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Atlas of the brain of the developing tammar wallaby (*Macropus eugenii*)

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Introduction

Reproduction of the tammar wallaby has been studied extensively (Tyndale-Biscoe, 2005) and this marsupial is easily bred in captivity, making it an ideal choice as an experimental animal in neurodevelopmental studies. The slightly smaller quokka (*Setonix brachyurus*; adult body weight of 2.7 to 4.2 kg) has also been used extensively in studies of this kind in Western Australia. Although belonging to different genuses, both these macropods have morphologically similar pouch young and an atlas of the brains of early tammar young should also be applicable to early pouch-young quokkas.

In the wild, most tammar young are born in late January. Females mate again within a few hours of birth and the resulting embryo remains quiescent during lactation. In the natural environment, the pouch young is suckled for 8 to 9 months and leaves the pouch in September or October. The quiescent embryo can be stimulated to reactivate by removal of the current pouch young, allowing the sequential births of two or more pouch young within the one year in wallabies maintained in a colony. If the current year's pouch young are not removed, the quiescent embryos naturally reactivate within a few days of the summer solstice (i.e. after 22 December).

The range of ages depicted covers the period from birth, when the rostral brain is 'embryonic', through to P25, when most major subcortical nuclei have begun to emerge. Significant cortical development occurs after P25, particularly in the occipital region, but the major developmental regions of the cerebral cortex are nevertheless present by that age (see text of Chapters 3 and 8, and Figure 3.6).

Other sections from some of the animals depicted in this series have been used for previously published studies of neurodevelopment in this species (Hassiotis *et al.*, 2002; Ashwell *et al.*, 2004, 2008a).

Methods

Ethics, anaesthesia and perfusion

All wallabies used in this study were obtained from a breeding colony. All experimental procedures were approved by the Animal Ethics Experimentation Committee of the ANU, conform to NIH principles of laboratory animal care and were carried out according to the ethical guidelines of the National Health and Medical Research Council (Australia). The ages of animals were determined either directly by noting the elapsed time from the date of birth, which was designated P0, or from measurements of head length and reference to a chart of head lengths of animals of known age. This is accurate to within ±2 days. Gestation length in this species is on average 28.3 days. The steady and measured pace of wallaby postnatal development means that there is little inter-animal variation in developmental stage.

Pouch young were anaesthetised by hypothermia and perfused with normal saline followed by Bouin's fixative. Pouch-young material was stored in 70% ethanol prior to embedding.

Histology, photomicrography and delineation

The heads of pouch young at ages P0, P5 and P12 and the brains of P19 and P25 pouch young were embedded in paraffin and sectioned coronally at a thickness of 10 µm. The sections depicted in the atlas have been stained with haematoxylin and eosin and coverslipped with *DePeX*.

The right side of each section was photographed with the aid of a *.slide* photomicrographic system in the Department of Anatomy at the Heinrich Heine University in Düsseldorf, Germany, as described for the dunnart atlas. Images were placed in *Adobe Illustrator CS2* (as described previously for

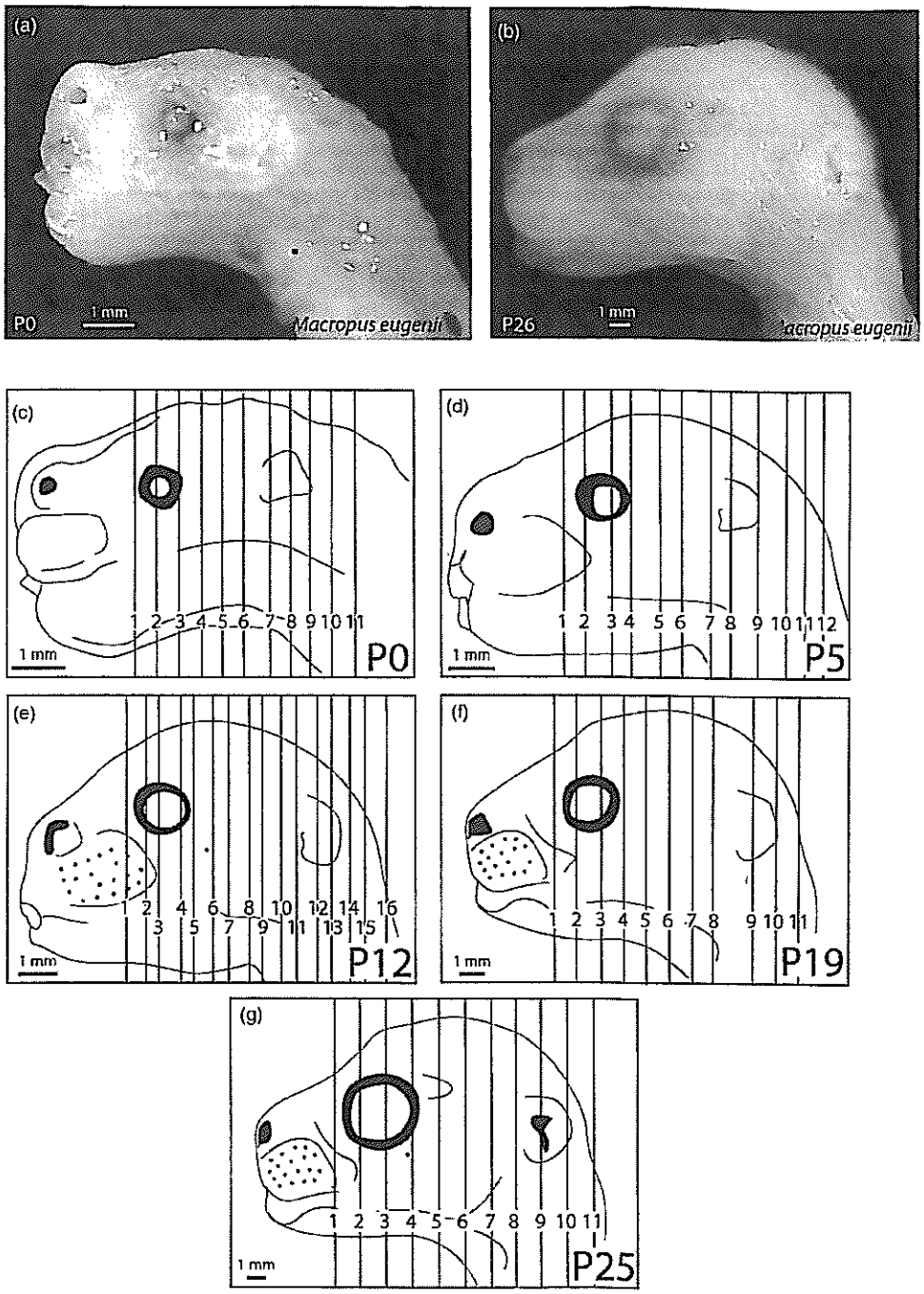


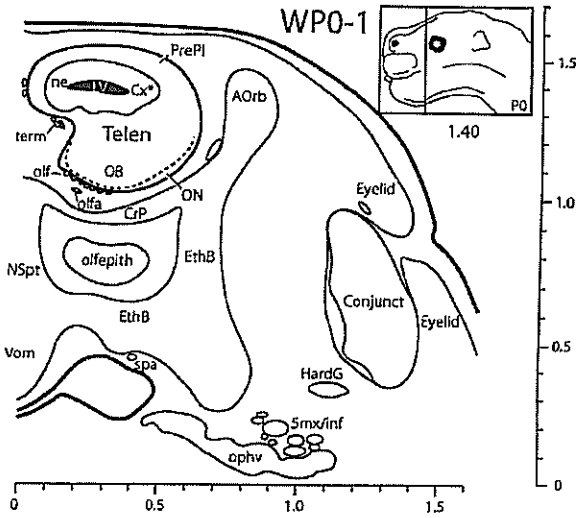
Figure 18.1 Left lateral view photographs of perfused, post-mortem heads of pouch-young wallabies at P0 (a) and P26 (b), showing the profound change in structure of the head during the first postnatal month. Line diagrams (c) to (g) illustrate the rostrocaudal position of coronal sections depicted in the following pages.

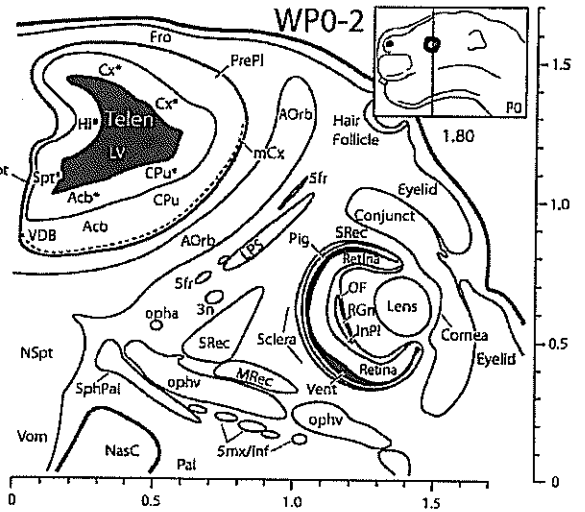
the dunnart brain) and delineated. Nomenclature applied to the pouch-young nervous system is adapted from that used for the third edition of the *Atlas of the Developing Rat Nervous System* (Ashwell and Paxinos, 2008). Developmental regions (i.e. neuroepithelium) destined to give rise to adult structures have been denoted by the adult structure's name with an asterisk (e.g. Cx* denotes cerebral cortical neuroepithelium).

Each plate depicts half of a coronal section, because the head is bilaterally symmetrical, with a scale indicating the size in mm of structures in the dehydrated tissue. A small finder diagram has been provided in the top right-hand corner of each line diagram with the distance from the rostral tip of the olfactory bulb/telencephalic vesicle indicated in mm. Atlas plate files are available at www.cambridge.org/9780521519458.

WP0-1 & WP0-2

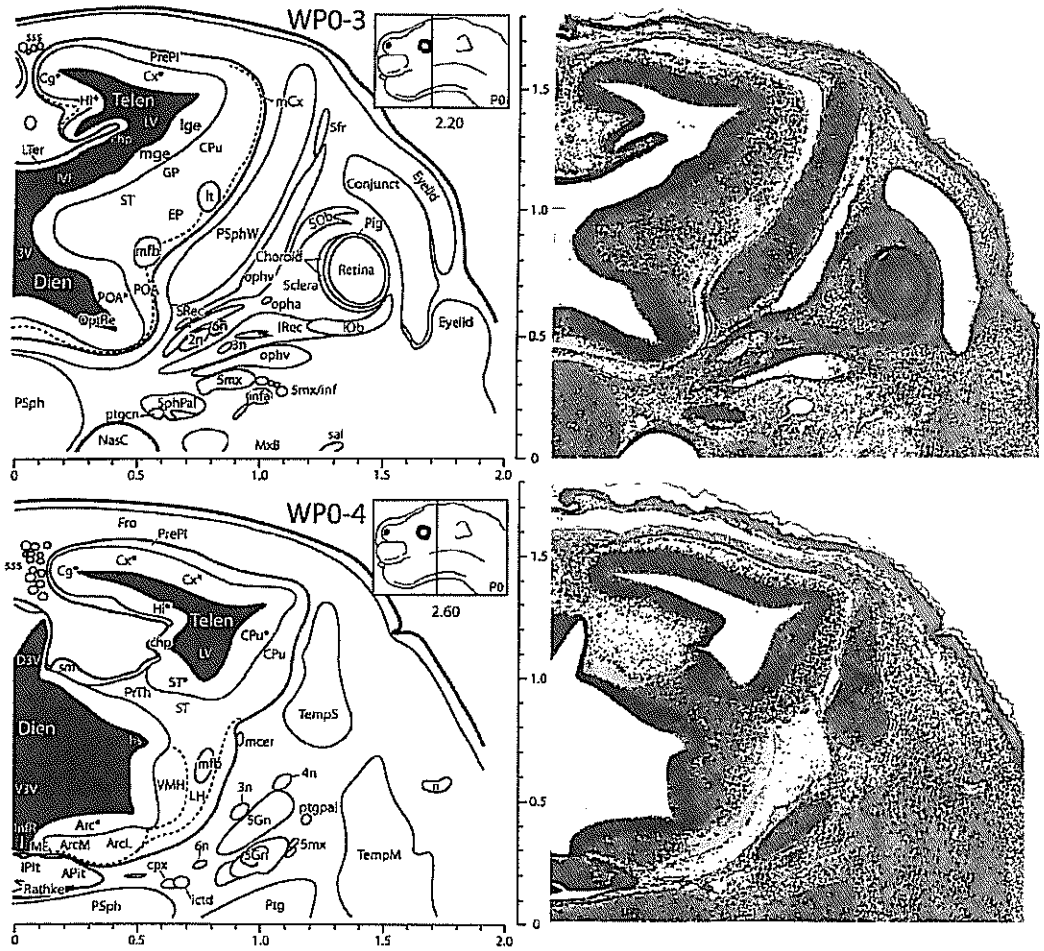
*	denotes precursor of structure
3n	oculomotor nerve
5fr	frontal branch of ophthalmic 5n
5mx/inf	infraorbital nerve
Acb	accumbens nucleus
AOrb	alar orbital bone
Conjunct	conjunctival sac
Cornea	cornea
CPu	caudate putamen (striatum)
CrP	cribriform plate of ethmoid bone
Cx	cerebral cortex
EthB	ethmoid bone
Eyelid	eyelid
Fro	frontal bone
HardG	Harderian gland
Hi	hippocampus
InPl	inner plexiform layer
Lens	lens
LPS	levator palpebrae superioris muscle
LV	lateral ventricle
mCx	marginal zone of developing cortex
MRec	medial rectus muscle
NasC	nasal cavity
ne	neuroepithelium
NSpt	nasal septum
OB	olfactory bulb
OF	optic fibre layer of the retina
olf	olfactory nerve
olfa	olfactory artery
olfepith	olfactory epithelium
ON	olfactory nerve layer of telencephalon
opha	ophthalmic artery
ophv	ophthalmic vein
Pal	palatine bone
Pig	pigment layer of the eye
PrePl	preplate of cortex
Retina	retina
RGn	ganglion cell layer of retina
spa	sphenopalatine artery
SphPal	sphenopalatine ganglion
Spt	septal region of brain
SRec	superior rectus muscle
Telen	telencephalon
term	terminal nerve
VDB	nuclei of vertical limb of diagonal band
Vent	ventricular space of the eye
Vom	vomer (bone)

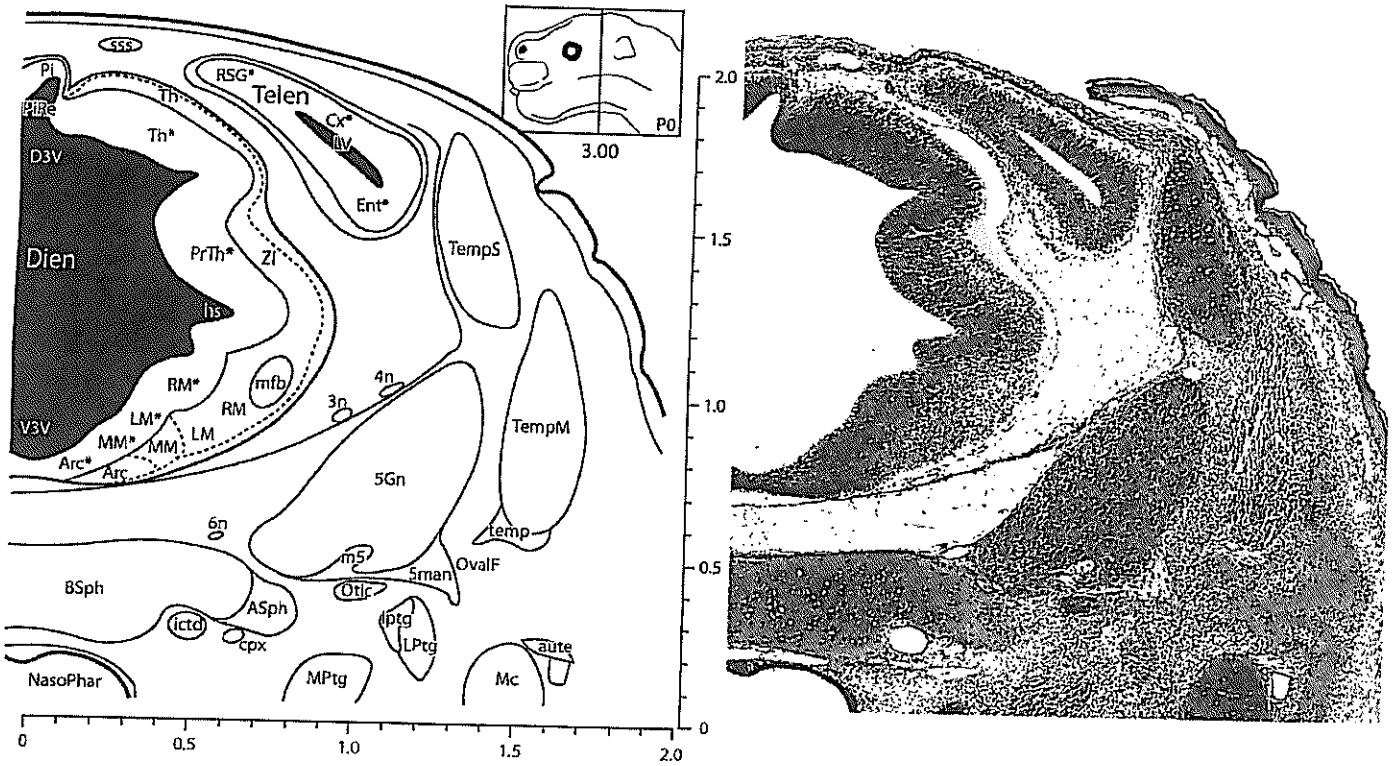




WP0-3 & WP0-4

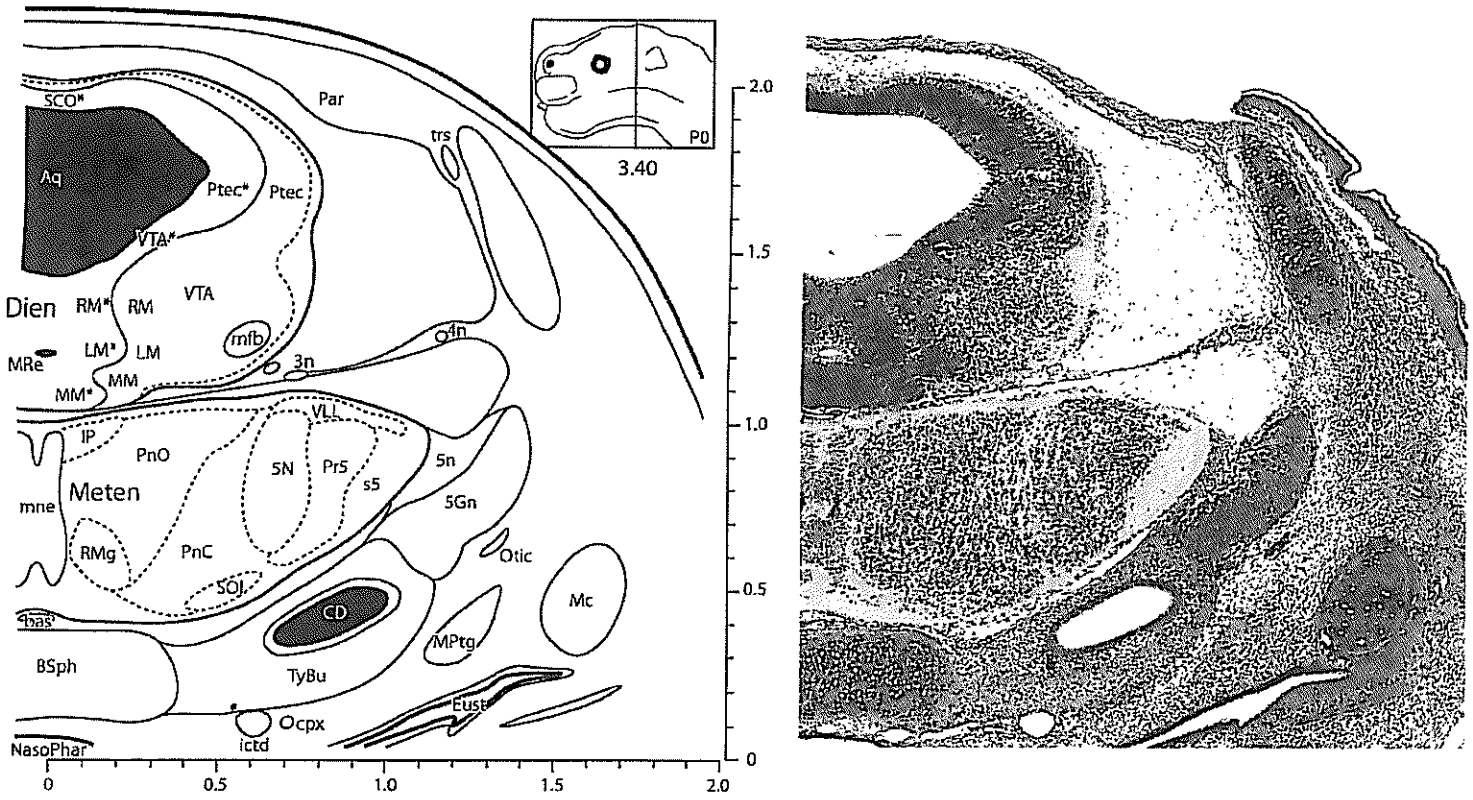
*	denotes precursor of structure
2n	optic nerve
3n	oculomotor nerve
3v	third ventricle
4n	trochlear nerve
5fr	frontal branch of ophthalmic 5n
5Gn	trigeminal ganglion
5mx	maxillary division of trigeminal nerve
5mx/inf	infraorbital branch of 5mx
6n	abducens nerve
APit	anterior lobe of pituitary
Arc	arcuate hypothalamic nucleus
ArcM	arcuate hypothalamic nucleus, medial
Cg	cingulate cortex
Chp	choroid plexus
CPu	caudate putamen (striatum)
cpx	carotid plexus
Cx	cerebral cortex
D3V	third ventricle, dorsal
Dien	diencephalon
EP	entopeduncular nucleus
Fro	frontal bone
GP	globus pallidus
Hi	hippocampus
hs	hypothalamic sulcus
ictd	internal carotid artery
infa	infraorbital artery
IOb	inferior oblique muscle
IPit	intermediate lobe of the pituitary
IRec	inferior rectus muscle
IVF	interventricular foramen
lge	lateral ganglionic eminence
LH	lateral hypothalamic area
InfR	third ventricle, infundibular recess
lt	lateral telencephalic tract
LTer	lamina terminalis
mcer	middle cerebral artery
LV	lateral ventricle
mCx	marginal zone of developing cortex
ME	median eminence
mfb	medial forebrain bundle
mge	medial ganglionic eminence
Nase	nasal cavity
opha	ophthalmic artery
ophv	ophthalmic vein
OptRe	optic recess of third ventricle
POA	preoptic area
PrePl	preplate of cortex
PrTh	prethalamus
PSph	presphenoid bone
Ptg	pterygoid process of sphenoid bone
ptgcn	nerve of the pterygoid canal
ptgpal	pterygopalatine nerve
Rathke	Rathke's pouch
sal	superior alveolar nerve (br.of 5mx)
sm	stria medullaris
SOb	superior oblique muscle
SphPal	sphenopalatine ganglion
SRec	superior rectus muscle
sss	superior sagittal sinus
ST	bed nuclei of stria terminalis
Telen	telencephalon
TempM	temporalis muscle
TempS	temporal bone, squamous part
V3V	third ventricle, ventral
VMH	ventromedial hypothalamic nucleus





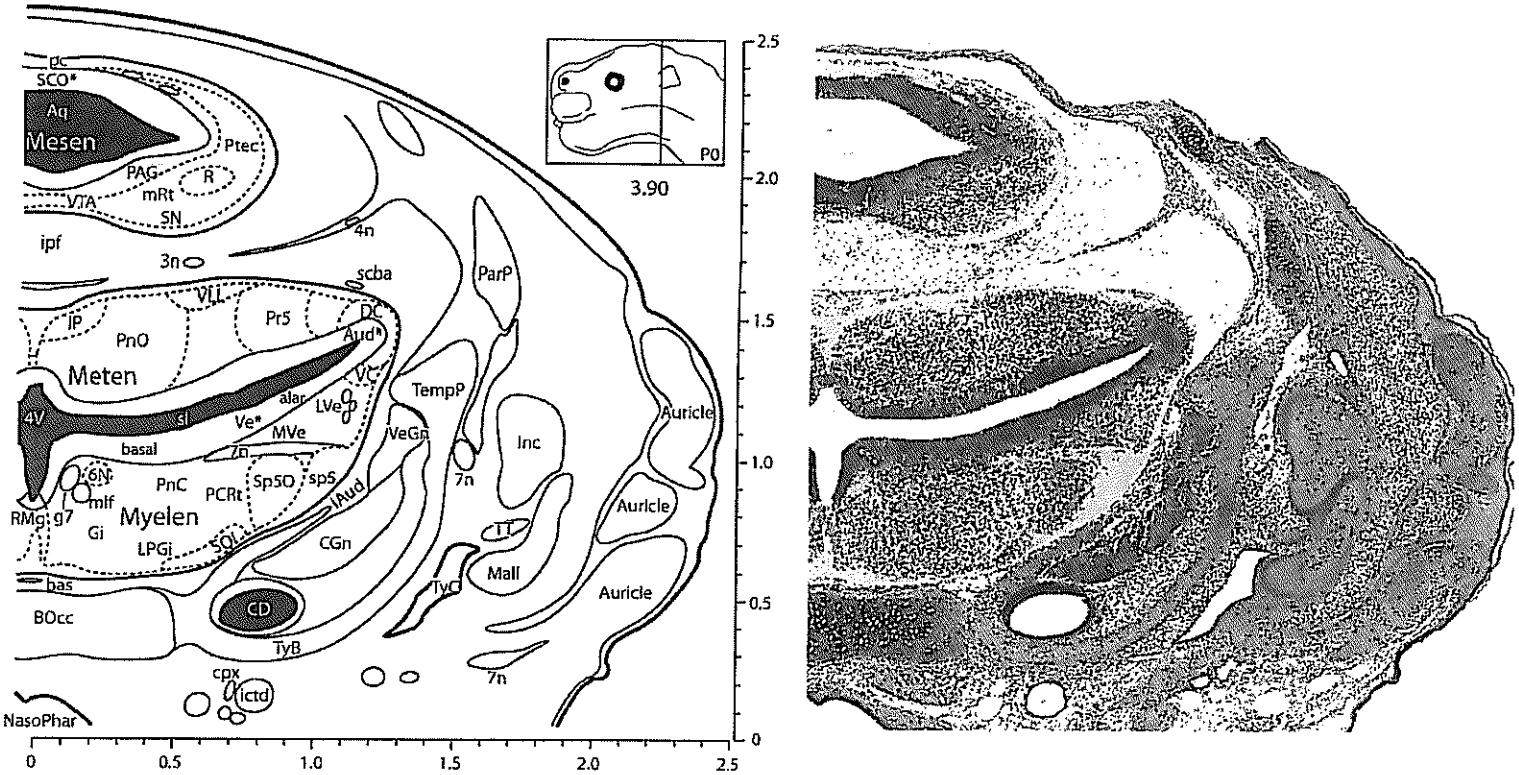
WP0-5

*	denotes precursor of structure
3n	oculomotor nerve
4n	trochlear nerve
5Gn	trigeminal ganglion
5man	mandibular division of trigeminal n.
6n	abducens nerve
Arc	arcuate hypothalamic nucleus
ASph	alisphenoid bone
aute	auriculotemporal nerve
BSph	basisphenoid bone
cpx	carotid plexus
Cx	cerebral cortex
D3V	dorsal part of third ventricle
Dien	diencephalon
Ent	entorhinal cortex
hs	hypothalamic sulcus
ictd	internal carotid artery
LM	lateral mamillary nucleus of hypothalamus
lptg	nerve to lateral pterygoid muscle
LPtg	lateral pterygoid muscle
LV	lateral ventricle
m5	motor root of trigeminal nerve
Mc	Meckel's cartilage
mfb	medial forebrain bundle
MM	medial mamillary nucleus, medial
MPtg	medial pterygoid muscle
NasoPhar	nasopharynx
Otic	otic ganglion
OvalF	foramen ovale
Pi	pineal gland
PiRe	pineal recess of third ventricle
PrTh	prethalamus
RM	retromamillary nucleus
RSG	retrosplenial granular cortex
sss	superior sagittal sinus
Telen	telencephalon
temp	temporal nerve
TempM	temporalis muscle
TempS	temporal bone, squamous part
Th	thalamus
V3V	ventral part of third ventricle
ZI	zona incerta



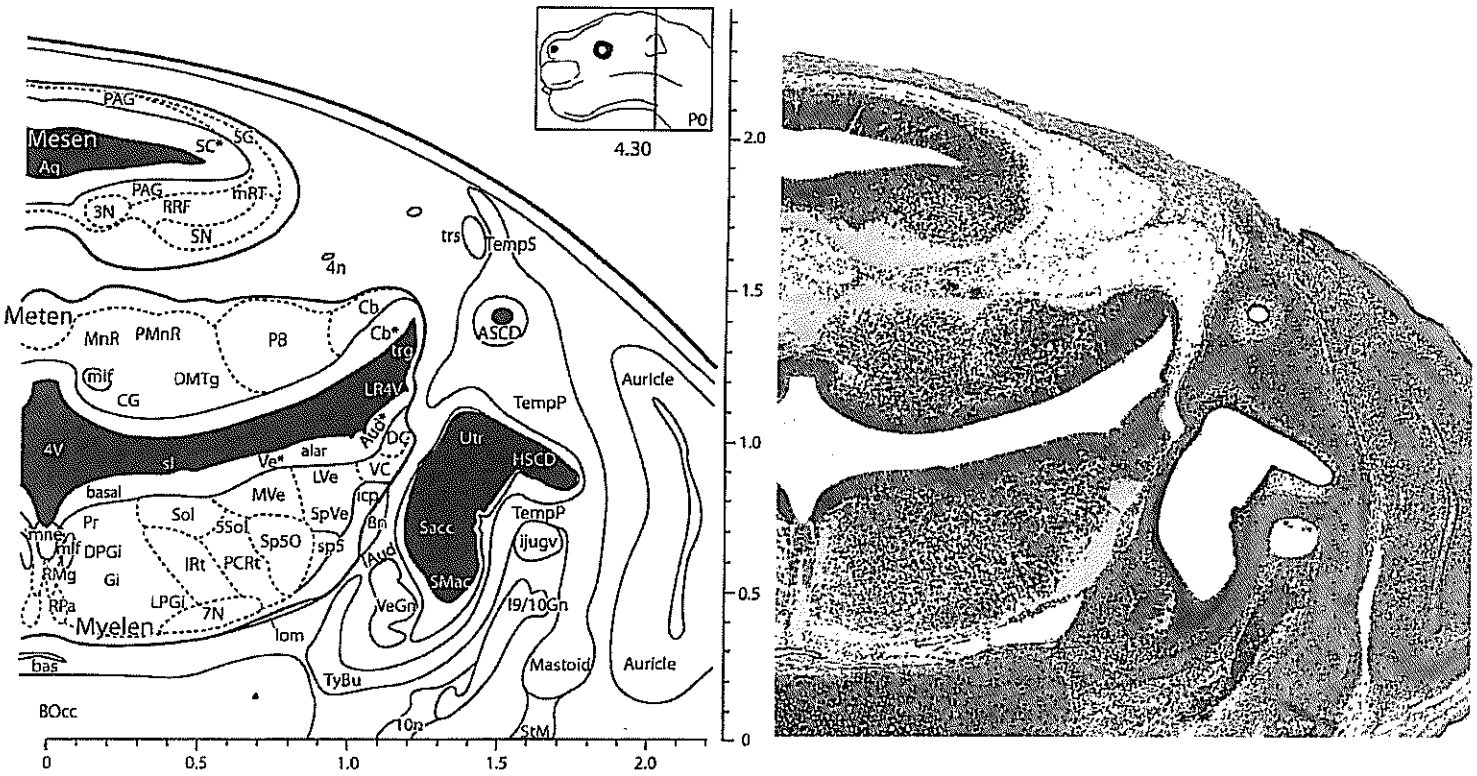
WP0-6

*	denotes precursor of structure
3n	oculomotor nerve
4n	trochlear nerve
5Gn	trigeminal ganglion
5N	motor trigeminal nucleus
5n	trigeminal nerve
Aq	cerebral aqueduct
bas	basilar artery
BSph	basisphenoid bone
CD	cochlear duct
cpx	carotid plexus
Dien	diencephalon
Eust	eustachian tube
ictd	internal carotid artery
IP	interpeduncular nucleus
LM	lateral mamillary nucleus
Mc	Meckel's cartilage
Meten	metencephalon
mfb	medial forebrain bundle
MM	medial mamillary nucleus, medial
mne	median neuroepithelium of brainstem
MPtg	medial pterygoid muscle
MRe	mamillary recess of third ventricle
NasoPhar	nasopharynx
Otic	otic ganglion
Par	parietal bone
PnC	pontine reticular nucleus, caudal
PnO	pontine reticular nucleus, oral
Pr5	principal sensory trigeminal nucleus
Ptec	pretectum
RM	retromamillary nucleus
RMg	raphe magnus nucleus
s5	sensory root of trigeminal nerve
SCO	subcommissural organ
SOl	superior olivary nuclear complex
trs	transverse venous sinus
TyBu	tympanic bulla
VLL	ventral nucleus of lateral lemniscus
VTA	ventral tegmental area



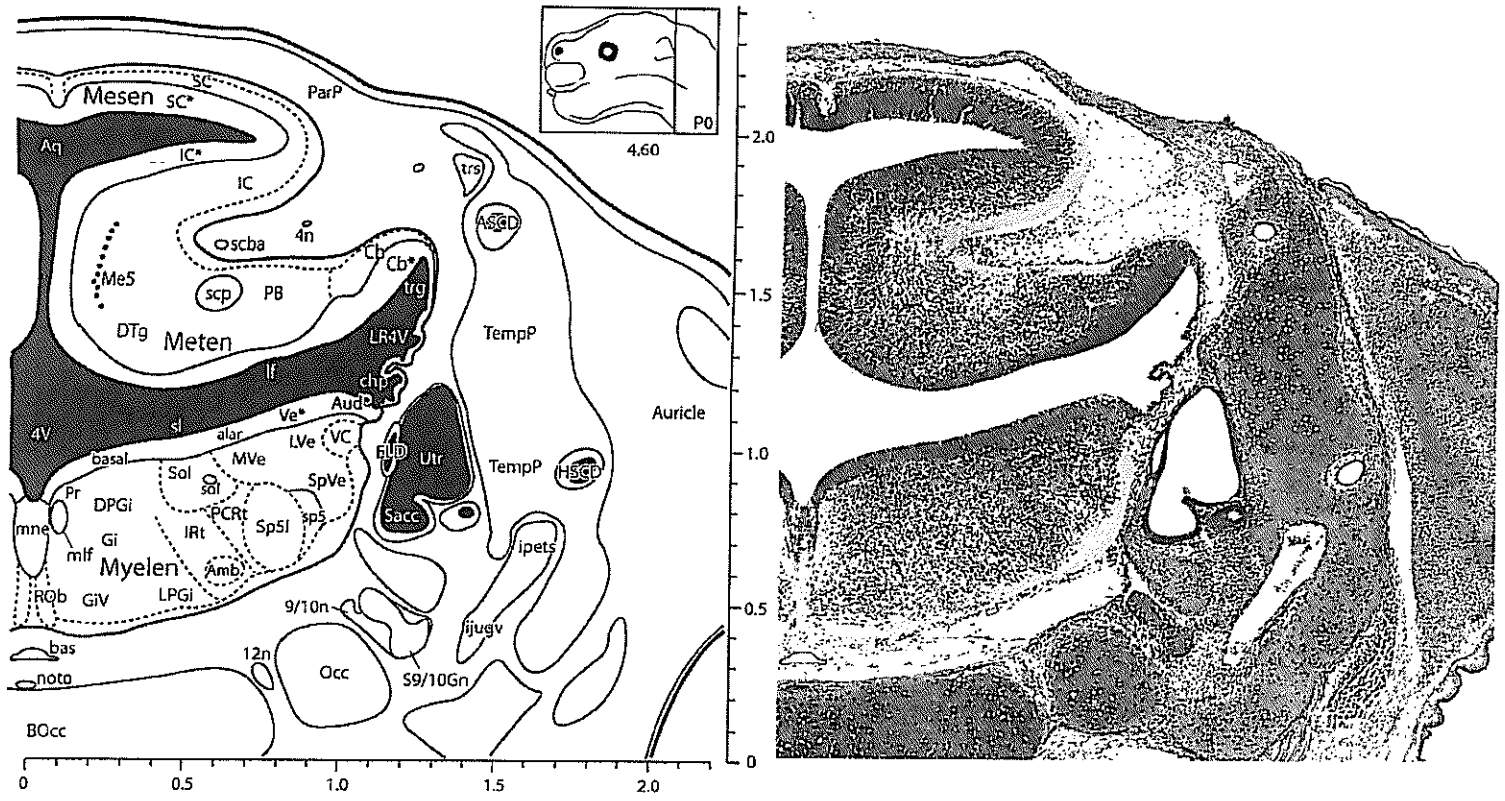
WP0-7

*	denotes precursor of structure	CD	cochlear duct	LVe	lateral vestibular nucleus	PCRt	parvicellular reticular nucleus	sp5	spinal trigeminal tract
3n	oculomotor nerve	CGn	cochlear (spiral) ganglion	Mall	malleus	PnC	pontine reticular nucleus, caudal	Sp5O	spinal trigeminal nucleus, oral
4n	trochlear nerve	cpx	carotid plexus	Mesen	mesencephalon	PnO	pontine reticular nucleus, oral	TempP	temporal bone, petrous
4V	4th ventricle	DC	dorsal cochlear nucleus	Meten	metencephalon	Pr5	principal sensory trigeminal nu.	TT	tensor tympani muscle
6N	abducens nucleus	g7	genu of the facial nerve	mlf	medial longitudinal fasciculus	Ptec	pretectum	TyB	tympanic bulla of temporal bone
7n	facial nerve	Gi	gigantocellular reticular nucleus	mRt	mesencephalic reticular formation	R	red nucleus	TyC	tympanic cavity
alar	alar plate	lAud	internal auditory meatus	MVe	medial vestibular nucleus	RMg	raphe magnus nucleus	VC	ventral cochlear nucleus
Aq	cerebral aqueduct	ictd	internal carotid artery	Myelen	myelencephalon	scba	superior cerebellar artery	Ve	vestibular neuroepithelium
Aud	auditory neuroepithelium	Inc	incus	NasoPhar	nasopharynx	SCO	subcommissural organ	VeGn	vestibular nerve ganglion
bas	basilar artery	IP	interpeduncular nucleus	PAG	periaqueductal grey	sl	sulcus limitans	VLL	ventral nucleus of lateral lemniscus
basal	basal plate	ipf	interpeduncular fossa	ParP	parietal bone plate	SN	substantia nigra	VTA	ventral tegmental area
BOcc	basioccipital bone	LPGi	lateral paragigantocellular nucleus	pc	posterior commissure	SOl	superior olivary nuclear complex		



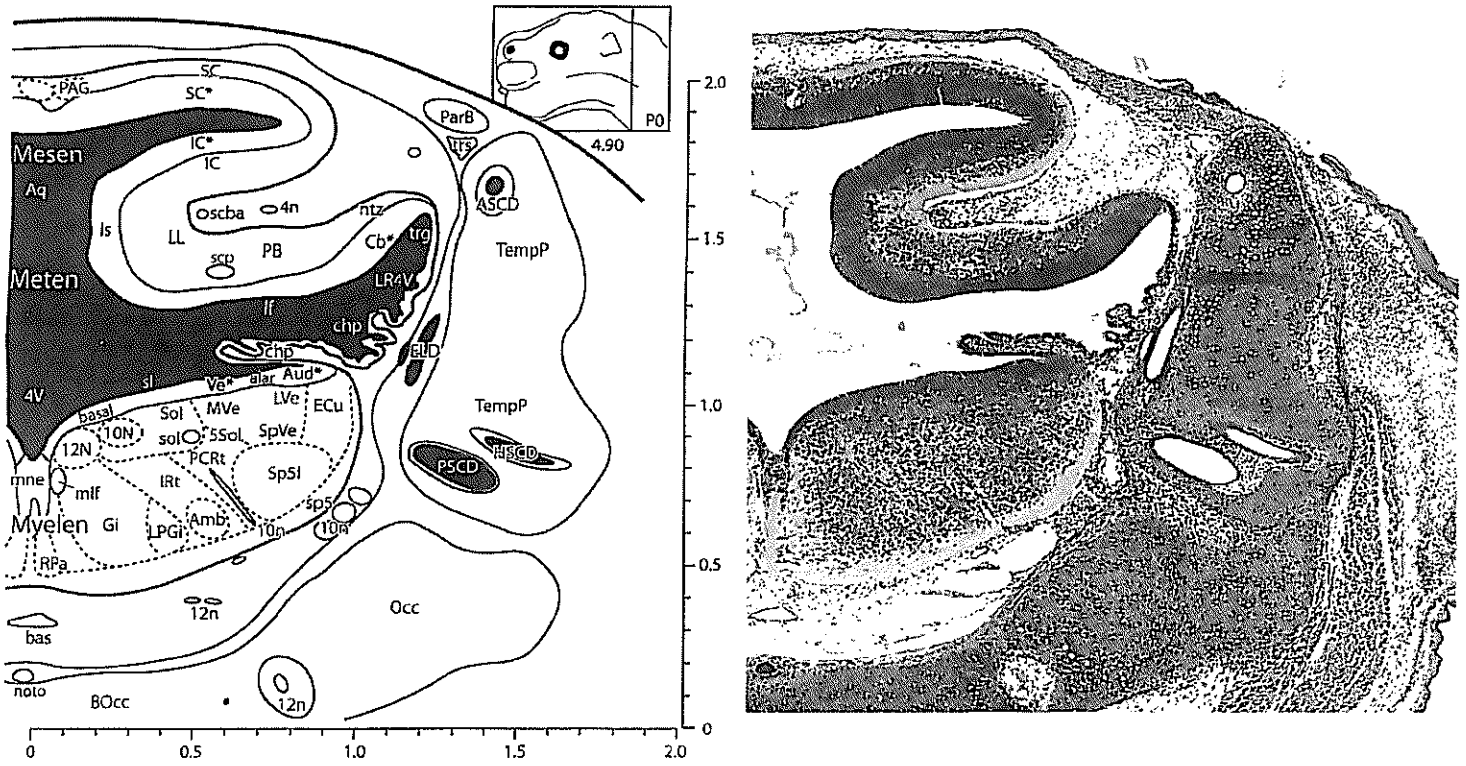
WP0-8

*	denotes precursor of structure	BOcc	basioccipital bone	LPGi	lateral paragigantocellular nucleus	PCRt	parvicellular reticular nu.	SpVe	spinal vestibular nucleus
3N	oculomotor nucleus	Cb	cerebellum	LR4V	lateral recess of 4th ventricle	PMnR	paramedian raphe nucleus	StM	sternomastoid muscle
4n	trochlear nerve	CG	central grey	LVe	lateral vestibular nucleus	Pr	prepositus nucleus	TempP, S	temporal bone, petrous and squamous
4V	fourth ventricle	DC	dorsal cochlear nucleus	Mastoid	mastoid process	RMg	raphe magnus nucleus	trg	germinal trigone
5Sol	trigeminal-solitary transition zone	DMTg	dorsomedial tegmental area	Mesen	mesencephalon	RPa	raphe pallidus nucleus	trs	transverse venous sinus
7N	facial nucleus	DPGi	dorsal paragigantocellular nucleus	Meten	metencephalon	RRF	retrorubral field	TyBu	tympanic bulla
8n	vestibulocochlear nerve	Gi	gigantocellular reticular nucleus	mlf	medial longitudinal fasciculus	Sacc	saccule	Utr	utricle
10n	vagus nerve	HSCD	horizontal semicircular duct	mne	median neuroepithelium	SC	superior colliculus	VC	ventral cochlear nucleus
alar	alar plate	I9/10Gn	inferior ganglia of 9n, 10n	MnR	median raphe nucleus	sl	sulcus limitans	Ve	vestibular neuroepithelium
Aq	cerebral aqueduct	tAud	internal auditory meatus	mRT	mesencephalic reticular formation	SMac	macula of the saccule	VeGn	vestibular nerve ganglion
ASCD	anterior semicircular duct	icp	inferior cerebellar peduncle	MVe	medial vestibular nucleus	SN	substantia nigra		
Aud	auditory neuroepithelium	ijugv	internal jugular vein	Myelen	myelencephalon	Sol	solitary nucleus		
bas	basilar artery	lom	inferior olivary migration	PAG	periaqueductal grey	sp5	spinal trigeminal tract		
basal	basal plate	IRt	intermediate reticular nucleus	PB	parabrachial complex	Sp5O	spinal trigeminal nucleus, oral		



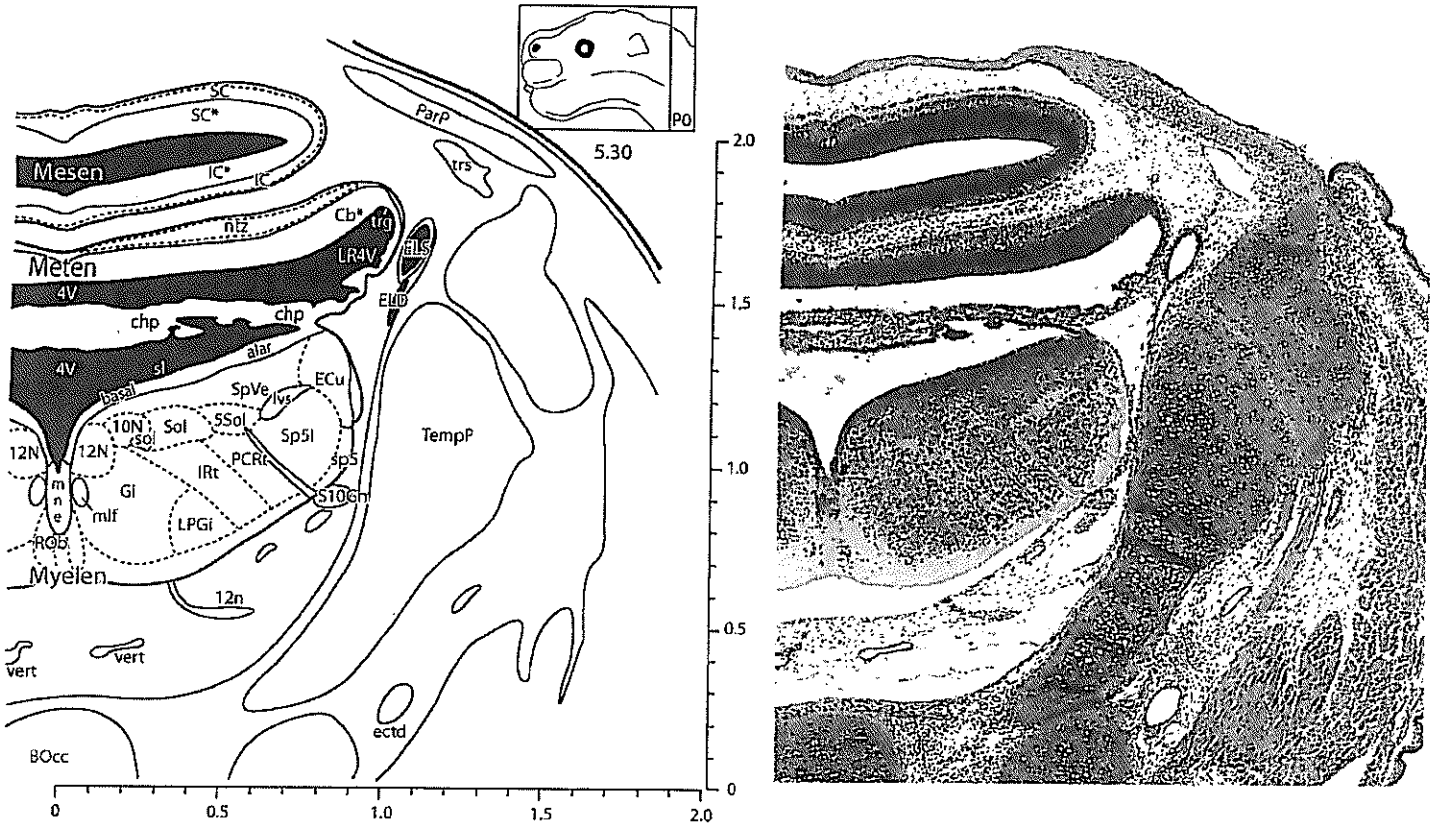
WP0-9

*	denotes precursor of structure	BOcc	basioccipital bone	IRt	intermediate reticular nucleus	PB	parabrachial nuclear complex	sp5	spinal trigeminal tract
4n	trochlear nerve	Cb	cerebellum	If	lateral fissure	PCRt	parvicellular reticular nucleus	Sp5I	spinal trigeminal nu., interpolaris
4V	4th ventricle	chp	choroid plexus	LPGi	lateral paragigantocellular nucleus	Pr	prepositus nucleus	SpVe	spinal vestibular nucleus
9/10n	glossopharyngeal and vagus nerves	DPGi	dorsal paragigantocellular nucleus	LR4V	lateral recess of 4th ventricle	ROb	raphe obscurus nucleus	TempP	temporal bone, petrous
12n	hypoglossal nerve	DTg	dorsal tegmental nucleus	LVe	lateral vestibular nucleus	S9/10Gn	superior ganglion 9n/10n	trg	germinal trigone
alar	alar plate	ELD	endolymphatic duct	Me5	mesencephalic trigeminal nucleus	Sacc	saccule	trs	transverse venous sinus
Amb	ambiguus nucleus	Gl	gigantocellular reticular nucleus	mlf	medial longitudinal fasciculus	SC	superior colliculus	Utr	utricle
Aq	cerebral aqueduct	GiV	gigantocellular retic. nu., ventral	mne	median neuroepithelium	scba	superior cerebellar artery	VC	ventral cochlear nucleus
ASCD	anterior semicircular duct	HSCD	horizontal semicircular duct	MVe	medial vestibular nucleus	scp	superior cerebellar peduncle	Ve	vestibular neuroepithelium
Aud	auditory neuroepithelium	IC	inferior colliculus	noto	notochord	sl	sulcus limitans		
bas	basilar artery	ijugv	internal jugular vein	Occ	occipital bone	Sol	solitary nucleus		
basal	basal plate	ipets	inferior petrosal sinus	ParP	parietal bone plate	sol	solitary tract		



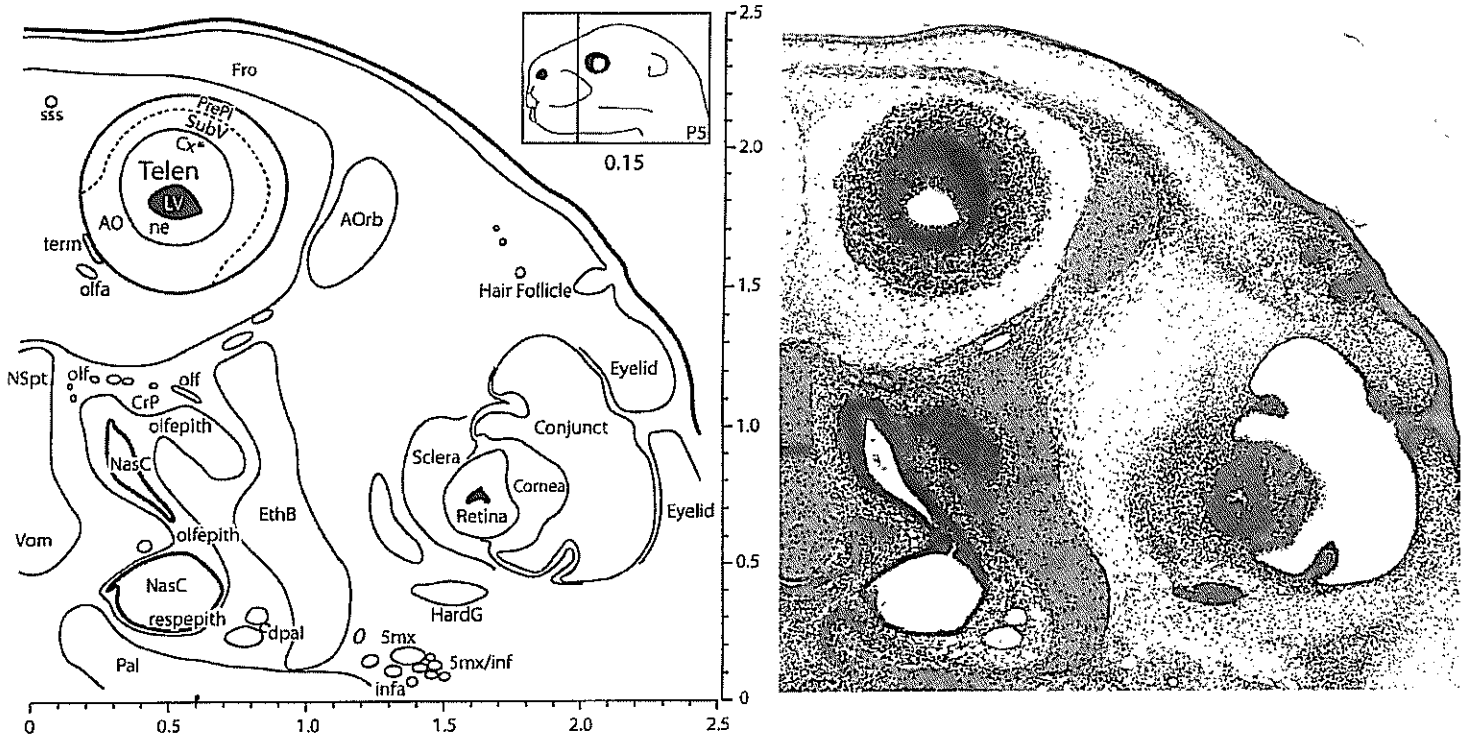
WP0-10

*	denotes precursor of structure	Aud	auditory neuroepithelium	Is	Isthmus	noto	notochord	sl	sulcus limitans
4n	trochlear nerve	bas	basilar artery	lf	lateral fissure	ntz	nuclear transitory zone (of Cb)	Sol	solitary nucleus
4V	4th ventricle	basal	basal plate	LL	nuclei of lateral lemniscus	Occ	occipital bone	sol	solitary tract
5Sol	trigeminal-solitary transition zone	BOcc	basioccipital bone	LPGi	lateral paragigantocellular nucleus	PAG	periaqueductal grey	sp5	spinal trigeminal tract
10N	vagus nerve nucleus	Cb	cerebellum	LR4V	lateral recess of 4th ventricle	ParB	parietal bone	Sp5I	spinal trigeminal nucleus, interpolaris
10n	vagus nerve	chp	choroid plexus	LVe	lateral vestibular nucleus	PB	parabrachial complex	SpVe	spinal vestibular nucleus
12N	hypoglossal nucleus	ECu	external cuneate nucleus	Mesen	mesencephalon	PCRt	parvicellular reticular nucleus	TempP	temporal bone, petrous
12n	hypoglossal nerve	ELD	endolymphatic duct	Meten	metencephalon	PSCD	post semicircular duct	trg	germinal trigone
alar	alar plate	Gi	gigantocellular reticular nucleus	mlf	medial longitudinal fasciculus	RPa	raphe pallidus nucleus	trs	transverse venous sinus
Amb	ambiguus nucleus	HSCD	horizontal semicircular duct	mne	median neuroepithelium	SC	superior colliculus	Ve	vestibular neuroepithelium
Aq	cerebral aqueduct	IC	inferior colliculus	MVe	medial vestibular nucleus	scba	superior cerebellar artery		
ASCD	anterior semicircular duct	lRt	intermediate reticular nucleus	Myelen	myelencephalon	scp	superior cerebellar peduncle		



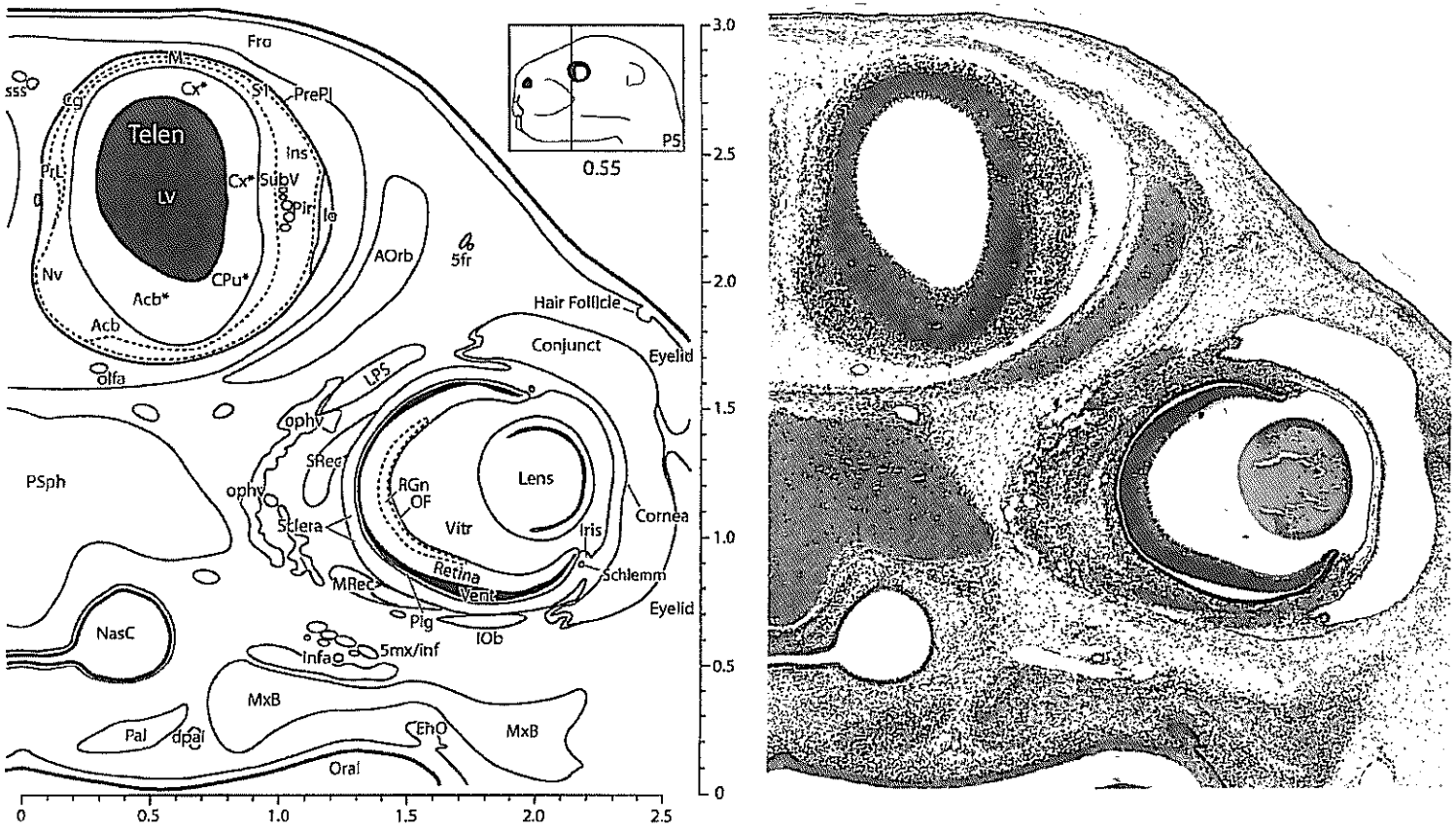
WP0-11

*	denotes precursor of structure	Cb	cerebellum	LPGi	lateral paragigantocellular nucleus	ParP	parietal bone plate	Sp5I	spinal trigeminal nu, interpolaris
4V	4th ventricle	chp	choroid plexus	LR4V	lateral recess of 4th ventricle	PCRt	parvicellular reticular nucleus	SpVe	spinal vestibular nucleus
5Sol	trigeminal-solitary transition zone	ectd	external carotid artery	lvs	lateral vestibulospinal tract	ROb	raphe obscurus nucleus	TempP	temporal bone, petrous
10N	vagus nerve motor nucleus	ECu	external cuneate nucleus	Mesen	mesencephalon	S10Gn	superior ganglion of 10n	trg	germinal trigone
12N	hypoglossal nucleus	ELD	endolymphatic duct	Meten	metencephalon	SC	superior colliculus	trs	transverse venous sinus
12n	hypoglossal nerve	ELS	endolymphatic sac	mlf	medial longitudinal fasciculus	sl	sulcus limitans	vert	vertebral artery
alar	alar plate	Gi	gigantocellular reticular nucleus	mne	median neuroepithelium	Sol	solitary nucleus		
basal	basal plate	IC	inferior colliculus	Myelen	myelencephalon	sol	solitary tract		
BOcc	basioccipital bone	IRt	intermediate reticular nucleus	ntz	nuclear transitory zone (of Cb)	sp5	spinal trigeminal tract		



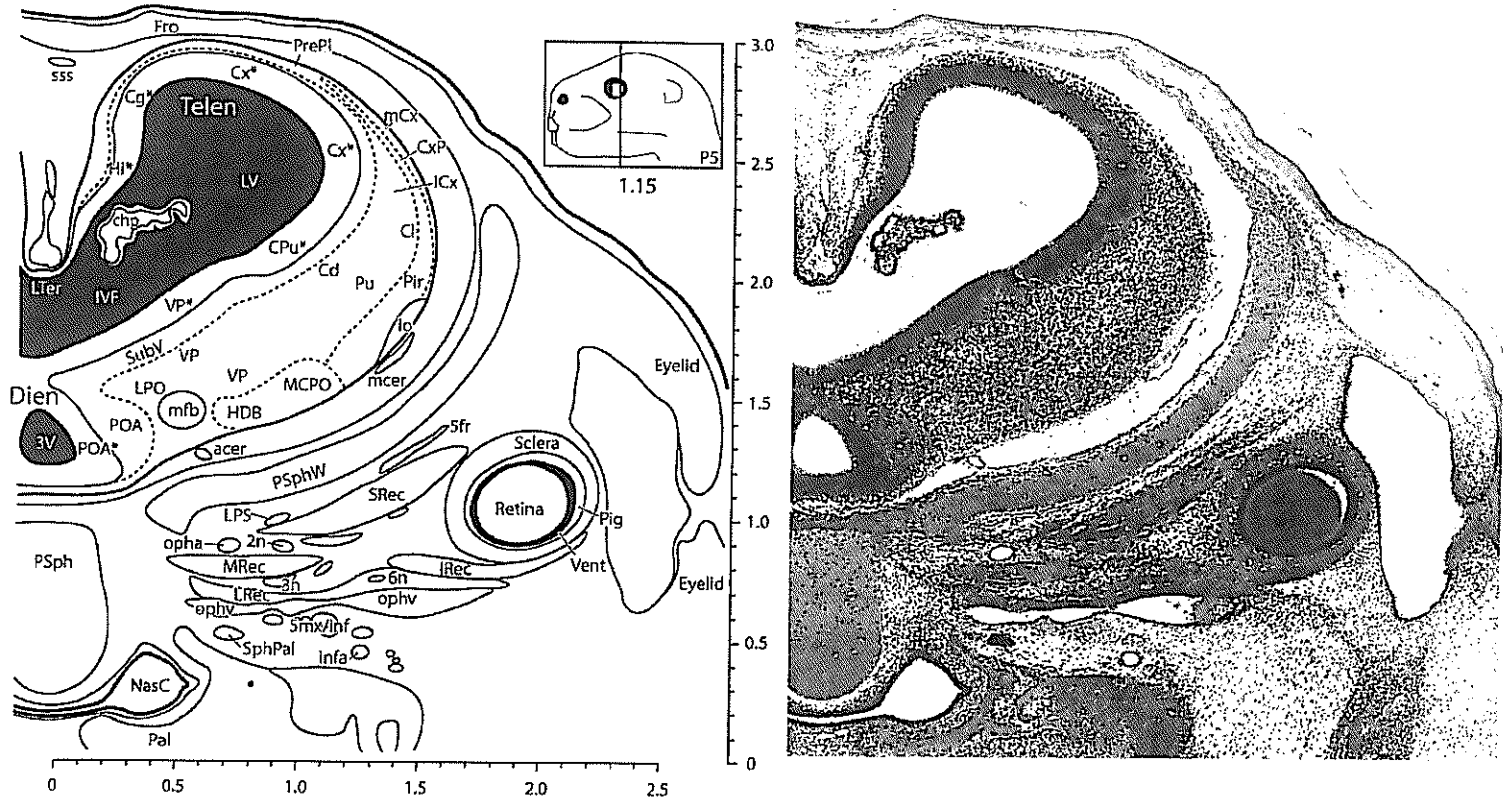
WP5-1

•	denotes precursor of structure
5mx	maxillary division of trigeminal nerve
5mx/inf	infraorbital nerve (branch of 5mx)
AO	anterior olfactory nucleus
AOrb	alar orbital bone
Conjunct	conjunctival sac
Cornea	cornea (limbus)
CrP	cribriform plate of ethmoid bone
Cx	cerebral cortex
dpal	descending palatine artery
EthB	ethmoid bone
Eyelid	eyelid
Fro	frontal bone
HardG	Harderian gland
infa	infraorbital artery
LV	lateral ventricle
NasC	nasal cavity
ne	neuroepithelium
NSpt	nasal septum
olf	olfactory nerve
olfa	olfactory artery
olfepith	olfactory epithelium (sensory)
Pal	palatine bone
PrePl	preplate of cortex
respepith	respiratory epithelium
Retina	retina (developing pigment epithelium)
sss	superior sagittal sinus
SubV	subventricular layer of cortex
Telen	telencephalon
term	terminal nerve
Vom	vomer (bone)



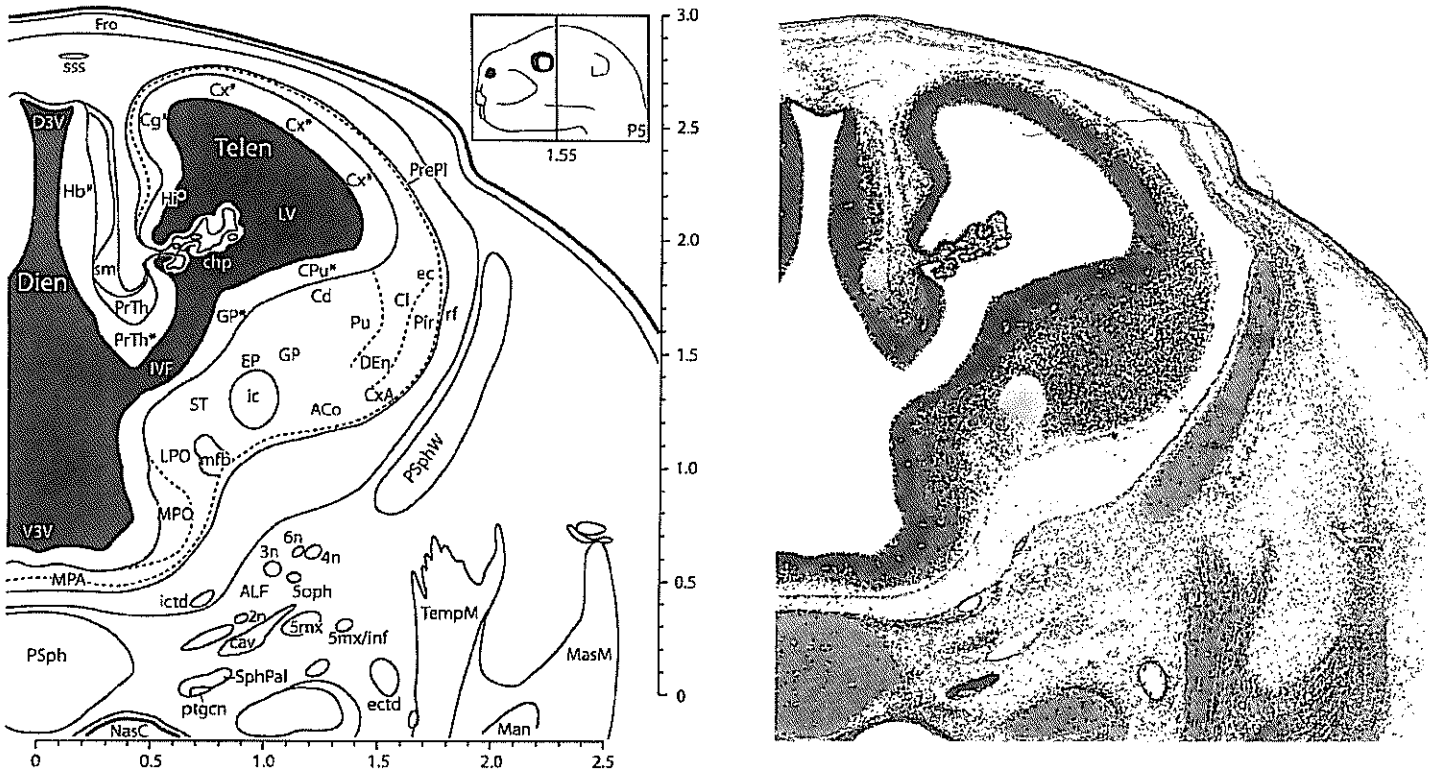
WP5-2

*	denotes precursor of structure	dpal	descending palatine artery	M	motor cortex	Pal	palatine bone	SRec	superior rectus muscle
5fr	frontal br. of ophthalm. trigeminal n.	EnO	enamel organ (of tooth)	MRec	medial rectus muscle	Pig	pigment layer of the eye	sss	superior sagittal sinus
5mx/inf	infraorbital nerve	Fro	frontal bone	MxB	maxillary bone	Pir	piriform cortex	SubV	subventricular layer of cortex
Acb	accumbens nucleus	infa	infraorbital artery	NasC	nasal cavity	PrePl	preplate of developing cortex	Telen	telencephalon
AOrb	alar orbital bone	Ins	insular cortex	Nv	navicular postolfactory nucleus	PrL	prelimbic cortex	Vent	ventricular space of the eye
Cg	cingulate cortex	IOb	inferior oblique muscle	OF	optic fibre layer of the retina	PSph	presphenoid bone	Vitr	vitreous cavity of the eye
Conjunct	conjunctival sac	Io	lateral olfactory tract	olfa	olfactory artery	RGn	ganglion cell layer of retina		
CPu	caudate putamen (striatum)	LPS	levator palpebrae superioris m.	ophv	ophthalmic vein	S1	primary somatosensory cortex		
Cx	cerebral cortex	LV	lateral ventricle	Oral	oral cavity	Schlemm	canal of Schlemm		



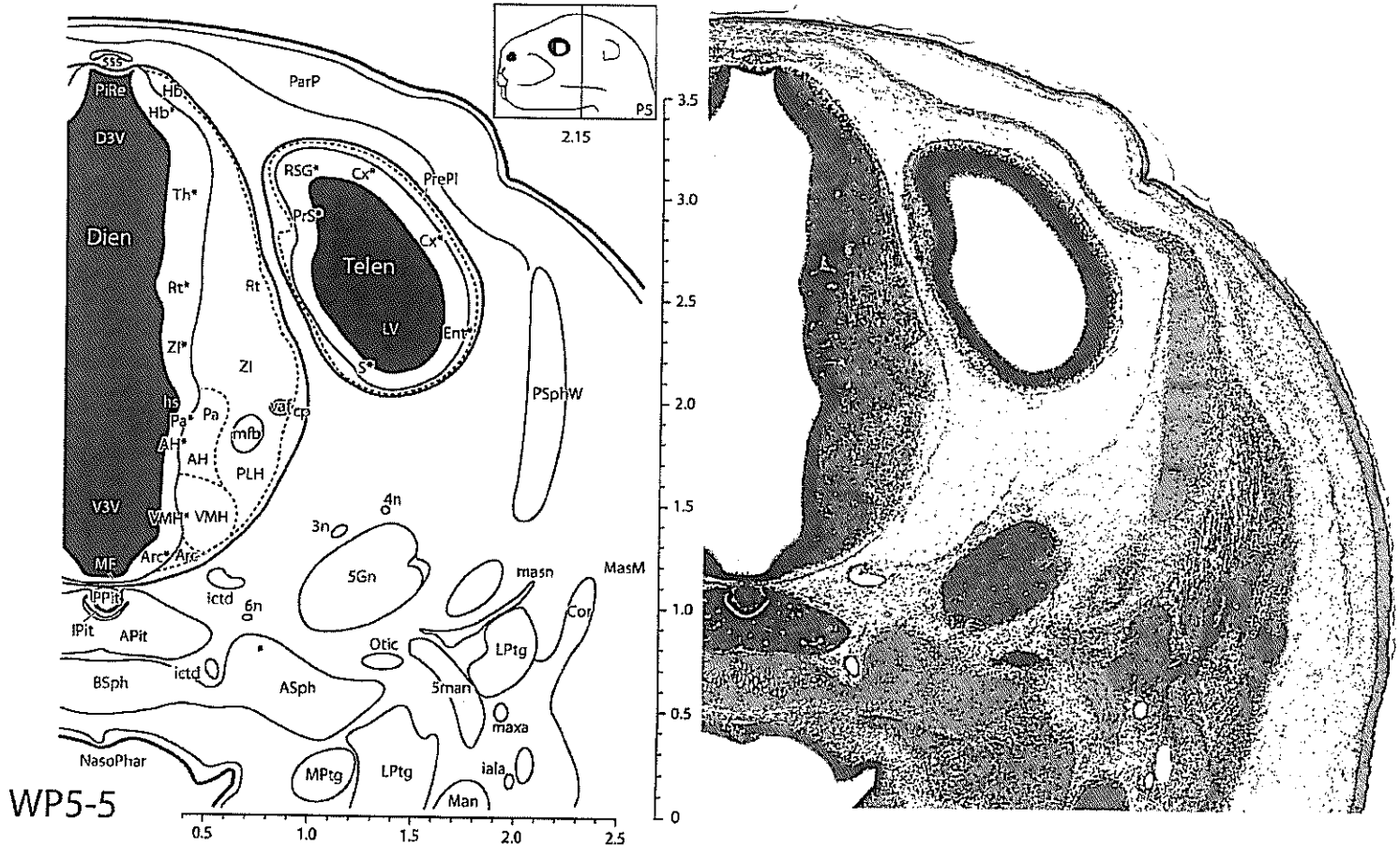
WP5-3

*	denotes precursor of structure
2n	optic nerve
3n	oculomotor nerve
3V	3rd ventricle
5fr	frontal branch of ophthalmic 5n
5mx/inf	infraorbital nerve
6n	abducens nerve
acer	anterior cerebral artery
Cd	caudate nucleus
Cg	cingulate cortex
chp	choroid plexus
Cl	claustrum
CPu	caudate putamen (striatum)
Cx	cerebral cortex
CxP	cortical plate
Dien	diencephalon
Fro	frontal bone
HDB	nucleus horiz. limb diagonal band
Hi	hippocampus
ICx	intermediate zone of cortex
infa	infraorbital artery
IRec	inferior rectus muscle
IVF	interventricular foramen
Io	lateral olfactory tract
LPO	lateral preoptic area
LPS	levator palpebrae superioris m.
LRec	lateral rectus muscle
LTer	lamina terminalis
LV	lateral ventricle
mcer	middle cerebral artery
MCPO	magnocellular preoptic nucleus
mCx	marginal zone of developing cortex
mfb	medial forebrain bundle
MRec	medial rectus muscle
NasC	nasal cavity
opha	ophthalmic artery
ophv	ophthalmic vein
Pal	palatine bone
Pig	pigment layer of the eye
Pir	piriform cortex
POA	preoptic area
PrePl	preplate of developing cortex
PSph	presphenoid bone
PSphW	presphenoid wing
Pu	putamen
SphPal	sphenopalatine ganglion
SRec	superior rectus muscle
sss	superior sagittal sinus
SubV	subventricular layer of Telen
Telen	telencephalon
Vent	ventricular space of the eye
VP	ventral pallidum

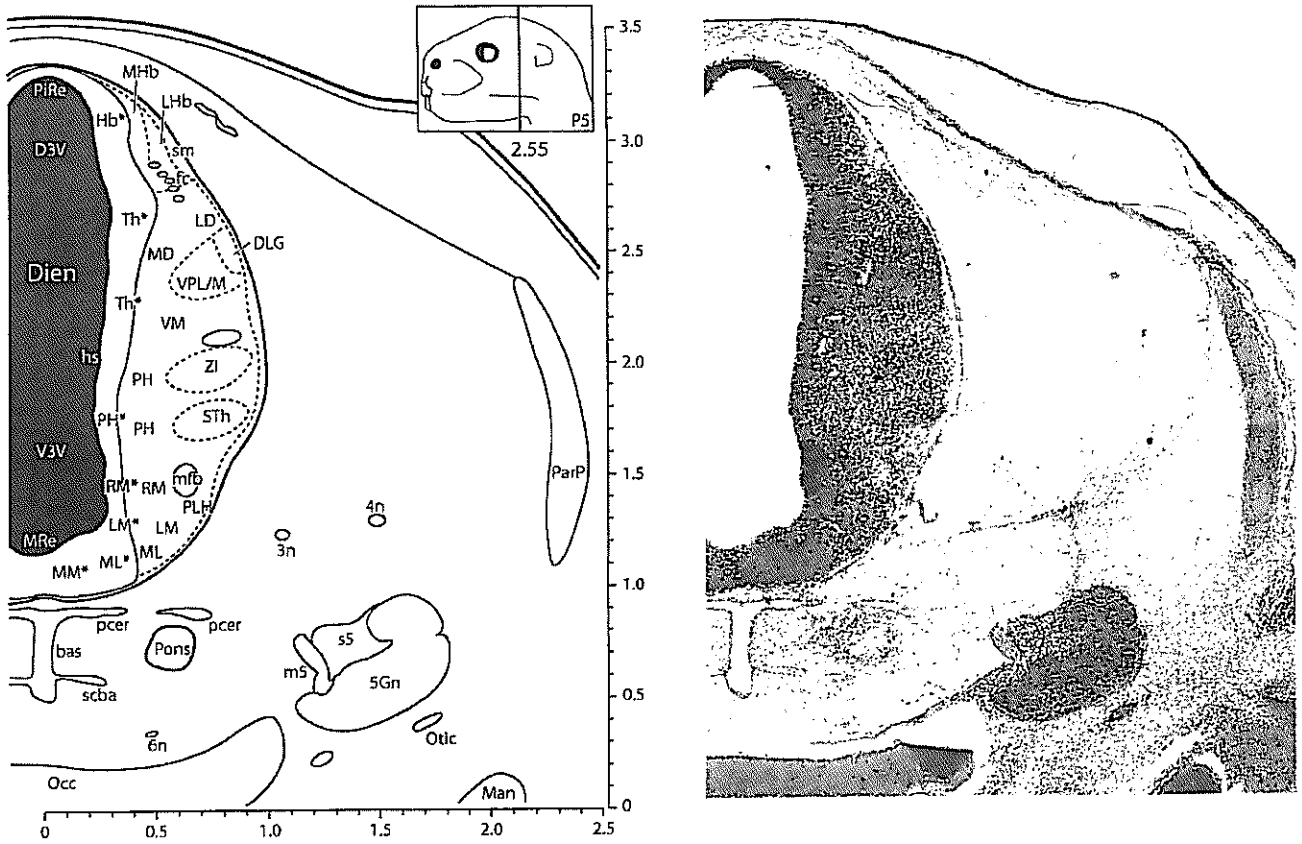


WP5-4

*	denotes precursor of structure	Cd	caudate nucleus	ectd	external carotid artery	Man	mandible	ptgcn	nerve of the pterygoid canal
2n	optic nerve	Cg	cingulate cortex	EP	entopeduncular nucleus (of pallidum)	MasM	masseter muscle	Pu	putamen
3n	oculomotor nerve	chp	choroid plexus	Fro	frontal bone	mfb	medial forebrain bundle	rf	rhinal fissure
4n	trochlear nerve	Cl	claustrum	GP	globus pallidus (of dorsal pallidum)	MPA	medial preoptic area	sm	stria meduliaris
5mx	maxillary division of trigeminal n.	CPu	caudate putamen (striatum)	Hb	habenular nuclei	MPO	medial preoptic nucleus	SphPal	sphenopalatine ganglion
5mx/inf	infraorbital nerve (branch of 5mx)	Cx	cerebral cortex	Hi	hippocampus	NasC	nasal cavity	sss	superior sagittal sinus
5oph	ophthalmic division of trigeminal n.	CxA	cortex-amygdala transition zone	ic	internal capsule fibres	Pir	piriform cortex	ST	bed nuclei of stria terminalis
6n	abducens nerve	D3V	dorsal 3rd ventricle	ictd	internal carotid artery	PrePl	preplate of developing cortex	Telen	telencephalon
ACo	anterior cortical amygdaloid area	DEn	dorsal endopiriform nucleus	IVF	interventricular foramen	PrTh	prethalamus (p3 derivative)	TempM	temporalis muscle
ALF	anterior lacerated foramen	Dien	diencephalon	LPO	lateral preoptic area	PSph	presphenoid bone	V3V	ventral third ventricle
cav	cavernous sinus	ec	external capsule	LV	lateral ventricle	PSphW	presphenoid wing		

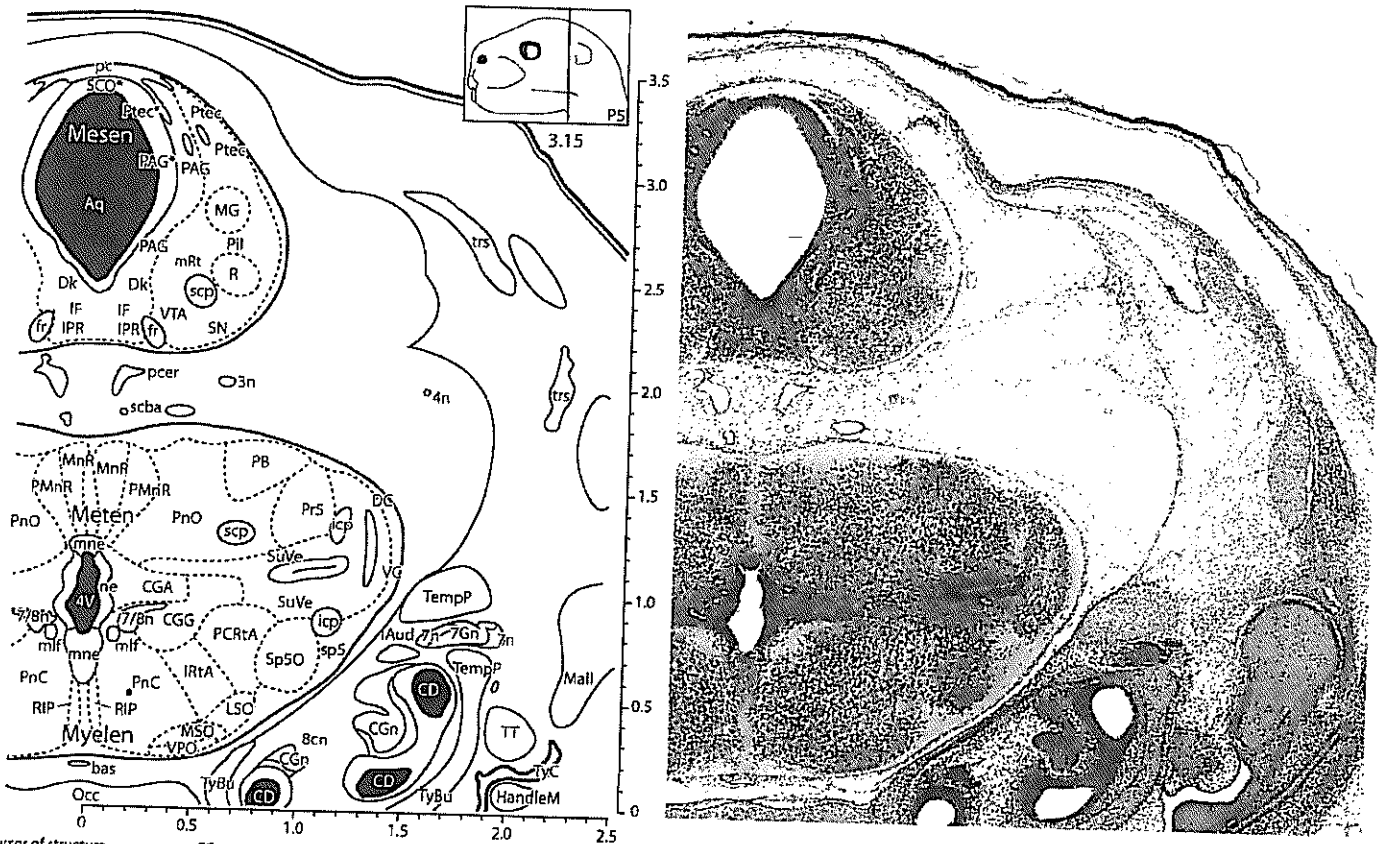


*	denotes precursor of structure	BSph	basisphenoid bone	ictd	internal carotid artery	MPtg	medial pterygoid muscle	PSphW	presphenoid wing
3n	oculomotor nerve	Cor	coronoid process of mandible	IPit	intermediate lobe of the pituitary	NasoPhar	nasopharynx	RSG	retrosplenial granular cortex
4n	trochlear nerve	cp	cerebral peduncle	LPtg	lateral pterygoid muscle	Otic	otic ganglion	Rt	reticular thal. nu. (prethalamus)
5Gn	trigeminal ganglion	Cx	cerebral cortex	LV	lateral ventricle	Pa	paraventricular hypothalamic nu.	S	subiculum
5man	mandibular division of trigeminal n.	D3V	dorsal 3rd ventricle	Man	mandible	ParP	parietal plate	sss	superior sagittal sinus
6n	abducens nerve	Dien	diencephalon	MasM	masseter muscle	PiRe	pineal recess of 3V	Telen	telencephalon
AH	anterior hypothalamic area	Ent	entorhinal cortex	masn	masseteric nerve (br. of 5man)	PLH	peduncular part of lateral hypothal.	Th	thalamus
APit	anterior lobe of pituitary	Hb	habenular nuclei	maxa	maxillary artery	PPit	posterior lobe of pituitary	V3V	ventral third ventricle
Arc	arcuate hypothalamic nucleus	hs	hypothalamic sulcus	ME	median eminence	PrePl	preplate of cortex	vaf	ventral amygdalofugal tract
ASph	alisphenoid bone	iala	inferior alveolar artery	mfb	medial forebrain bundle	PrS	presubiculum	VMH	ventromedial hypothalamic nu.
								ZI	zona incerta



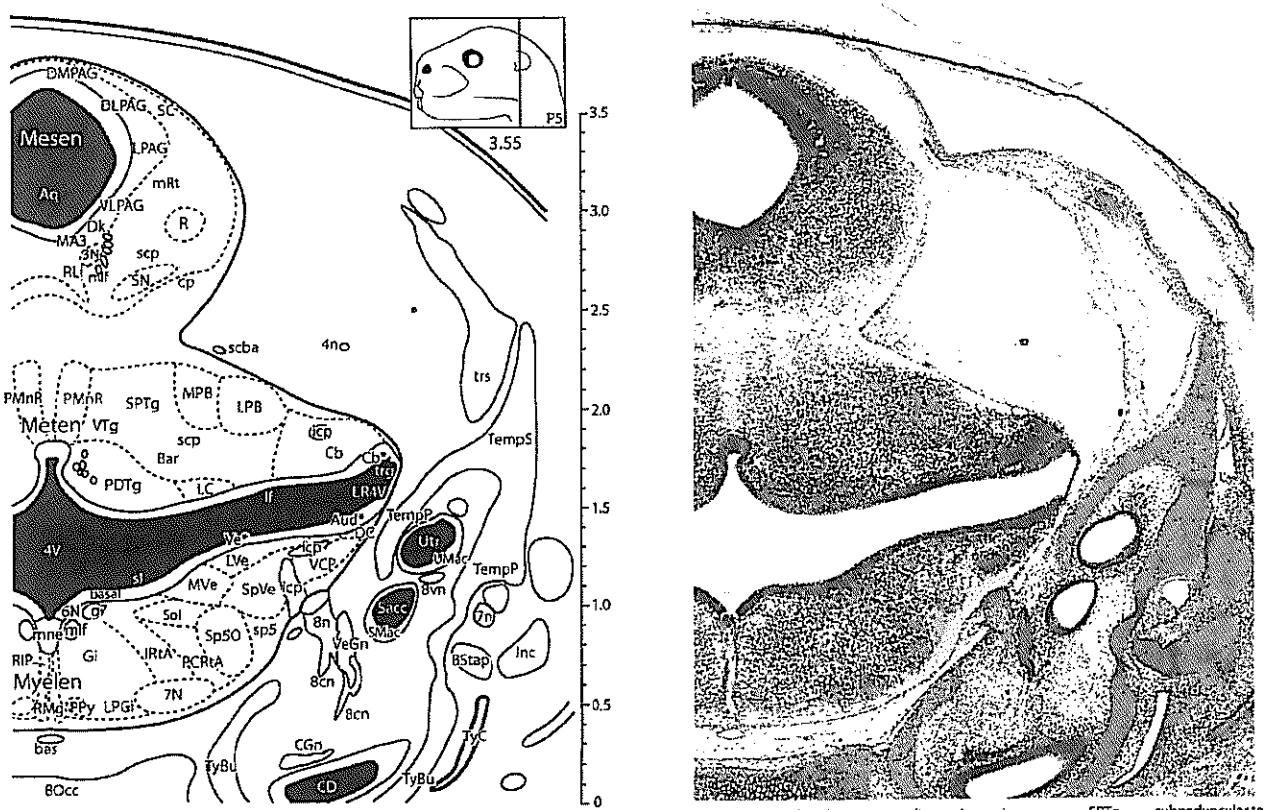
WP5-6

*	denotes precursor of structure	DLG	dorsal lateral geniculate nucleus	Man	mandible	Otic	otic ganglion	s5	sensory root of trigeminal nerve
3n	oculomotor nerve	fr	fasciculus retroflexus	MD	mediodorsal thalamic nucleus	ParP	parietal bone plate	scba	superior cerebellar artery
4n	trochlear nerve	Hb	habenular nuclei	mfb	medial forebrain bundle	pcer	posterior cerebral artery	sm	stria medullaris
5Gn	trigeminal ganglion	hs	hypothalamic sulcus	MHb	medial habenular nucleus	PH	posterior hypothalamic nucleus	STh	subthalamic nucleus
6n	abducens nerve	LD	laterodorsal thalamic nucleus	ML	medial mamillary nucleus, lateral part	PiRe	pineal recess of 3rd ventricle	Th	thalamus
bas	basilar artery	LHb	lateral habenular nucleus	MM	medial mamillary nucleus, medial part	PLH	peduncular part of lateral hypothal.	V3V	ventral third ventricle
D3V	dorsal 3rd ventricle	LM	lateral mamillary nucleus	MRe	mamillary recess of 3rd ventricle	Pons	pons	VM	ventromedial thalamic nu.
Dien	diencephalon	m5	motor root of trigeminal nerve	Occ	occipital bone	RM	retromamillary nucleus	VPL/M	ventral posterior thalamic nu.
								ZI	zona incerta



* denotes precursor of structure

3n oculomotor nerve
4n trochlear nerve
4V 4th ventricle
7/8n 7/8th (facial and vestibular efferent) n.
7Gn facial nerve ganglion
7n facial nerve
8cn cochlear root of vestibulocochlear nerve
Aq cerebral aqueduct
bas basilar artery
CD cochlear duct
CGA central grey, alpha part
CGG central grey, gamma part
CGn cochlear (spiral) ganglion
DC dorsal cochlear nucleus
Dk nucleus of Darkschewitsch
fr fasciculus retroflexus
HandleM handle of malleus (auditory ossicle)
IAud internal auditory meatus
icp inferior cerebellar peduncle
IF interfascicular nucleus
IPR interpeduncular nu., rostral subnu.
IRtA intermediate reticular nu., alpha
LSO lateral superior olive
Mall malleus (auditory ossicle)
Mesen mesencephalon
Meten metencephalon
MG medial geniculate nucleus
mlf medial longitudinal fasciculus
mne median neuroepithelium
MnR median raphe nucleus
mRt mesencephalic reticular formation
MSO medial superior olivary nucleus
Myelen myelencephalon
ne neuroepithelium
Occ occipital bone
PAG periaqueductal grey
PB parabrachial nuclear complex
pc posterior commissure
pcer posterior cerebral artery
PCRtA parvicellular reticular nu., alpha
PMnR paramedian raphe nucleus
PnC pontine reticular nucleus, caudal
PnO pontine reticular nucleus, oral
Pr5 principal sensory trigeminal nucleus
Ptec pretectum
R red nucleus
RIP raphe interpositus nucleus
scba superior cerebellar artery
SCO subcommissural organ
scp superior cerebellar peduncle
SN substantia nigra
sp5 spinal trigeminal tract
Sp5O spinal trigeminal nu., oral
SuVe superior vestibular nu.
TempP temporal bone, petrous
trs transverse venous sinus
TT tensor tympani muscle
TyBu tympanic bulla
TyC tympanic cavity
VC ventral cochlear nucleus
VPO ventral periolivary nu.
VTA ventral tegmental area

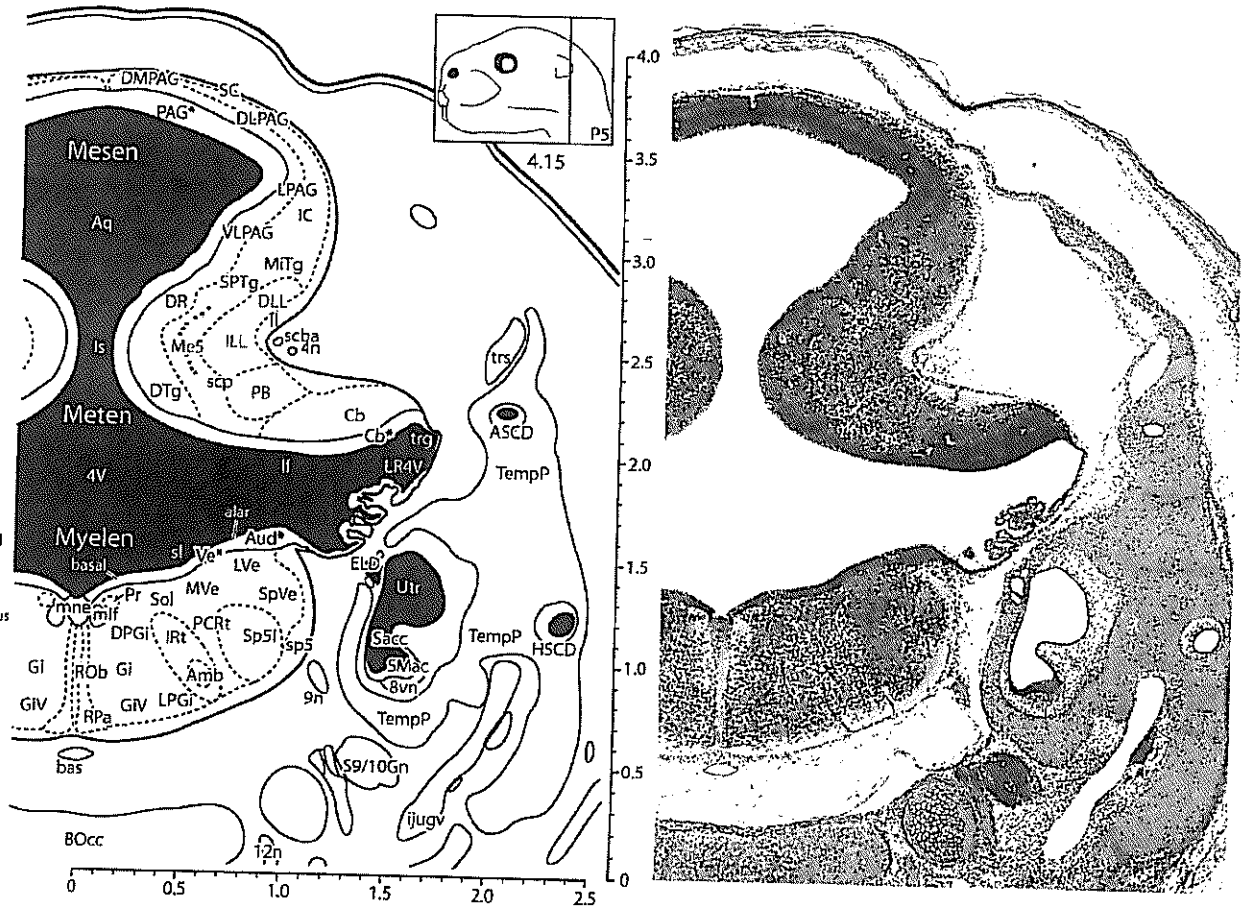


WP5-8

*	denotes precursor of structure	BStap	base of stapes (auditory ossicle)	LPAG	lateral periaqueductal grey	PMnR	paramedian raphe nucleus	SPTg	subpeduncular tegmental nucleus
3N	oculomotor nucleus	Cb	cerebellum	LPB	lateral parabrachial nucleus	PPy	parapyramidal nucleus	SpVe	spinal vestibular nucleus
4n	trochlear nerve	CD	cochlear duct	LPGi	lateral paragigantocellular nucleus	R	red nucleus	TempP	temporal bone, petrous
4V	4th ventricle	CGn	cochlear (spiral) ganglion	LR4V	lateral recess of 4th ventricle	RIP	raphe interpositus nucleus	TempS	temporal bone, squamous
6N	abducens nucleus	cp	cerebral peduncle	LVe	lateral vestibular nucleus	RLi	rostral linear nucleus (midbrain)	trg	germinal trigone
7N	facial nucleus	DC	dorsal cochlear nucleus	MA3	medial accessory oculomotor nucleus	RMg	raphe magnus nucleus	trs	transverse venous sinus
7n	facial nerve	Dk	nucleus of Darkschewitsch	Mesen	mesencephalon	Sacc	saccule of inner ear	TyBu	tympanic bulla
8cn	cochlear root of 8th nerve	DLPAG	dorsolateral periaqueductal grey	Meten	metencephalon	SC	superior colliculus	TyC	tympanic cavity
8n	vestibulocochlear nerve	DMPAG	dorsomedial periaqueductal grey	mlf	medial longitudinal fasciculus	scba	superior cerebellar artery	UMac	macula of the utricle
8vn	vestibular root of 8th nerve	g7	genu of the facial nerve	mne	median neuroepithelium	scp	superior cerebellar peduncle	Utr	utricle of the inner ear
Aq	cerebral aqueduct	Gi	gigantocellular reticular nucleus	MPB	medial parabrachial nucleus	sl	sulcus limitans	VCP	ventral cochlear nu., posterior
Aud	auditory neuroepithelium	icp	inferior cerebellar peduncle	mRt	mesencephalic reticular formation	SMac	macula of the saccule	Ve	vestibular neuroepithelium
Bar	Barrington's nucleus	Inc	incus (auditory ossicle)	MVe	medial vestibular nucleus	SN	substantia nigra	VeGn	vestibular nerve ganglion
bas	basilar artery	IRtA	intermediate reticular nucleus, alpha	Myelen	myelencephalon	Sol	solitary nucleus	VLPAG	ventrolateral periaqueductal grey
basal	basal plate of brainstem neuroepith.	LC	locus coeruleus	PCRtA	parvicellular reticular nucleus, alpha	sp5	spinal trigeminal tract	VTg	ventral tegmental nucleus
BOcc	basioccipital bone	lf	lateral fissure (of cerebellum)	PDTg	posterodorsal tegmental nucleus	Sp5O	spinal trigeminal nucleus, oral		

WP5-9

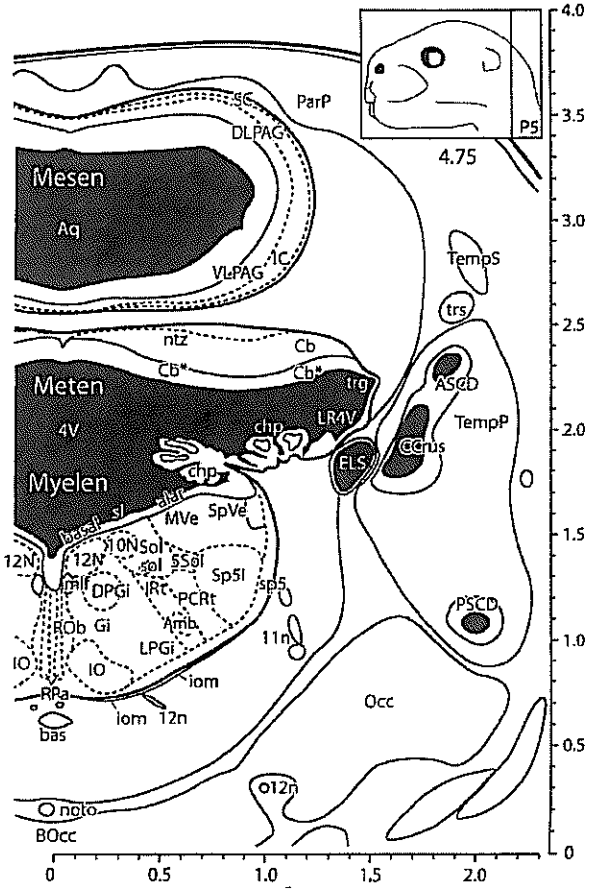
•	denotes precursor of structure
4n	trochlear nerve
4V	4th ventricle
8vn	vestibular root of 8th nerve
9n	glossopharyngeal nerve
12n	hypoglossal nerve
alar	alar plate of medulla neuroepith.
Amb	ambiguus nucleus
Aud	auditory neuroepithelium
Aq	cerebral aqueduct
ASCD	anterior semicircular duct
bas	basilar artery
basal	basal plate of medulla neuroepith.
BOcc	basioccipital bone
Cb	cerebellum
chp	choroid plexus
DLL	dorsal nucleus of lateral lemniscus
DLPAG	dorsolateral periaqueductal grey
DMPAG	dorsomedial periaqueductal grey
DPGi	dorsal paragigantocellular nucleus
DR	dorsal raphe nucleus
DTg	dorsal tegmental nucleus
ELD	endolymphatic duct
Gi	gigantocellular reticular nucleus
GiV	gigantocellular reticular nu., ventral
HSCD	horizontal semicircular duct
IC	inferior colliculus
ijugv	internal jugular vein
ILL	intermediate nu. of the lat. lemniscus
IRt	intermediate reticular nucleus
is	isthmus
lf	lateral fissure (of cerebellum)
ll	lateral lemniscus
LPAG	lateral periaqueductal grey
LPGi	lateral paragigantocellular nucleus
LR4V	lateral recess of 4th ventricle
LVe	lateral vestibular nucleus
Me5	mesencephalic trigeminal nucleus
Mesen	mesencephalon
Meten	metencephalon
MiTg	microcellular tegmental nucleus
mlf	medial longitudinal fasciculus
mne	median neuroepithelium
MVe	medial vestibular nucleus
Myelen	myelencephalon
PAG	periaqueductal grey
PB	parabrachial complex
PCRt	parvicellular reticular nucleus
Pr	prepositus nucleus
ROb	raphe obscurus nucleus
RPa	raphe pallidus nucleus
S9/10Gn	superior ganglion of 9n and 10n
Sacc	saccule of the inner ear

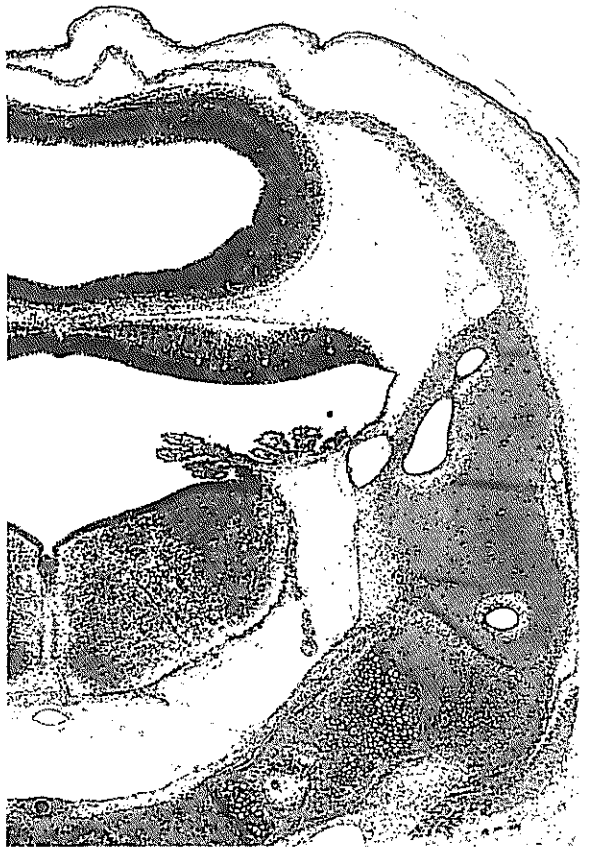


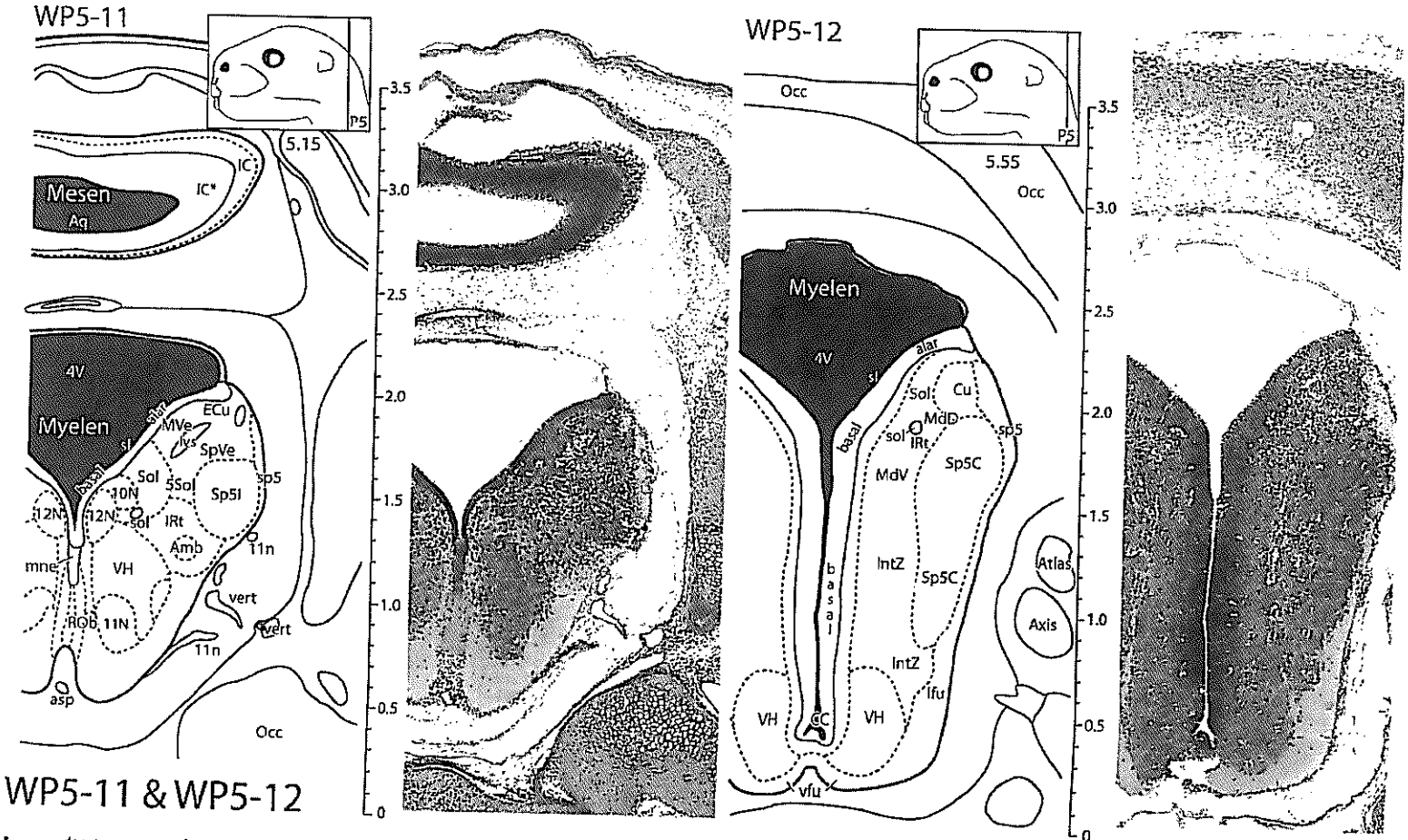
SC	superior colliculus
scba	superior cerebellar artery
scp	superior cerebellar peduncle
sl	sulcus limitans
SMac	macula of the saccule
Sol	solitary nucleus
sp5	spinal trigeminal tract
Sp5I	spinal trigeminal nucleus, interpolaris part
SPTg	subpeduncular tegmental nucleus
SpVe	spinal vestibular nucleus
TempP	temporal bone, petrous
trg	germinal trigone
trs	transverse venous sinus
Utr	utricle of the inner ear
Ve	vestibular neuroepithelium
VLPAG	ventrolateral periaqueductal grey

WP5-10

*	denotes precursor of structure
4V	4th ventricle
5Sol	trigeminal-solitary transition zone
10N	vagus nerve motor nucleus
11n	accessory nerve
12N	hypoglossal nucleus
12n	hypoglossal nerve
alar	alar plate of medullary neuroepith.
Amb	ambiguus nucleus
Aq	cerebral aqueduct
ASCD	anterior semicircular duct
bas	basilar artery
basal	basal plate of medullary neuroepith.
BOcc	basioccipital bone
Cb	cerebellum
CCrus	common crus of semicircular ducts
chp	choroid plexus
DLPAG	dorsolateral periaqueductal grey
DPGi	dorsal paragigantocellular nucleus
ELS	endolymphatic sac
Gi	gigantocellular reticular nucleus
IC	inferior colliculus
IO	inferior olivary nuclear complex
iom	inferior olivary migration
IRt	intermediate reticular nucleus
LPGi	lateral paragigantocellular nucleus
LR4V	lateral recess of 4th ventricle
Mesen	mesencephalon
Meten	metencephalon
mlf	medial longitudinal fasciculus
MVe	medial vestibular nucleus
Myelen	myelencephalon
noto	notochord
ntz	nuclear transitory zone (of cerebellum)
Occ	occipital bone
ParP	parietal bone plate
PCRt	parvicellular reticular nucleus
PSCD	posterior semicircular duct
ROb	raphe obscurus nucleus
RPa	raphe pallidus nucleus
SC	superior colliculus
sl	sulcus limitans
Sol	solitary nucleus
sol	solitary tract
spS	spinal trigeminal tract
SpSI	spinal trigeminal nucleus, interpolaris part
SpVe	spinal vestibular nucleus
TempP	temporal bone, petrous part
TempS	temporal bone, squamous part
trg	germinal trigone
trs	transverse venous sinus
VLPAG	ventrolateral periaqueductal grey

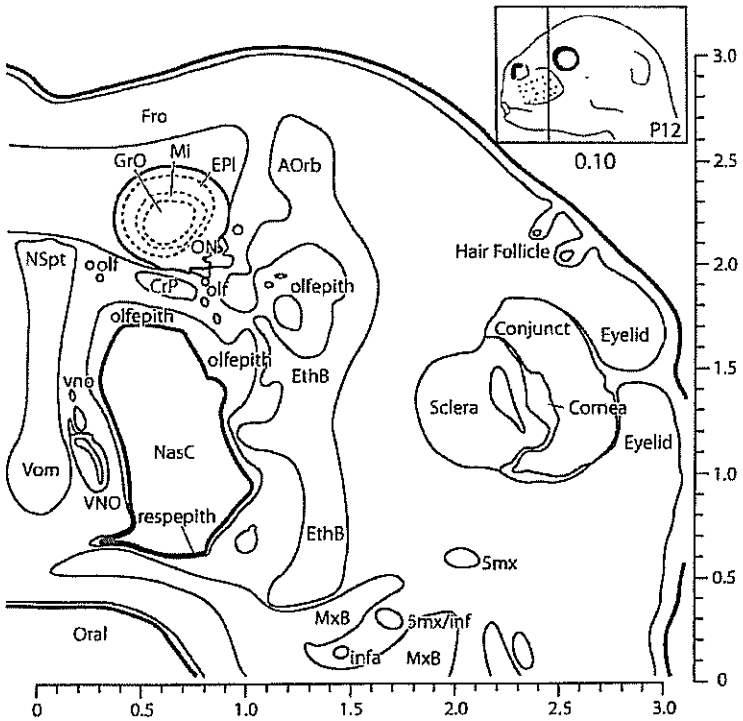






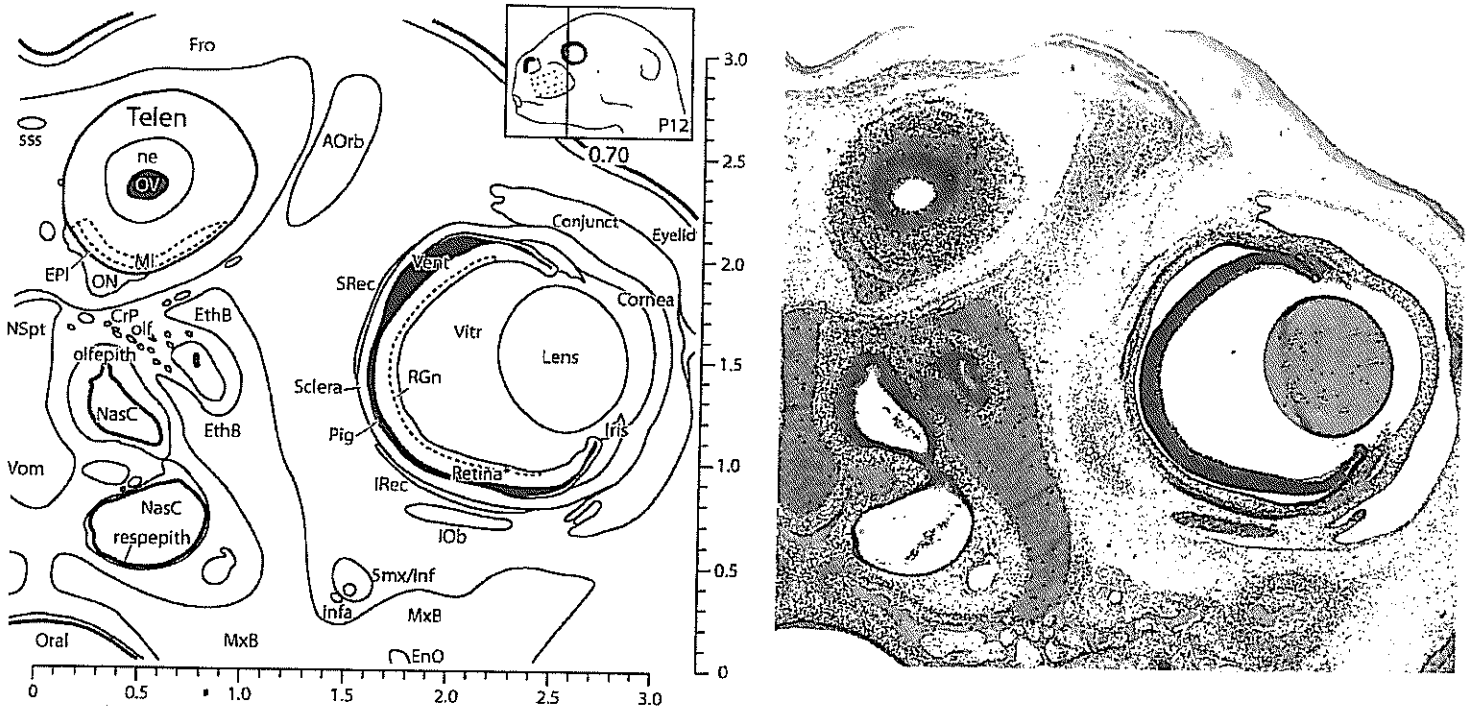
WP5-11 & WP5-12

*	denotes precursor of structure
4V	4th ventricle
5Sol	trigeminal-solitary transition zone
10N	vagus nerve motor nucleus
11N	accessory nerve nucleus
11n	accessory nerve
12N	hypoglossal nucleus
alar	alar plate of medullary neuroepithelium
Amb	ambiguus nucleus
Aq	cerebral aqueduct
asp	anterior spinal artery
Atlas	atlas (C1 vertebra)
Axis	axis (C2 vertebra)
basal	basal plate of medulla or SpC
CC	central canal of spinal cord
Cu	cuneate nucleus
ECu	external cuneate nucleus
IC	inferior colliculus
IntZ	intermediate zone of spinal cord
IRt	intermediate reticular nucleus (medulla)
lfu	lateral funiculus of spinal cord
lvs	lateral vestibulospinal tract
MdD	medullary reticular nucleus, dorsal
MdV	medullary reticular nucleus, ventral
Mesen	mesencephalon
mne	median neuroepithelium (of medulla)
MVe	medial vestibular nucleus
Myelen	myelencephalon
Occ	occipital bone
ROb	raphe obscurus nucleus
sl	sulcus limitans
Sol	solitary nucleus
sol	solitary tract
sp5	spinal trigeminal tract
Sp5C	spinal trigeminal nucleus, caudalis part
Sp5I	spinal trigeminal nucleus, interpolaris part
SpVe	spinal vestibular nucleus
vert	vertebral artery
vfu	ventral funiculus of spinal cord
VH	ventral horn of spinal cord



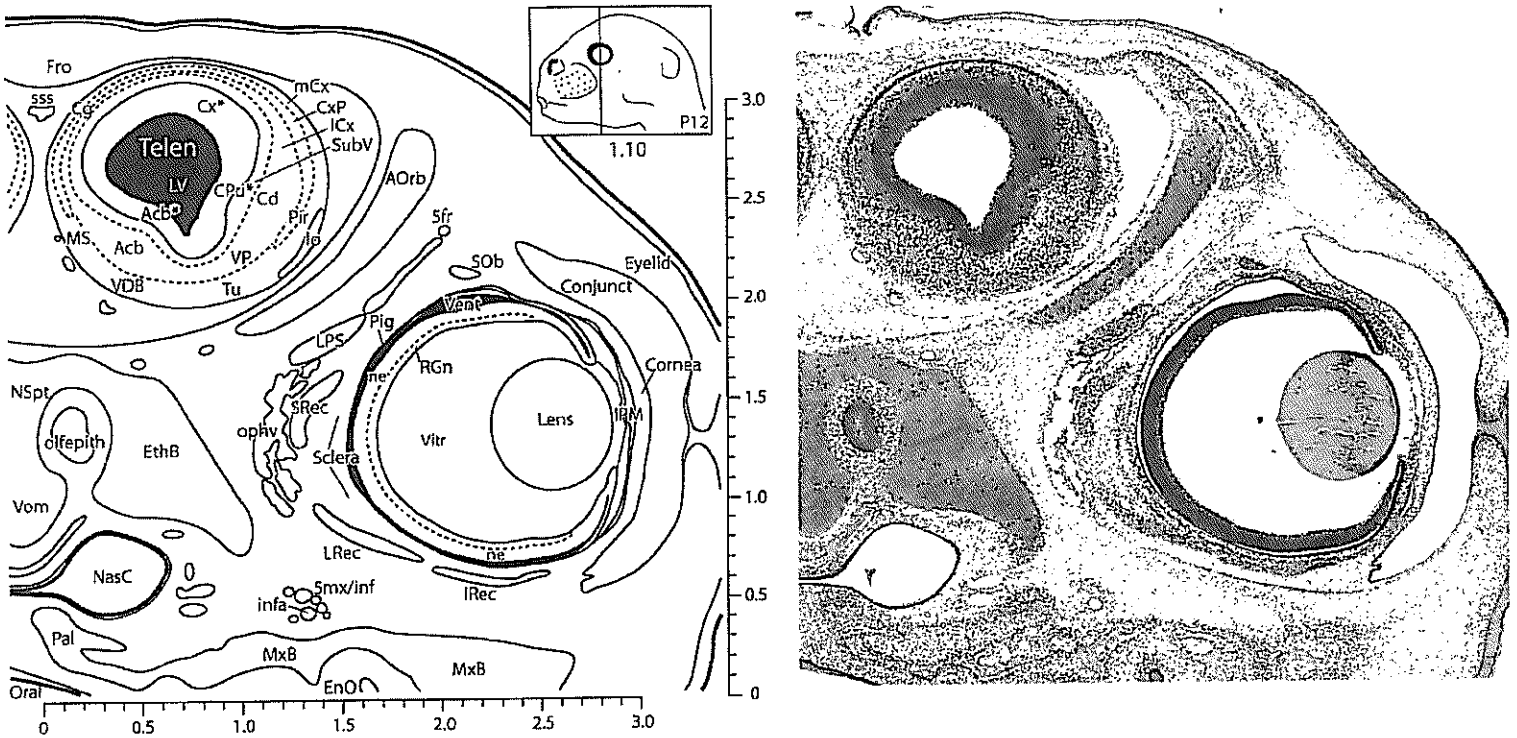
WP12-1

5mx	maxillary division of trigeminal nerve
5mx/inf	infraorbital nerve (branch of 5mx)
AOrb	alar orbital bone
Conjunct	conjunctival sac
Cornea	cornea
CrP	cribriform plate of ethmoid bone
EPl	external plexiform layer of olfactory bulb
EthB	ethmoid bone
Fro	frontal bone
GrO	granular cell layer of olfactory bulb
infa	infraorbital artery
Mi	mitral cell layer of olfactory bulb
MxB	maxillary bone
NasC	nasal cavity
NSpt	nasal septum
olf	olfactory nerve
olfepith	olfactory epithelium
ON	olfactory nerve fibre layer of olfactory bulb
Oral	oral cavity
respepith	respiratory epithelium of nasal cavity
VNO	vomeronasal organ
vno	vomeronasal nerve
Vom	vomer (bone)



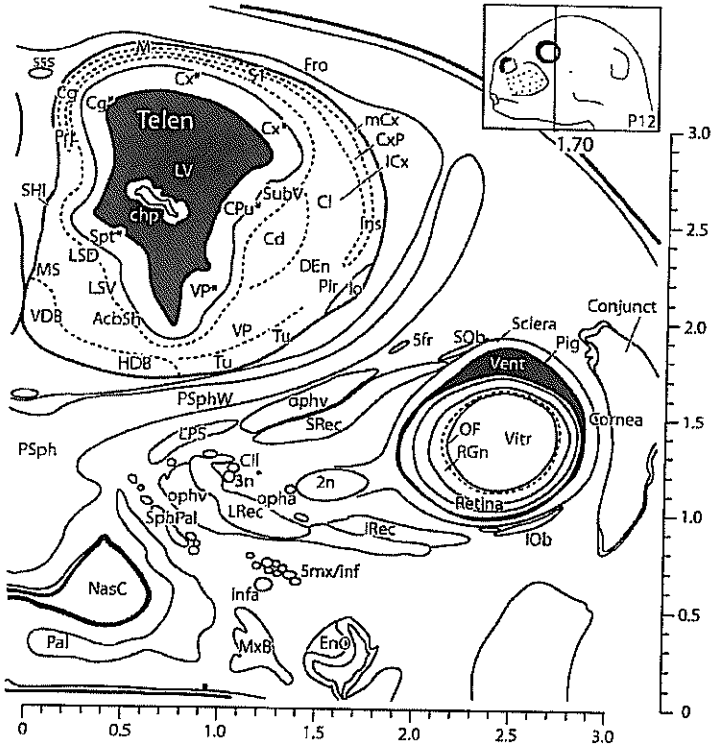
WP12-2

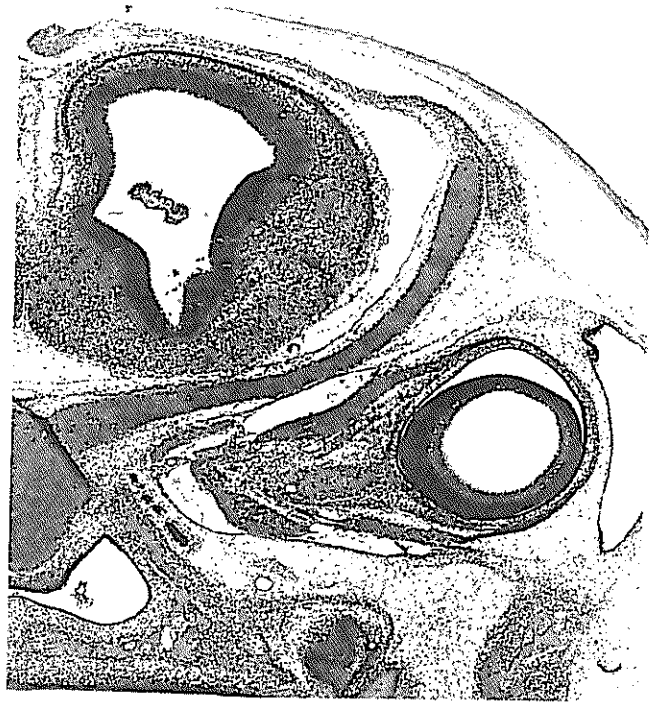
Smx/Inf	infraorbital nerve (branch of maxillary division)
AOrb	alar orbital bone
Conjunct	conjunctival sac
Cornea	cornea
CrP	cribriform plate of ethmoid bone
EnO	enamel organ of tooth
EPI	external plexiform layer of olfactory bulb
EthB	ethmoid bone
Eyelid	eyelid
Fro	frontal bone
Infa	infraorbital artery
IOb	inferior oblique muscle
IRec	inferior rectus muscle
Iris	iris
Lens	lens
MI	mitral cell layer of olfactory bulb
MxB	maxillary bone
NasC	nasal cavity
ne	neuroepithelium (of telencephalon)
NSpt	nasal septum
olf	olfactory nerve
olfepith	olfactory epithelium
ON	olfactory nerve layer (of olfactory bulb)
Oral	oral cavity
OV	olfactory ventricle (of telencephalon)
Pig	pigment layer of the eye
respepith	respiratory epithelium
Retina	retina
RGn	ganglion cell layer of retina
SRec	superior rectus muscle
sss	superior sagittal sinus
Telen	telencephalon
Vent	ventricular space of the eye
Vitr	vitreous cavity of eye
Vom	vomer (bone)



WP12-3

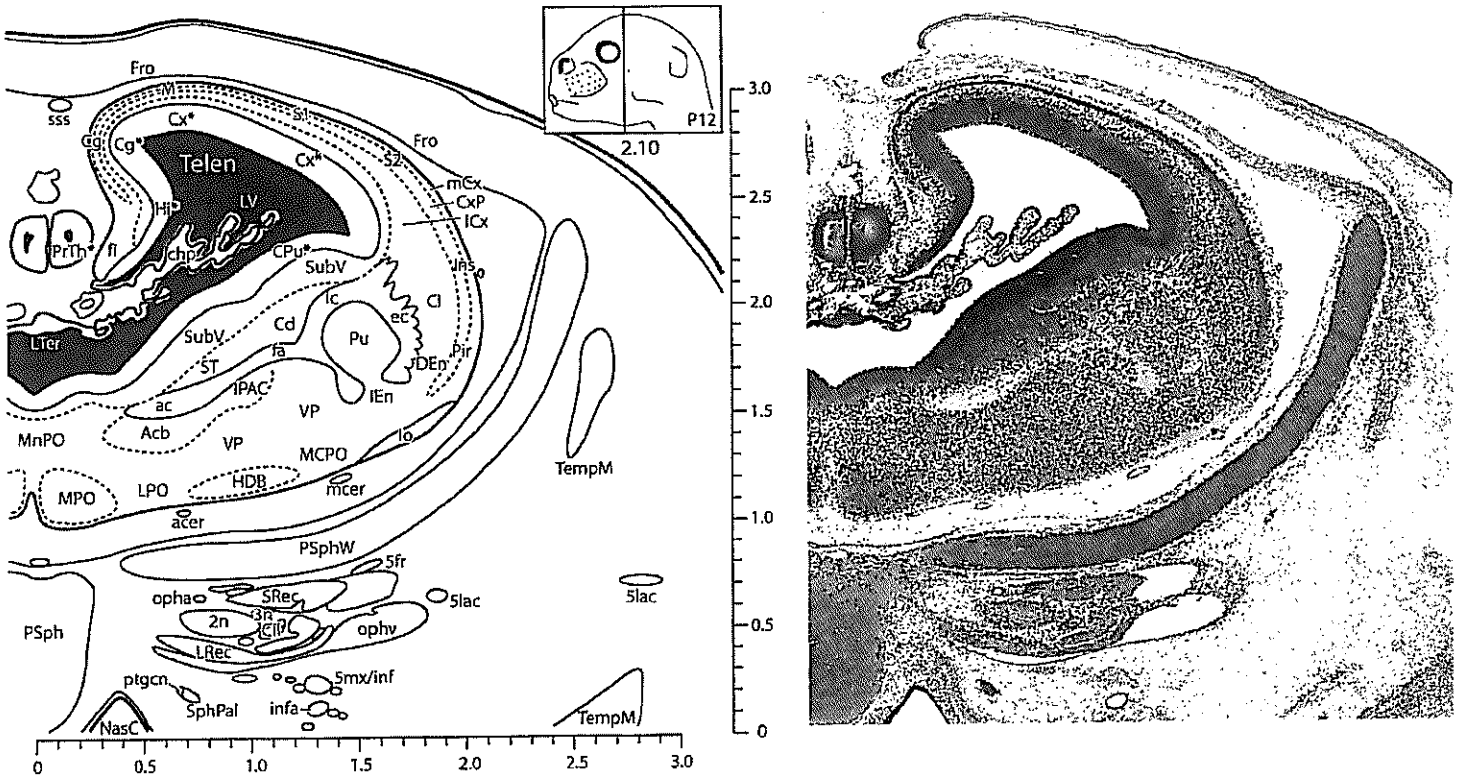
•	denotes precursor of structure
5fr	frontal branch of ophthalmic trigeminal nerve
5mx/inf	infraorbital nerve (branch of 5mx)
Acb	accumbens nucleus
AOrb	alar orbital bone
Cd	caudate nucleus
Cg	cingulate cortex
Conjunct	conjunctival sac
Cornea	cornea
CPu	caudate putamen (striatum)
Cx	cerebral cortex
CxP	cortical plate
EnO	enamel organ of tooth
EthB	ethmoid bone
Eyelid	eyelid
Fro	frontal bone
ICx	intermediate zone of cortex
infa	infraorbital artery
IPM	iridopupillary membrane
IRec	inferior rectus muscle
Lens	lens
lo	lateral olfactory tract
LPS	levator palpebrae superioris muscle
LRec	lateral rectus muscle
LV	lateral ventricle
mCx	marginal zone of developing cortex
MS	medial septal nucleus
MxB	maxillary bone
NasC	nasal cavity
ne	neuroepithelium (of telencephalon)
NSpt	nasal septum
olfepith	olfactory epithelium
ophv	ophthalmic vein
Oral	oral cavity
Pal	palatine bone
Pig	pigment layer of the eye
Pir	piriform cortex
RGn	ganglion cell layer of retina
SOb	superior oblique muscle
SRec	superior rectus muscle
sss	superior sagittal sinus
SubV	subventricular layer of cortex and striatum
Telen	telencephalon
Tu	olfactory tubercle
VDB	nucleus of vertical limb of diagonal band
Vent	ventricular space of the eye
Vitr	vitreous cavity of eye
Vom	vomer (bone)
VP	ventral pallidum





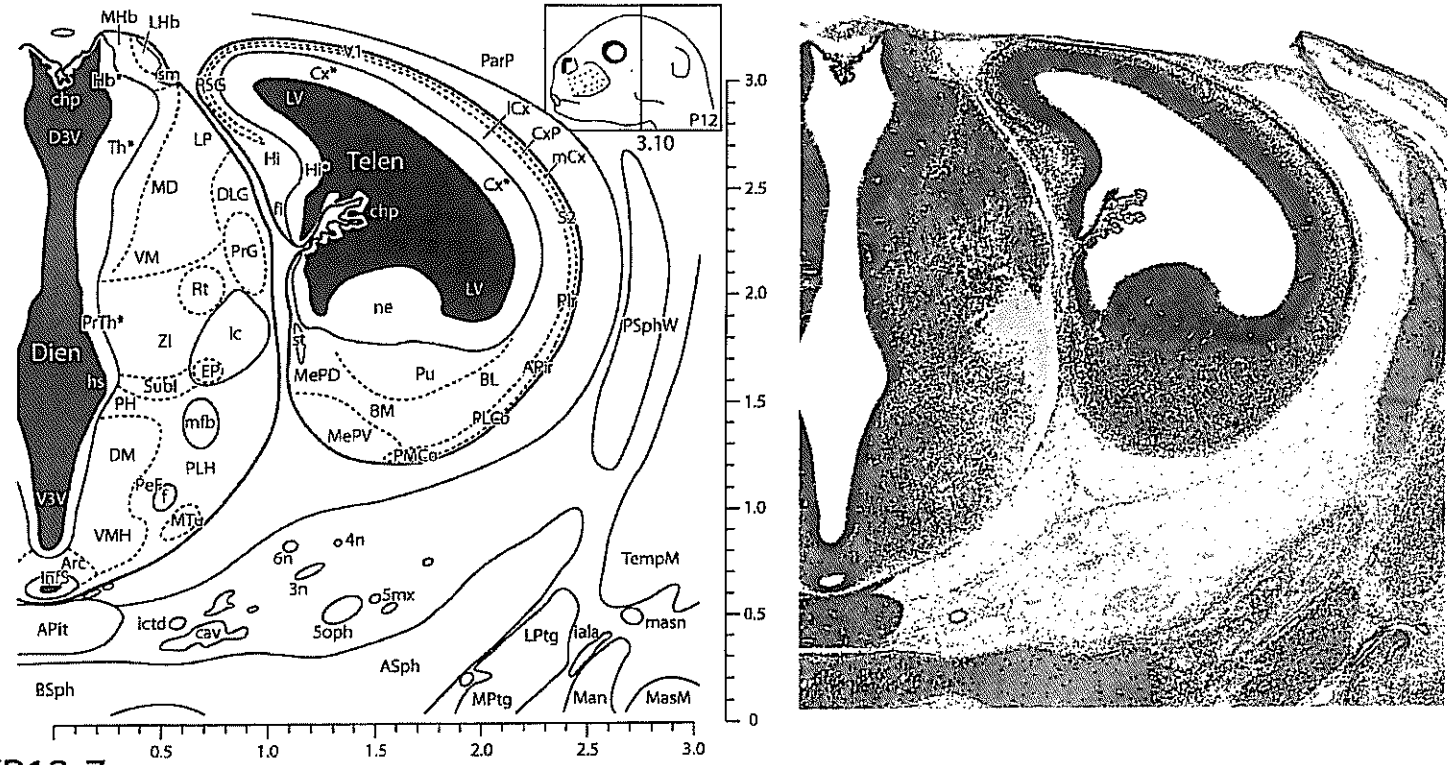
WP12-4

*	denotes precursor of structure
2n	optic nerve
3n	oculomotor nerve
5fr	frontal br of ophthalmic 5n
5mx/inf	infraorbital n. (br. of 5mx)
AcbSh	accumbens nu., shell
Cd	caudate nucleus
Cg	cingulate cortex
chp	choroid plexus
Cll	ciliary ganglion
Cl	claustrum
Conjunct	conjunctival sac
CPu	caudate putamen (striatum)
Cx	cerebral cortex
CxP	cortical plate
DEn	dorsal endopiriform nu.
EnO	enamel organ
Fro	frontal bone
HDB	nu. horiz limb diagonal band
ICx	intermediate zone of cortex
infa	infraorbital artery
Ins	insular cortex
IOb	inferior oblique muscle
IRec	inferior rectus muscle
Io	lateral olfactory tract
LPS	levator palpebrae superioris muscle
LRec	lateral rectus muscle
LSD	lateral septal nu, dorsal part
LSV	lateral septal nu, ventral part
LV	lateral ventricle
M	motor cortex
mCx	marginal zone of developing cx
MS	medial septal nu.
MxB	maxillary bone
NasC	nasal cavity
OF	optic fibre layer of the retina
opha	ophthalmic artery
ophv	ophthalmic vein
Pal	palatine bone
Pig	pigment layer of the eye
Pir	piriform cortex
PrL	prelimbic cortex
PSph	presphenoid bone
PSphW	presphenoid wing
Retina	retina
RGn	retinal ganglion cell layer
S1	primary somatosensory cx
SHi	septohippocampal nu.
SOb	superior oblique muscle
SphPal	sphenopalatine ganglion
Spt	septum
SRec	superior rectus muscle
sss	superior sagittal sinus
SubV	subventricular layer (striatum and cx)
Telen	telencephalon
Tu	olfactory tubercle
VDB	nu. vertical limb diagonal band
Vent	ventricular space of the eye
Vitr	vitreous cavity of eye
VP	ventral pallidum



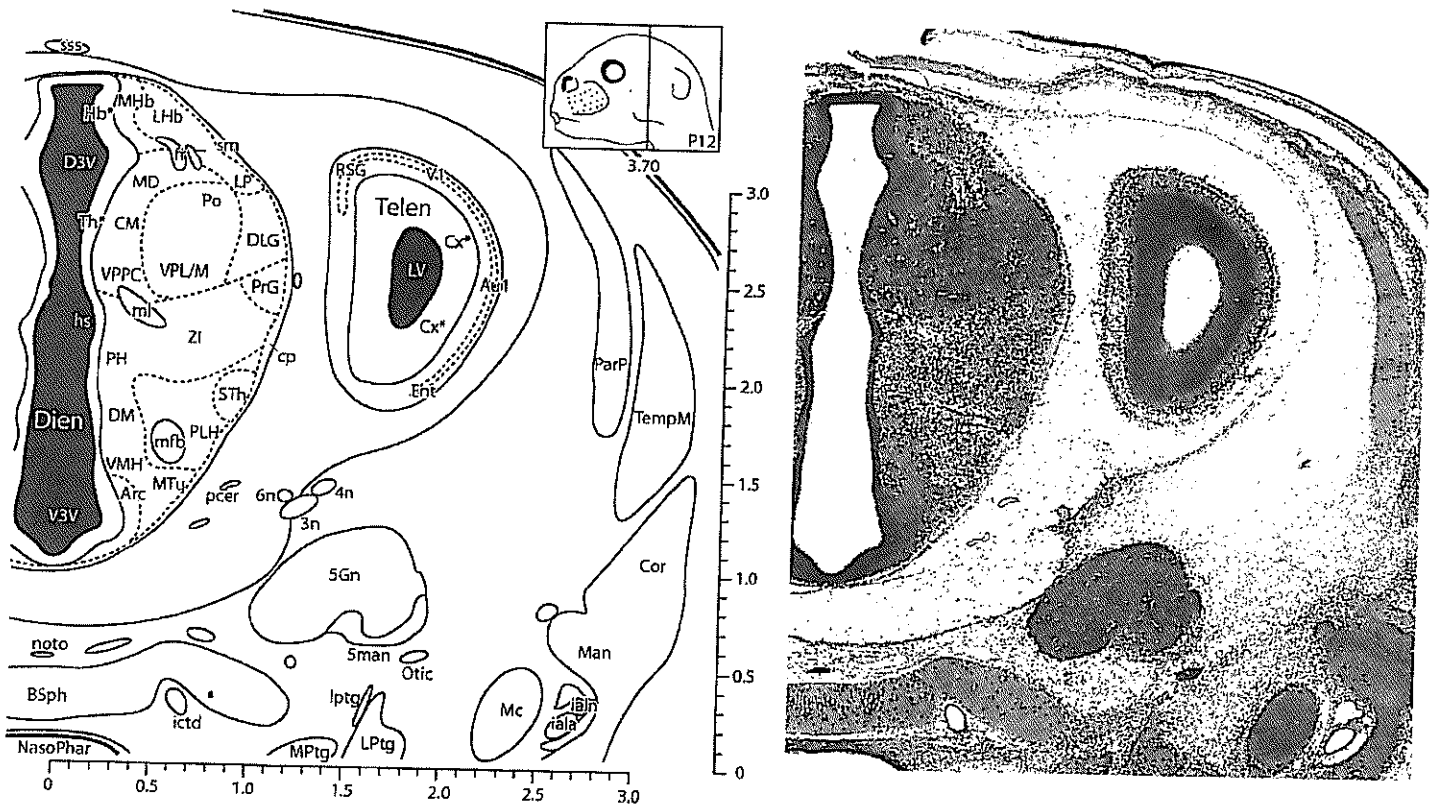
WP12-5

*	denotes precursor of structure	Cil	ciliary ganglion	Ic	internal capsule	mcer	middle cerebral artery	ptgcn	nerve of the pterygoid canal
2n	optic nerve	Cl	claustrum	ICx	intermediate zone of cortex	MCPO	magnocellular preoptic nucleus	Pu	putamen (striatum)
3n	oculomotor nerve	CPu	caudate putamen (striatum)	IEn	intermediate endopiriform nu.	mCx	marginal zone of developing cortex	S1	primary somatosensory cx
5fr	frontal br. of ophthalmic 5n	Cx	cerebral cortex	infa	infraorbital artery	MnPO	median preoptic nucleus	S2	secondary somatosensory cx
5lac	lacrimal br. of ophthalmic 5n	CxP	cortical plate	Ins	insular cortex	MPO	medial preoptic nucleus	SphPal	sphenopalatine ganglion
5mx/inf	infraorbital nerve	DEn	dorsal endopiriform nu.	IPAC	interstitial nucleus post. limb ac	NasC	nasal cavity	SRec	superior rectus muscle
ac	anterior commissure	ec	external capsule	Io	lateral olfactory tract	opha	ophthalmic artery	sss	superior sagittal sinus
Acb	accumbens nucleus	fa	fasciculus aberrans	LPO	lateral preoptic area	ophv	ophthalmic vein	ST	bed nuclei of stria terminalis
acer	anterior cerebral artery	fi	fimbria of the hippocampus	LRec	lateral rectus muscle	Pir	piriform cortex	SubV	subventricular layer cx and striatum
Cd	caudate nucleus (striatum)	Fro	frontal bone	LTer	lamina terminalis	PrTh	prethalamus	Telen	telencephalon
Cg	cingulate cortex	HDB	nucleus of horiz. limb diagonal band	LV	lateral ventricle	PSph	presphenoid bone	TempM	temporalis muscle
chp	choroid plexus	Hi	hippocampus	M	motor cortex	PSphW	presphenoid wing	VP	ventral pallidum



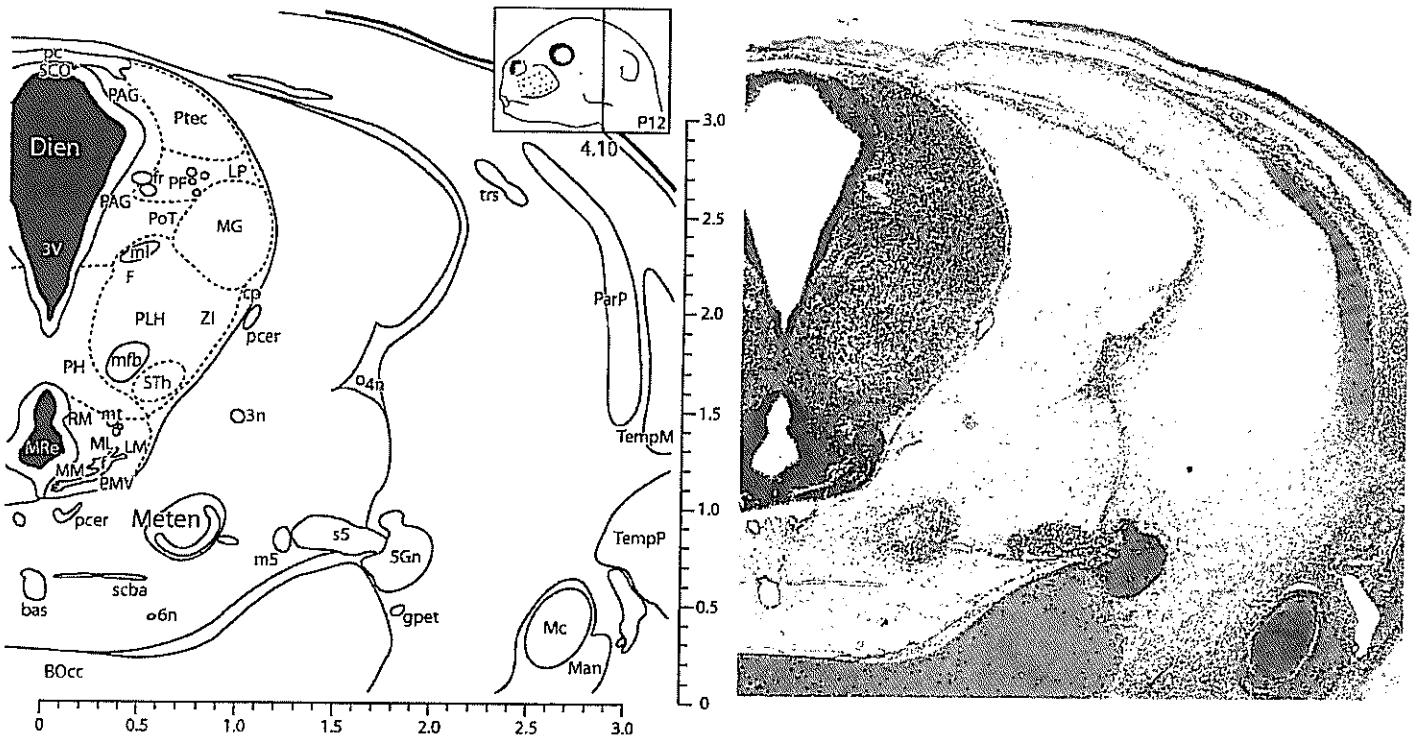
WP12-7

*	denotes precursor of structure	Cx	cerebral cortex	ICx	intermediate zone of cortex	MPtg	medial pterygoid muscle	Rt	reticular thal. nu. (prethalamus)
3n	oculomotor nerve	CxP	cortical plate	InfS	infundibular stem	MTu	medial tuberal nucleus	S2	secondary somatosensory cx
4n	trochlear nerve	D3V	dorsal 3rd ventricle	LHb	lateral habenular nucleus	ne	neuroepithelium	sm	stria medullaris
5mx	maxillary division of trigeminal n	Dien	diencephalon	LP	lateral posterior thalamic nucleus	ParP	parietal plate	st	stria terminalis
5oph	ophthalmic division of trigeminal n.	DLG	dorsal lateral geniculate nucleus	LPtg	lateral pterygoid muscle	PeF	perifornical nucleus	Subi	subincertal nucleus
6n	abducens nerve	DM	dorsomedial hypothalamic nu.	LV	lateral ventricle	PH	posterior hypothalamic nucleus	Telen	telencephalon
APir	amygdalopiriform transition zone	EP	entopeduncular nucleus	Man	mandible	Pir	piriform cortex	TempM	temporalis muscle
APit	anterior lobe of pituitary	f	fornix	MasM	masseter muscle	PLCo	posterolateral cortical amygdaloid area	Th	thalamus
Arc	arcuate hypothalamic nucleus	fi	fimbria of the hippocampus	masn	masseteric nerve	PLH	peduncular part of lateral hypothalamus	V1	primary visual cortex
ASph	alisphenoid bone	Hb	habenular nuclei	mCx	marginal zone of developing cortex	PMCo	posteromedial cortical amygdala	V3V	ventral third ventricle
BL	basolateral amygdaloid nucleus	Hi	hippocampus	MD	mediodorsal thalamic nucleus	PrG	pregeniculate nucleus	VM	ventromedial thalamic nucleus
BM	basomedial amygdaloid nucleus	hs	hypothalamic sulcus	MePD	medial amygdaloid nu., posterodorsal	PrTh	prethalamus	VMH	ventromedial hypothalamic nu.
BSph	basisphenoid bone	ala	inferior alveolar artery	MePV	medial amygdaloid nu., posteroventral	PSphW	presphenoid wing	ZI	zona incerta
cav	cavernous sinus	ic	internal capsule	mfb	medial forebrain bundle	Pu	putamen		
chp	choroid plexus	ictd	internal carotid artery	MHb	medial habenular nucleus	RSG	retrosplenial granular cortex		



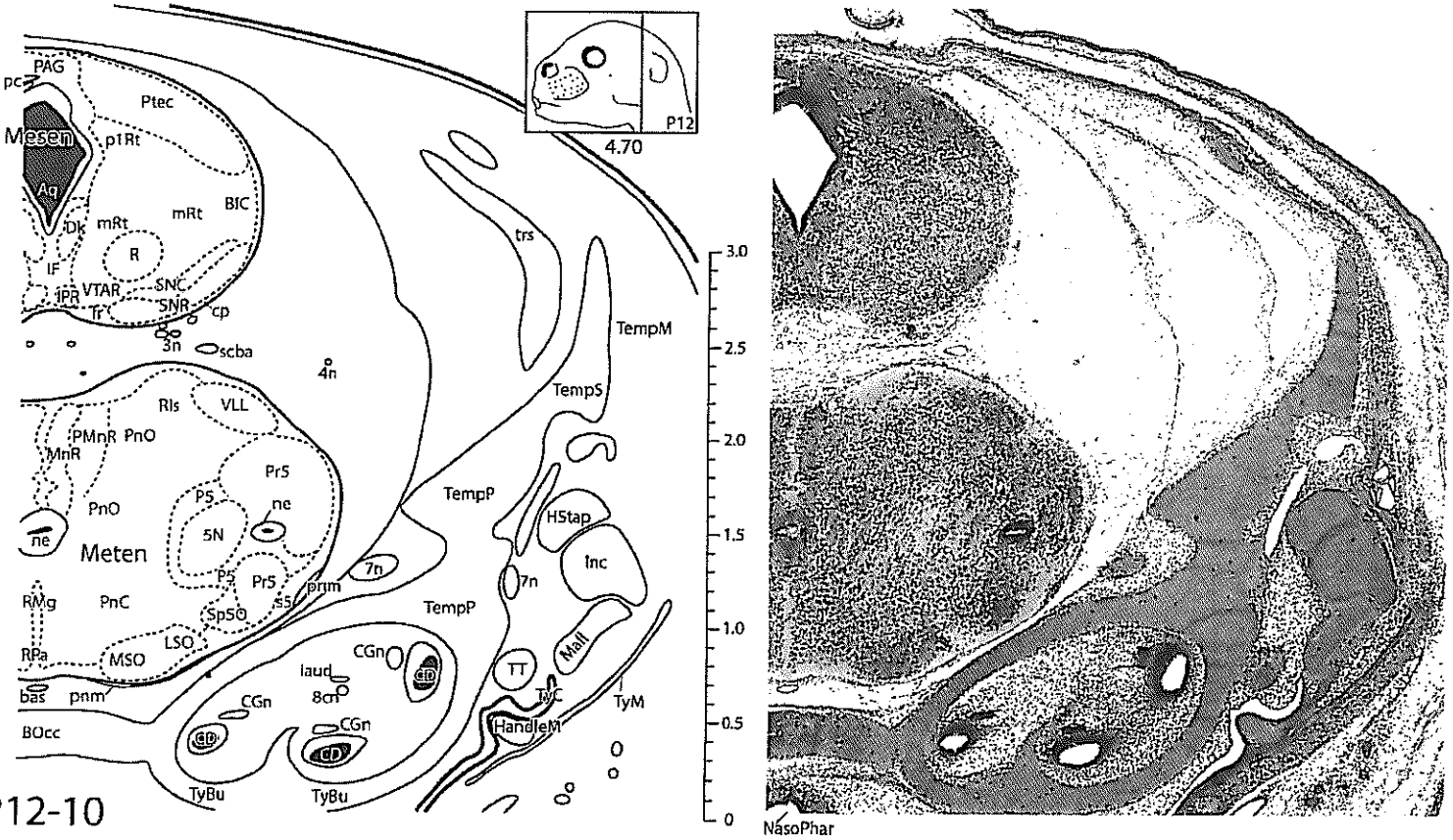
WP12-8

*	denotes precursor of structure
3n	oculomotor nerve
4n	trochlear nerve
5Gn	trigeminal ganglion
5man	mandibular division of trigeminal n.
6n	abducens nerve
Arc	arcuate hypothalamic nucleus
Au1	primary auditory cortex
BSph	basisphenoid bone
CM	central medial thalamic nucleus
Cor	coronoid process of mandible
cp	cerebral peduncle
Cx	cerebral cortex
D3V	dorsal third ventricle
Dien	diencephalon
DLG	dorsal lateral geniculate nucleus
DM	dorsomedial hypothalamic nucleus
Ent	entorhinal cortex
fr	fasciculus retroflexus
Hb	habenular nuclei
hs	hypothalamic sulcus
iala	inferior alveolar artery
ialn	inferior alveolar nerve
ictd	internal carotid artery
LHb	lateral habenular nucleus
LP	lateral posterior thalamic nucleus
lptg	nerve to lateral pterygoid muscle
LPtg	lateral pterygoid muscle
LV	lateral ventricle
Man	mandible
Mc	Meckel's cartilage
MD	mediodorsal thalamic nucleus
mfb	medial forebrain bundle
MHb	medial habenular nucleus
ml	medial lemniscus
MPtg	medial pterygoid muscle
MTu	medial tuberal nucleus
NasoPhar	nasopharynx
noto	notochord
Otic	otic ganglion
ParP	parietal bone plate
pcer	posterior cerebral artery
PH	posterior hypothalamic nucleus
PLH	peduncular part of lateral hypothal.
Po	posterior thalamic nuclear group
PrG	pregeniculate nucleus
RSG	retrosplenial granular cortex
sm	stria medullaris
sss	superior sagittal sinus
STh	subthalamic nucleus
Telen	telencephalon
TempM	temporalis muscle
Th	thalamus
V1	primary visual cortex
V3V	ventral third ventricle
VMH	ventromedial hypothalamic nu.
VPL/M	ventral posterior thalamic nu.
VPPC	vent. post. nu. thal., parvicellular
ZI	zona incerta



WP12-9

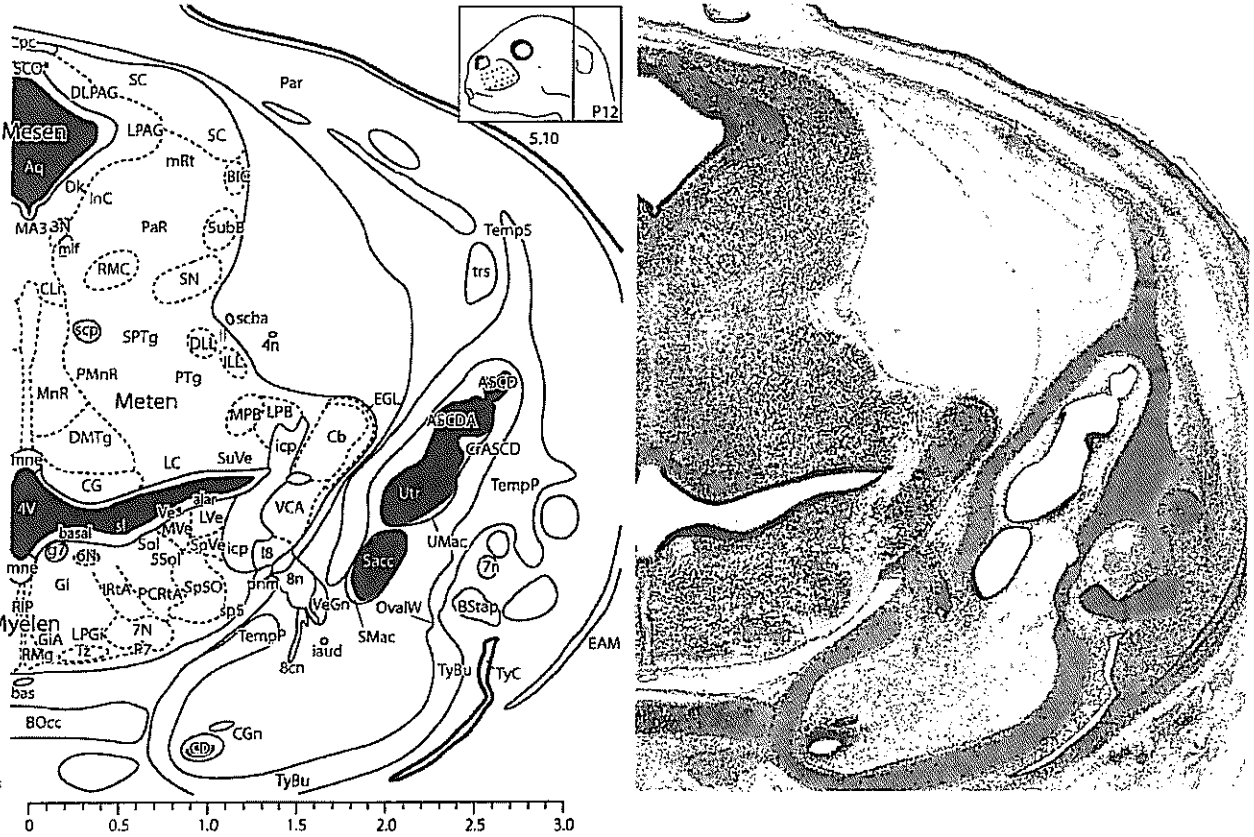
*	denotes precursor of structure
3n	oculomotor nerve
3V	3rd ventricle
4n	trochlear nerve
5Gn	trigeminal ganglion
6n	abducens nerve
bas	basilar artery
BOcc	basioccipital bone
cp	cerebral peduncle
Dien	diencephalon
F	nuclei of the fields of Forel
f	fornix
fr	fasciculus retroflexus
gpet	greater petrosal nerve
LM	lateral mamillary nucleus
LP	lateral posterior thalamic nucleus
m5	motor root of trigeminal nerve
Man	mandible
Mc	Meckel's cartilage
Meten	metencephalon
mfb	medial forebrain bundle
MG	medial geniculate nucleus
ML	medial mamillary nucleus, lateral
ml	medial lemniscus
MM	medial mamillary nucleus, medial
MRe	mamillary recess of 3V
mt	mamillothalamic tract
PAG	periaqueductal grey
ParP	parietal bone plate
pc	posterior commissure
pcer	posterior cerebral artery
PF	parafascicular thalamic nucleus
PH	posterior hypothalamic nucleus
PLH	peduncular part of lateral hypothalamus
PMV	premamillary nucleus, ventral
PoT	posterior thalamic nucleus, triangular
Ptec	pretectum
RM	retromamillary nucleus
s5	sensory root of trigeminal nerve
scba	superior cerebellar artery
SCO	subcommissural organ
STh	subthalamic nucleus
TempM	temporalis muscle
TempP	temporal bone, petrous
trs	transverse venous sinus
ZI	zona incerta



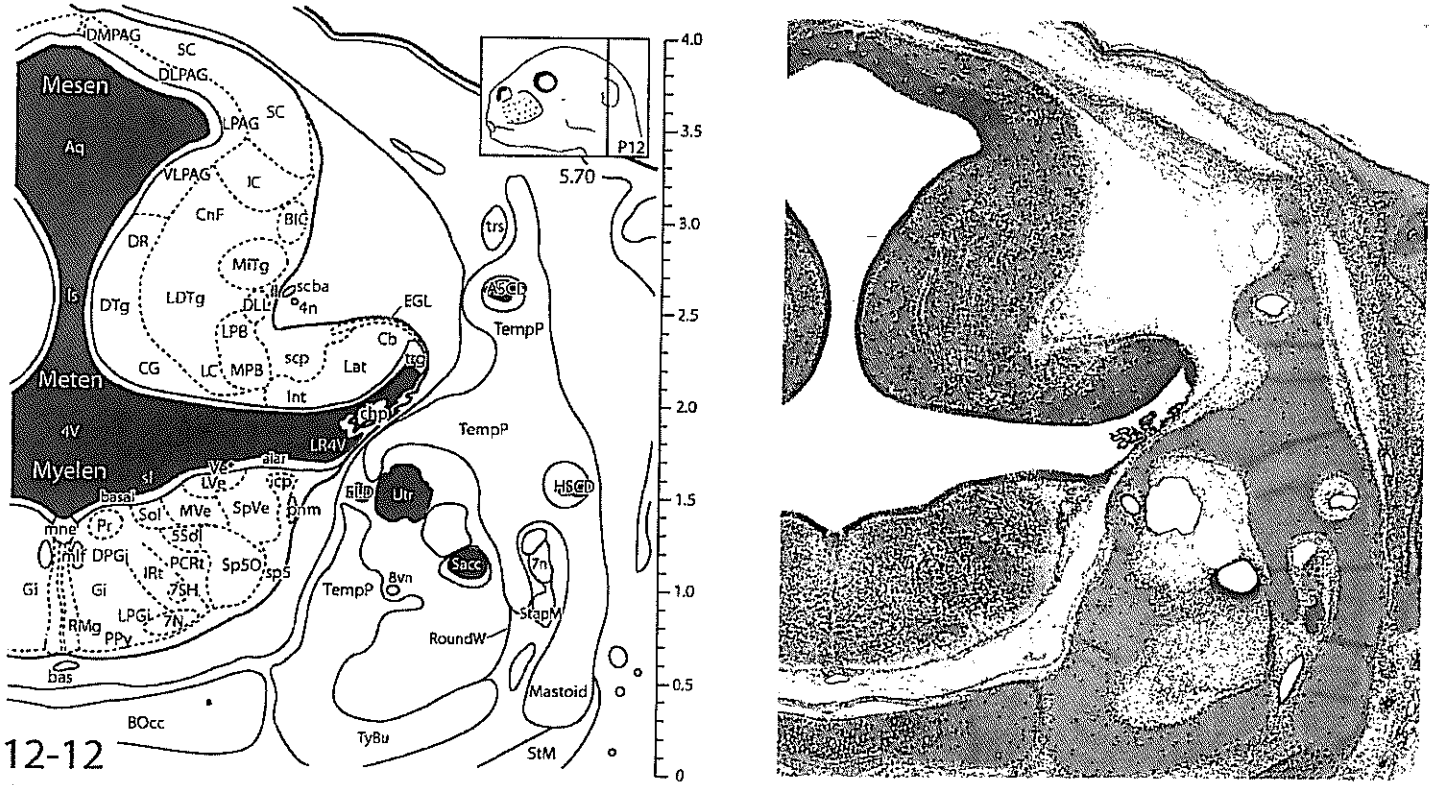
WP12-10

3n	oculomotor nerve	Dk	nucleus of Darkschewitsch	MnR	median raphe nucleus	Pr5	principal sensory trigeminal nu.	TempP	temporal bone, petrous
4n	trochlear nerve	fr	fasciculus retroflexus	mRt	mesencephalic reticular formation	Ptec	pretectum	TempS	temporal bone, squamous
5N	motor trigeminal nucleus	HandleM	handle of malleus (auditory ossicle)	MSO	medial superior olivary nucleus	R	red nucleus	trs	transverse venous sinus
7n	facial nerve	HStap	handle of stapes (auditory ossicle)	ne	neuroepithelium (of brainstem)	RIs	retroisthmic nucleus	TT	tensor tympani muscle
8cn	cochlear root of 8th nerve	laud	internal auditory artery	p1Rt	p1 reticular formation	RMg	raphe magnus nucleus	TyBu	tympanic bulla
Aq	cerebral aqueduct	IF	interfascicular nucleus	P5	peritrigeminal zone	RPa	raphe pallidus nucleus	TyC	tympanic cavity
bas	basilar artery	Inc	incus (auditory ossicle)	PAG	periaqueductal grey	s5	sensory root of trigeminal nerve	TyM	tympanic membrane
BIC	nucleus of brachium inf. colliculus	IPR	interpeduncular nu., rostral subnucleus	pc	posterior commissure	scba	superior cerebellar artery	VLL	ventral nucleus of lateral lemniscus
BOcc	basioccipital bone	LSO	lateral superior olivary nucleus	PMnR	paramedian raphe nucleus	SNC	substantia nigra, compact part	VTAR	ventral tegmental area, rostral part
CD	cochlear duct	Mall	malleus (auditory ossicle)	PnC	pontine reticular nucleus, caudal part	SNR	substantia nigra, reticular part		
CGn	cochlear (spiral) ganglion	Mesen	mesencephalon	pnm	pontine neuron migration	Sp5O	spinal trigeminal nucleus, oralis		
cp	cerebral peduncle	Meten	metencephalon	PnO	pontine reticular nucleus, oral part	TempM	temporalis muscle		

WP12-11

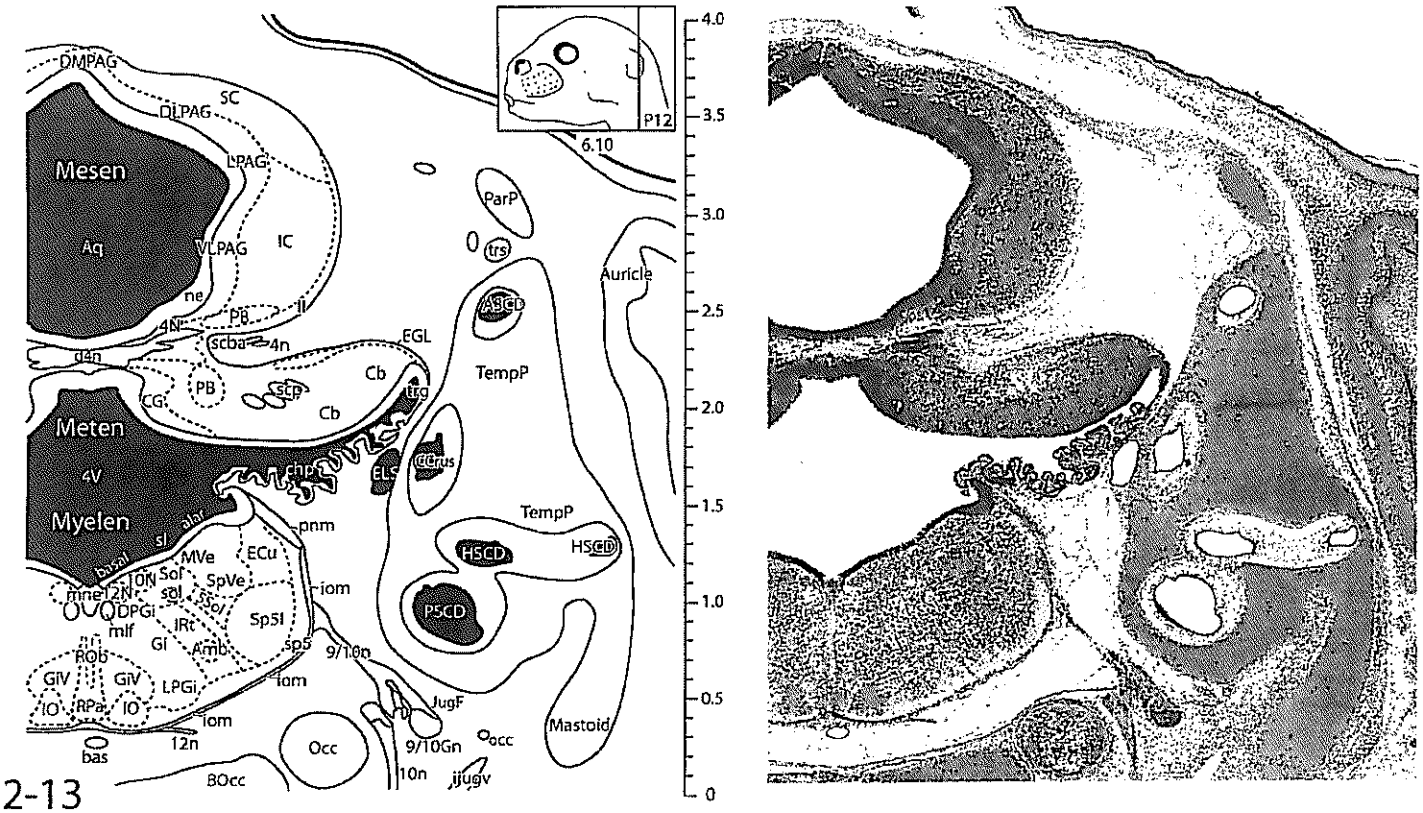


*	denotes precursor of structure
3N	oculomotor nucleus
4n	trochlear nerve
4V	4th ventricle
5Sol	trigeminal-solitary trans'n zone
6N	abducens nucleus
7N	facial nucleus
7n	facial nerve
8cn	cochlear root of 8th nerve
8n	vestibulocochlear nerve
alar	alar plate of brainstem
Aq	cerebral aqueduct
ASCD	anterior semicircular duct
ASCDA	anterior semicirc. duct, ampulla
bas	basilar artery
basal	basal plate of brainstem
BIC	nu. of brachium inf. colliculus
BOcc	basiocciptal bone
BStap	base of stapes
Cb	cerebellum
CD	cochlear duct
CG	central grey
CGn	cochlear (spiral) ganglion
CLi	caudal linear nu. of the raphe
CrASCD	crus of ant. semicircular duct
Dk	nu. of Darkschewitsch
DLL	dorsal nu. lateral lemniscus
DLPAG	dorsolat. periaqueductal grey
DMTg	dorsomed. tegmental area
EAM	external auditory meatus
EGL	external granular layer Cb
g7	genu of the facial nerve
Gi	gigantocellular reticular nu.
GiA	gigantocellular retic. nu., alpha
I8	interstitial nu. 8th nerve
iaud	internal auditory artery
icp	inferior cerebellar peduncle
ILL	intermed. nu. of the lat. lemniscus
InC	interstitial nu. of Cajal
IRtA	intermed. reticular nu., alpha
LC	locus coeruleus
ll	lateral lemniscus
LPAG	lateral periaqueductal grey
LPB	lateral parabrachial nucleus
LPGi	lateral paragigantocellular nucleus
LVe	lateral vestibular nucleus
MA3	medial access. oculomotor nucleus
Mesen	mesencephalon
Meten	metencephalon
mlf	medial longitudinal fasciculus
mne	median neuroepithelium
MnR	median raphe nucleus
MPB	medial parabrachial nucleus
mRt	mesencephalic reticular formation
MVe	medial vestibular nucleus
Myelen	myelencephalon
OvalW	oval window
P7	perifacial zone
PaR	pararubral nucleus
pc	posterior commissure
PCRtA	parvicellular reticular nucleus, alpha
PMnR	paramedian raphe nucleus
pnm	pontine neuron migration
PTg	pedunculotegmental nucleus
RIP	raphe interpositus nucleus
RMC	red nucleus, magnocellular part
RMg	raphe magnus nucleus
Sacc	saccule (of inner ear)
SC	superior colliculus
scba	superior cerebellar artery
SCO	subcommissural organ
scp	superior cerebellar peduncle
sl	sulcus limitans
SMac	macula of the saccule
SN	substantia nigra
Sol	solitary nucleus
sp5	spinal trigeminal tract
SpSO	spinal trigeminal nucleus, oralis
SPTg	subpeduncular tegmental nucleus
SpVe	spinal vestibular nucleus
SubB	subbrachial nucleus
SuVe	superior vestibular nucleus
TempP	temporal bone, petrous
TempS	temporal bone, squamous
trs	transverse venous sinus
TyBu	tympanic bulla
TyC	tympanic cavity
Tz	nu. of trapezoid body
UMac	macula of the utricle
Utr	utricle (of inner ear)
VCA	ventral cochlear nu., ant.
Ve	vestibular neuroepithelium
VeGn	vestibular nerve ganglion



WP12-12

•	denotes precursor of structure	CG	central grey	IRt	intermediate reticular nucleus	mne	median neuroepithelium	sp5	spinal trigeminal tract
4n	trochlear nerve	chp	choroid plexus	Is	isthmus	MPB	medial parabrachial nucleus	Sp5O	spinal trigeminal nucleus, oralis
4V	4th ventricle	CnF	cuneiform nucleus	Lat	lateral deep cerebellar nucleus	MVe	medial vestibular nucleus	SpVe	spinal vestibular nucleus
5Sol	trigeminal-solitary trans'n zone	DLL	dorsal nucleus of lateral lemniscus	LC	locus coeruleus	Myelen	myelencephalon	StapM	stapedius muscle
7N	facial nucleus	DLPAG	dorsolateral periaqueductal grey	LDTg	laterodorsal tegmental nucleus	PCRt	parvicellular reticular nucleus	StM	sternomastoid muscle
7n	facial nerve	DMPAG	dorsomedial periaqueductal grey	lf	lateral lemniscus	pnm	pontine neuron migration	TempP	temporal bone, petrous
7SH	facial motor nucleus, stylohyoid	DPGi	dorsal paragigantocellular nu.	LPAG	lateral periaqueductal grey	PPy	parapyramidal nucleus	trg	germinal trigone
8vn	vestibular root of 8th nerve	DR	dorsal raphe nucleus	LPB	lateral parabrachial nucleus	Pr	prepositus nucleus	trs	transverse venous sinus
alar	alar plate of brainstem	DTg	dorsal tegmental nucleus	LPGi	lateral paragigantocellular nu.	RMg	raphe magnus nucleus	TyBu	tympanic bulla
Aq	cerebral aqueduct	EGL	external granular layer of Cb	LR4V	lateral recess of 4th ventricle	RoundW	round window	Utr	utricle (of inner ear)
ASCD	anterior semicircular duct	ELD	endolymphatic duct	LVe	lateral vestibular nucleus	Sacc	saccule	Ve	vestibular neuroepithelium
bas	basilar artery	Gi	gigantocellular reticular nucleus	Mastoid	mastoid process	SC	superior colliculus	VLPAG	ventrolateral periaqueductal grey
basal	basal plate of brainstem	HSCD	horizontal semicircular duct	Mesen	mesencephalon	scba	superior cerebellar artery		
BIC	nu. brachium inferior colliculus	IC	inferior colliculus	Meten	metencephalon	scp	superior cerebellar peduncle		
BOcc	basioccipital bone	icp	inferior cerebellar peduncle	MiTg	microcellular tegmental nu.	sl	sulcus limitans		
Cb	cerebellum	Int	interposed deep cerebellar nucleus	mlf	medial longitudinal fasciculus	Sol	solitary nucleus		

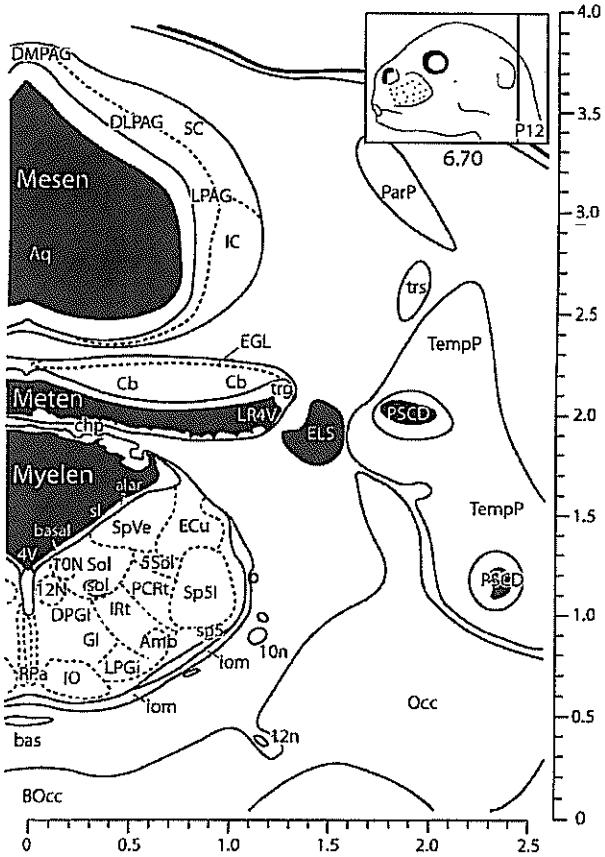


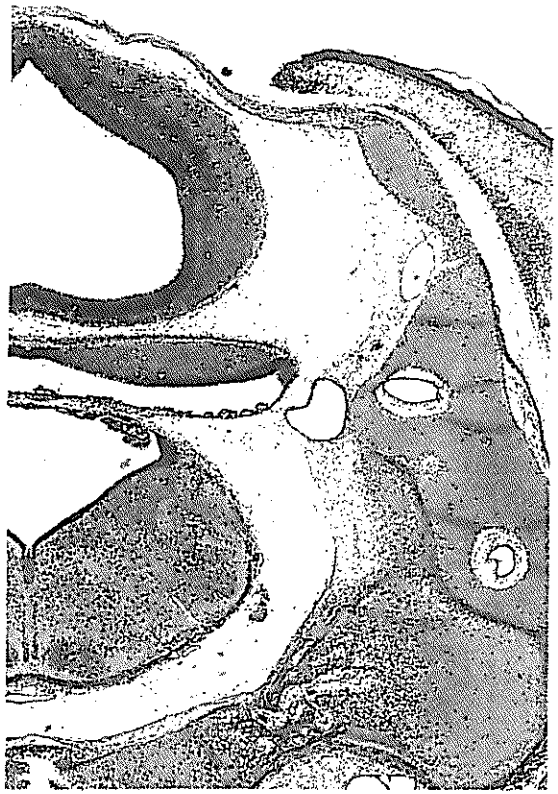
WP12-13

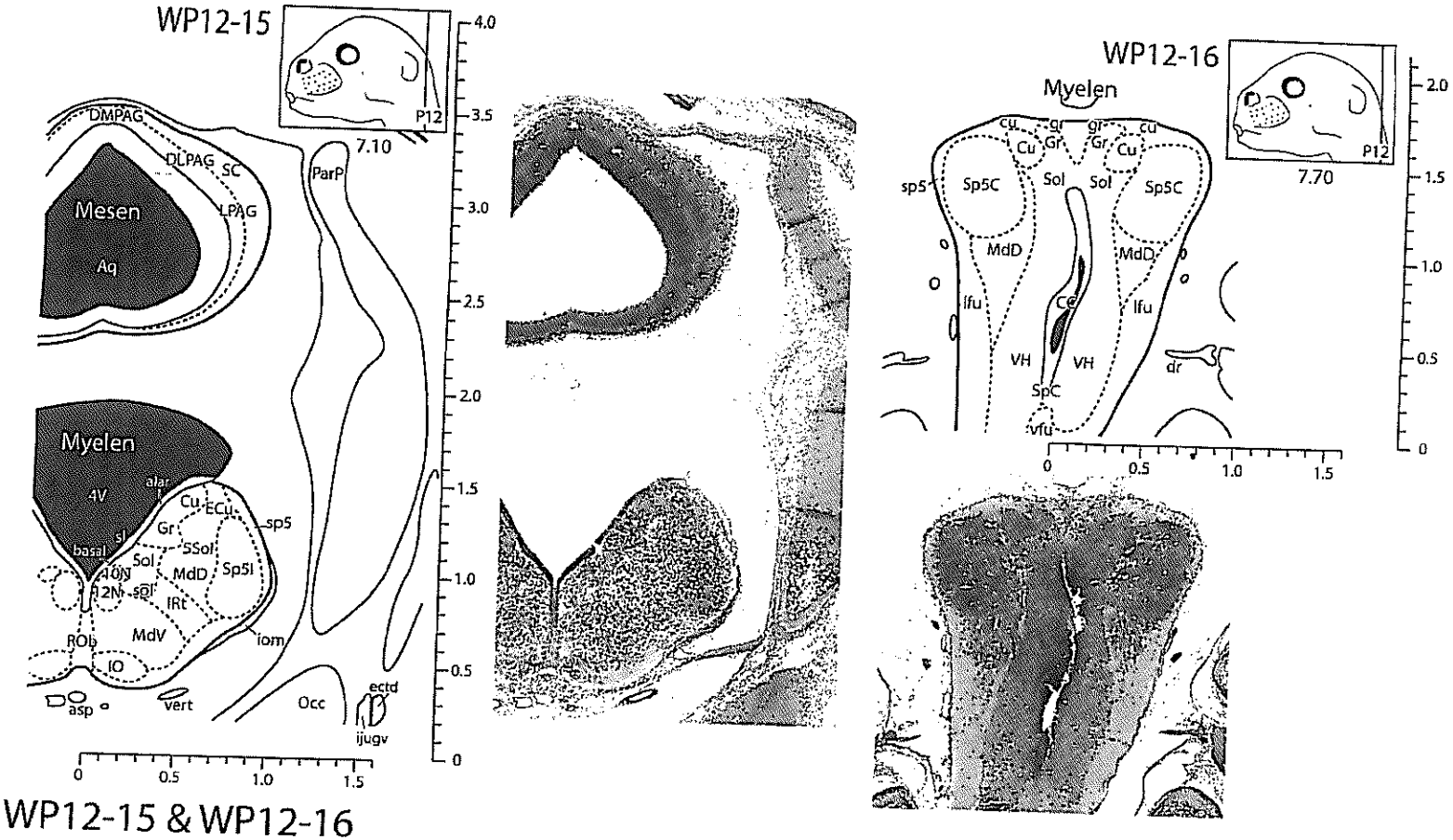
4N	trochlear nucleus	bas	basilar artery	Gl	gigantocellular reticular nucleus	Meten	metencephalon	SC	superior colliculus
4n	trochlear nerve	basal	basal plate of medulla	GiV	gigantocellular reticular nu., ventral	mlf	medial longitudinal fasciculus	scba	superior cerebellar artery
4V	4th ventricle	BOcc	basioccipital bone	HSCD	horizontal semicircular duct	mne	median neuroepithelium	scp	superior cerebellar peduncle
5Sol	trigeminal-solitary transition zone	Cb	cerebellum	IC	inferior colliculus	MVe	medial vestibular nucleus	sl	sulcus limitans
9/10Gn	glossopharyngeal/vagus ganglion	CCrus	common crus of semicircular ducts	ijugv	internal jugular vein	Myelen	myelencephalon	Sol	solitary nucleus
9/10n	glossopharyngeal and vagus nerves	CG	central grey	IO	inferior olivary nuclear complex	ne	neuroepithelium	sol	solitary tract
10N	vagus nerve nucleus	chp	choroid plexus	iom	inferior olivary migration	Occ	occipital bone	sp5	spinal trigeminal tract
10n	vagus nerve	d4n	decussation of trochlear nerve	IRt	intermediate reticular nucleus	occ	occipital artery	Sp5I	spinal trigeminal nu., interpolaris
12N	hypoglossal nucleus	DLPAG	dorsolateral periaqueductal grey	JugF	jugular foramen	ParP	parietal plate	SpVe	spinal vestibular nucleus
12n	hypoglossal nerve	DMPAG	dorsomedial periaqueductal grey	l	lateral lemniscus	PB	parabrachial nuclear complex	TempP	temporal bone, petrous
alar	alar plate of medulla	DPGi	dorsal paragigantocellular nucleus	LPAG	lateral periaqueductal grey	pnm	pontine migration	trg	germinal trigone
Amb	ambiguus nucleus	ECu	external cuneate nucleus	LPGi	lateral paragigantocellular nucleus	PSCD	posterior semicircular duct	trs	transverse venous sinus
Aq	cerebral aqueduct	EGL	external granular layer of cerebellum	Mastoid	mastoid process	ROb	raphe obscurus nucleus	VLPAG	ventrolateral periaqueductal grey
ASCD	anterior semicircular duct	ELS	endolymphatic sac	Mesen	mesencephalon	RPa	raphe pallidus nucleus		

WP12-14

4V	4th ventricle
5Sol	trigeminal-solitary transition zone
10N	vagus nerve nucleus
10n	vagus nerve
12N	hypoglossal nucleus
12n	hypoglossal nerve
alar	alar plate of medulla
Amb	ambiguus nucleus
Aq	cerebral aqueduct
bas	basilar artery
basal	basal plate of medulla
BOcc	basioccipital bone
Cb	cerebellum
chp	choroid plexus
DLPAG	dorsolateral periaqueductal grey
DMPAG	dorsomedial periaqueductal grey
DPGI	dorsal paragigantocellular nucleus
ECu	external cuneate nucleus
EGL	external granular layer of cerebellum
ELS	endolymphatic sac
Gi	gigantocellular reticular nucleus
IC	inferior colliculus
IO	inferior olivary nuclear complex
iom	inferior olivary neuron migration
IRt	intermediate reticular nucleus
LPAG	lateral periaqueductal grey
LPGi	lateral paragigantocellular nucleus
LR4V	lateral recess of 4th ventricle
Mesen	mesencephalon
Meten	metencephalon
Myelen	myelencephalon
Occ	occipital bone
ParP	parietal bone plate
PCRt	parvicellular reticular nucleus
PSCD	posterior semicircular duct
RPa	raphe pallidus nucleus
SC	superior colliculus
sl	sulcus limitans
Sol	solitary nucleus
scl	solitary tract
sp5	spinal trigeminal tract
SpSl	spinal trigeminal nucleus, interpolaris
SpVe	spinal vestibular nucleus
TempP	temporal bone, petrous
trg	germinal trigone
trs	transverse venous sinus

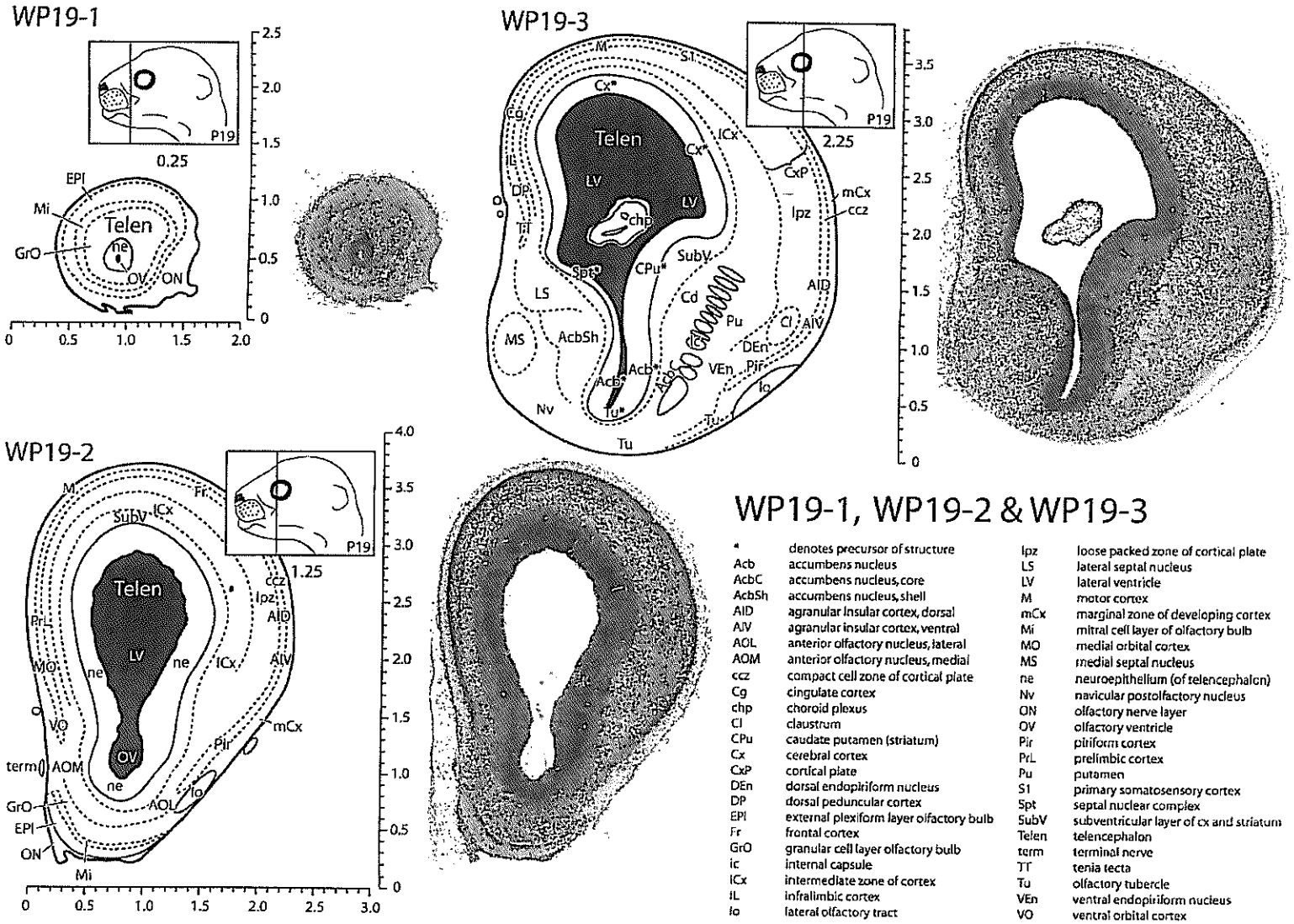






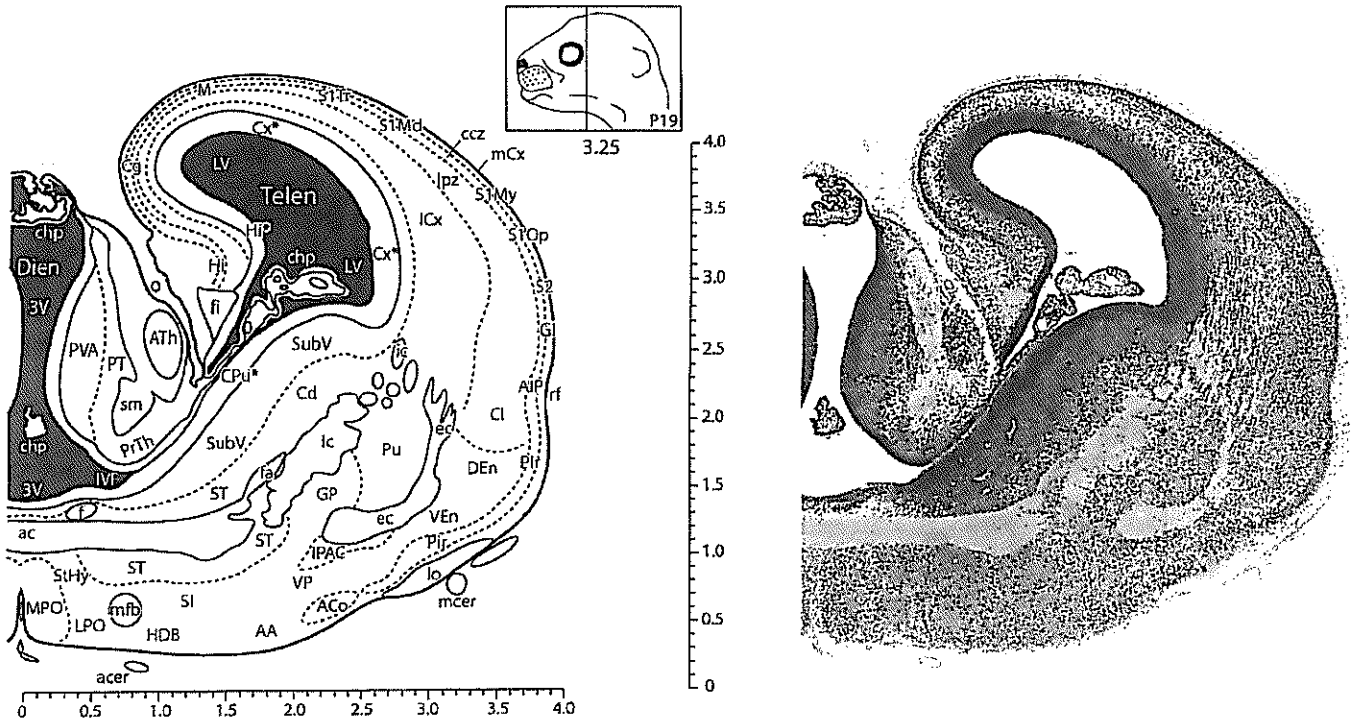
WP12-15 & WP12-16

4V	4th ventricle
5Sol	trigeminal-solitary transition zone
10N	vagus nerve nucleus
12N	hypoglossal nucleus
alar	alar plate of medulla
Aq	cerebral aqueduct
asp	anterior spinal artery
basal	basal plate of medulla
CC	central canal
Cu	cuneate nucleus
cu	cuneate fasciculus
DLPAG	dorsolateral periaqueductal grey
DMPAG	dorsomedial periaqueductal grey
dr	dorsal root of spinal cord
ectd	external carotid artery
ECu	external cuneate nucleus
Gr	gracile nucleus
gr	gracile fasciculus
ijugv	internal jugular vein
IO	inferior olivary nuclear complex
iom	inferior olivary neuron migration
IRt	intermediate reticular nucleus
lfu	lateral funiculus of spinal cord
LPAG	lateral periaqueductal grey
MdD	medullary reticular nucleus, dorsal
MdV	medullary reticular nucleus, ventral
Mesen	mesencephalon
Myelen	myelencephalon
Occ	occipital bone
ParP	parietal bone plate
ROb	raphe obscurus nucleus
SC	superior colliculus
sl	sulcus limitans
Sol	solitary nucleus
sol	solitary tract
sp5	spinal trigeminal tract
Sp5C	spinal trigeminal nu., caudalis
Sp5I	spinal trigeminal nu., interpolaris
SpC	spinal cord
vert	vertebral artery
vfu	ventral funiculus
VH	ventral horn



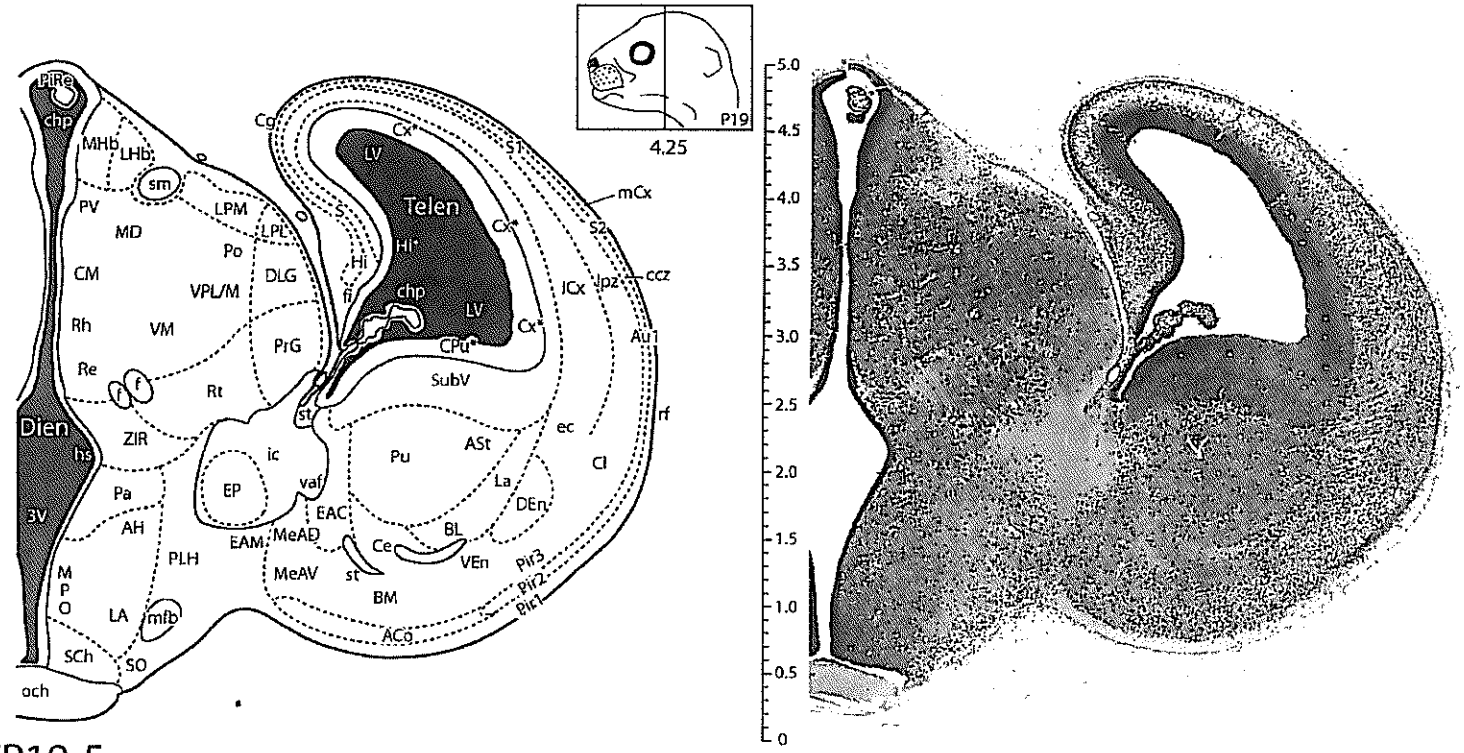
WP19-1, WP19-2 & WP19-3

*	denotes precursor of structure
Acb	accumbens nucleus
AcbC	accumbens nucleus, core
AcbSh	accumbens nucleus, shell
AID	agranular insular cortex, dorsal
AIV	agranular insular cortex, ventral
AOL	anterior olfactory nucleus, lateral
AOM	anterior olfactory nucleus, medial
ccz	compact cell zone of cortical plate
Cg	cingulate cortex
chp	choroid plexus
Cl	claustrum
CPu	caudate putamen (striatum)
Cx	cerebral cortex
CxP	cortical plate
DEn	dorsal endopiriform nucleus
DP	dorsal peduncular cortex
EPl	external plexiform layer olfactory bulb
Fr	frontal cortex
GrO	granular cell layer olfactory bulb
ic	internal capsule
ICx	intermediate zone of cortex
IL	infralimbic cortex
Io	lateral olfactory tract
Ipz	loose packed zone of cortical plate
LS	lateral septal nucleus
LV	lateral ventricle
M	motor cortex
mCx	marginal zone of developing cortex
Mi	mitral cell layer of olfactory bulb
MO	medial orbital cortex
MS	medial septal nucleus
ne	neuroepithelium (of telencephalon)
Nv	navicular postolfactory nucleus
ON	olfactory nerve layer
OV	olfactory ventricle
Pir	piriform cortex
PrL	prelimbic cortex
Pu	putamen
S1	primary somatosensory cortex
Spt	septal nuclear complex
SubV	subventricular layer of cx and striatum
Telen	telencephalon
term	terminal nerve
TT	tenia tecta
Tu	olfactory tubercle
VEn	ventral endopiriform nucleus
VO	ventral orbital cortex



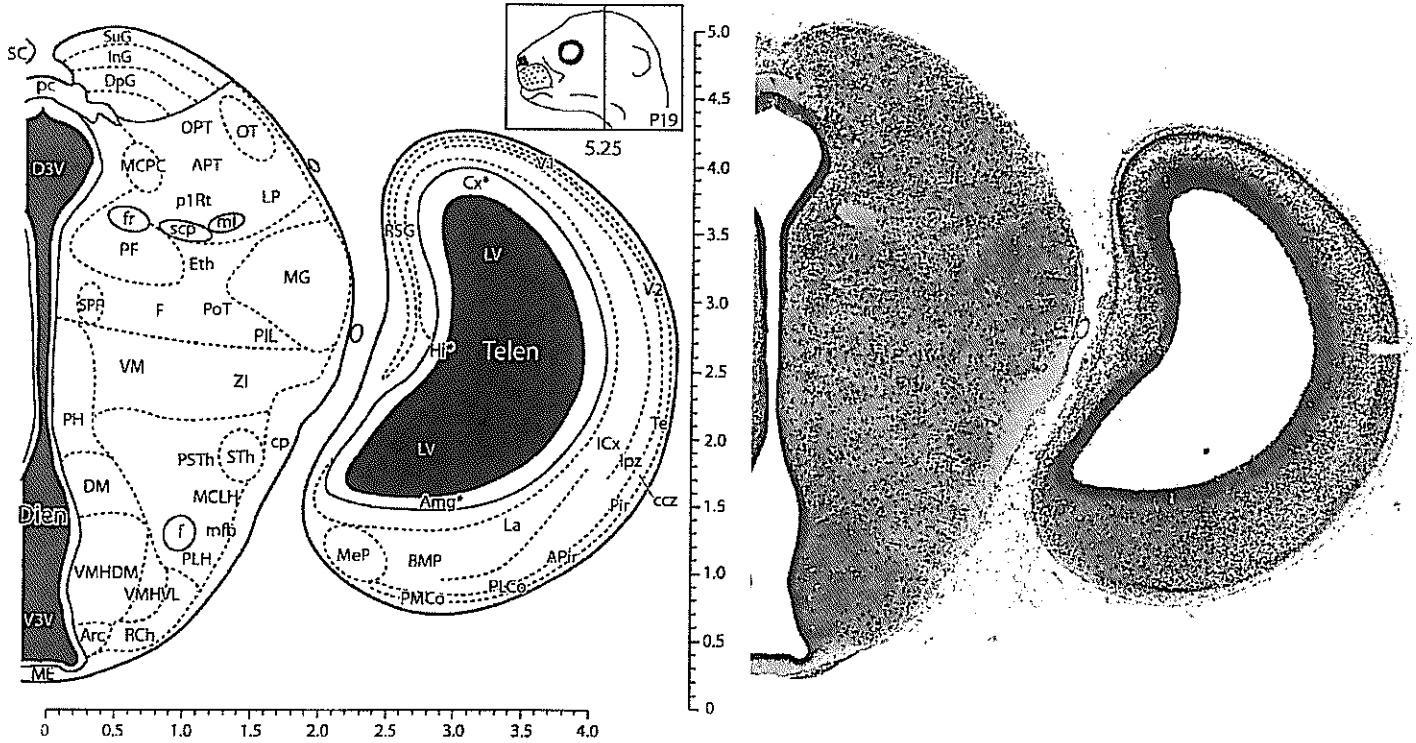
WP19-4

*	denotes precursor of structure	Cl	claustrum	Hi	hippocampus	mfb	medial forebrain bundle	S2	secondary somatosensory cx
3V	3rd ventricle	CPu	caudate putamen (striatum)	ic	internal capsule	MPO	medial preoptic nucleus	SI	substantia innominata
AA	anterior amygdaloid area	Cx	cerebral cortex	ICx	intermediate zone of cortex	Pir	piriform cortex	sm	stria medullaris
ac	anterior commissure	DEn	dorsal endopiriform nucleus	IPAC	interstitial nu. post. limb anterior commissure	PrTh	prethalamus	ST	bed nuclei of stria terminalis
acer	anterior cerebral artery	Dien	diencephalon	IVF	interventricular foramen	PT	paratenial thalamic nucleus	StHy	striohypothalamic nucleus
ACo	anterior cortical amygdaloid area	ec	external capsule	lo	lateral olfactory tract	Pu	putamen	SubV	subventricular layer of cortex
AIP	agranular insular cortex, post.	f	fornix	LPO	lateral preoptic area	PVA	paraventricular thal. nucleus, ant.	Telen	telencephalon
ATh	anterior thalamic region	fa	fasciculus aberrans	lpz	loose packed zone of cortical plate	rf	rhinal fissure	VEn	ventral endopiriform nu.
ccz	compact cell zone of cortical plate	fi	fimbria of the hippocampus	LV	lateral ventricle	S1Md	prim. somatosens. cx, mandible	VP	ventral pallidum
Cd	caudate nucleus	Gl	granular insular cortex	M	motor cortex	S1My	prim. somatosens. cx, mystacial		
Cg	cingulate cortex	GP	globus pallidus	mcer	middle cerebral artery	S1Op	prim. somatosens. cx, ophthalm.		
chp	choroid plexus	HDB	nucleus horiz. limb diagonal band	mCx	marginal zone of developing cortex	S1Tr	prim. somatosens. cx, trunk		



WP19-5

*	denotes precursor of structure	Cx	cerebral cortex	La	lateral amygdaloid nucleus	Pir1	piriform cortex, layer 1	S2	secondary somatosensory cx
3V	3rd ventricle	DEn	dorsal endopiriform nucleus	LHb	lateral habenular nucleus	Pir2	piriform cortex, layer 2	SCh	suprachiasmatic nucleus
ACo	anterior cortical amygdaloid area	Dien	diencephalon	LPL	lateral post. thal. nu., lateral	Pir3	piriform cortex, layer 3	sm	stria medullaris
AH	anterior hypothalamic area	DLG	dorsal lateral geniculate nucleus	LPM	lateral post. thal. nu., medial	PiRe	pineal recess of 3V	SO	supraoptic nucleus
ASt	amygdalostriatal transition area	EA	extended amygdala central	lpz	loose packed zone of cortical plate	PLH	peduncular part of lat. hypothal.	st	stria terminalis
Aut	primary auditory cortex	EAM	extended amygdala medial	LV	lateral ventricle	Po	post. thalamic nuclear group	SubV	subventricular layer of cx and striatum
BL	basolateral amygdaloid nucleus	ec	external capsule	mCx	marginal zone of developing cx	PrG	pregeniculate nucleus	Telen	telencephalon
BM	basomedial amygdaloid nucleus	EP	entopeduncular nucleus	MD	mediodorsal thalamic nucleus	Pu	putamen	vaf	ventral amygdalofugal pathway
ccz	compact cell zone of cortical plate	f	fornix	MeAD	medial amygdaloid nu., anterodors.	PV	paraventricular thalamic nucleus	VEn	ventral endopiriform nucleus
Ce	central amygdaloid nucleus	fi	fimbria of the hippocampus	MeAV	medial amygdaloid nu., anteroventr.	Re	reuniens thalamic nucleus	VM	ventromedial thalamic nucleus
Cg	cingulate cortex	Hi	hippocampus	mfb	medial forebrain bundle	rf	rhinal fissure	VPL/M	ventral posterior thalamic nucleus
chp	choroid plexus	hs	hypothalamic sulcus	MHb	medial habenular nucleus	Rh	rhomboid thalamic nucleus	ZIR	zona incerta, rostral part
Cl	claustrum	ic	internal capsule	MPO	medial preoptic nucleus	Rt	reticular thalamic nu. (prethalamus)		
CM	central medial thalamic nucleus	ICx	intermediate zone of cortex	och	optic chiasm	S	subiculum		
CPu	caudate putamen (striatum)	LA	lateroanterior hypothalamic nu.	Pa	paraventricular hypothalamic nu.	S1	primary somatosensory cx		

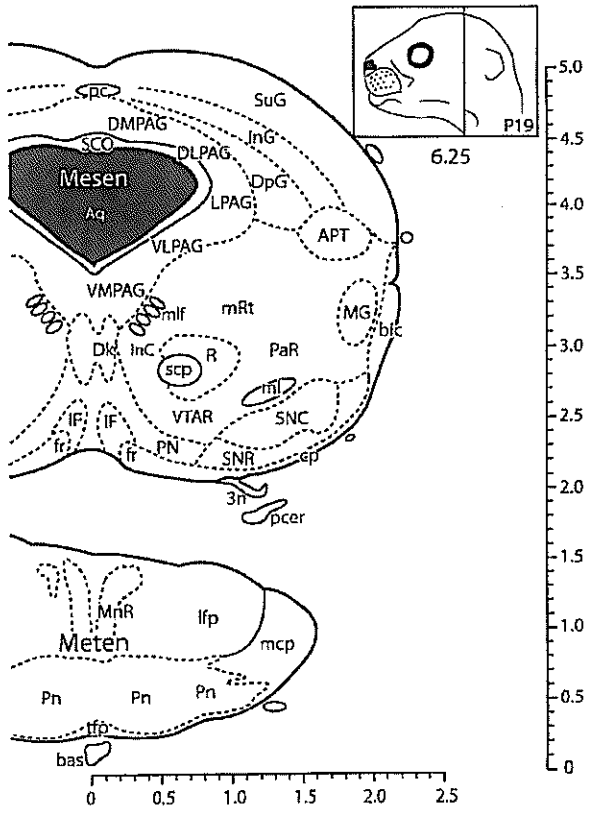


WP19-6

*	denotes precursor of structure	DpG	deep grey of superior colliculus	MCLH	magnocell. nu. lat. hypothalamus	PH	posterior hypothalamic nucleus	SPF	subparafascicular thal. nucleus
Amg	amygdala	Eth	ethmoid thalamic nucleus	MCPC	magnocell. nu. post. commissure	PIL	post. intralaminar thalamic nucleus	STh	subthalamic nucleus
APir	amygdalopiriform transition zone	F	nu. of the fields of Forel	ME	median eminence	Pir	piriform cortex	SuG	superficial grey superior colliculus
APT	anterior pretectal nucleus	f	fornix	MeP	medial amygdaloid nu., post.	PLCo	posterolateral cortical amyg. area	Te	temporal cortex
Arc	arcuate hypothalamic nucleus	fr	fasciculus retroflexus	mfb	medial forebrain bundle	PLH	peduncular part of lateral hypothal.	Telen	telencephalon
BMP	basomedial amygdaloid nu., post.	Hi	hippocampus	MG	medial geniculate nucleus	PMCo	posteromed. cortical amygdala	V1	primary visual cortex
ccz	compact cell zone of cortical plate	ICx	intermediate zone of cortex	ml	medial lemniscus	PoT	posterior thal. nu., triangular	V2	secondary visual cortex
cp	cerebral peduncle	InG	intermediate grey layer of SC	OPT	olivary pretectal nucleus	PSTh	parasubthalamic nucleus	V3V	ventral third ventricle
Cx	cerebral cortex	La	lateral amygdaloid nucleus	OT	nucleus of the optic tract	RCh	retrochiasmatic area	VM	ventromedial thalamic nucleus
D3V	dorsal 3rd ventricle	LP	lateral posterior thalamic nucleus	p1Rt	p1 reticular formation	RSG	retrosplenial granular cx	VMHDM	ventromed. hypothal. nu., dorsom.
Dien	diencephalon	lpz	loose packed zone of cortical plate	pc	posterior commissure	SC	superior colliculus	VMHVL	ventromed. hypothal. nu., ventrolat.
DM	dorsomedial hypothalamic nucleus	LV	lateral ventricle	PF	parafascicular thalamic nucleus	scp	superior cerebellar peduncle	ZI	zona incerta

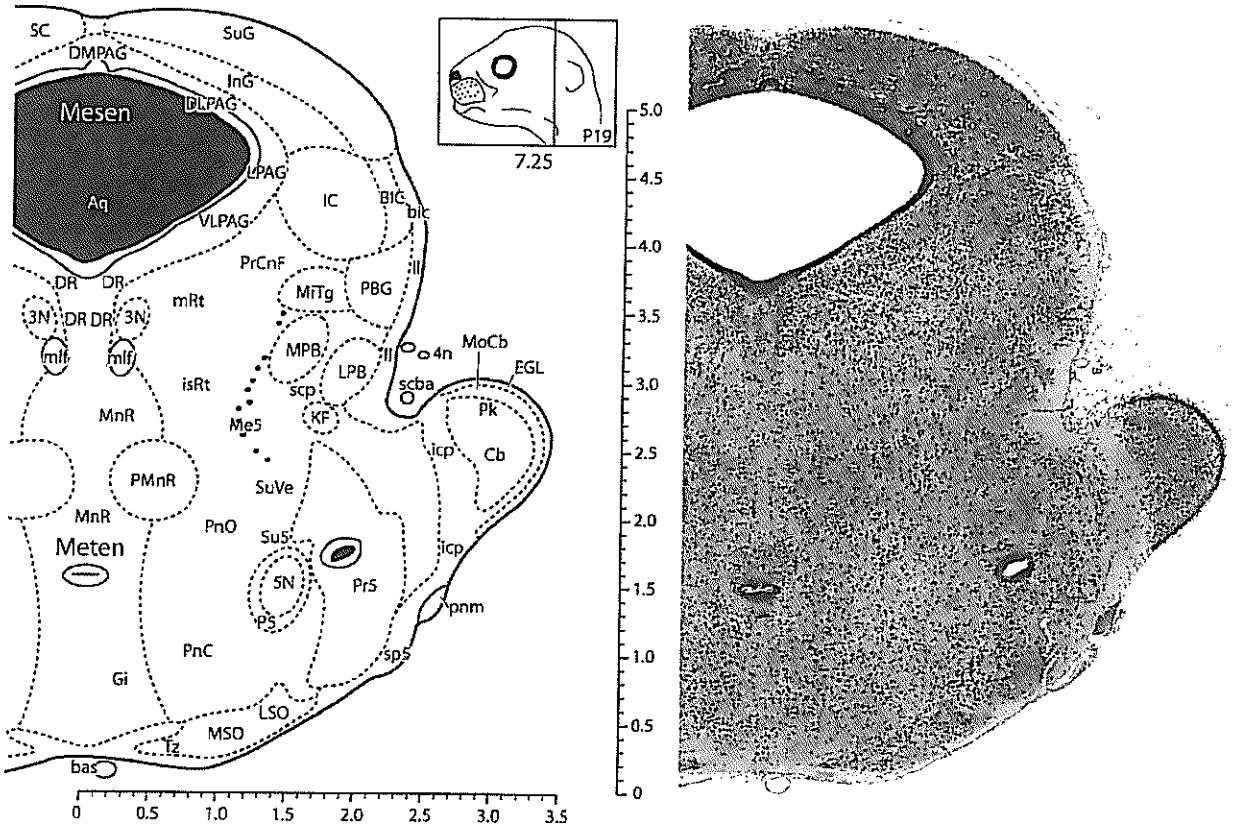
WP19-7

3n	oculomotor nerve
APT	anterior pretectal nucleus
Aq	cerebral aqueduct
bas	basilar artery
bic	brachium of inferior colliculus
cp	cerebral peduncle
Dk	nucleus of Darkschewitsch
DLPAG	dorsolateral periaqueductal grey
DMPAG	dorsomedial periaqueductal grey
DpG	deep grey of superior colliculus
fr	fasciculus retroflexus
IF	interfascicular nucleus
InC	interstitial nucleus of Cajal
InG	intermediate grey layer of superior colliculus
lfp	longitudinal fasciculus of pons
LPAG	lateral periaqueductal grey
mcp	middle cerebellar peduncle
Mesen	mesencephalon
Meten	metencephalon
MG	medial geniculate nucleus
ml	medial lemniscus
mlf	medial longitudinal fasciculus
MnR	median raphe nucleus
mRt	mesencephalic reticular formation
PaR	pararubral nucleus
pc	posterior commissure
pcer	posterior cerebral artery
PN	paranigral nucleus of the VTA
Pn	pontine nuclei
R	red nucleus
SCO	subcommissural organ
scp	superior cerebellar peduncle
SNC	substantia nigra, compact part
SNR	substantia nigra, reticular part
SuG	superficial grey of superior colliculus
tfp	transverse fibres of pons
VLPAG	ventrolateral periaqueductal grey
VMPAG	ventromedial periaqueductal grey
VTAR	ventral tegmental area, rostral part



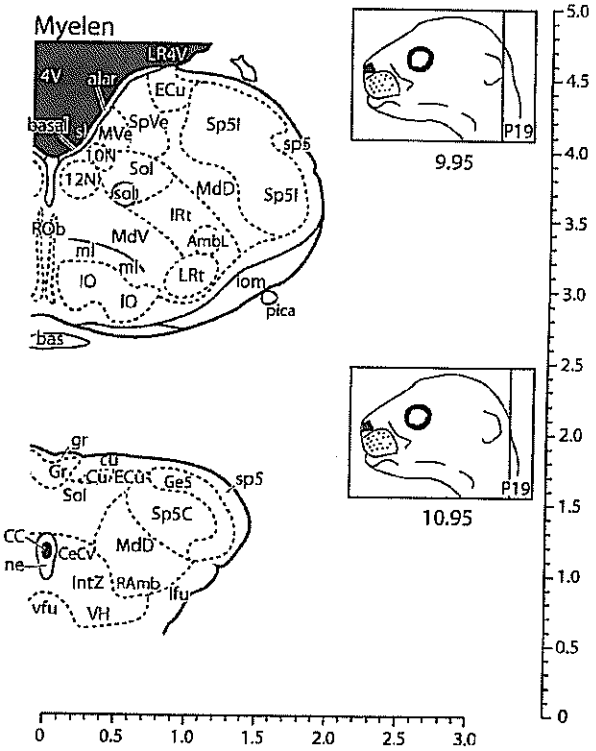
WP19-8

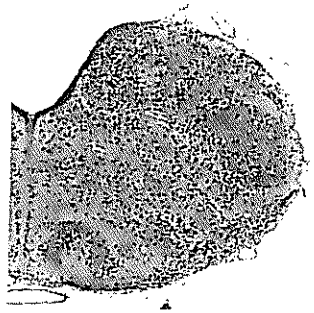
3N	oculomotor nucleus
4n	trochlear nerve
5N	motor trigeminal nucleus
Aq	cerebral aqueduct
bas	basilar artery
BIC	nu. brachium inferior colliculus
bic	brachium inf. colliculus
Cb	cerebellum
DLPAG	dorsolat. periaqueductal grey
DMPAG	dorsomed. periaqueductal grey
DR	dorsal raphe nucleus
EGL	external granular layer of Cb
Gi	gigantocellular reticular nu.
IC	inferior colliculus
icp	inferior cerebellar peduncle
InG	intermediate grey layer of SC
isRt	isthmic reticular formation
KF	Köfliker-Fuse nucleus
ll	lateral lemniscus
LPAG	lateral periaqueductal grey
LPB	lateral parabrachial nucleus
LSO	lateral superior olive
Me5	mesencephalic trigem. nu.
Mesen	mesencephalon
Meten	metencephalon
MiTg	microcellular tegmental nu.
mlf	medial longitudinal fasciculus
MnR	median raphe nucleus
MoCb	molecular layer of the Cb
MPB	medial parabrachial nucleus
mRt	mesencephalic reticular form'n
MSO	medial superior olive
PS	peritrigeminal zone
PBG	parabigeminal nucleus
Pk	Purkinje cell layer of Cb
PMnR	paramedian raphe nucleus
PnC	pontine reticular nu., caudal
pnm	pontine migration
PnO	pontine reticular nucleus, oral
Pr5	principal sensory trigeminal nu.
PrCnF	precuneiform area
SC	superior colliculus
scba	superior cerebellar artery
scp	superior cerebellar peduncle
sp5	spinal trigeminal tract
Su5	supratrigeminal nucleus
SuG	superficial grey of superior colliculus
SuVe	superior vestibular nucleus
Tz	nucleus of trapezoid body
VLPAG	ventrolateral periaqueductal grey

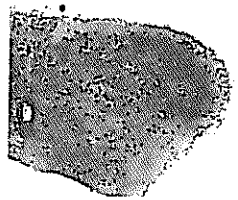


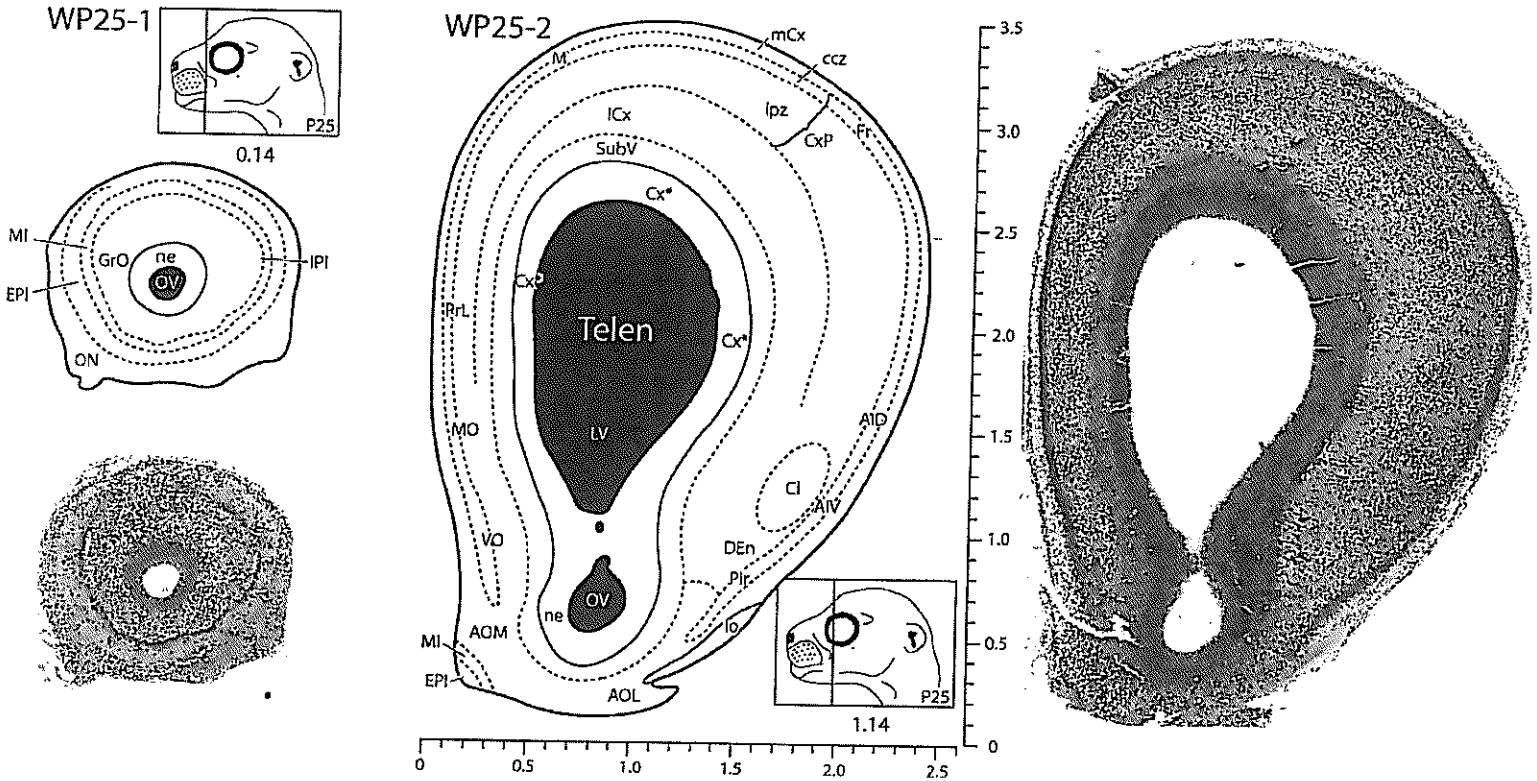
WP19-10 & WP19-11

4V	4th ventricle
10N	vagus nerve motor nucleus
12N	hypoglossal nucleus
alar	alar plate of medulla
AmbL	ambiguus nucleus, loose part
bas	basilar artery
basal	basal plate of medulla
CC	central canal of spinal cord
CeCv	central cervical nucleus
Cu	cuneate nucleus
cu	cuneate fasciculus
ECu	external cuneate nucleus
Ge5	gelatinous layer of caudal spinal trigeminal nucleus
Gr	gracile nucleus
gr	gracile fasciculus
IntZ	intermediate zone of spinal cord
IO	inferior olivary nuclear complex
iom	inferior olivary migration
IRt	intermediate reticular nucleus
lfu	lateral funiculus of spinal cord white matter
LR4V	lateral recess of 4th ventricle
LRt	lateral reticular nucleus
MdD	medullary reticular nucleus, dorsal
MdV	medullary reticular nucleus, ventral
ml	medial lemniscus
MVe	medial vestibular nucleus
Myelen	myelencephalon
ne	neuroepithelium
pica	posterior inferior cerebellar artery
RAmb	retroambiguus nucleus
ROb	raphe obscurus nucleus
sl	sulcus limitans
Sol	solitary nucleus
sol	solitary tract
sp5	spinal trigeminal tract
Sp5C	spinal trigeminal nucleus, caudalis
Sp5I	spinal trigeminal nucleus, interpolaris
SpVe	spinal vestibular nucleus
vfu	ventral funiculus of spinal cord white matter
VH	ventral horn of spinal cord



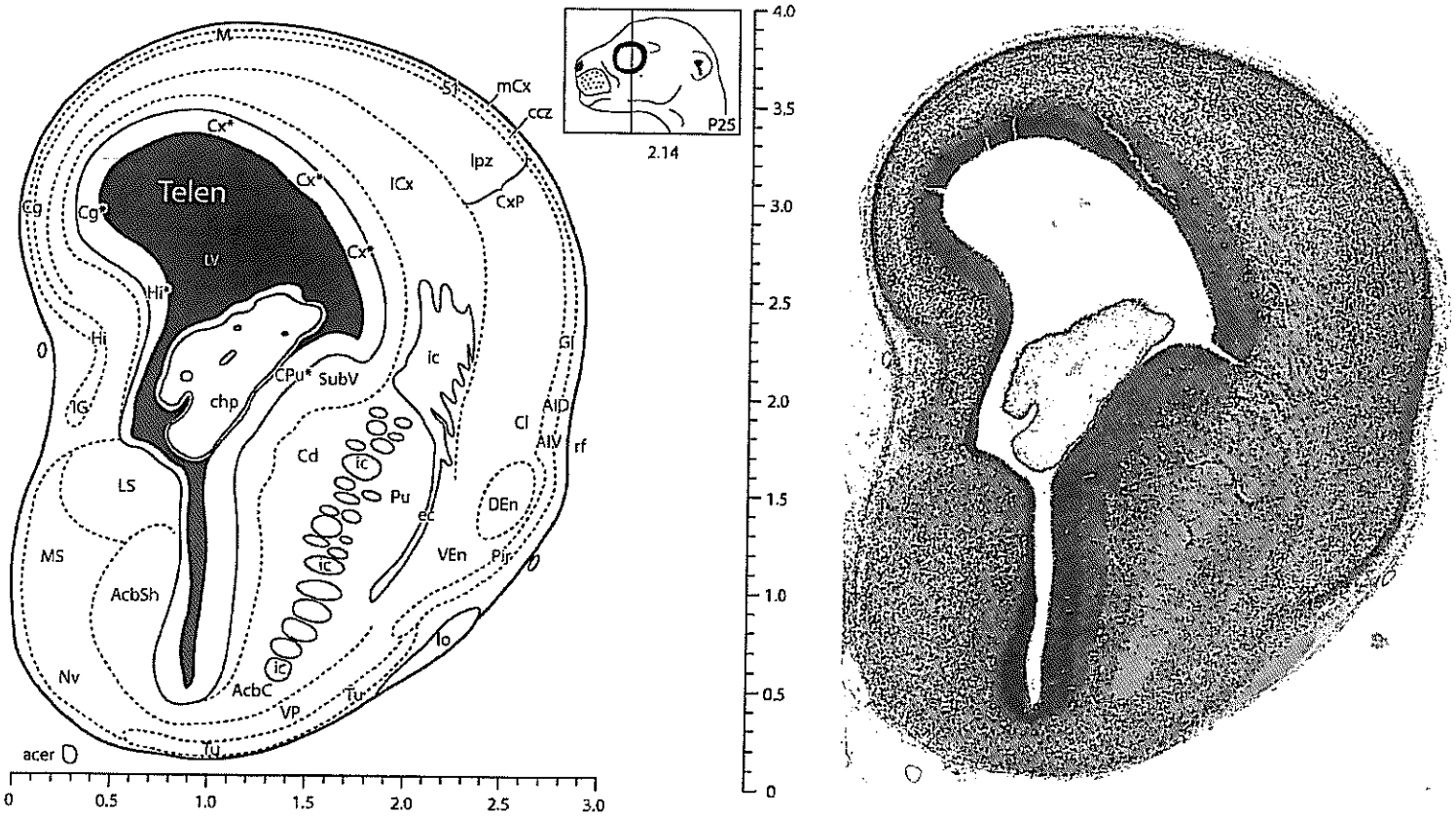






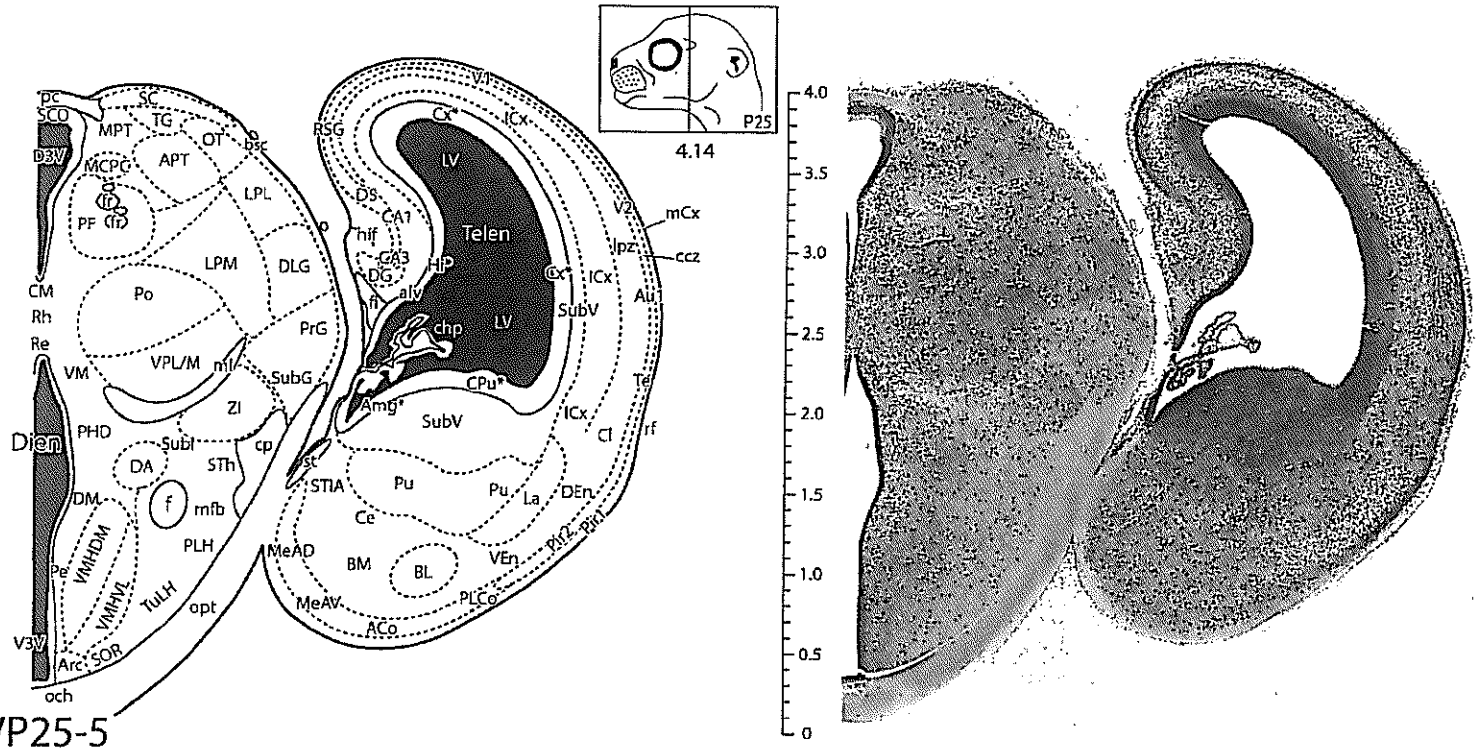
WP25-1 & WP25-2

*	denotes precursor of structure
AID	agranular insular cortex, dorsal
AIV	agranular insular cortex, ventral
AOL	anterior olfactory nucleus, lateral
AOM	anterior olfactory nucleus, medial
ccz	compact cell zone of cortical plate
CI	claustrum
Cx	cerebral cortex
CxP	cortical plate
DEn	dorsal endopiriform nucleus
EPl	external plexiform layer of olfactory bulb
Fr	frontal cortex
GrO	granular cell layer of olfactory bulb
ICx	intermediate zone of cortex
IPl	internal plexiform layer of olfactory bulb
lo	lateral olfactory tract
lpz	loose packed zone of cortical plate
LV	lateral ventricle
M	motor cortex
mCx	marginal zone of developing cortex
MI	mitral cell layer of olfactory bulb
MO	medial orbital cortex
ne	neuroepithelium
ON	olfactory nerve fibre layer of olfactory bulb
OV	olfactory ventricle of telencephalon
Pir	piriform cortex
PrL	prelimbic cortex
SubV	subventricular layer of bulb, cortex, claustrum and septum
Telen	telencephalon
VO	ventral orbital cortex

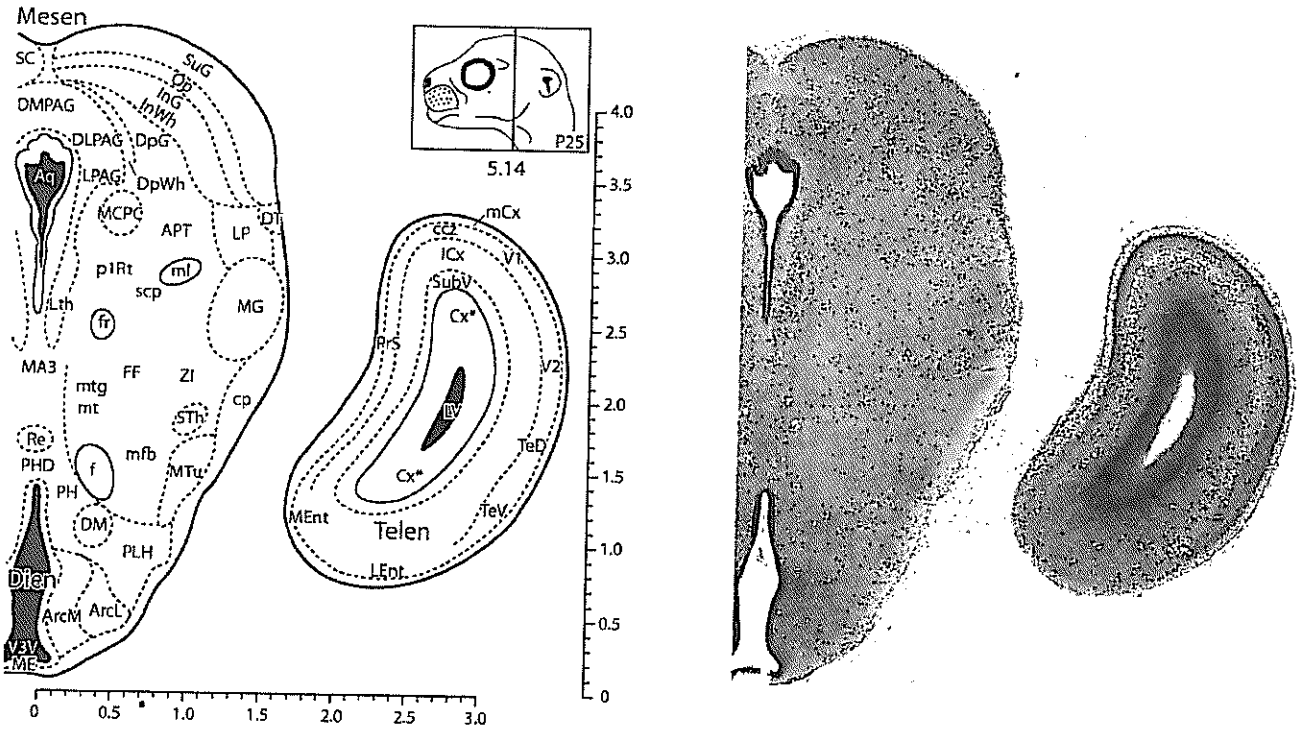


WP25-3

*	denotes precursor of structure
AcbC	accumbens nucleus, core
AcbSh	accumbens nucleus, shell
acer	anterior cerebral artery
AID	agranular insular cortex, dorsal
AIV	agranular insular cortex, ventral
ccz	compact cell zone of cortical plate
Cd	caudate nucleus
Cg	cingulate cortex
chp	choroid plexus
Cl	claustrum
CPu	caudate putamen (striatum)
Cx	cerebral cortex
CxP	cortical plate
DEn	dorsal endopiriform nucleus
ec	external capsule
GI	granular insular cortex
Hi	hippocampus
ic	internal capsule
lCx	intermediate zone of developing cortex
IG	indusium griseum
lo	lateral olfactory tract
lpz	loose packed zone of cortical plate
LS	lateral septal nucleus
LV	lateral ventricle
M	motor cortex
mCx	marginal zone of developing cortex
MS	medial septal nucleus
Nv	navicular postolfactory nucleus
Pir	piriform cortex
Pu	putamen
rf	rhinal fissure
S1	primary somatosensory cortex
SubV	subventricular layer of cortex and striatum
Telen	telencephalon
Tu	olfactory tubercle
VEn	ventral endopiriform nucleus
VP	ventral pallidum

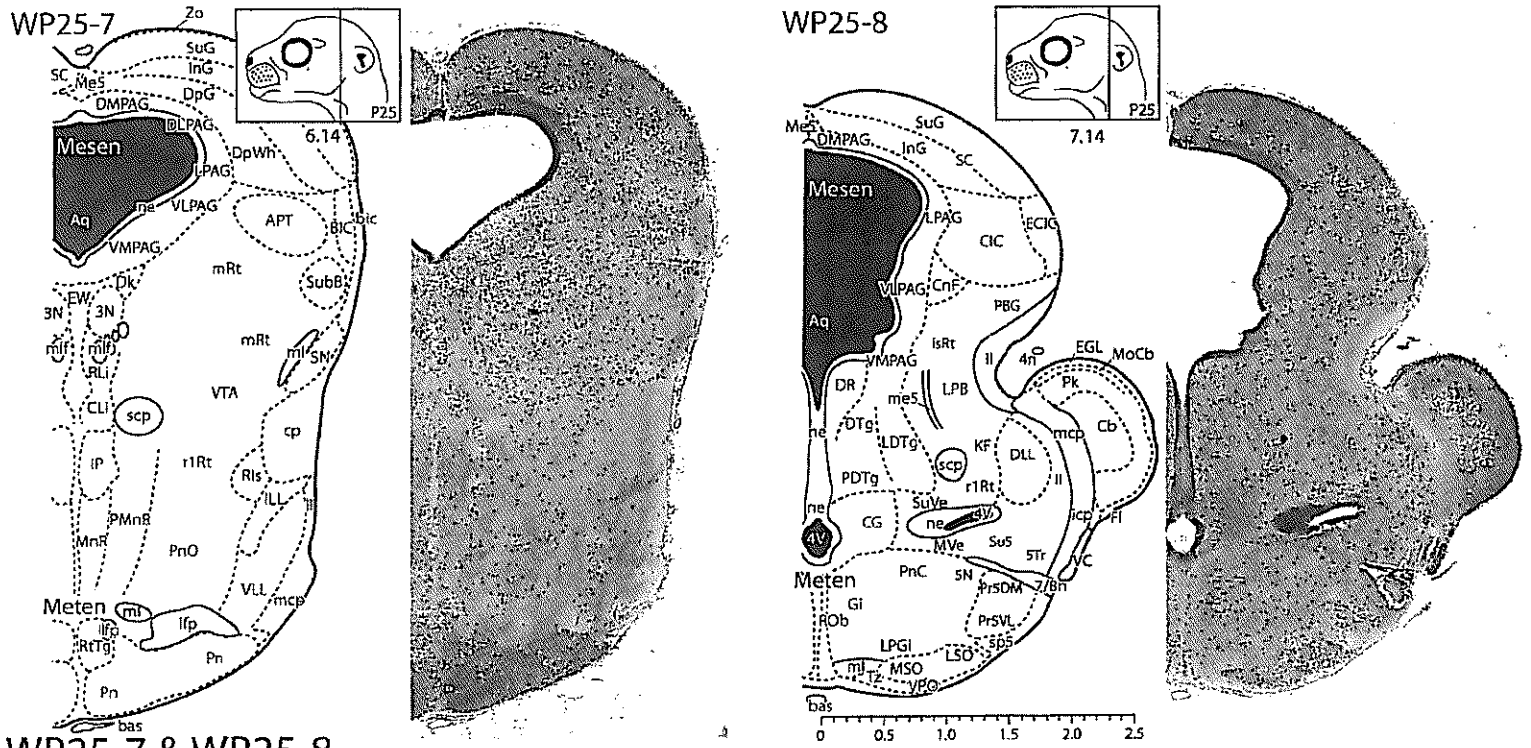


*	denotes precursor of structure	cp	cerebral peduncle	La	lateral amygdaloid nu.	PF	parafascicular thalamic nu.	STh	subthalamic nu.
ACo	anterior cortical amygdaloid area	CPu	caudate putamen (striatum)	LPL	lat. post. thalamic nu., lateral	PHD	post. hypothalamic area, dorsal	STIA	bed nu. st. intraamygdaloid div.
alv	alveus of the hippocampus	Cx	cerebral cortex	LPM	lat. post. thalamic nu., medial	Pir1	piriform cortex, layer 1	SubG	subgeniculate nu.
Amg	amygdala	D3V	dorsal 3rd ventricle	lpz	loose packed zone of cortical plate	Pir2	piriform cortex, layer 2	Subl	subincertal nu.
APT	anterior pretectal nu.	DA	dorsal hypothalamic area	LV	lateral ventricle	PLCo	posterolat. cortical amyg. area	SubV	subventricular layer of cortex
Arc	arcuate hypothalamic nu.	DEn	dorsal endopiriform nu.	MCPC	magnocell. nu. post. comm.	PLH	peduncular part of lat. hypothal.	Te	temporal cortex
Au1	primary auditory cortex	DG	dentate gyrus	mCx	marginal zone of developing cortex	Po	post. thalamic nuclear group	Telen	telencephalon
BL	basolateral amygdaloid nu.	Dien	diencephalon	MeAD	med. amyg. nu., anterodorsal	PrG	pregeniculate nu.	TG	tectal grey
BM	basomedial amygdaloid nu.	DLG	dorsal lateral geniculate nu.	MeAV	med. amyg. nu., anteroventral	Pu	putamen	TuLH	tuberal region lat. hypothalamus
bsc	brachium superior colliculus	DM	dorsomedial hypothalamic nu.	mfb	medial forebrain bundle	Re	reuniens thalamic nu.	V1	primary visual cortex
CA1	field CA1 of hippocampus	DS	dorsal subiculum	ml	medial lemniscus	rf	rhinal fissure	V2	secondary visual cortex
CA3	field CA3 of hippocampus	f	fornix	MPT	medial pretectal nu.	Rh	rhomboid thalamic nu.	V3V	ventral third ventricle
ccz	compact cell zone of cortical plate	fi	fimbria of the hippocampus	och	optic chiasm	RSG	retrosplenial granular cx	VEn	ventral endopiriform nu.
Ce	central amygdaloid nu.	fr	fasciculus retroflexus	opt	optic tract	SC	superior colliculus	VM	ventromedial thalamic nu.
chp	choroid plexus	Hi	hippocampus	OT	nu. of the optic tract	SCO	subcommissural organ	VMHDM	ventromed. hy. nu., dorsomedial
Cl	claustrum	hif	hippocampal fissure	pc	posterior commissure	SOR	supraoptic nu., retrochiasmatic	VMHVL	ventromed. hy. nu., ventrolateral
CM	central medial thalamic nu.	ICx	intermediate zone of cortex	Pe	periventricular hypothal. nu.	st	stria terminalis	VPL/M	ventral posterior thalamic nu.
								ZI	zona incerta



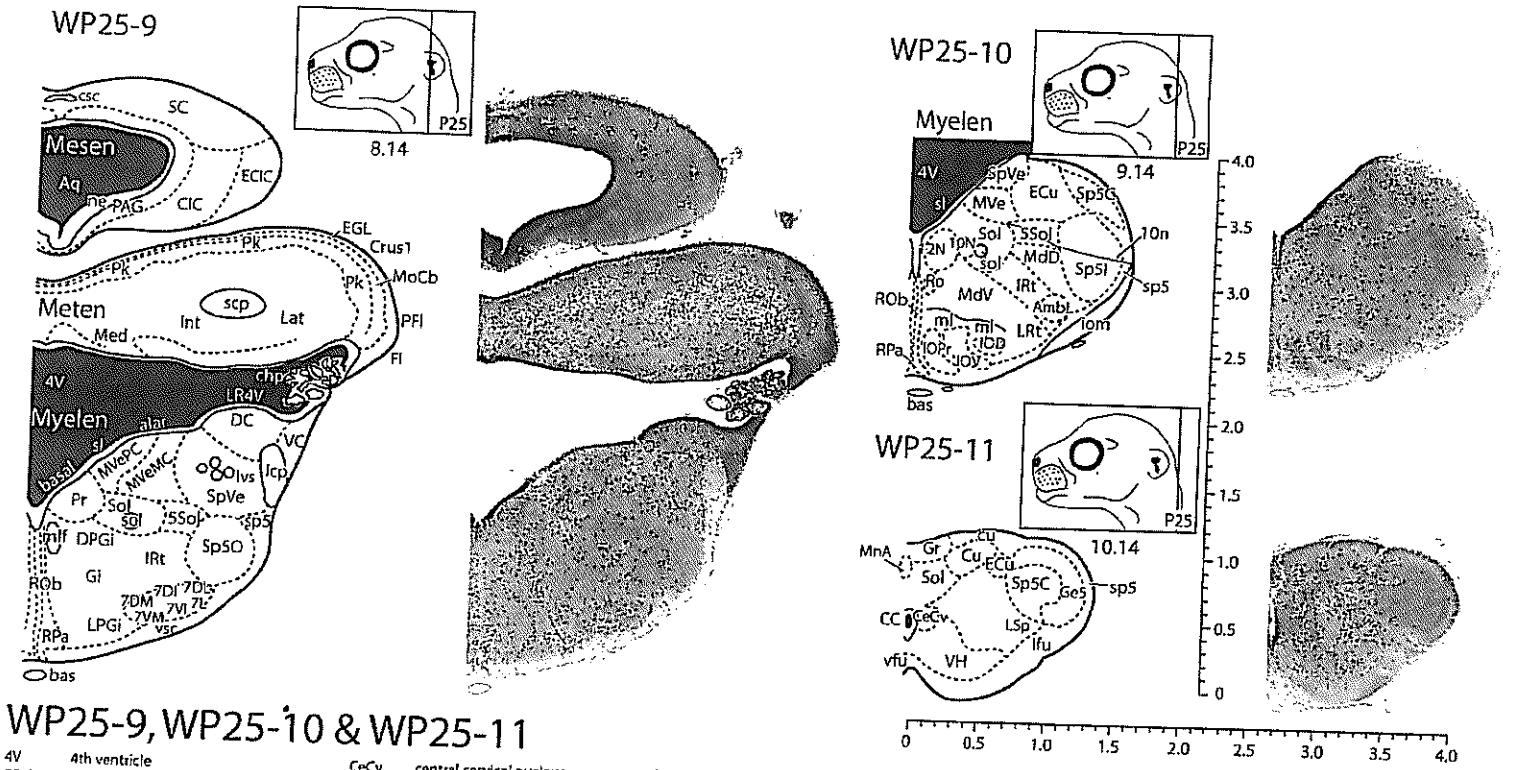
WP25-6

*	denotes precursor of structure
APT	anterior pretectal nucleus
Aq	cerebral aqueduct
ArcL	arcuate hypothal. nu., lateral
ArcM	arcuate hypothal. nu., medial
ccz	compact cell zone of cortical plate
cp	cerebral peduncle
Cx	cerebral cortex
Dien	diencephalon
DLPAG	dorsolateral periaqueductal grey
DM	dorsomedial hypothalamic nu.
DMPAG	dorsomedial periaqueductal grey
DpG	deep grey superior colliculus
DpWh	deep white superior colliculus
DT	dorsal terminal nucleus
f	fornix
FF	fields of Forel
fr	fasciculus retroflexus
ICx	intermediate zone of cortex
InG	intermediate grey layer SC
InWh	intermediate white layer SC
LEnt	lateral entorhinal cortex
LP	lateral posterior thalamic nucleus
LPAG	lateral periaqueductal grey
Lth	lithoid nucleus
LV	lateral ventricle
MA3	medial accessory oculomotor nu.
MCPC	magnocellular nu. post. commissure
mCx	marginal zone of developing cortex
ME	median eminence
MEnt	medial entorhinal cx
Mesen	mesencephalon
mfb	medial forebrain bundle
MG	medial geniculate nucleus
ml	medial lemniscus
mt	mamillothalamic tract
mtg	mamillotegmental tract
MTu	medial tuberal nucleus
Op	optic nerve layer of sup. colliculus
p1Rt	p1 reticular formation
PH	posterior hypothalamic nu.
PHD	post. hypothal. area, dorsal
PLH	peduncular part of lateral hypothal.
PrS	presubiculum
Re	reuniens thalamic nu.
SC	superior colliculus
scp	superior cerebellar peduncle
STh	subthalamic nucleus
SubV	subventricular layer cortex
SuG	superficial grey sup. coll.
TeD	dorsal temporal cortex
Telen	telencephalon
TeV	ventral temporal cortex
V1	primary visual cortex
V2	secondary visual cortex
V3V	ventral third ventricle
ZI	zona incerta



WP25-7 & WP25-8

3N	oculomotor nucleus	Dk	nucleus of Darkschewitsch	isRt	Isthmic reticular formation	MoCb	molecular layer of the Cb	ROb	raphe obscurus nucleus
4n	trochlear nerve	DLL	dorsal nu. of lateral lemniscus	KF	Kölliker-Fuse nucleus	mRt	mesencephalic reticular formation	RtTg	reticulotegmental nu. pons
4V	4th ventricle	DLPAG	dorsolateral periaqueductal grey	LDTg	laterodorsal tegmental nucleus	MSO	medial superior olive	SC	superior colliculus
5N	motor trigeminal nucleus	DMPAG	dorsomedial periaqueductal grey	lfp	longitudinal fasciculus pons	MVe	medial vestibular nucleus	scp	superior cerebellar peduncle
5Tr	trigeminal transition zone	DpG	deep grey of superior colliculus	li	lateral lemniscus	ne	neuroepithelium	SN	substantia nigra
7/8n	7/8th nerves	DpWh	deep white of superior colliculus	LPAG	lateral periaqueductal grey	PBG	parabigeminal nucleus	sp5	spinal trigeminal tract
APT	anterior pretectal nucleus	DR	dorsal raphe nucleus	LPB	lateral parabrachial nucleus	PDTg	posterodorsal tegmental nucleus	Su5	supratrigeminal nucleus
Aq	cerebral aqueduct	DTg	dorsal tegmental nucleus	LPGi	lateral paragigantocellular nu.	Pk	Purkinje cell layer of cerebellum	SubB	subbrachial nucleus
bas	basilar artery	ECIC	external cortex of inferior colliculus	LSO	lateral superior olive	PMnR	paramedian raphe nucleus	SuG	superficial grey of sup. colliculus
BIC	nu. brachium inferior colliculus	EGL	external granular layer of Cb	mcp	middle cerebellar peduncle	Pn	pontine nuclei	SuVe	superior vestibular nucleus
bic	brachium inferior colliculus	EW	Edinger-Westphal nucleus	Me5	mesencephalic trigeminal nu.	PnC	pontine reticular nu., caudal	Tz	nu. of trapezoid body
Cb	cerebellum	Fl	flocculus of cerebellum	me5	mesencephalic trigeminal tract	PnO	pontine reticular nu., oral	VC	ventral cochlear nucleus
CG	central grey	Gi	gigantocellular reticular nucleus	Mesen	mesencephalon	PrSDM	principal sens. trigem. nu., dorsomed.	VLL	ventral nu. of lateral lemniscus
CIC	central nucleus of the inf. colliculus	icp	inferior cerebellar peduncle	Meten	metencephalon	PrSVL	principal sens. trigem. nu., ventrolat.	VLPAG	ventrolateral periaqueductal grey
CLi	caudal linear nu. of the raphe	ILL	intermed. nu. of the lat. lemniscus	ml	medial lemniscus	r1Rt	r1 reticular formation	VMPAG	ventromed. periaqueductal grey
CnF	cuneiform nucleus	InG	intermediate grey layer of the SC	mlf	medial longitudinal fasciculus	RIs	retroisthmic nucleus	VPO	ventral periolivary nucleus
cp	cerebral peduncle	IP	interpeduncular nucleus	MnR	median raphe nucleus	RLi	rostral linear nucleus (of midbrain)	VTA	ventral tegmental area
								Zo	zona layer of the sup. colliculus



WP25-9, WP25-10 & WP25-11

4V	4th ventricle
5Sol	trigeminal-solitary transition zone
7DI	facial nu., dorsal intermediate subnu.
7DL	facial nu., dorsolateral subnu.
7DM	facial nu., dorsomedial subnu.
7L	facial nu., lateral subnu.
7VI	facial nu., ventral intermediate subnu.
7VM	facial nu., ventromedial subnu.
10N	vagus nerve motor nu.
10n	vagus nerve
12N	hypoglossal nu.
alar	alar plate of medulla
AmbL	ambiguus nu., loose part
Aq	cerebral aqueduct
bas	basilar artery
basal	basal plate
CC	central canal
CeCv	central cervical nucleus
chp	choroid plexus
CIC	central nu. of the *inf. colliculus*
Crus1	*crus 1* of ansiform lobule
csc	commissure of superior colliculus
Cu	cuneate nucleus
cu	cuneate fasciculus
DC	dorsal cochlear nucleus
DPGi	dorsal paragigantocellular nucleus
ECIC	external cortex inferior colliculus
ECu	external cuneate nucleus
EGL	external granular layer of Cb
Fl	flocculus of cerebellum
Ge5	gelatinous layer of caudal Sp5
Gi	gigantocellular reticular nu.
Gr	gracile nucleus
icp	inferior cerebellar peduncle
Int	interposed deep cerebellar nu.
IOD	inferior olive, dorsal nucleus
iom	inferior olivary neuron migration
IOPr	inferior olive, principal nu.
IOV	inferior olive, ventral nu.
IRt	intermediate reticular nu.
Lat	lateral deep cerebellar nu.
lfu	lateral funiculus
LPGi	lateral paragigantocellular nu.
LR4V	lateral recess of 4th ventricle
LRt	lateral reticular nucleus
LSp	lateral spinal nucleus
lvs	lateral vestibulospinal tract
MdD	medullary reticular nu., dorsal
MdV	medullary reticular nu., ventral
Med	medial deep cerebellar nucleus
Mesen	mesencephalon
Meten	metencephalon
ml	medial lemniscus
mlf	medial longitudinal fasciculus
MnA	median access. nu. of medulla
MoCb	molecular layer of the Cb
MVe	medial vestibular nucleus
MVeMC	med. vestib. nu., magnocellular
MVePC	med. vestib. nu., parvicellular
Myelen	myelencephalon
ne	neuroepithelium
PAG	periaqueductal grey
PFl	paraflocculus
Pk	Purkinje cell layer of cerebellum
Pr	prepositus nucleus
Ro	nucleus of Roller
ROb	raphe obscurus nucleus
RPa	raphe pallidus nucleus
SC	superior colliculus
scp	superior cerebellar peduncle
sl	sulcus limitans
Sol	solitary nucleus
sol	solitary tract
sp5	spinal trigeminal tract
Sp5C	spinal trigeminal nu., caudalis
Sp5I	spinal trigeminal nu., interpolaris
Sp5O	spinal trigeminal nu., oralis
SpVe	spinal vestibular nu.
VC	ventral cochlear nu.
vfu	ventral funiculus
VH	ventral horn of spinal cord
vsc	ventral spinocerebellar tract