74 Lund 1966; Harvey and Worthington 1990.
- 75 Brown 1974.
- 76 Mihailoff et al. 1985.
- 77 Zimmerman et al. 1964; Kuypers 1981; Wiesendanger 1981.
- 78 The term pyramid refers to the part of the corticospinal tract that protrudes from the medial base of the medulla (Willis 1664).
- 79 Zeman and Innes 1963.

- 80 Leenen et al. 1985; Kuang and Kalil 1990. In the rat, the crossed corticospinal tract travels through ventral parts of the dorsal column or funiculus.
- 81 Vahlsing and Ferringa 1980; Casale et al. 1988.
- 82 Jones 1985.
- 83 Krieg 1944.
- 84 Fibers crossing the midline of the thalamus, in the massa intermedia (Herrick 1915).
- 85 Gurdjian 1927.
- 86 Carter and Fibiger 1978.
- 87 Fallon and Moore 1978; Björklund and Lindvall 1984.
- 88 Clavier et al. 1976.
- 89 Jackson and Crossman 1981; Yasui et al. 1990.
- 90 Nauta and Domesick 1979.
- 91 Ricardo 1980; Canteras et al. 1990.
- 92 Redgrave et al. 1987, 1990.
- 93 Waldron and Gwyn 1969.
- 94 Bebin 1956.
- 95 Carpenter and Sutin 1983; Williams et al. 1989.
- 96 Newman 1985a.
- 97 Newman 1985b.
- 98 Mehler and Rubertone 1985.
- 99 This “system” is meant to include the medial forebrain bundle as it is traditionally viewed (Gurdjian 1925; Nauta and Haymaker 1969; Nieuwenhuys et al. 1982), its extension through the brainstem into the spinal cord (e.g., Saper et al. 1976b; Swanson and McKellar

- 1979), and the major fiber tracts that feed into and out of it.
- 100 This fiber tract is often confused with the external capsule, which forms the medial border of the lateral and basolateral amygdalar nuclei, in the rat; we have not found a name for it in the literature.
- 101 Nauta and Haymaker 1969.
- 102 Horel and Stelzner 1981.
- 103 Krieg 1947; White 1959.
- 104 Swanson et al. 1987.
- 105 Cajal 1995.
- 106 Powell and Cowan 1955.
- 107 Wyss et al. 1980.
- 108 Swanson and Cowan 1977.
- 109 Craigie 1925; Crosby et al. 1962. The roughly vertically oriented fibers in the medial septal nucleus and vertical limb of the nucleus of the diagonal band are sometimes referred to as Zuckerkandel's bundle.
- 110 Gurdjian 1927; Canteras and Swanson 1992b.
- 111 Swanson and Cowan 1977. They are often called the anterior columns of the fornix.
- 112 Blackstad 1956.
- 113 Wyss et al. 1980.
- 114 Lorente de Nó 1934.
- 115 Cajal 1995.
- 116 Johnston 1923
- 117 Gurdjian 1925; de Olmos 1972.

- 118 Gurdjian 1925, 1927; Nauta and Haymaker 1969; Nieuwenhuys et al. 1982.
- 119 This tract has been named here. It corresponds at least in part to Craigie's (1925) olfactory hypothalamic tract and component *a* of the medial forebrain bundle of Nieuwenhuys et al. (1982).
- 120 Risold et al. 1994.
- 121 Gurdjian 1927; Tsang 1940; Nauta and Haymaker 1969. It is probably more accurate on embryological and connectional grounds to refer to them as postoptic decussations.
- 122 Risold et al. 1994.
- 123 Gurdjian 1927; Nauta and Haymaker 1969.
- 124 Thompson et al. 1996; Thompson and Swanson 2003.
- 125 Gurdjian 1927; Krieg 1932; Sutin 1966.
- 126 Gurdjian 1927; Fry and Cowan 1972.
- 127 Gurdjian 1927; Cruce 1975; Seki and Zyo 1984.
- 128 Allen and Hopkins 1990.
- 129 Gurdjian 1927; Cowan et al. 1964; Shibata 1987.
- 130 Gurdjian 1927; Krieg 1932.
- 131 Gurdjian 1925; Swanson and Cowan 1979.
- 132 Gurdjian 1925; Herkenham and Nauta 1979; Contestabile et al. 1987.
- 133 Gurdjian 1925.
- 134 Nauta and Haymaker 1969.
- 135 Lindvall and Björklund 1974.