



**DEPARTAMENTO DE CIÊNCIAS BIOLÓGICAS
DISCIPLINA DE HISTOLOGIA**

Tecido Nervoso

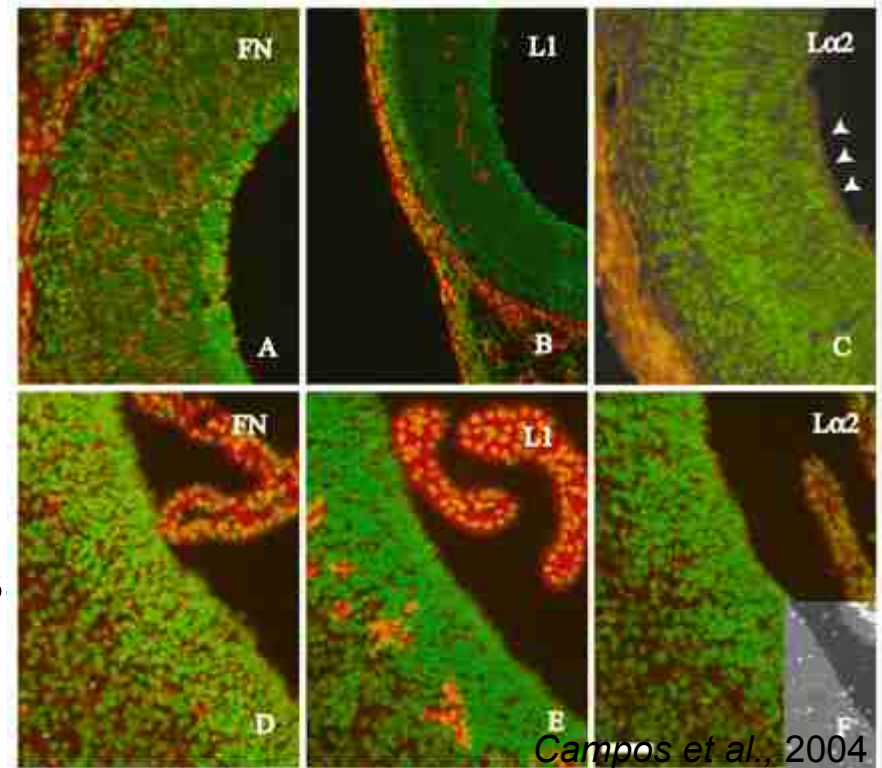
Profa. Dra. Virgínia Oliveira Crema

1º Semestre 2008

CONSTITUIÇÃO

- neurônios
- células neurogliais
- matriz extracelular

(fibronectina, laminina) muito escass

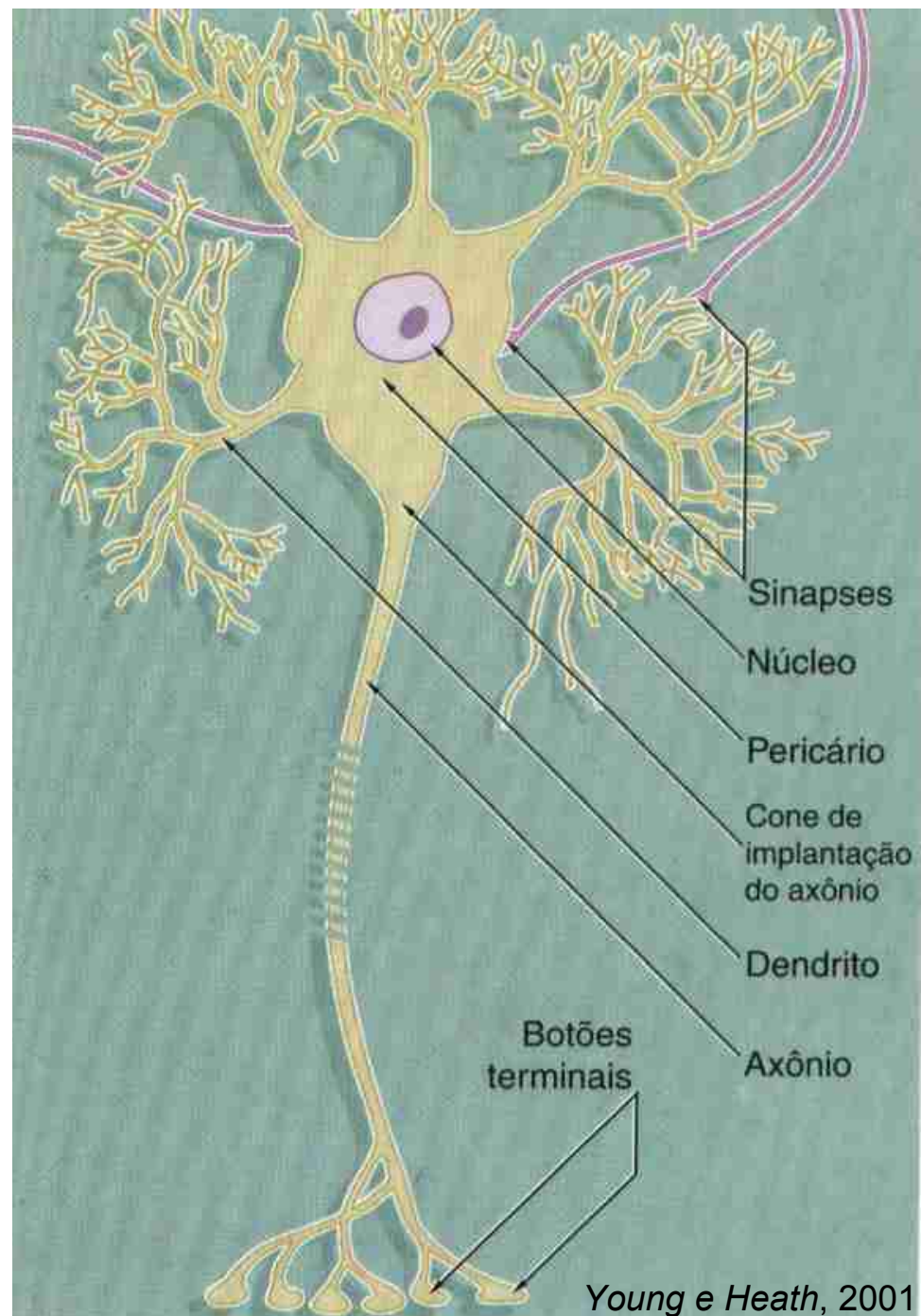


ESTRUTURA DOS NEURÔNIOS

corpo celular

dendritos

axônio



NEURÔNIOS

CLASSIFICAÇÃO

FUNCIONAL

sensoriais

motores

interneurônios

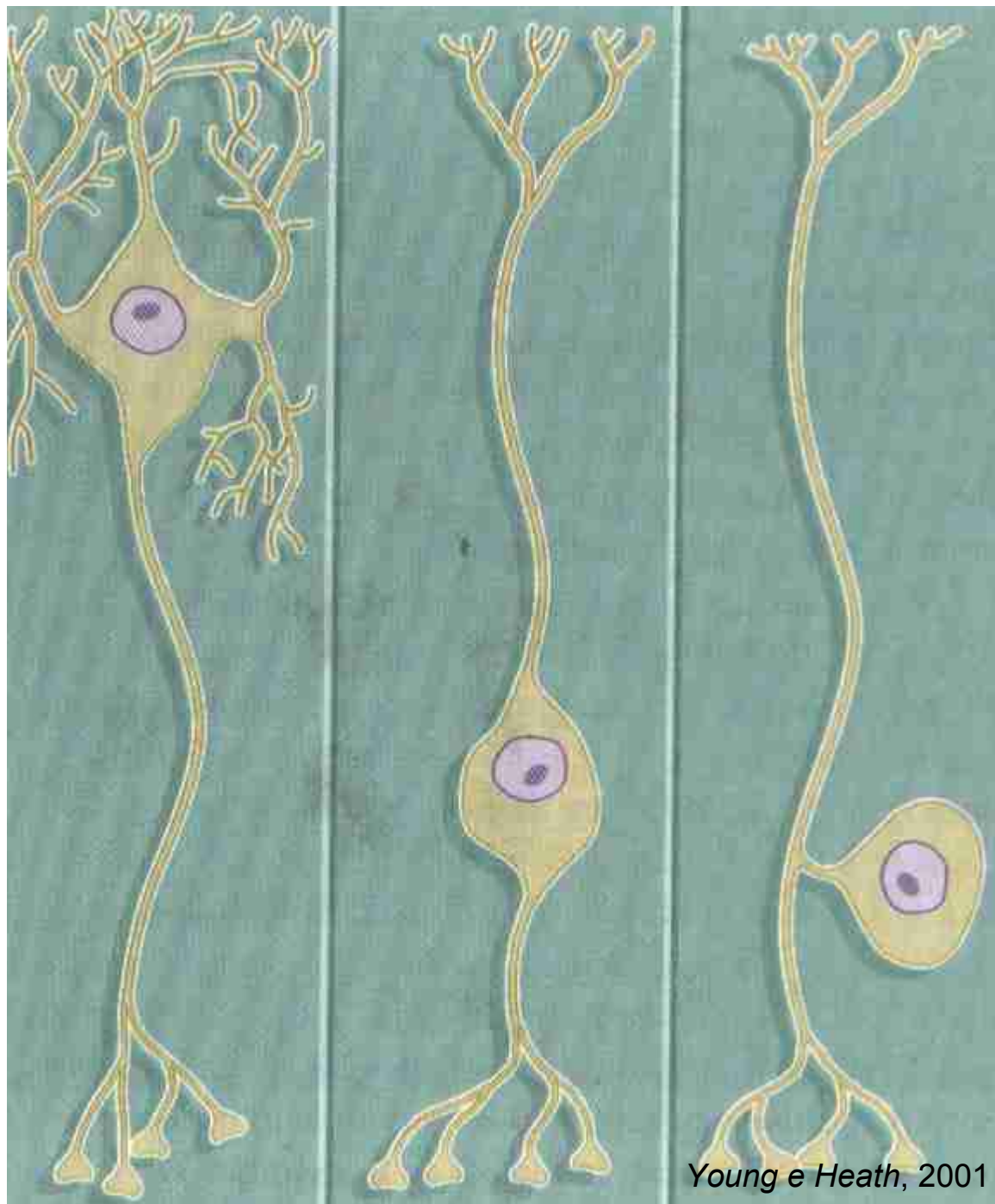


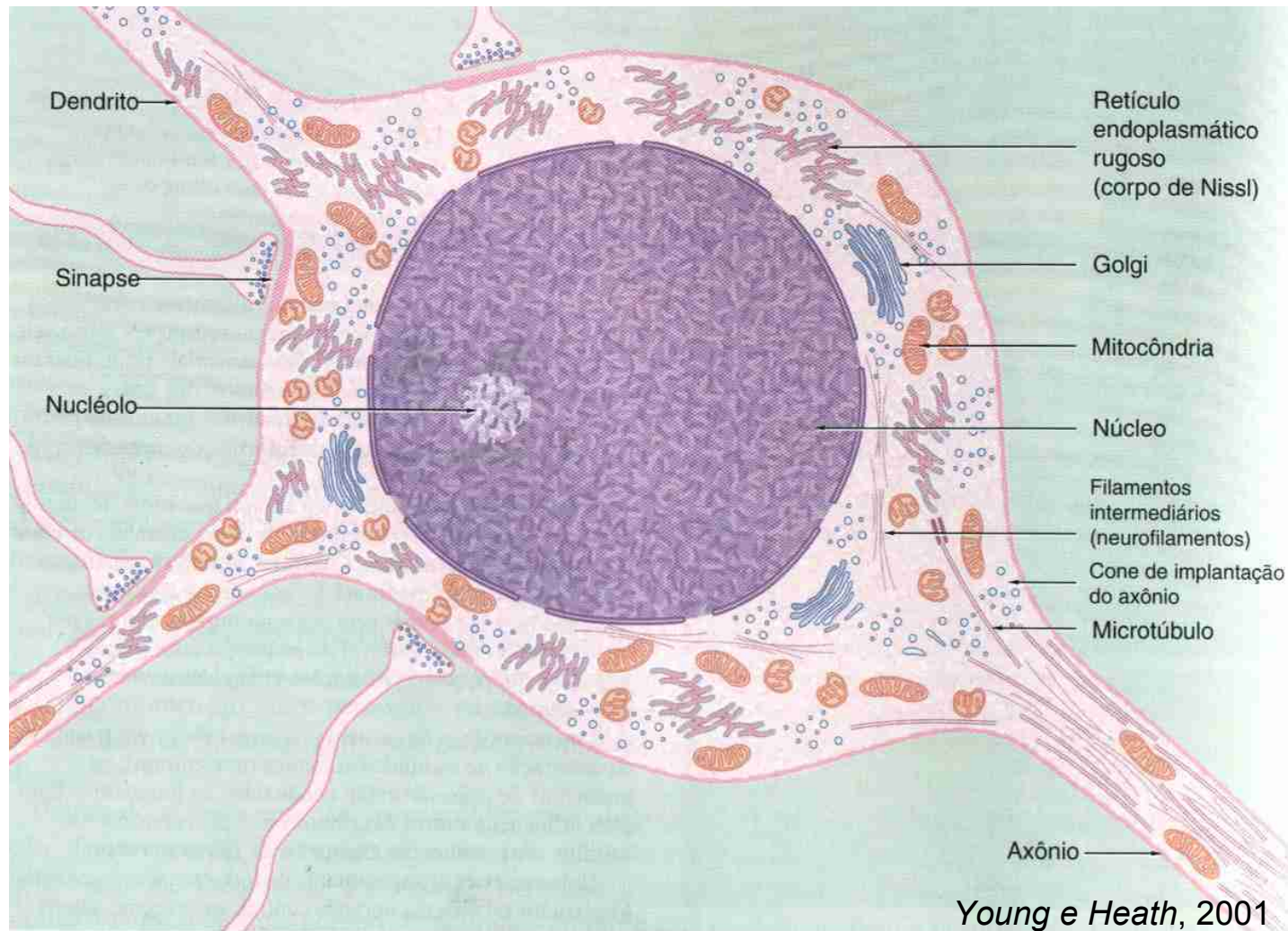
NEURÔNIOS
CLASSIFICAÇÃO
MORFOLÓGICA

multipolares

bipolares

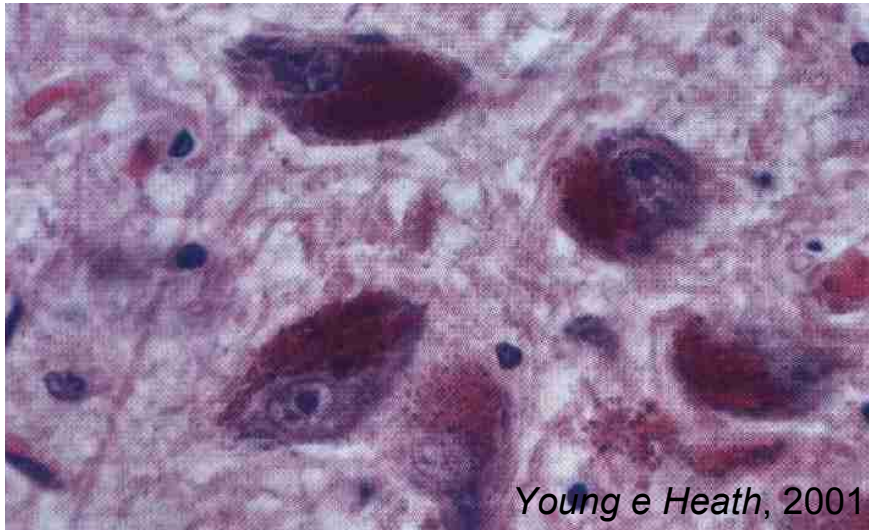
pseudo-unipolares





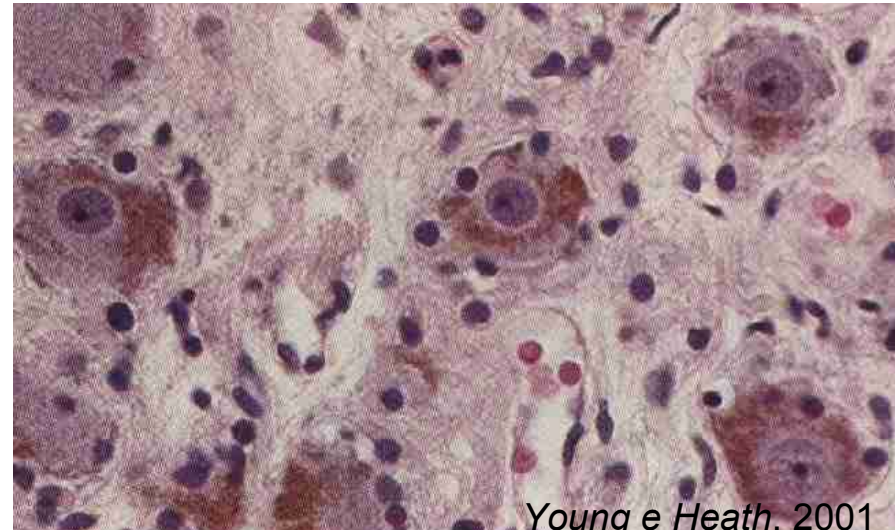


INCLUSÕES



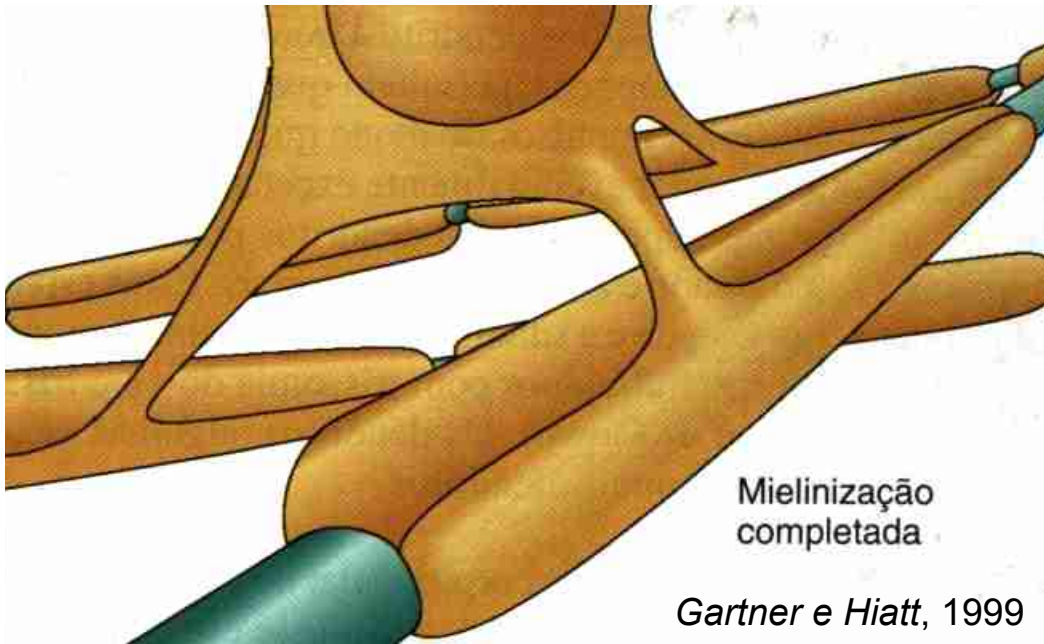
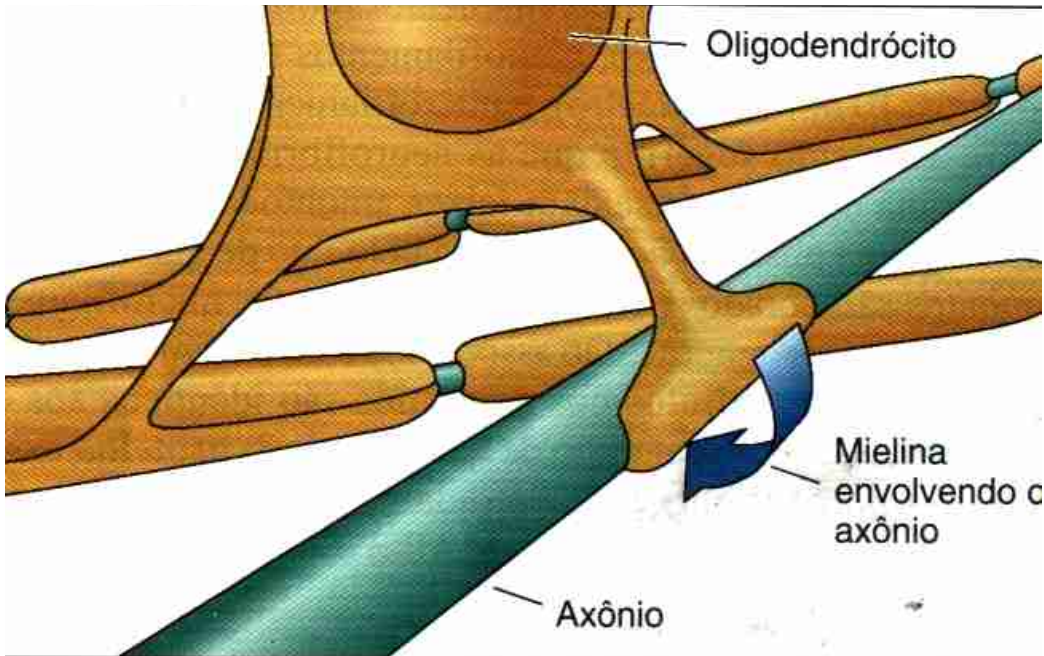
Young e Heath, 2001

Melanina



Young e Heath, 2001

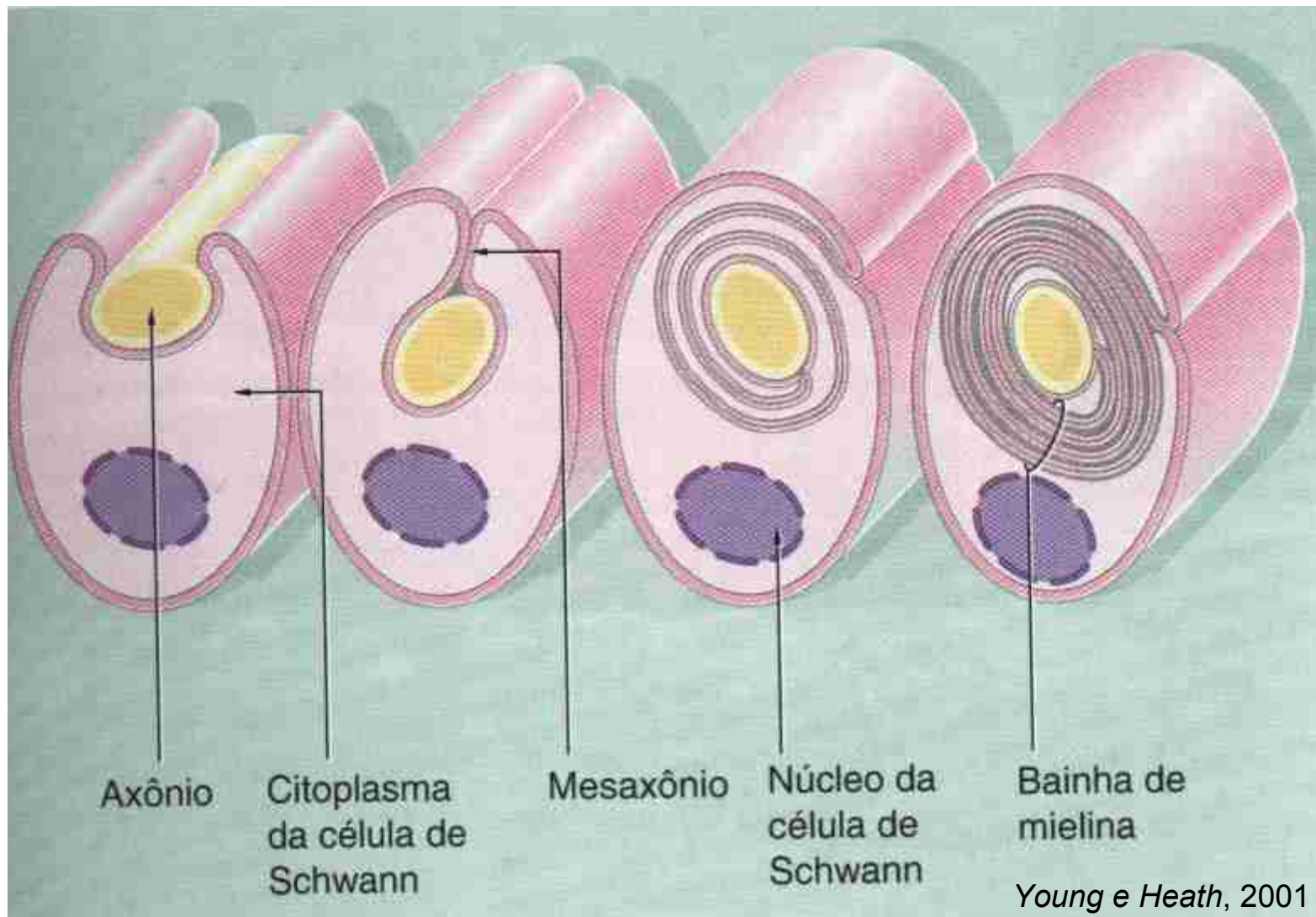
Lipofuscina

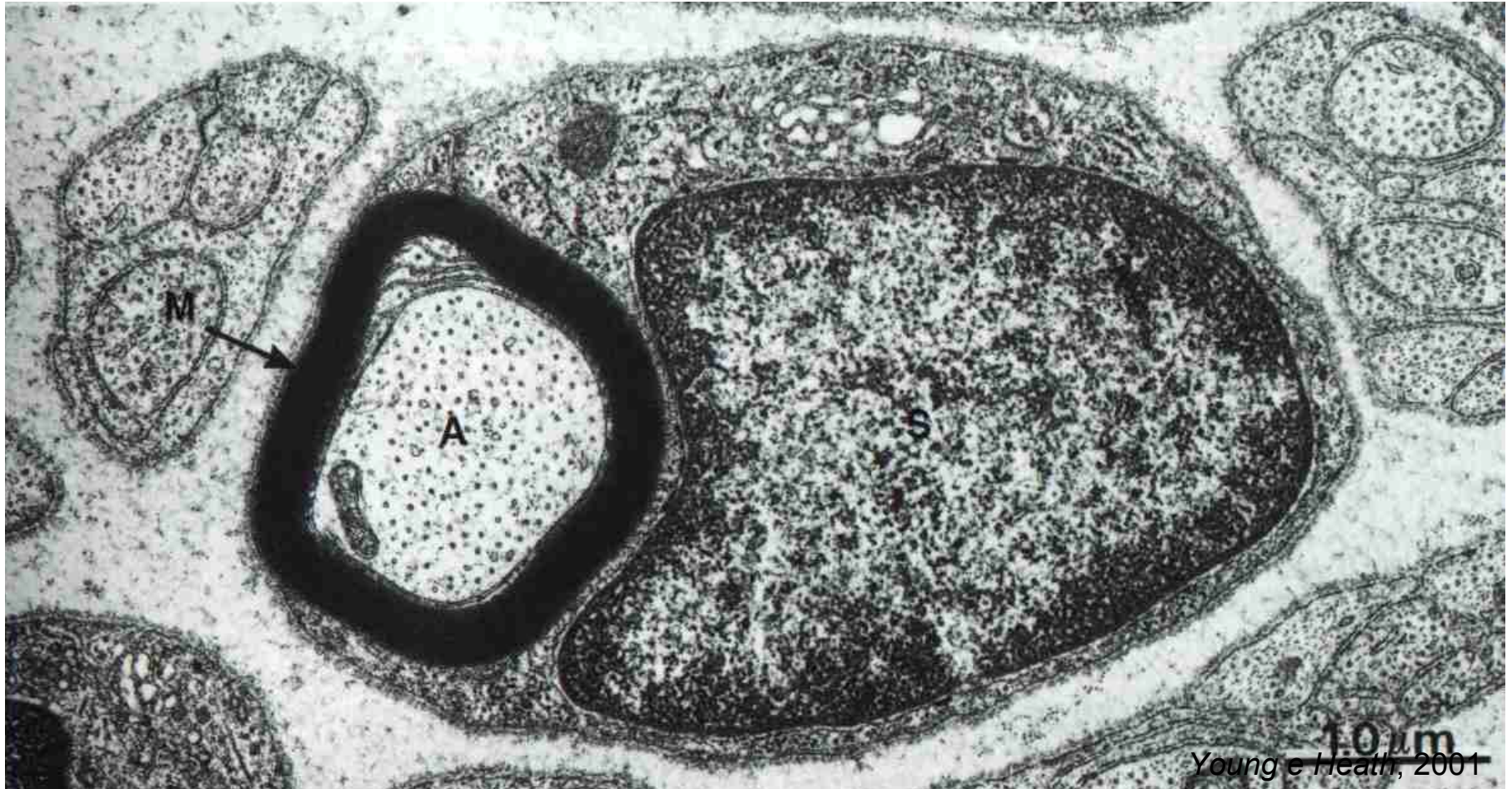


Gartner e Hiatt, 1999

MELINIZAÇÃO NO SNC OLIGODENDRÓCITOS

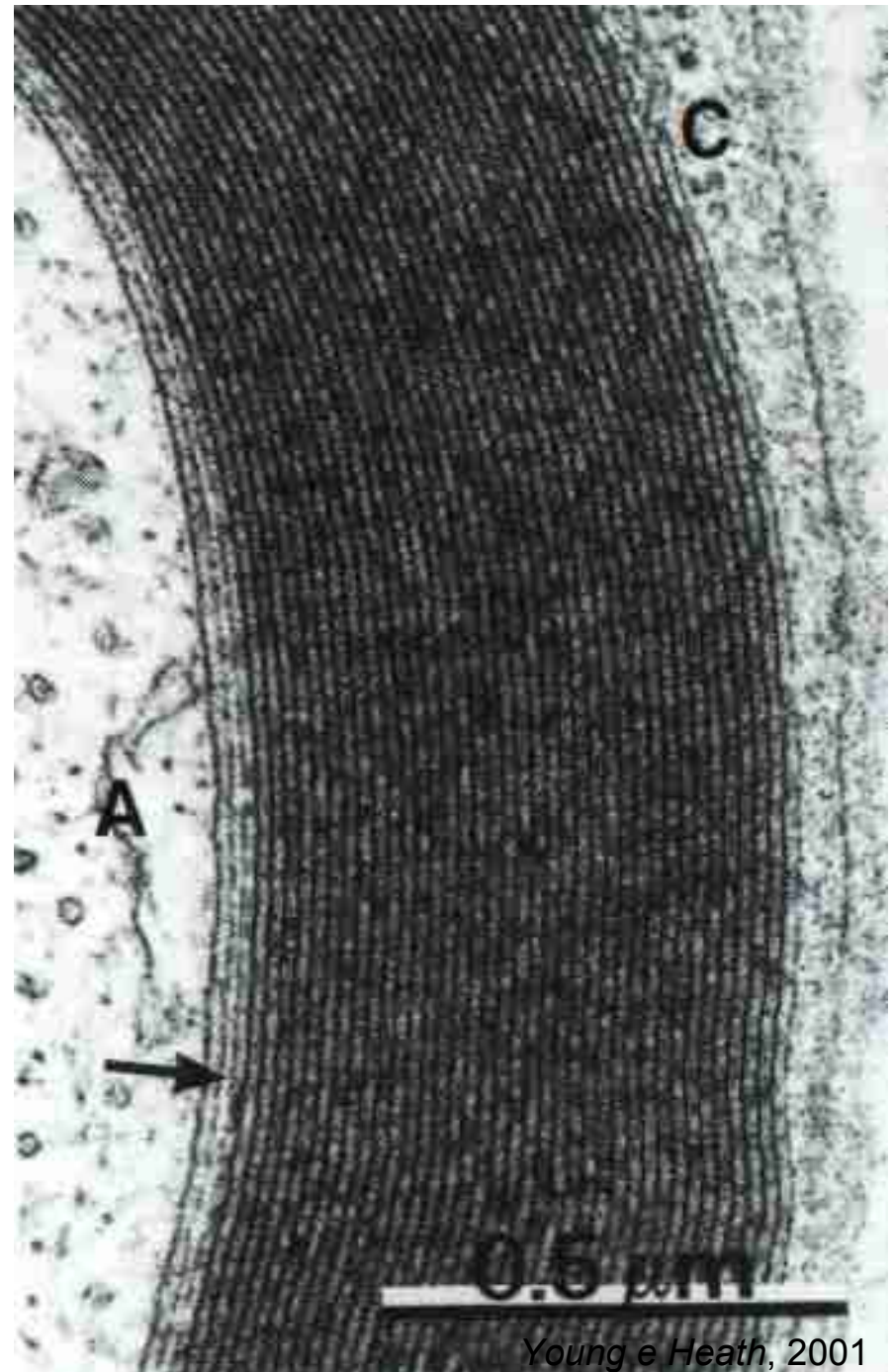
MELINIZAÇÃO NO SNP - CÉLULAS DE SWANN



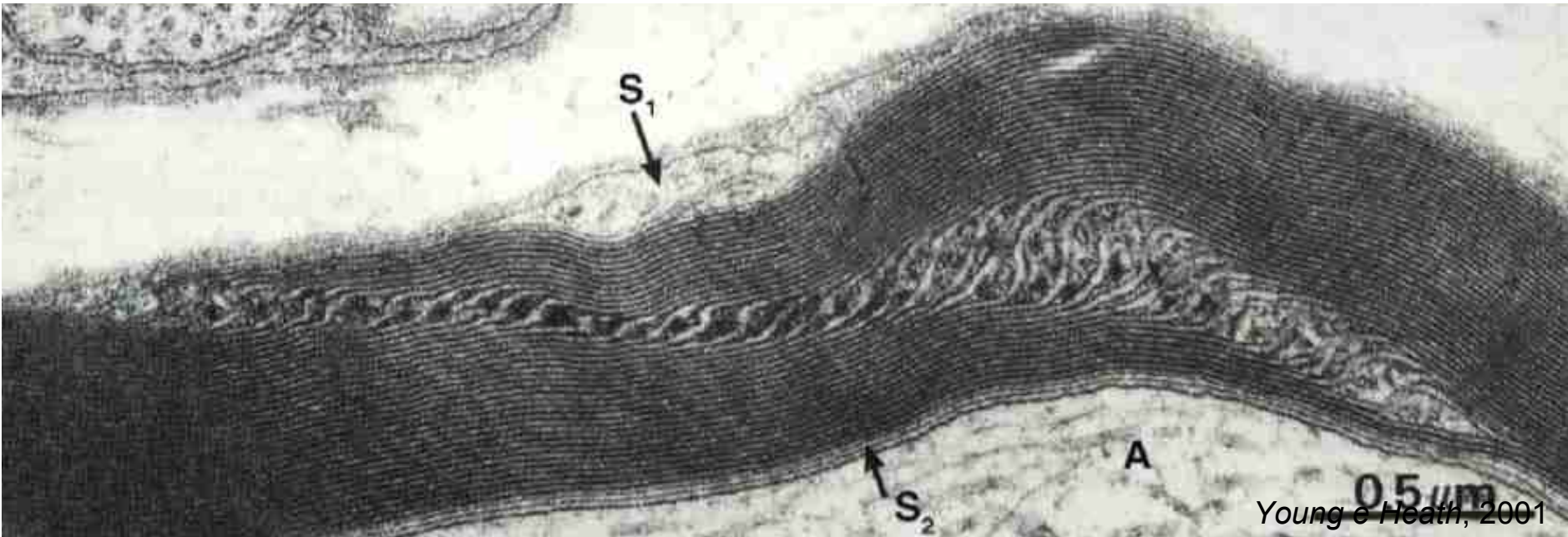


FIBRA NERVOSA MIELINIZADA NO SNP

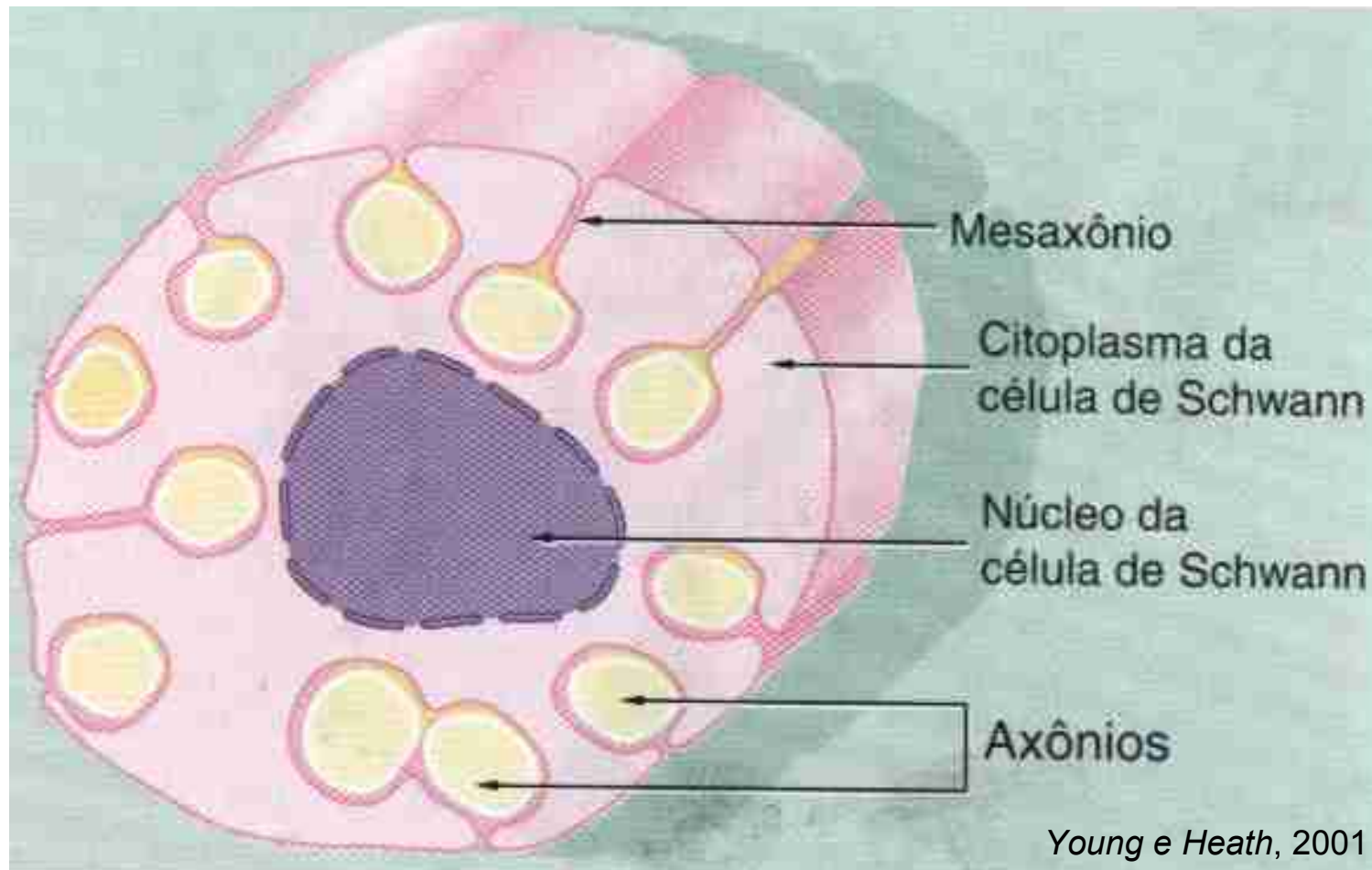
BAINHA DE MIELINA



INCISURA DE SHIMIDT-LANTERMAN



FIBRAS NERVOSAS NÃO-MIELINIZADAS NO SNP

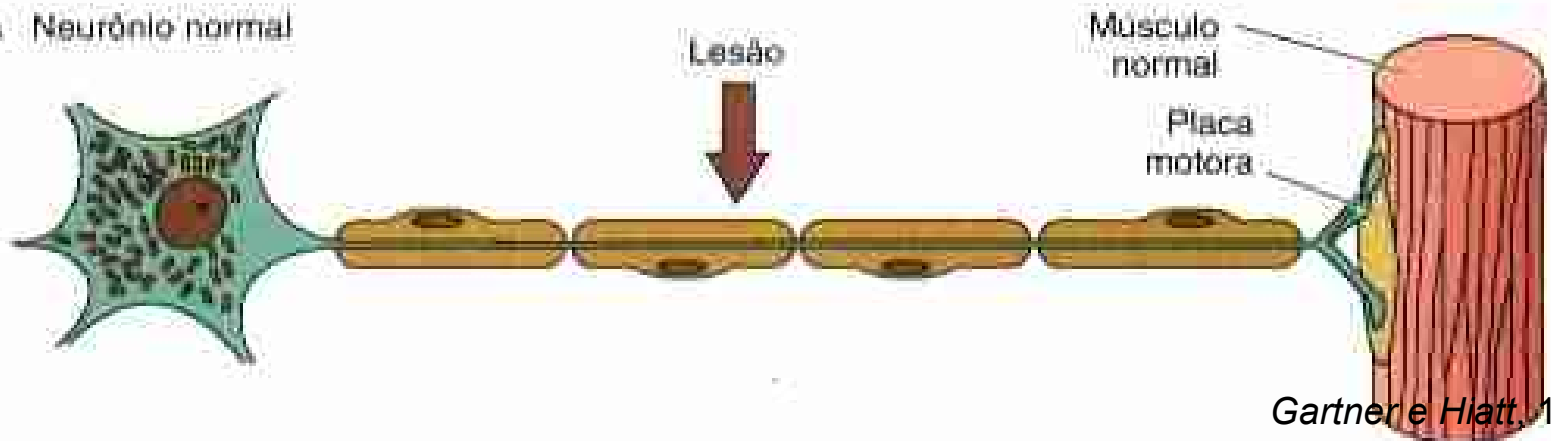




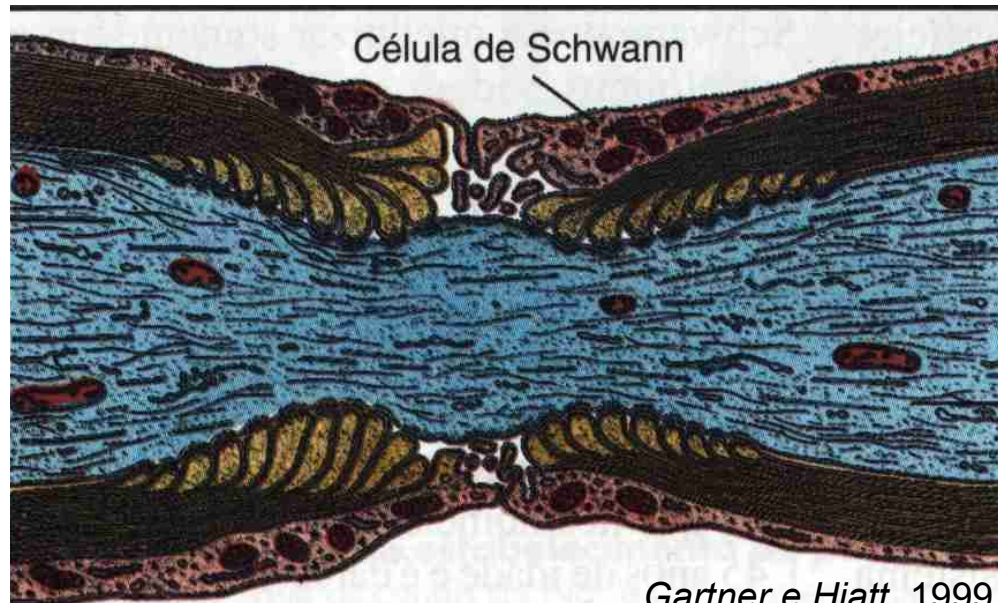
FIBRAS NERVOSAS NÃO-MIELINIZADAS NO SNP

NÓDULOS DE RANVIER

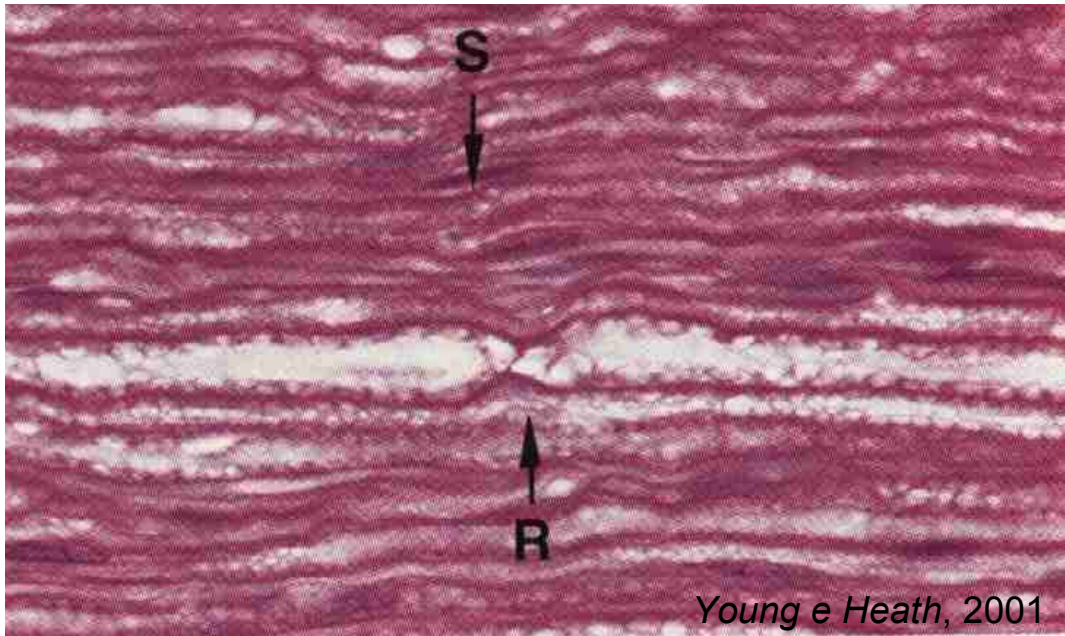
A Neurônio normal



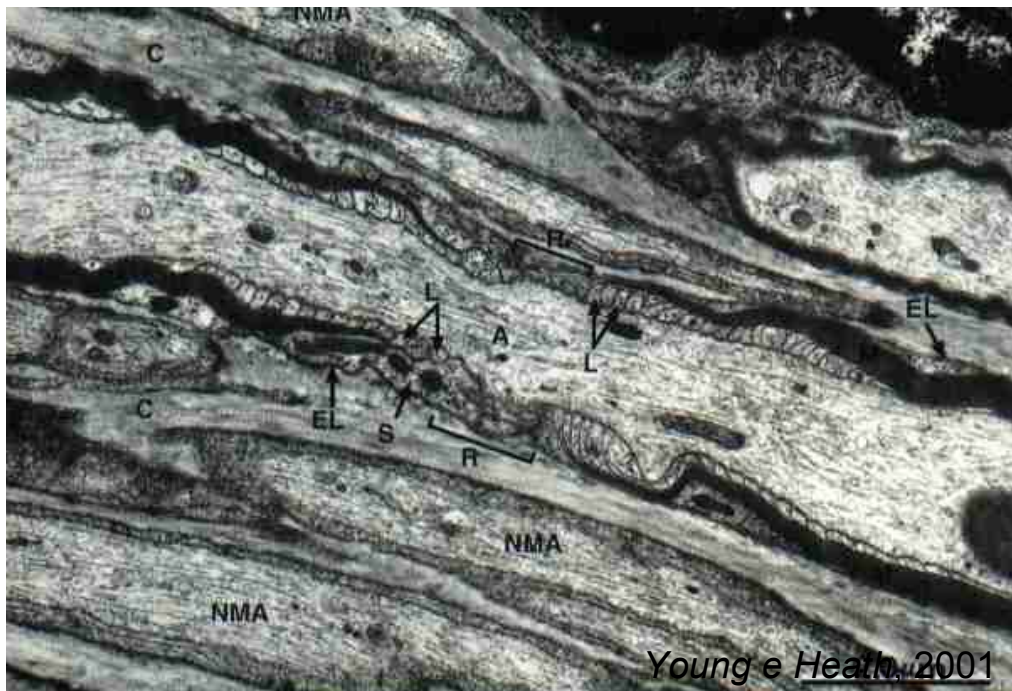
Gartner e Hiatt, 1999



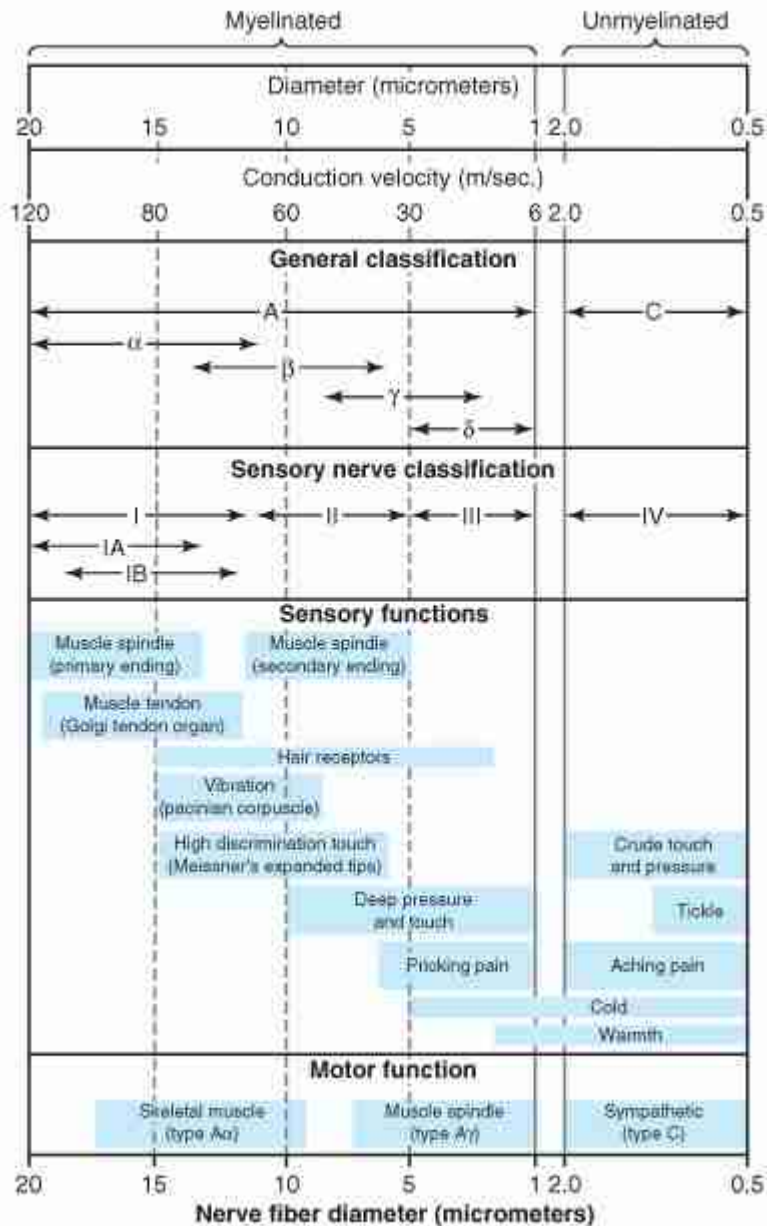
Gartner e Hiatt, 1999

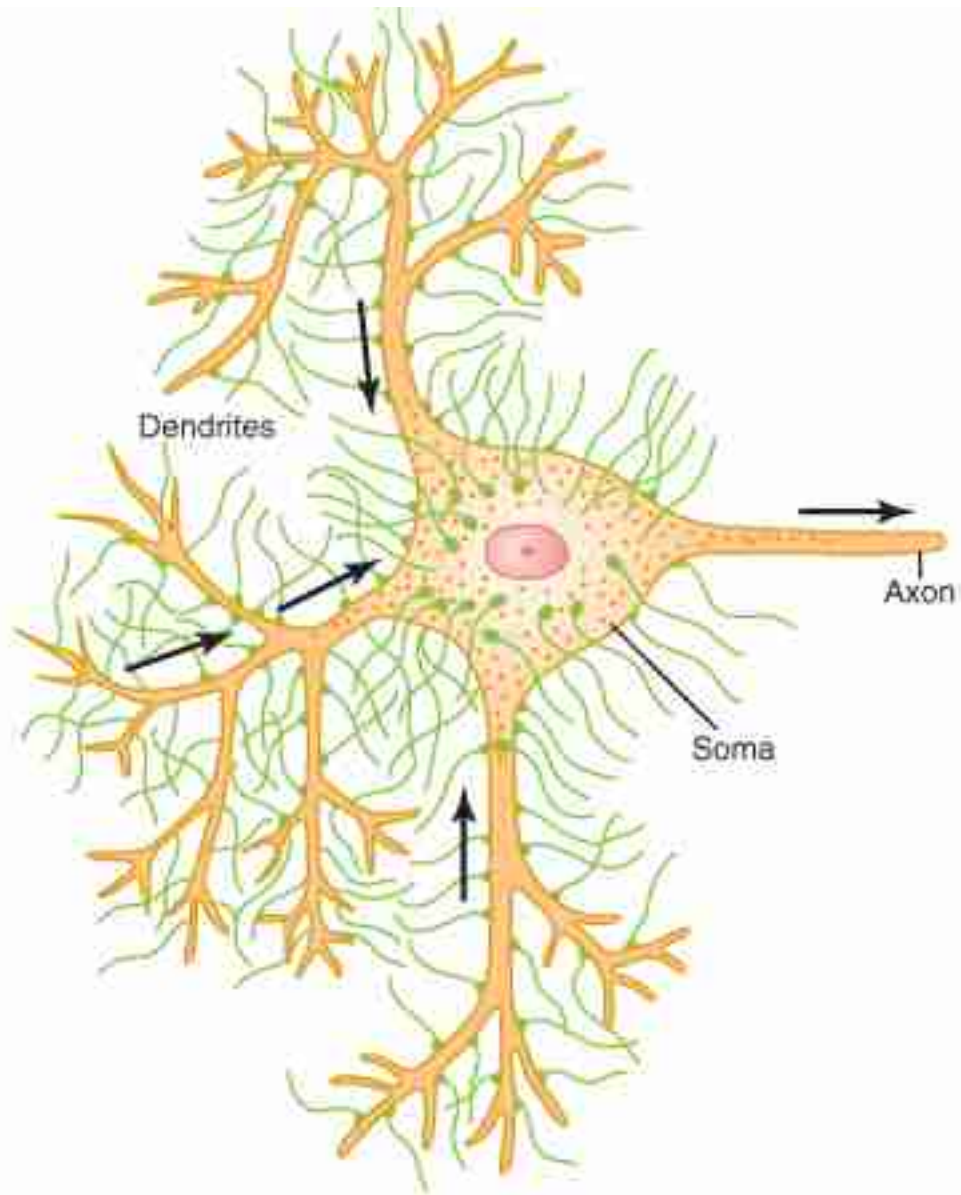


Young e Heath, 2001



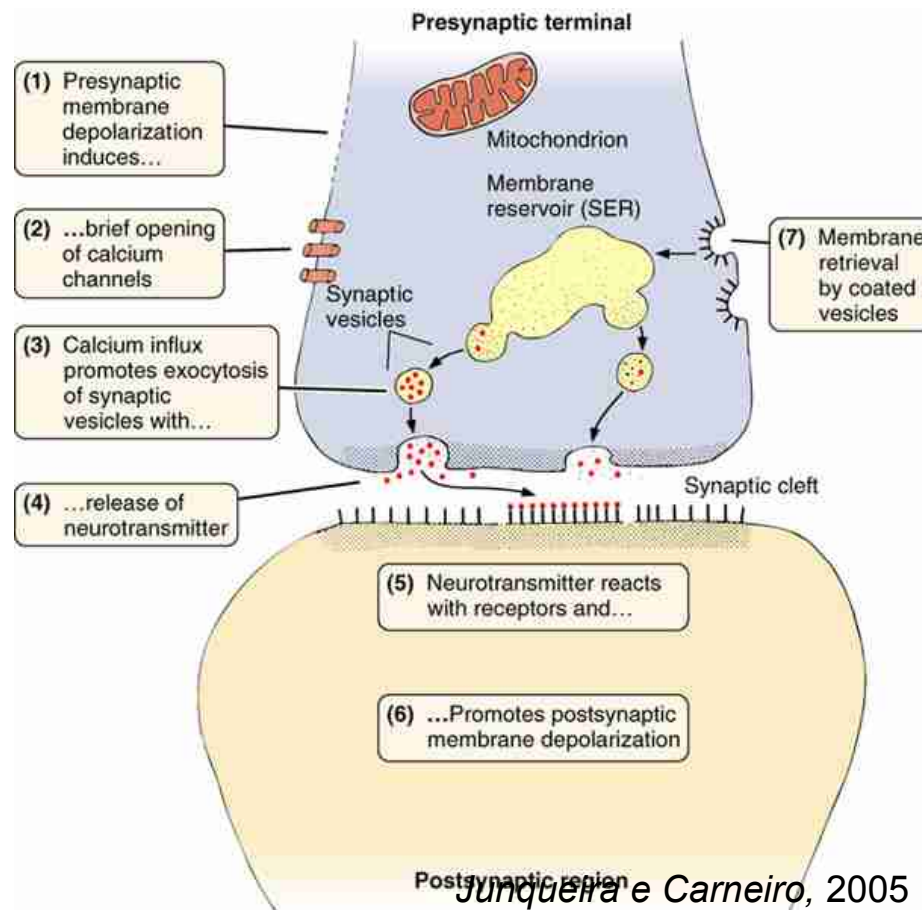
Young e Heath, 2001



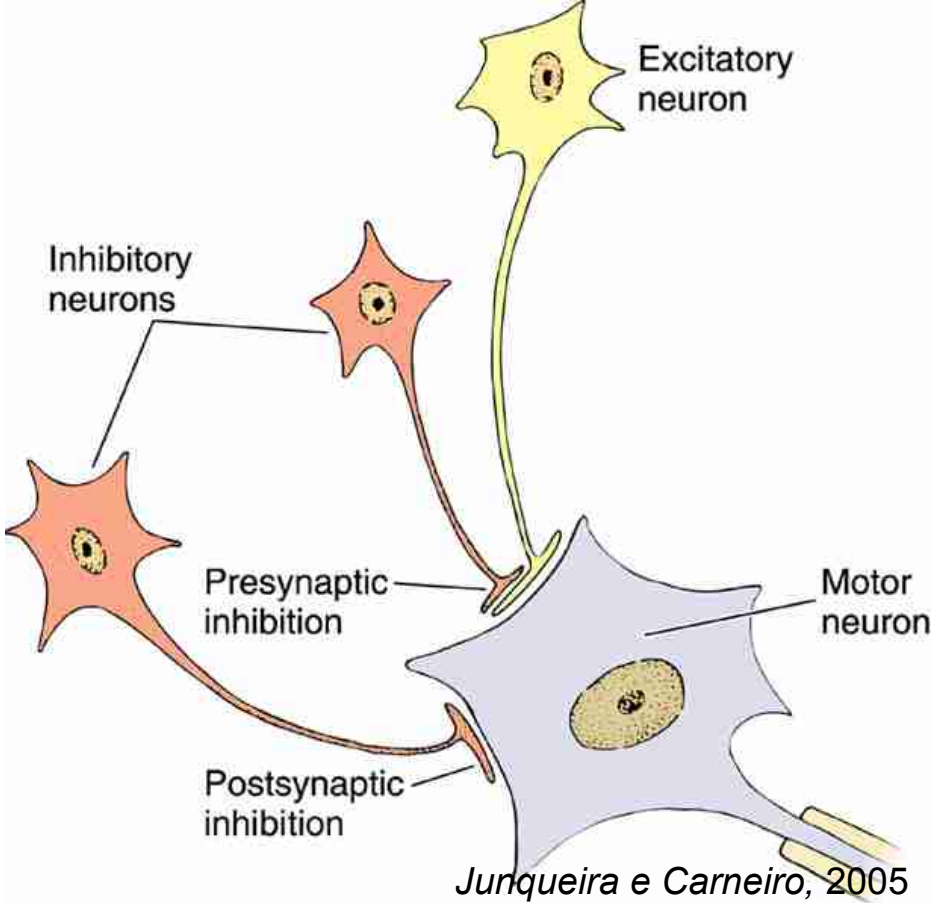


SINAPSES QUÍMICAS

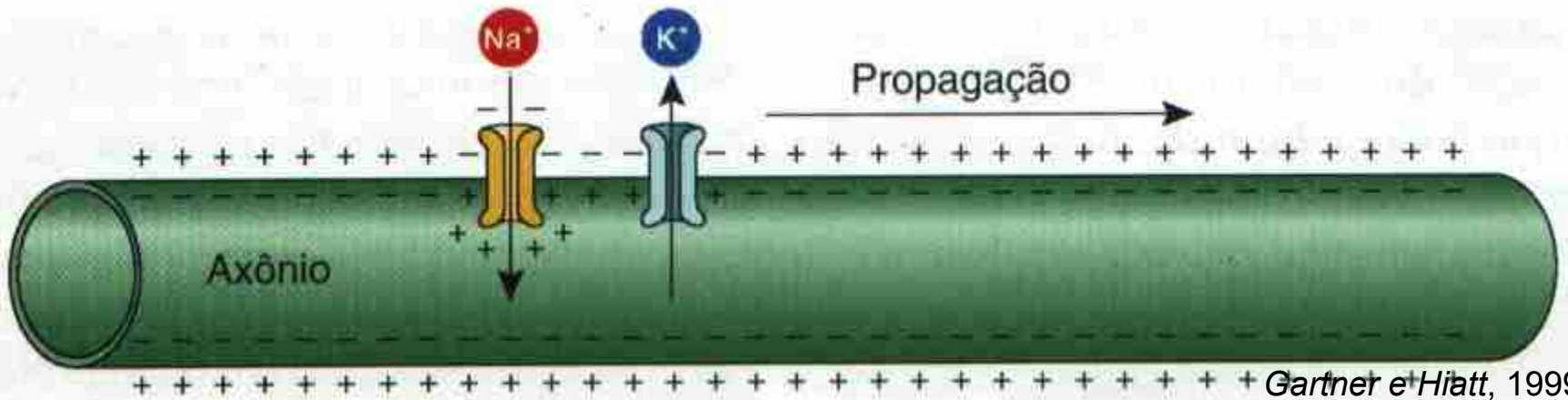
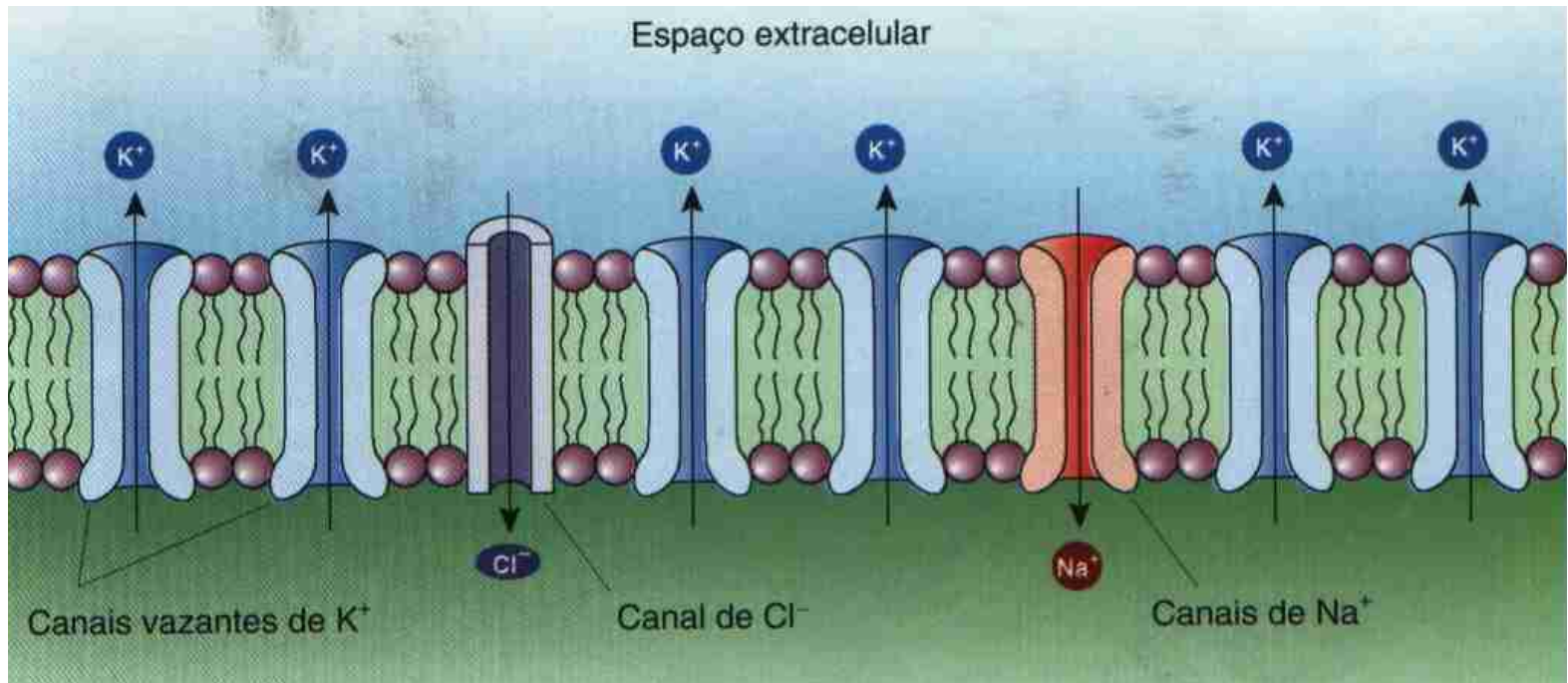
- Estímulo de uma célula pré-sináptica (neurônio) é transmitido para uma célula pós-sináptica (neurônio, célula muscular ou glandular)

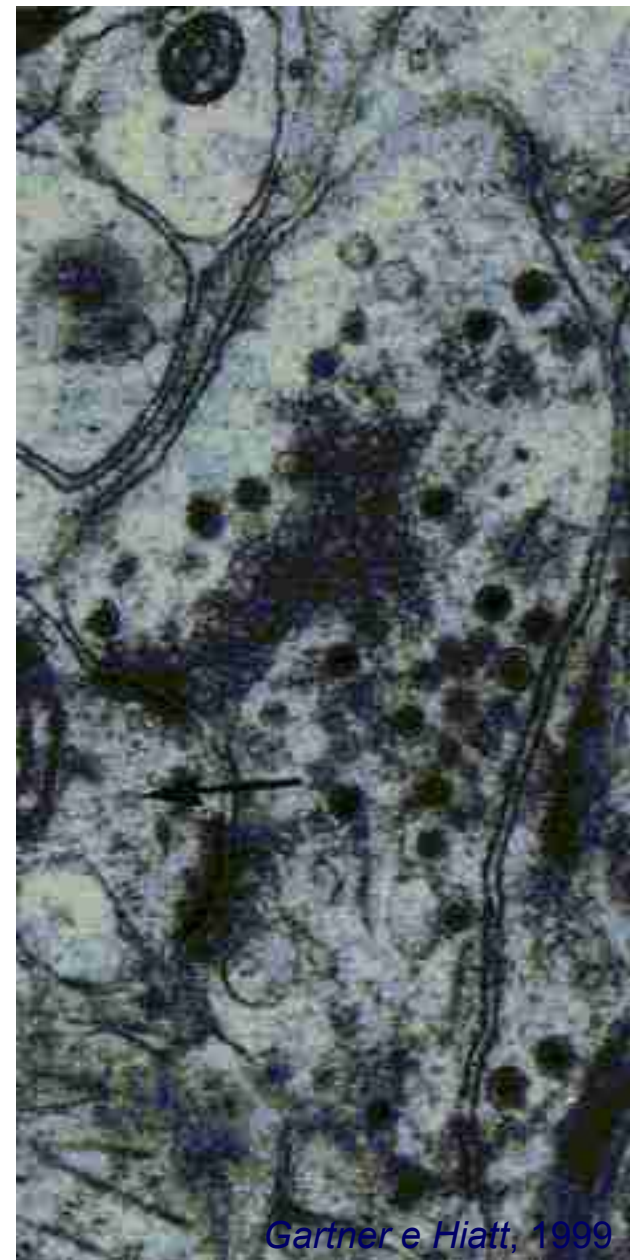
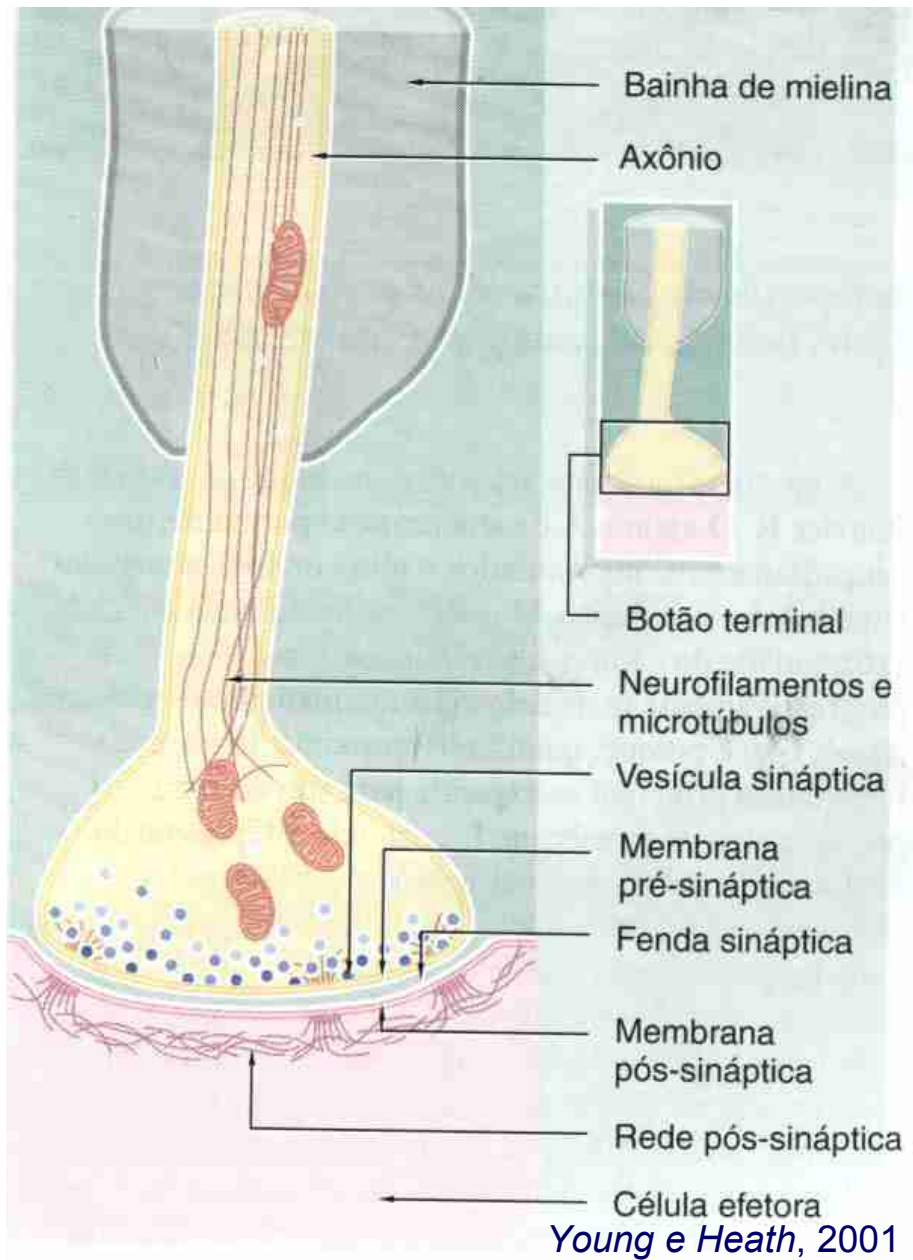


SINAPSES



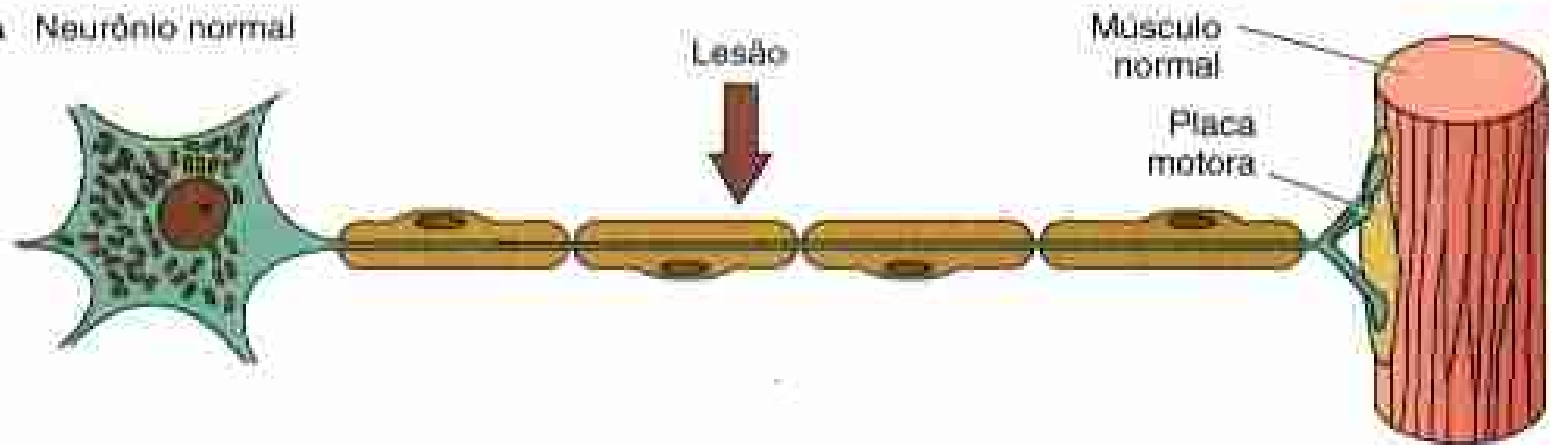
GERAÇÃO DOS IMPULSOS NERVOSOS





Neurotransmissor	Grupo de Compostos	Função
Acetilcolina	Não-aminoácido, pequena molécula transmissora	Junções mioneurais; todas as sinapses parassimpáticas; e sinapses simpáticas pré-ganglionares
Noradrenalina	Pequena molécula transmissora; amina biógena; catecolamina	Sinapses simpáticas pós-ganglionares (exceto para glândulas sudoríparas écrinas)
Ácido glutâmico	Pequena molécula transmissora; aminoácido	Sensitiva pré-sináptica e córtex; mais comum neurotransmissor excitatório do SNC
Ácido γ -aminobutírico (GABA)	Pequena molécula transmissora; aminoácido	Mais comum neurotransmissor inibidor do SNC
Dopamina	Pequena molécula transmissora; amina biógena; catecolamina	Gânglio basal do SNC; inibidora
Serotonina	Pequena molécula transmissora; amina biógena	Inibe a dor; controle do humor; sono
Glicina	Pequena molécula transmissora; aminoácido	Medula espinhal; inibidora
Endorfina	Neuropeptídeo; peptídeo opióide	Analgésico; inibe a transmissão da dor?
Encefalinas	Neuropeptídeo; peptídeo opióide	Analgésico; inibe a transmissão da dor?

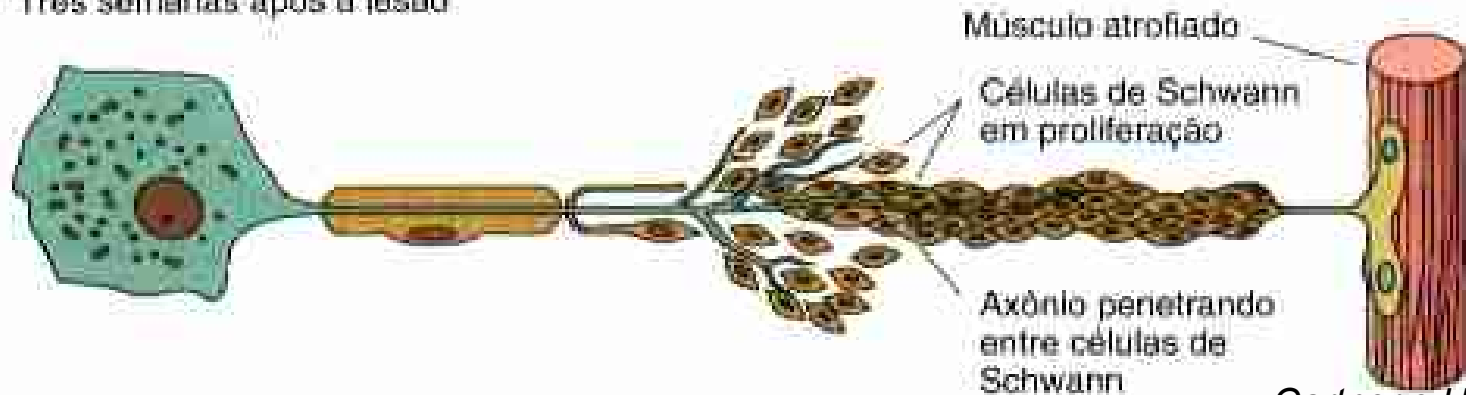
A Neurônio normal



B Duas semanas após a lesão



C Três semanas após a lesão



Regeneração bem sucedida do nervo



Regeneração mal sucedida do nervo

E Meses após a lesão



TIPOS DE CÉLULAS DA NEURÓGLIA

Astrócitos

Oligodendrócitos

Micróglia

Ependimárias

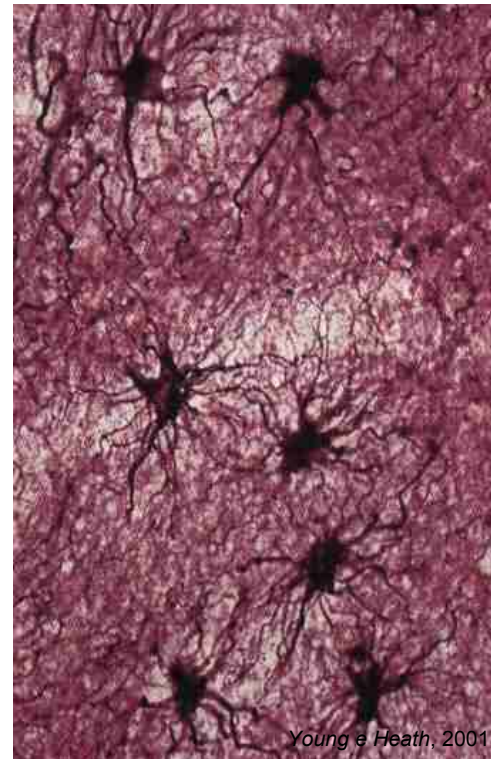
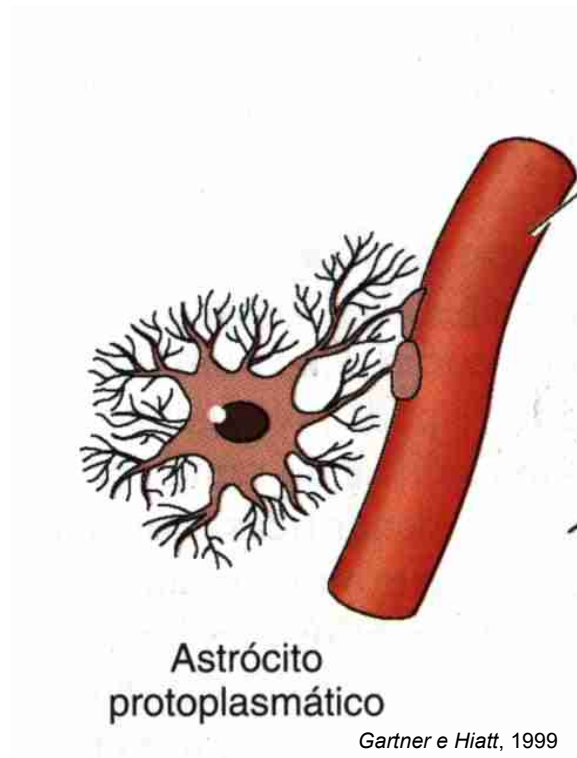
Células de Schwann

ASTRÓCITOS

- Satélites aos pericários dos neurônios
- Metabolismo energético no interior do córtex cerebral liberando glicose do seu glicogênio armazenado
- Formar e manter a barreira hematoencefálica
- Formar tecido cicatrizante

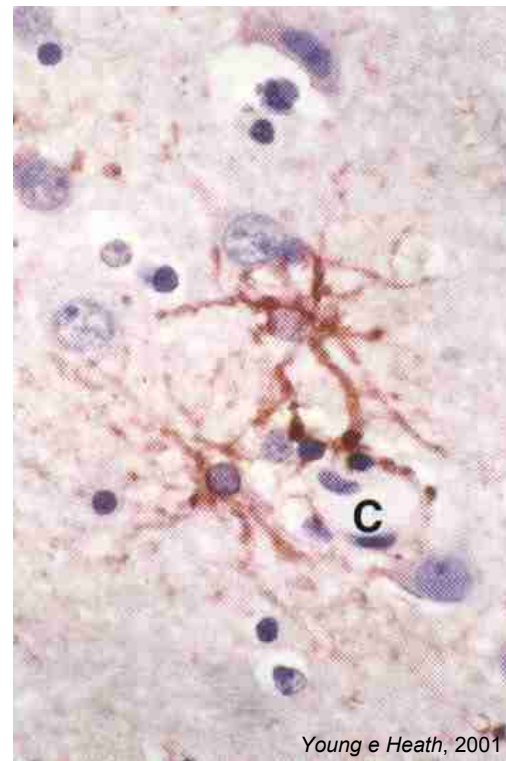
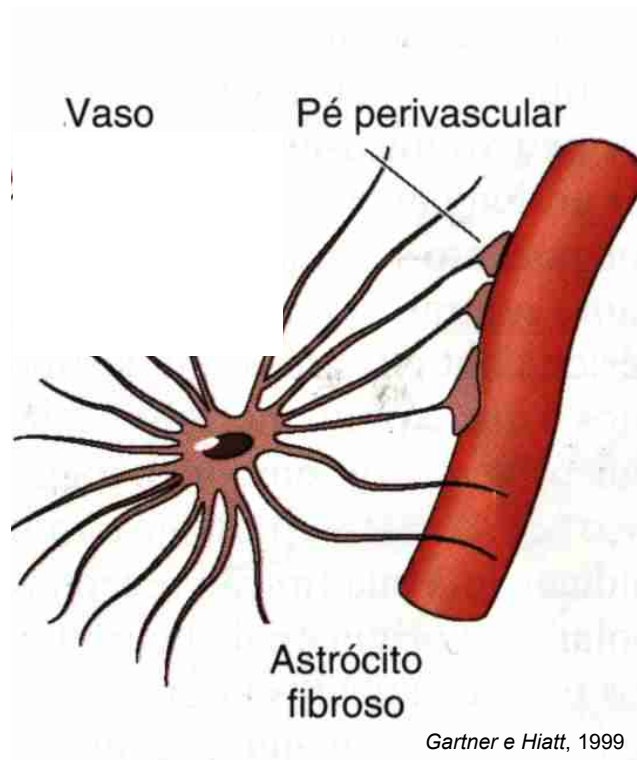
ASTRÓCITOS PROTOPLASMÁTICOS

- Localizados na substância cinzenta do SNC



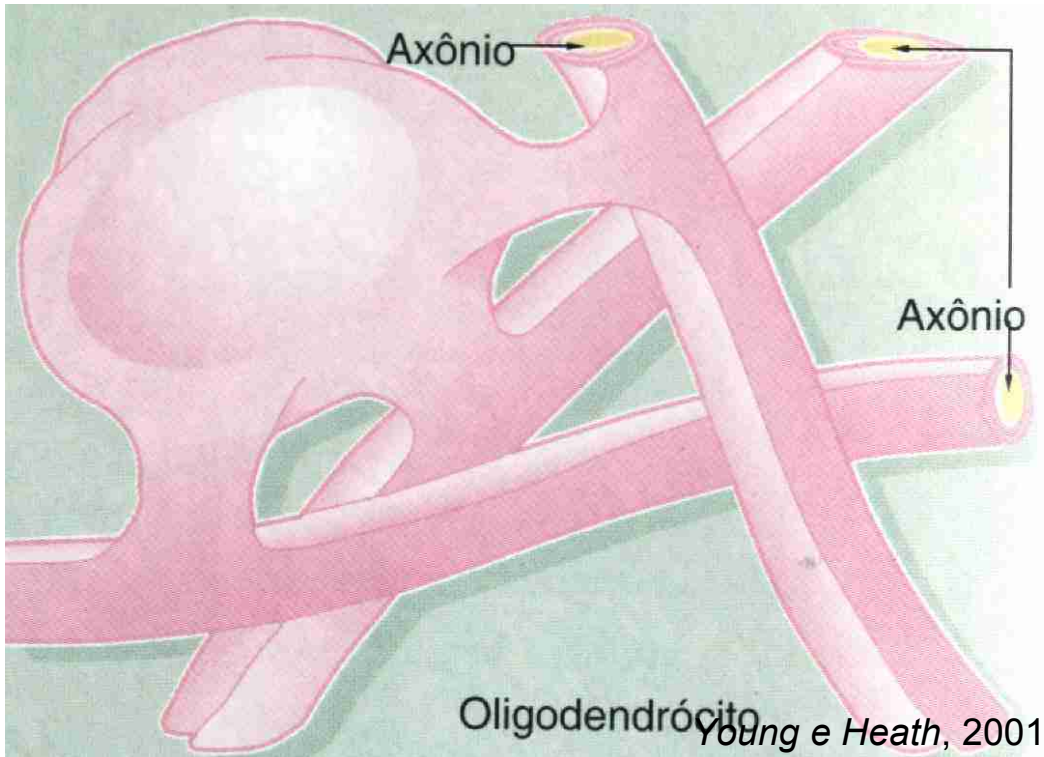
ASTRÓCITOS FIBROSOS

Localizados na substância branca do SNC



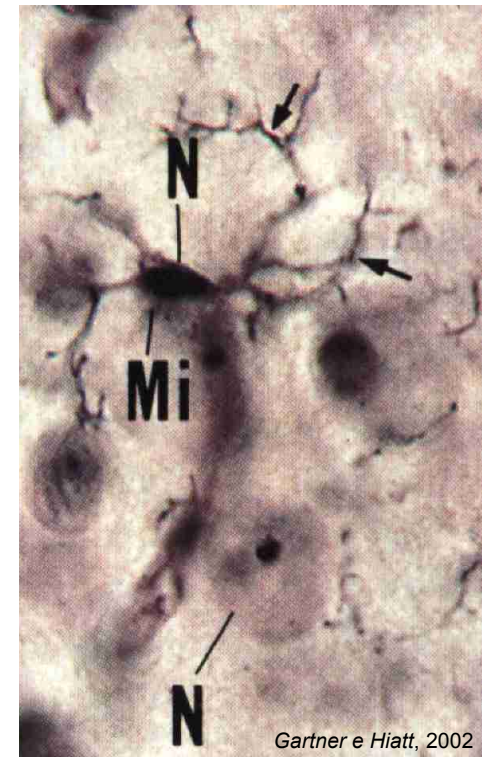
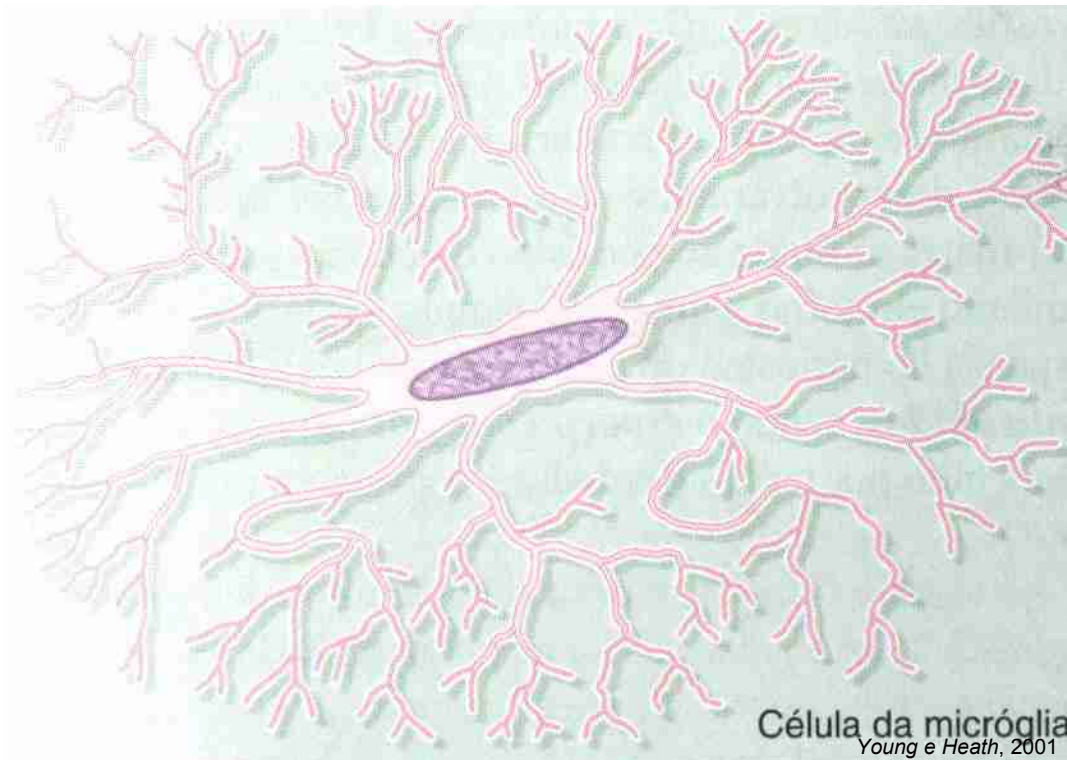
OLIGODENDRÓCITOS

Localizados tanto na substância cinzenta como na branca



MICRÓGLIA

- Localizadas tanto na substância cinzenta como na branca
- Atuam como fagócitos na limpeza de resíduos e estruturas danificadas no SNC - fazem parte do sistema mononuclear fagocitário



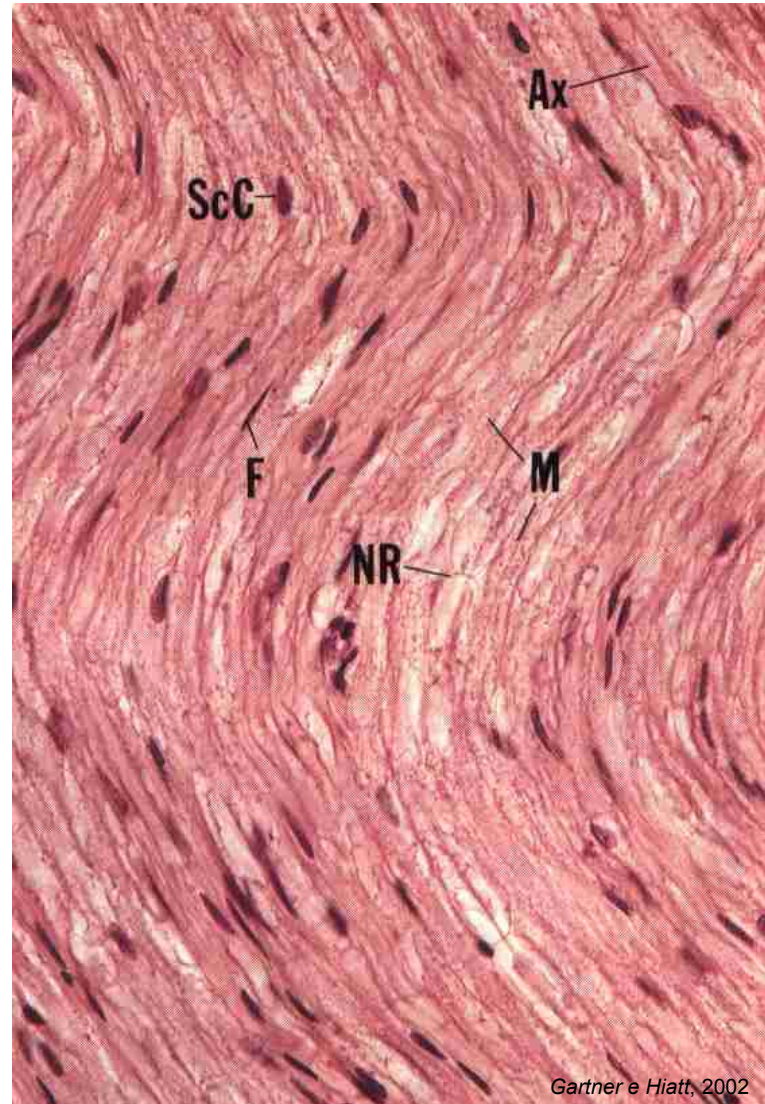
CÉLULAS EPENDIMÁRIAS

- Revestem os ventrículos cerebrais e o canal central da medula nervosa
- Secretam líquido cefalorraquidiano no plexo coróide

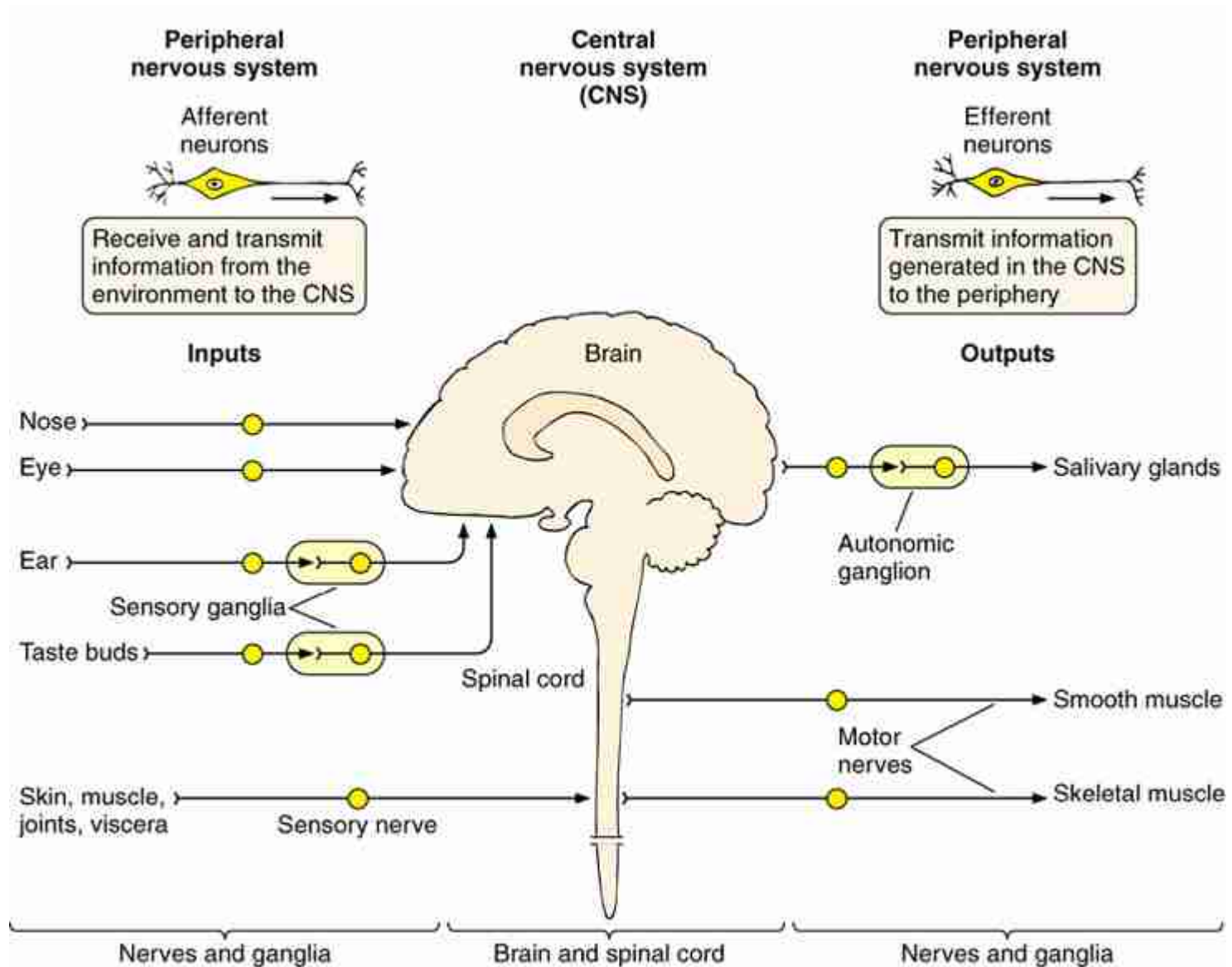


CÉLULAS DE SCHWANN

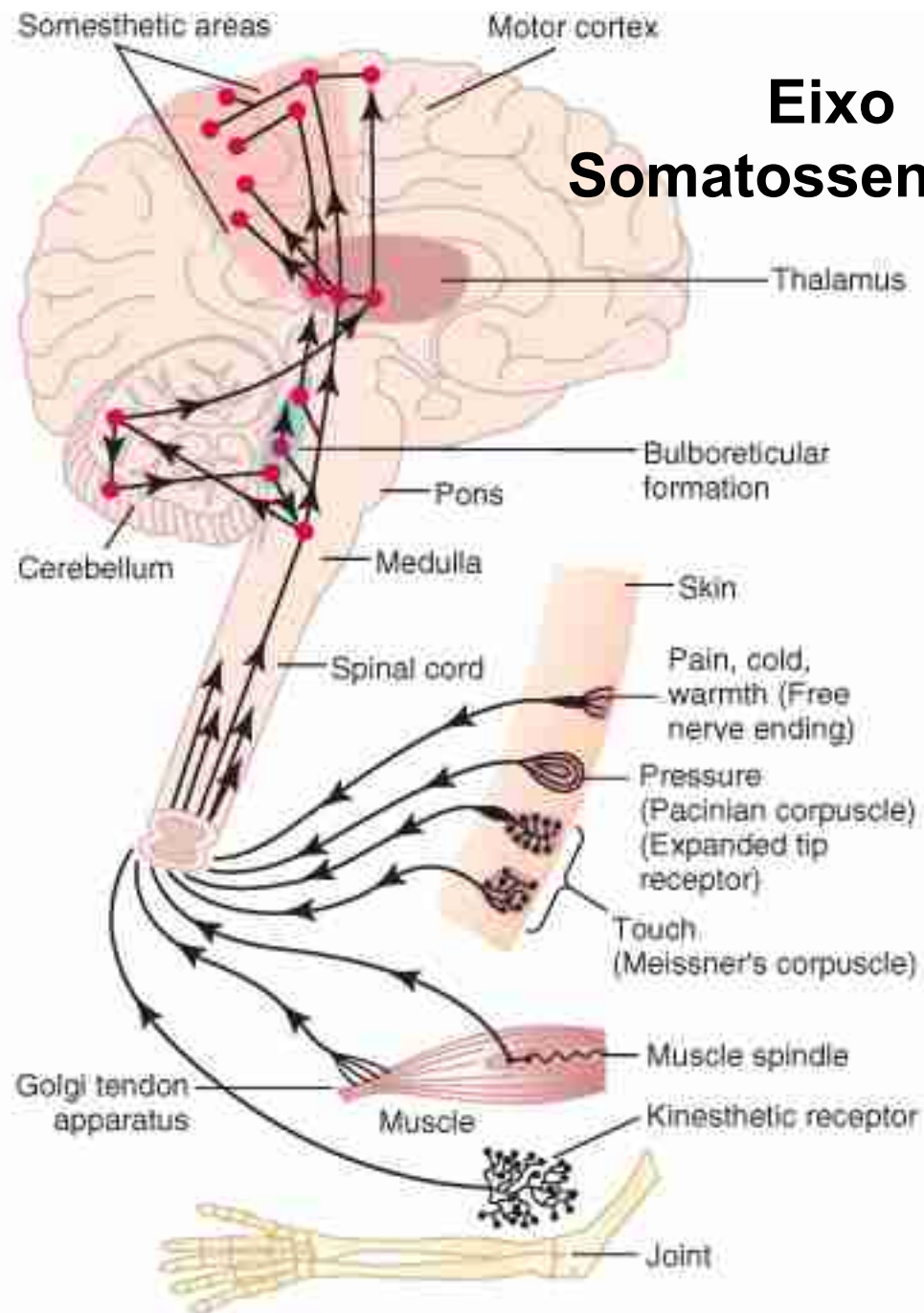
- Localizadas no SNP, onde envolvem os axônios
- Formam dois tipos de revestimento para os axônios:
 - Mielínicos
 - Amielínicos



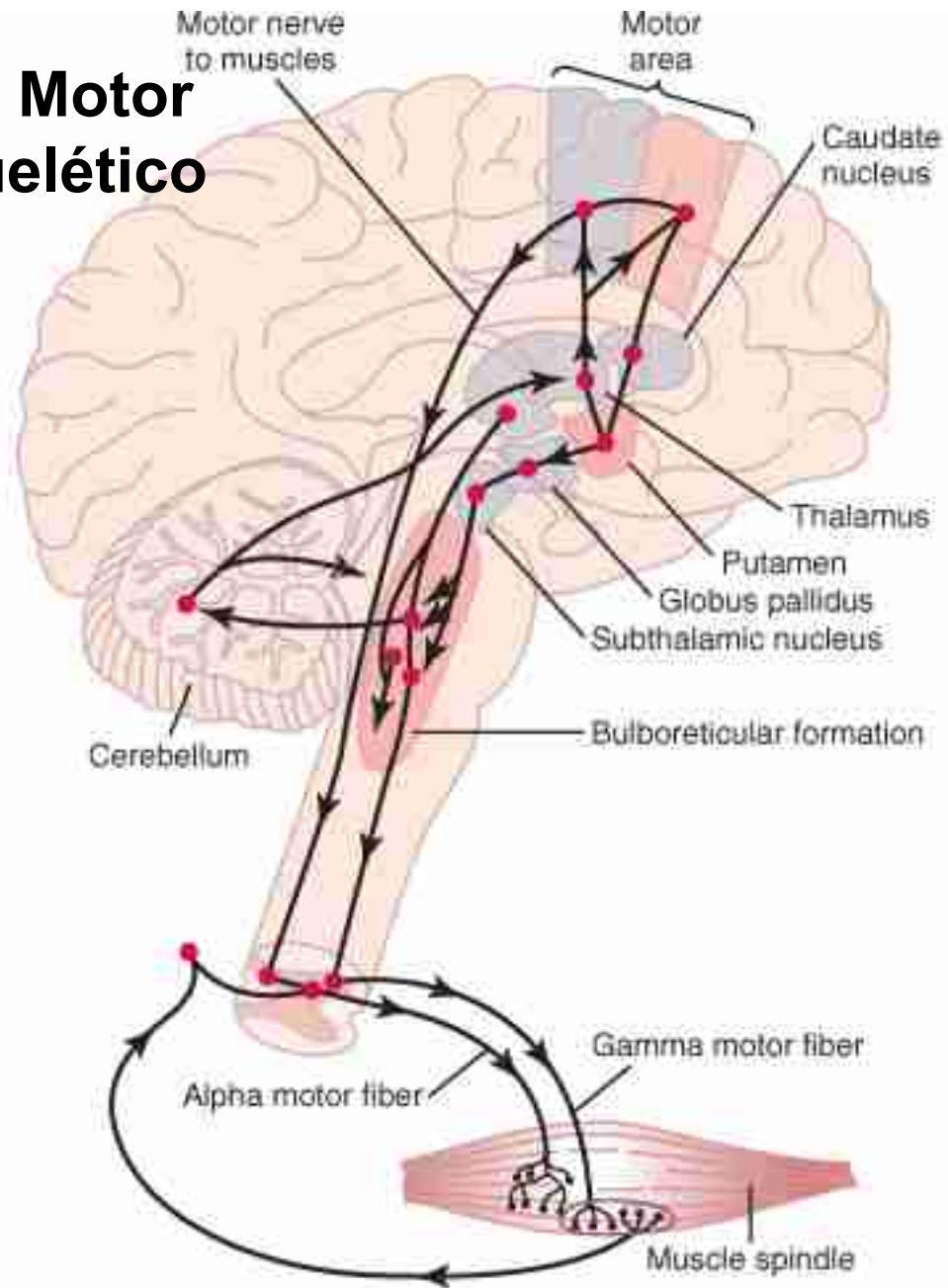
SISTEMA NERVOSO



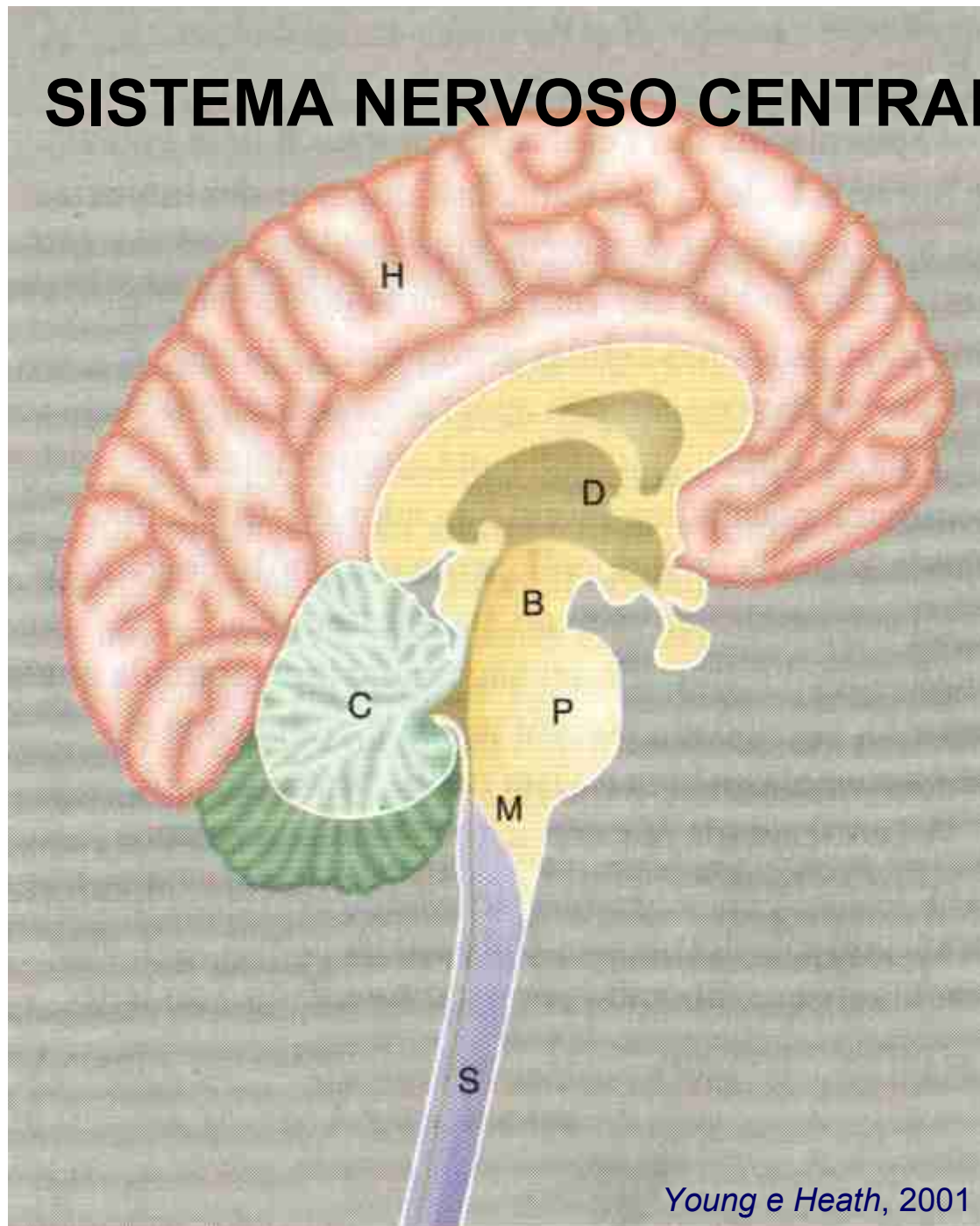
Eixo Somatossensorial



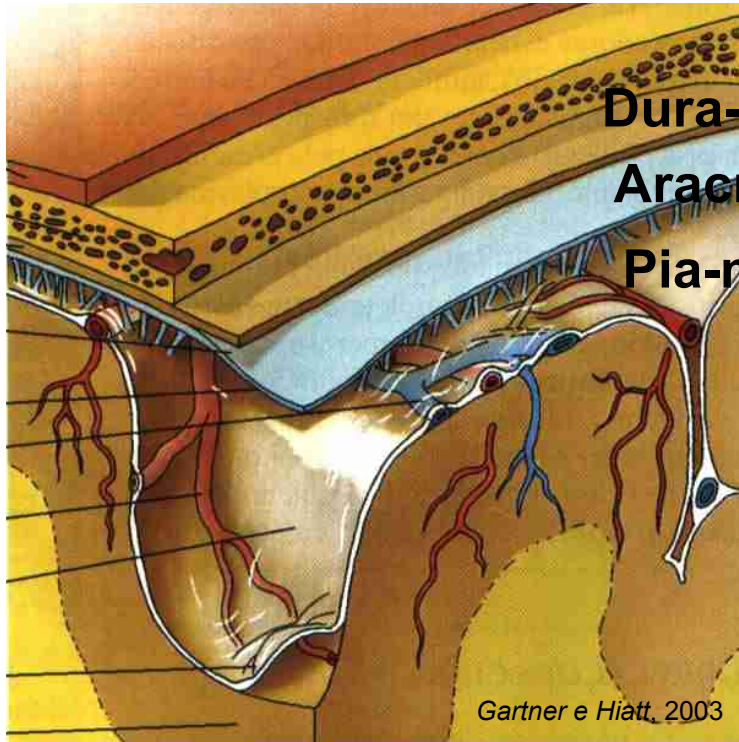
Eixo Motor Esquelético

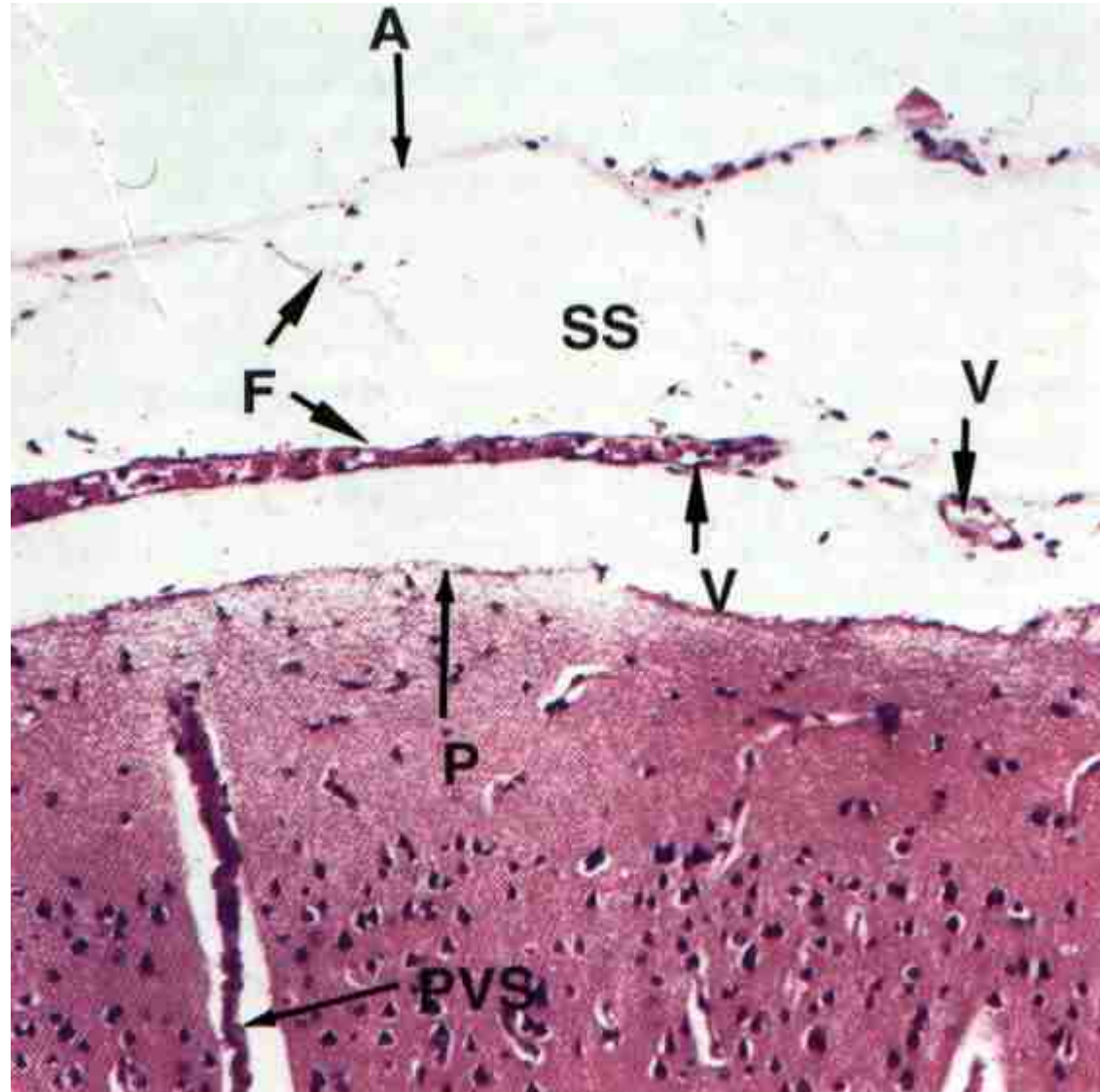
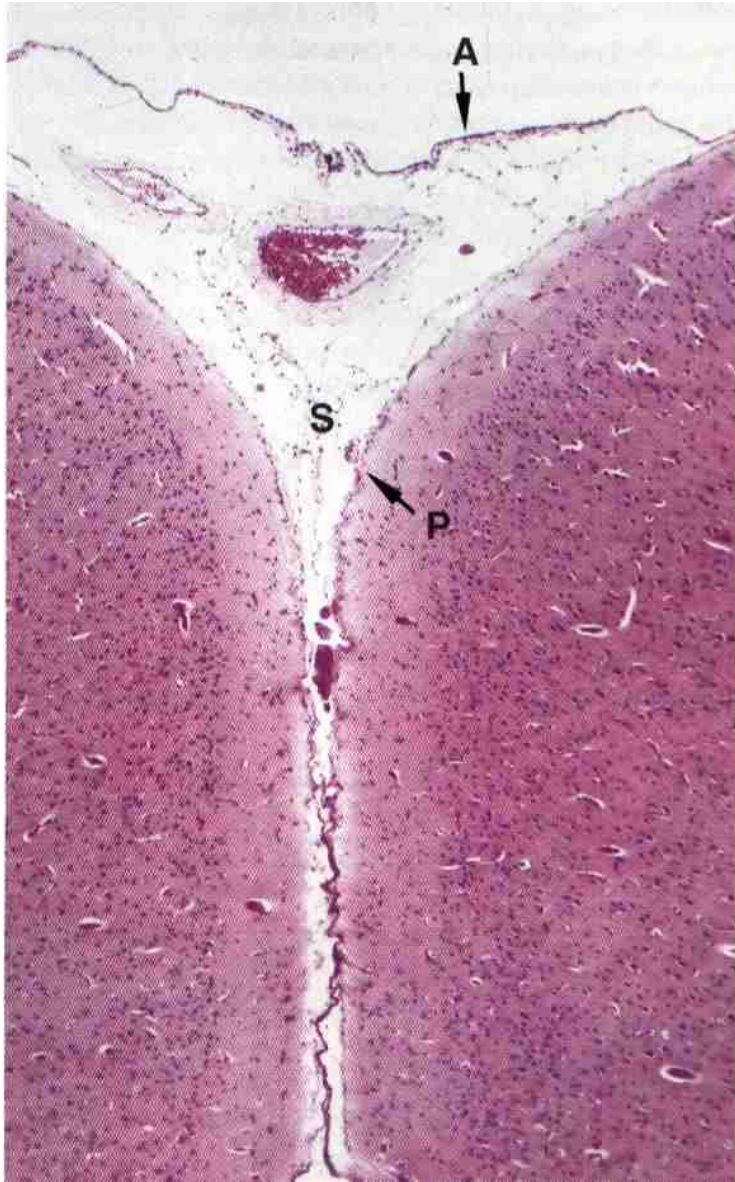


SISTEMA NERVOSO CENTRAL

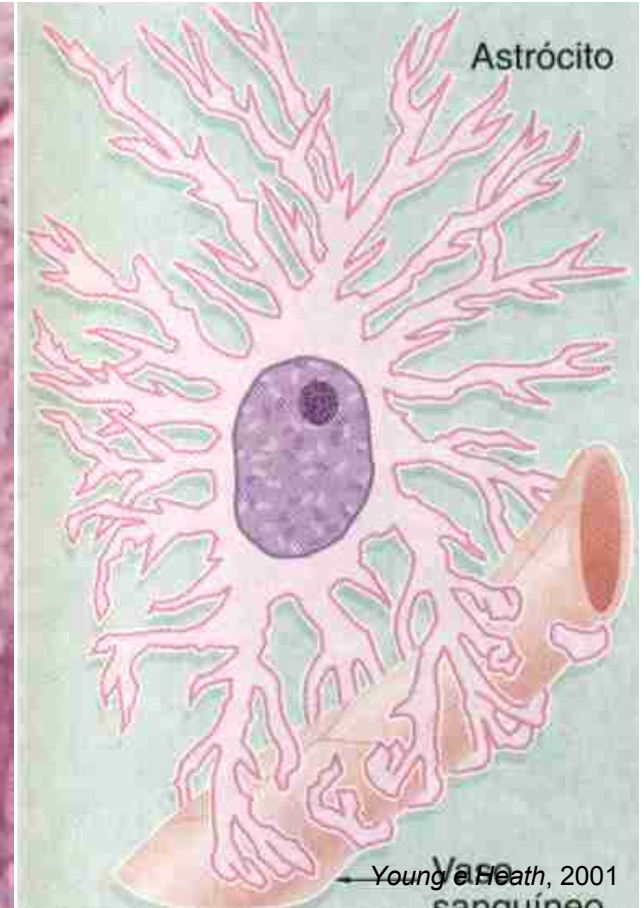
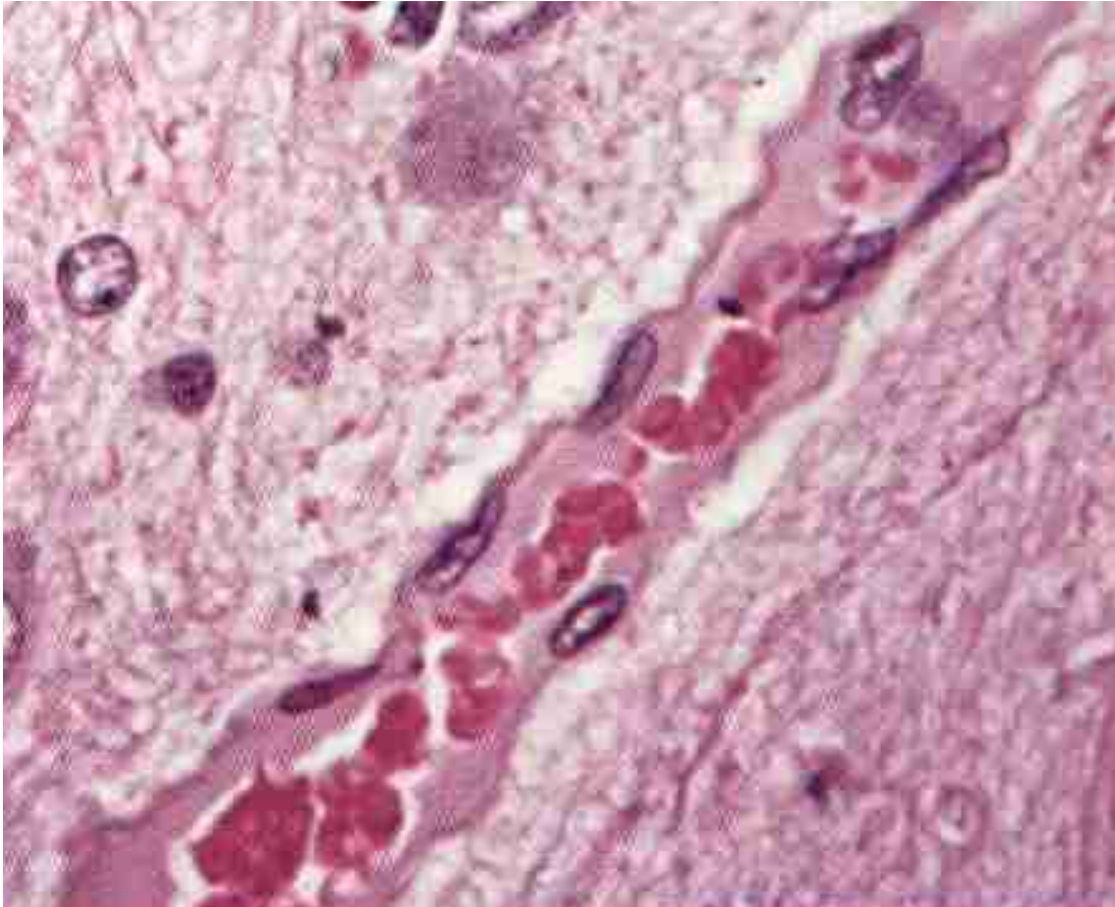


MENINGES





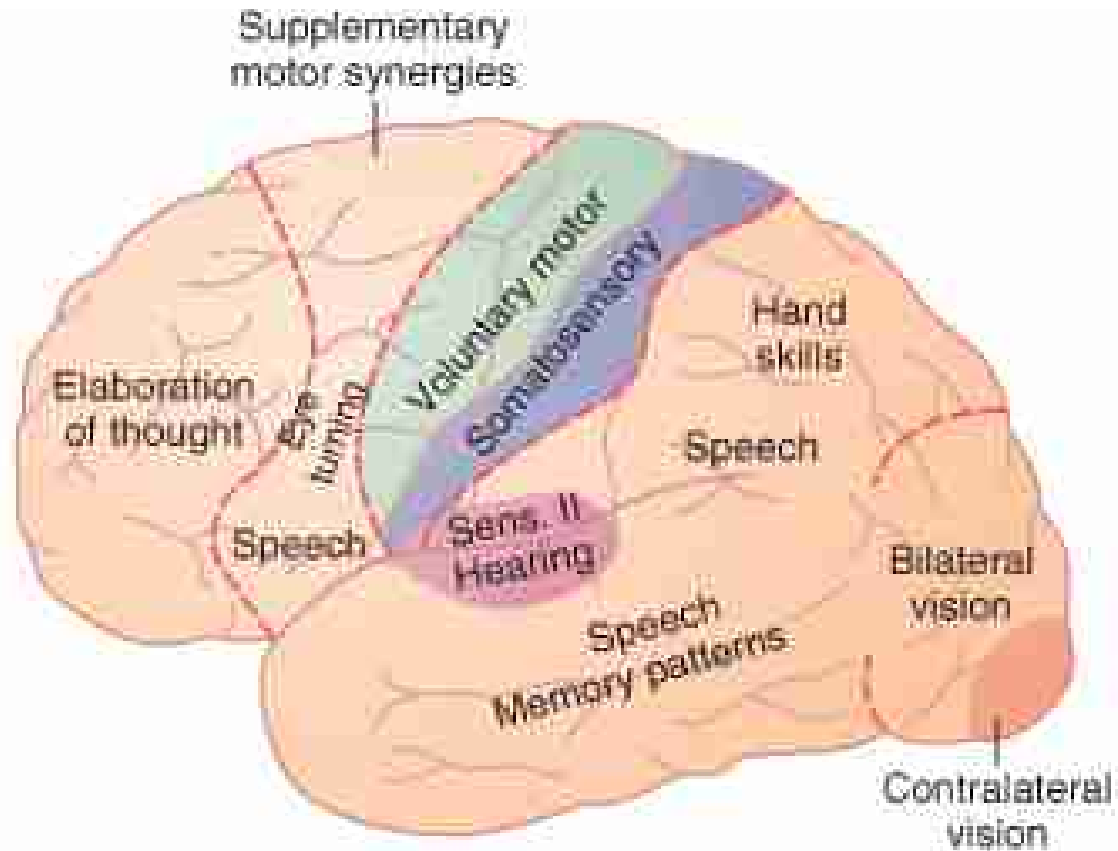
BARREIRA HEMATOENCEFÁLICA





PLEXO CORÓIDE

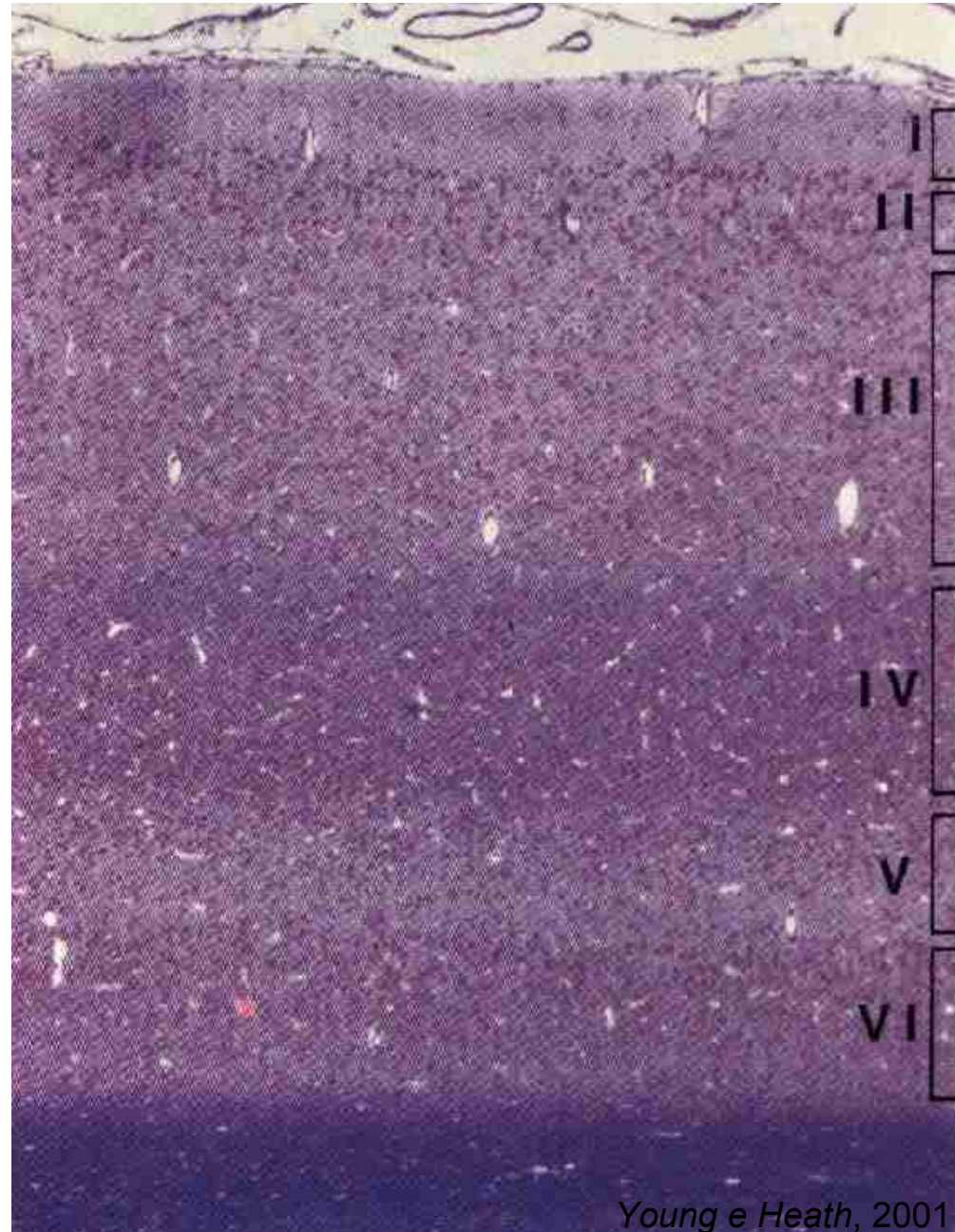
CÉREBRO

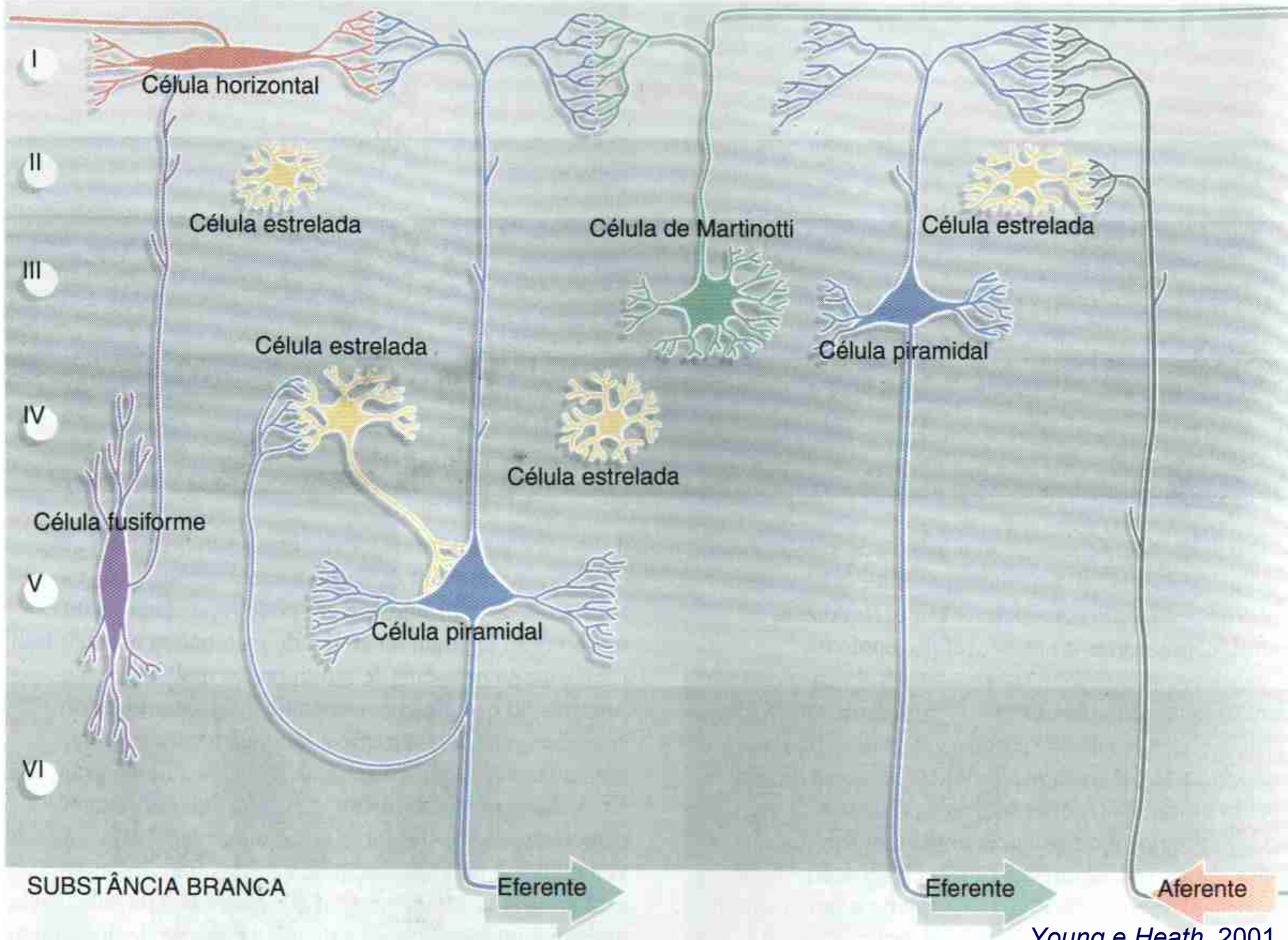


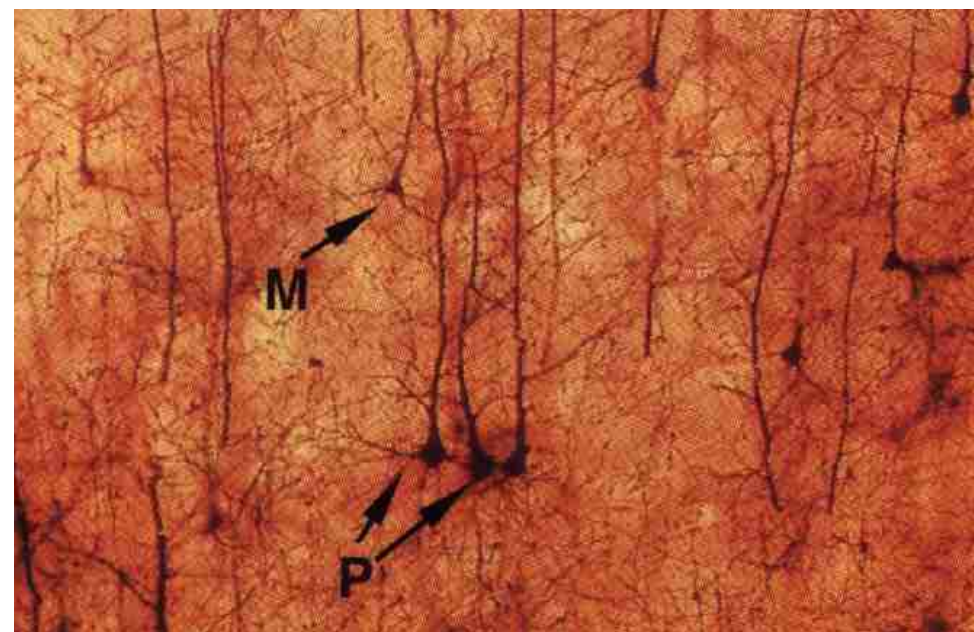
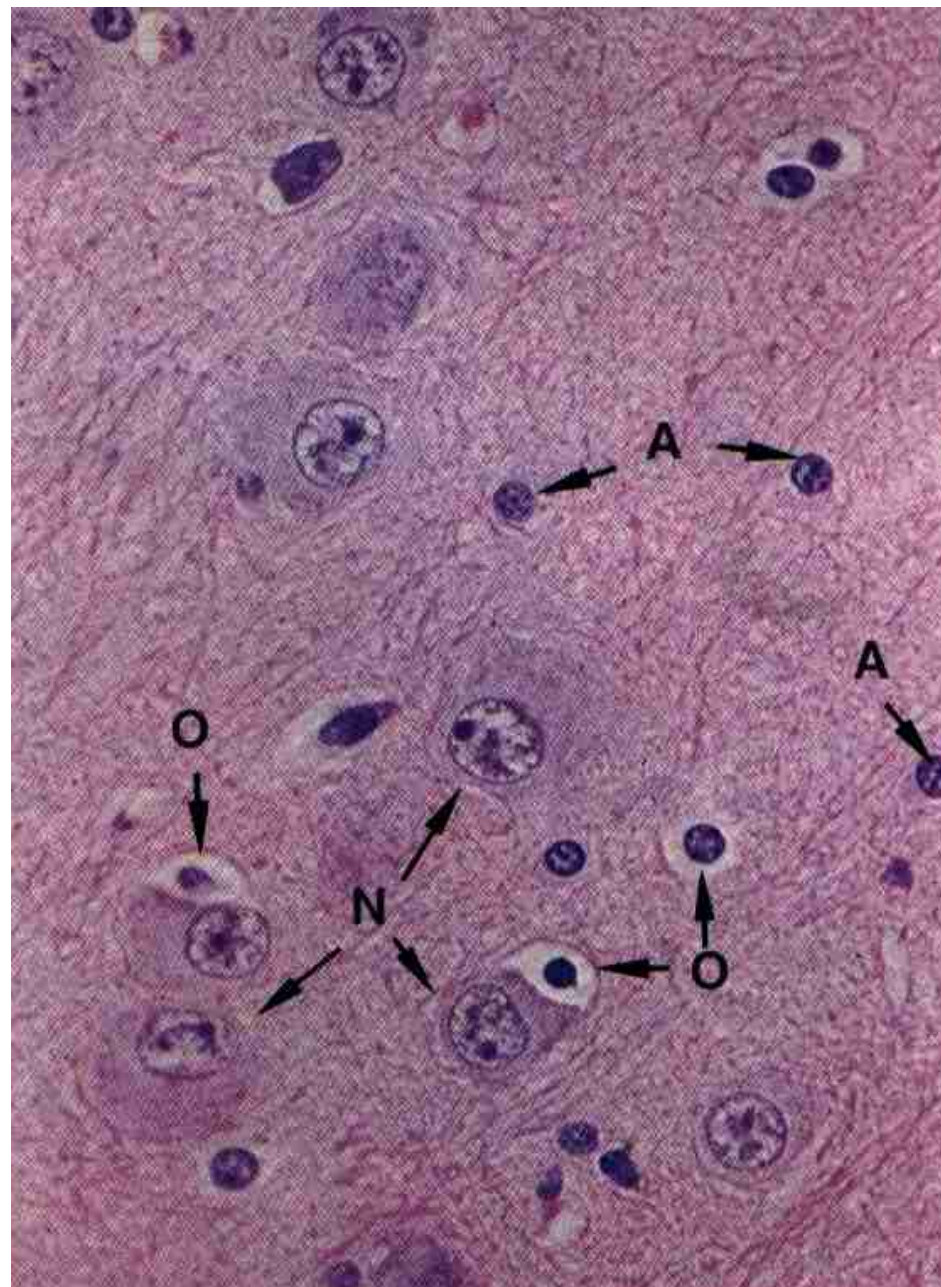
CÓRTEX CEREBRAL

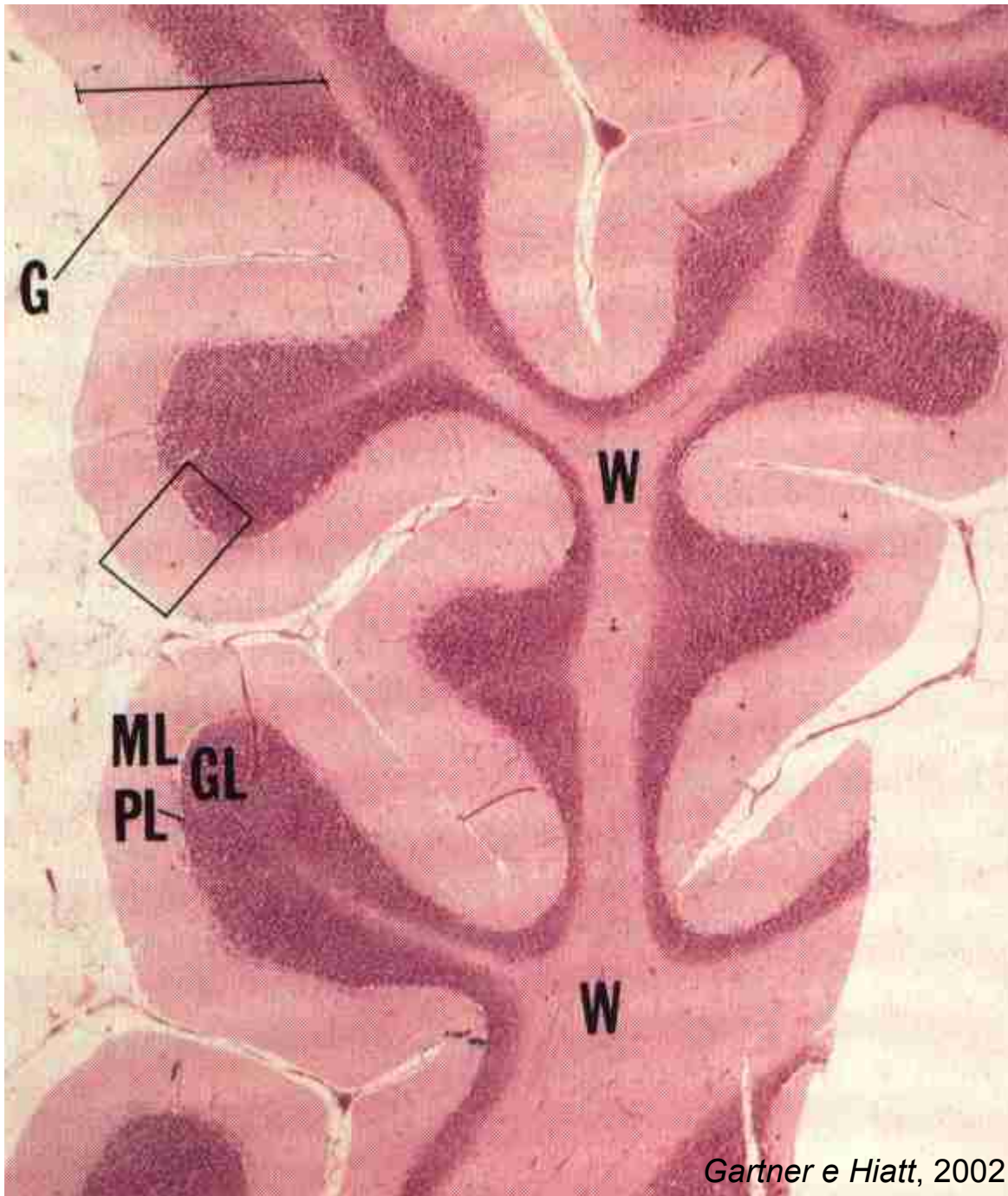
- Camada molecular
- Camada granular externa
- Camada piramidal externa
- Camada granular interna
- Camada piramidal interna
- Camada multiforme

SUBSTÂNCIA BRANCA

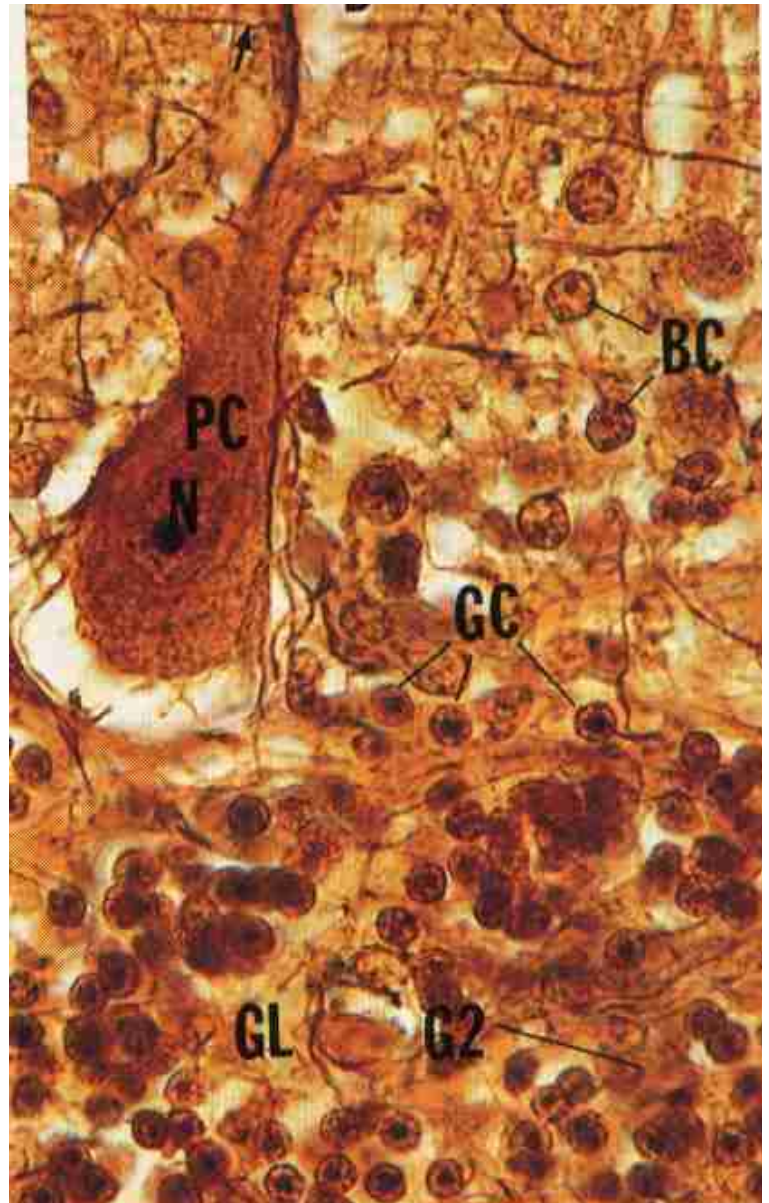
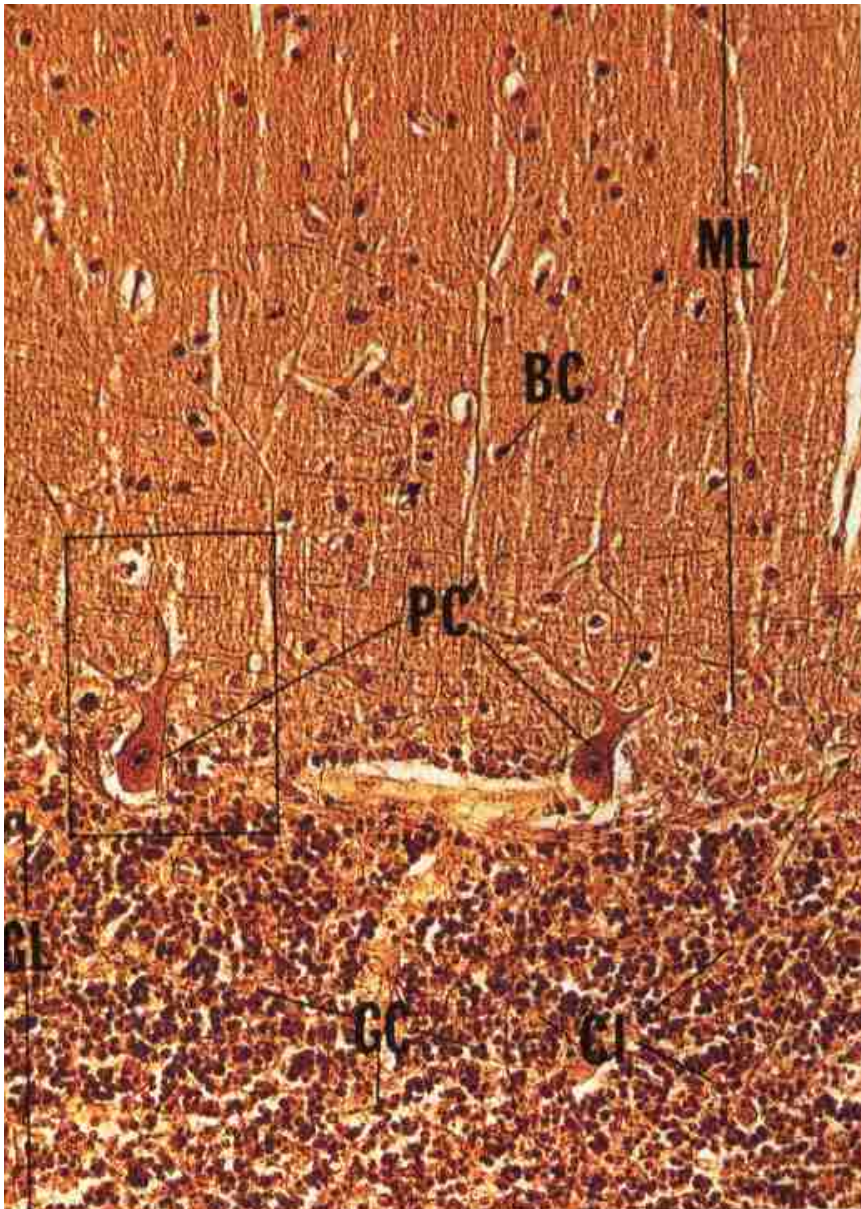




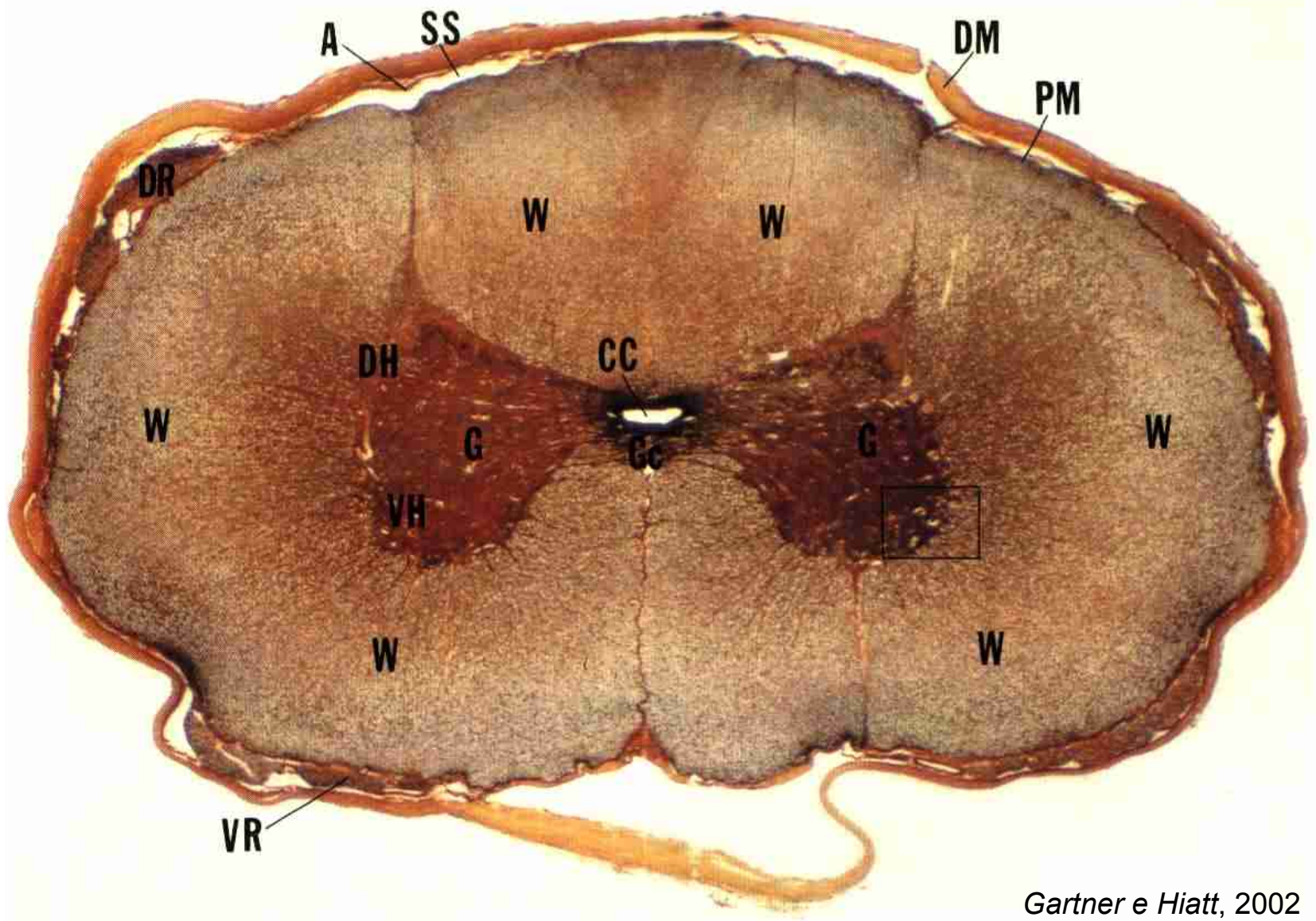




CEREBELO

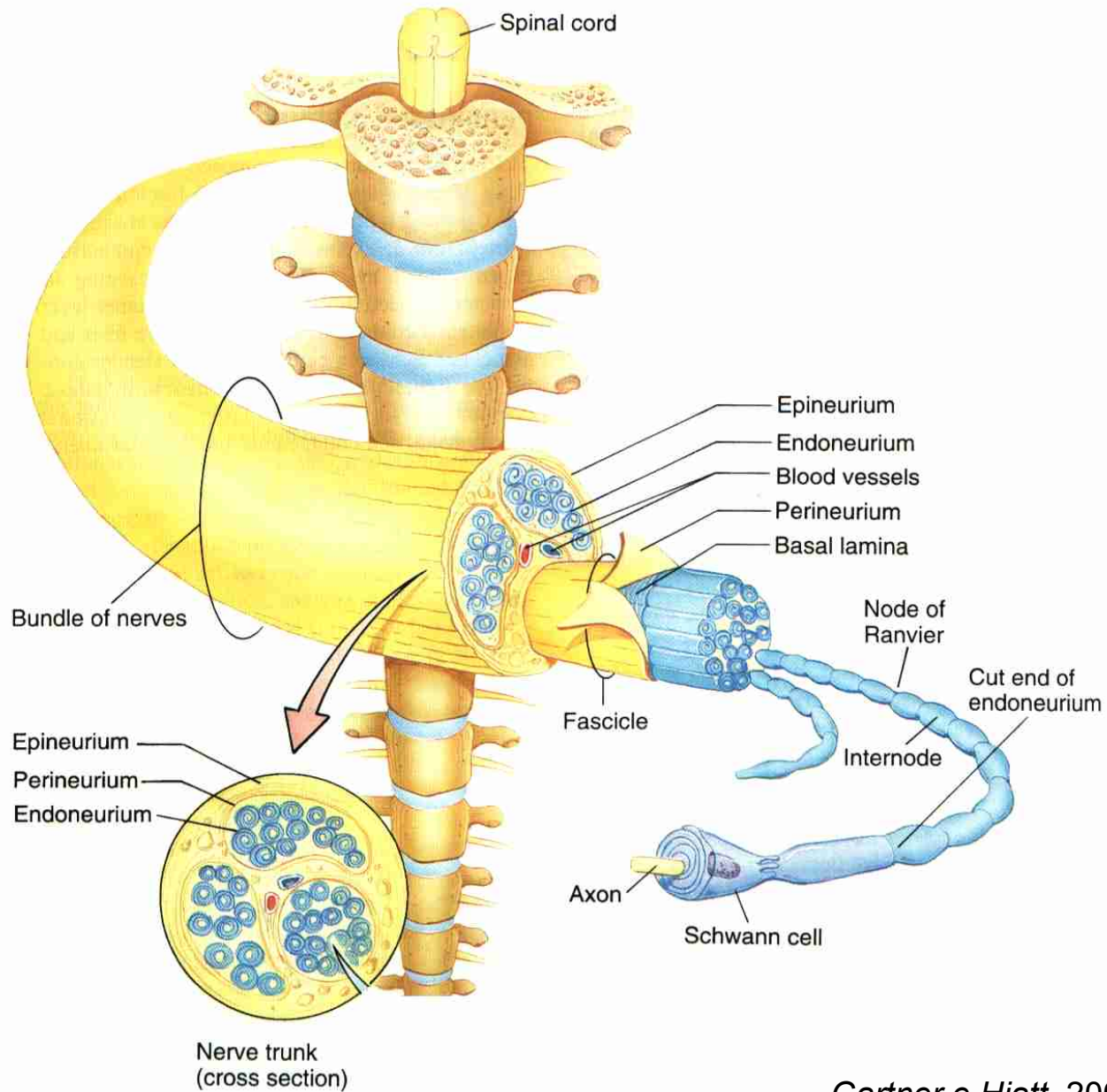


MEDULA NERVOSA

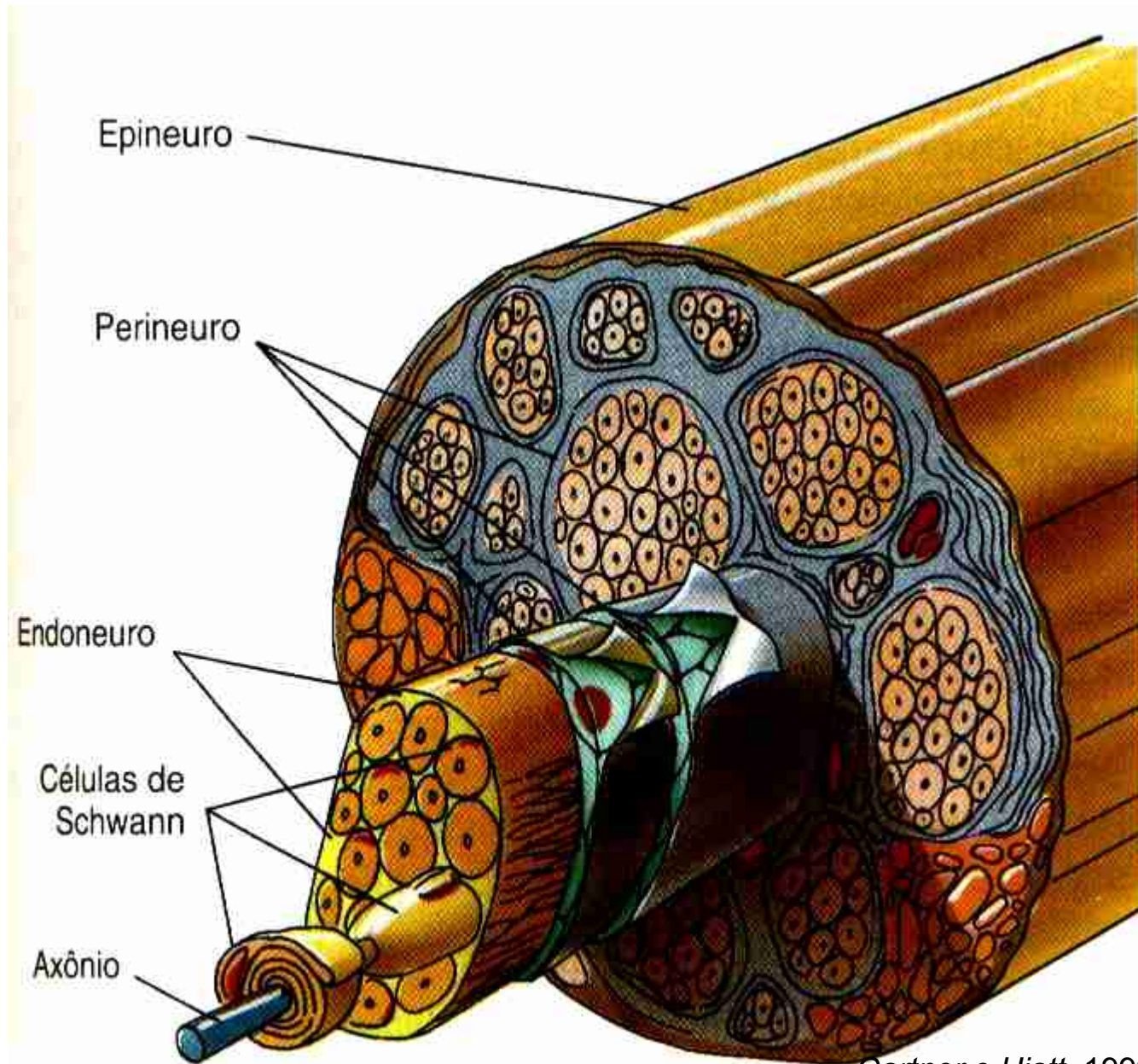


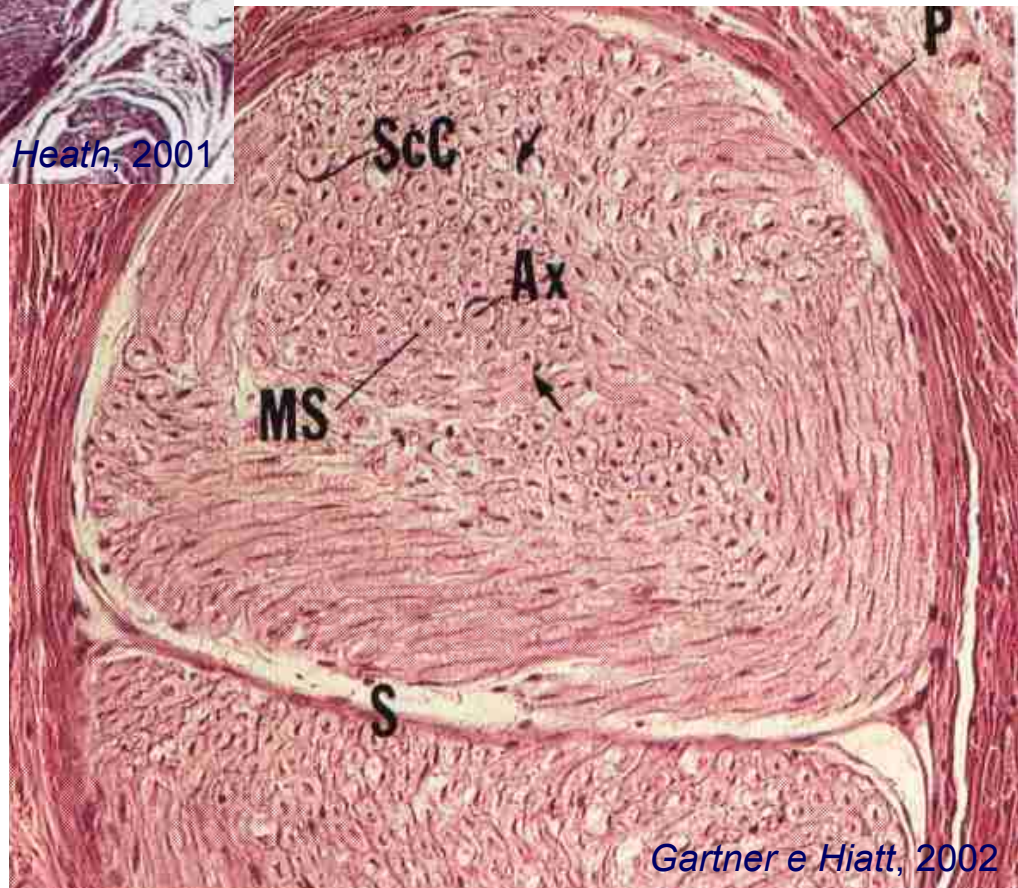


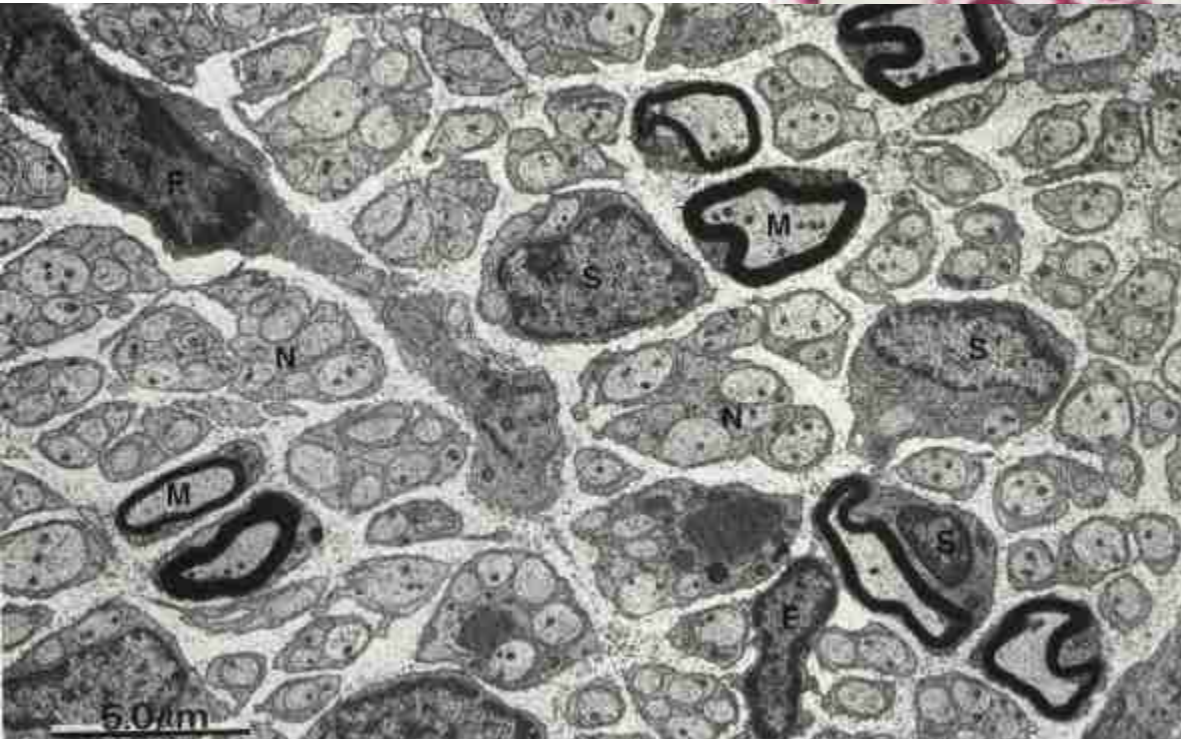
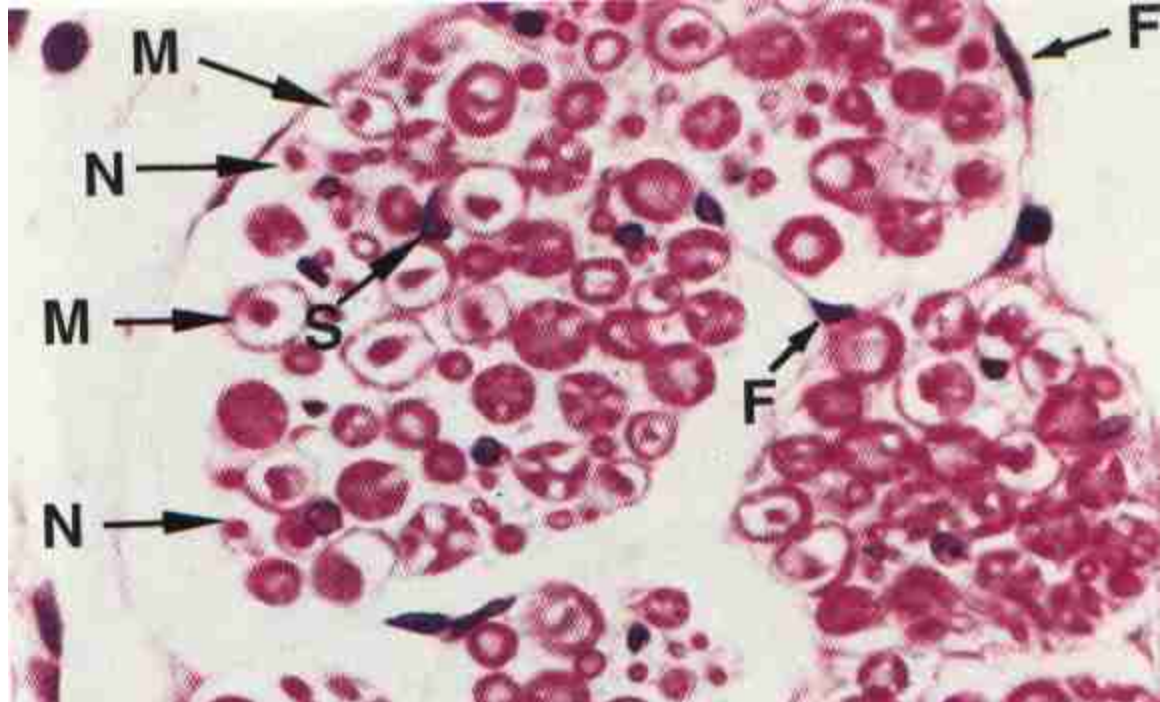
SISTEMA NERVOSO PERIFÉRICO

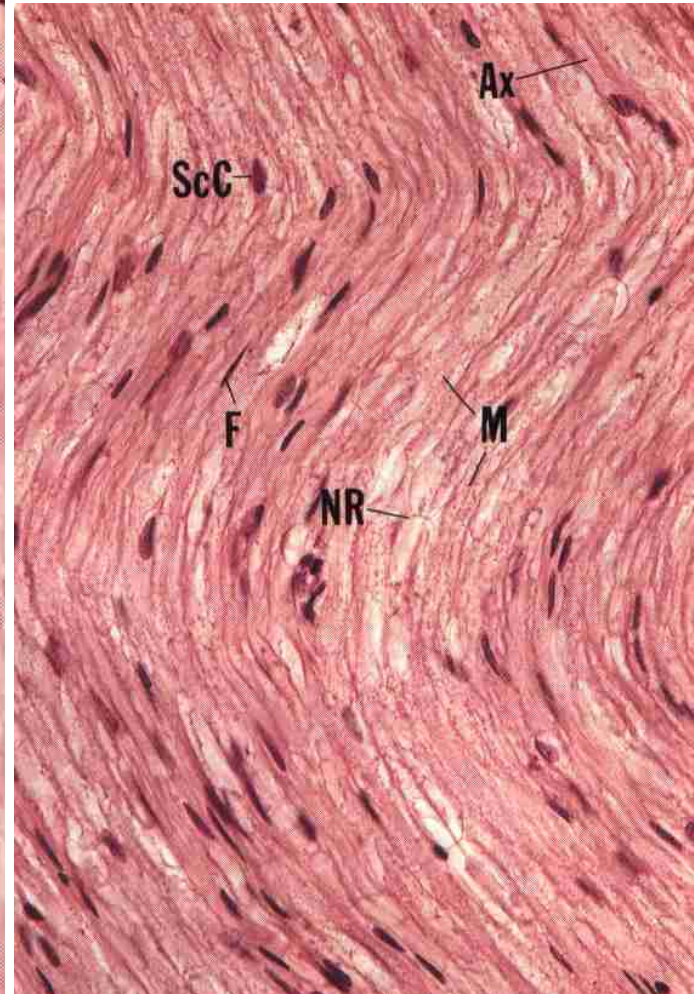
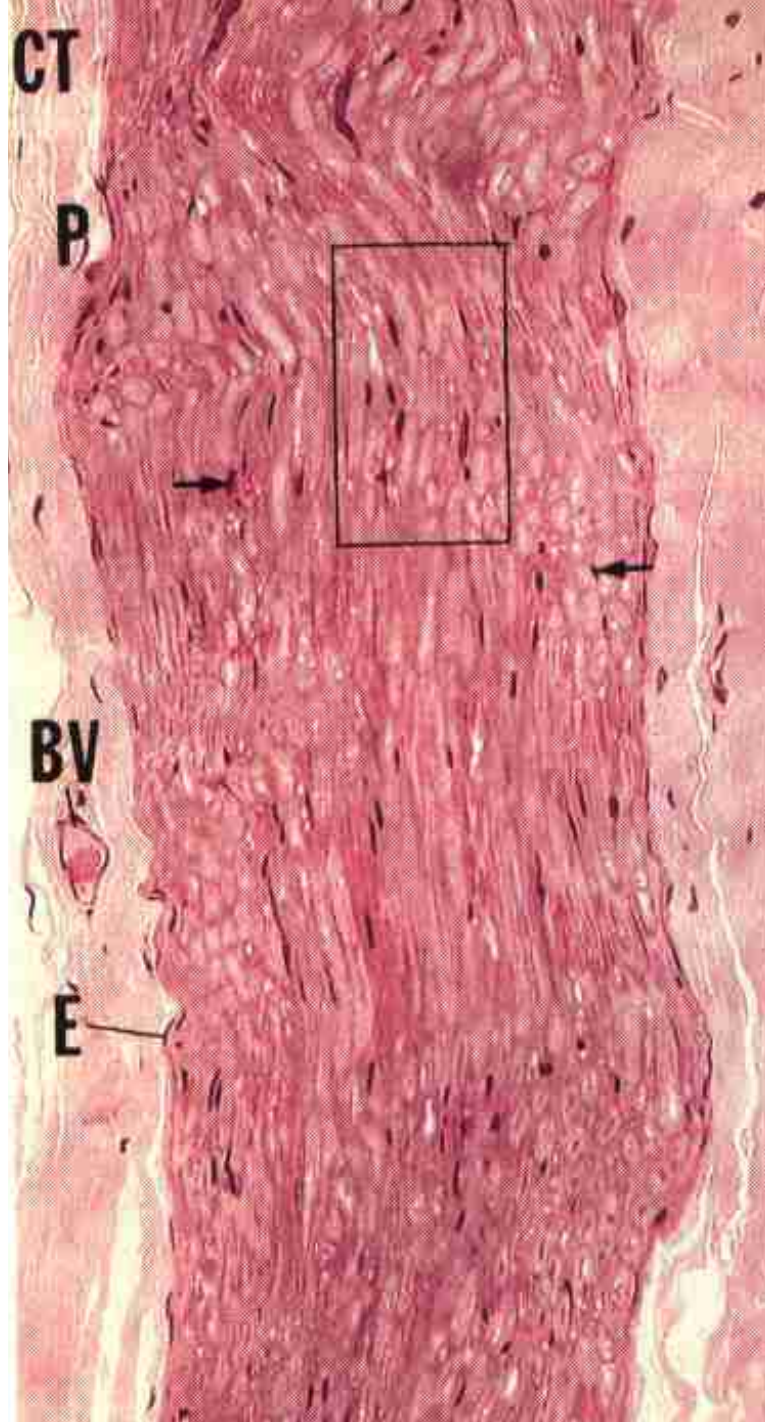
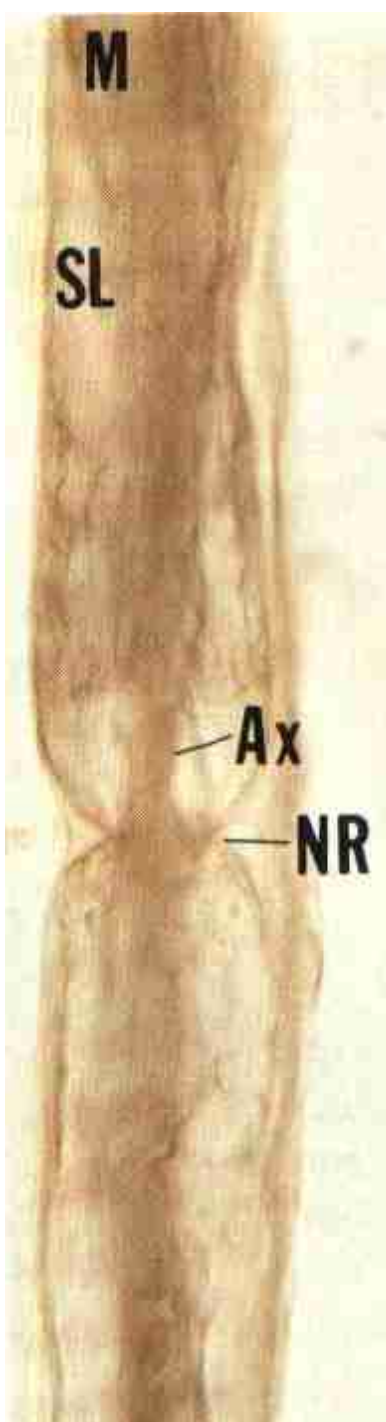


TÚNICAS DE TECIDO CONJUNTIVO





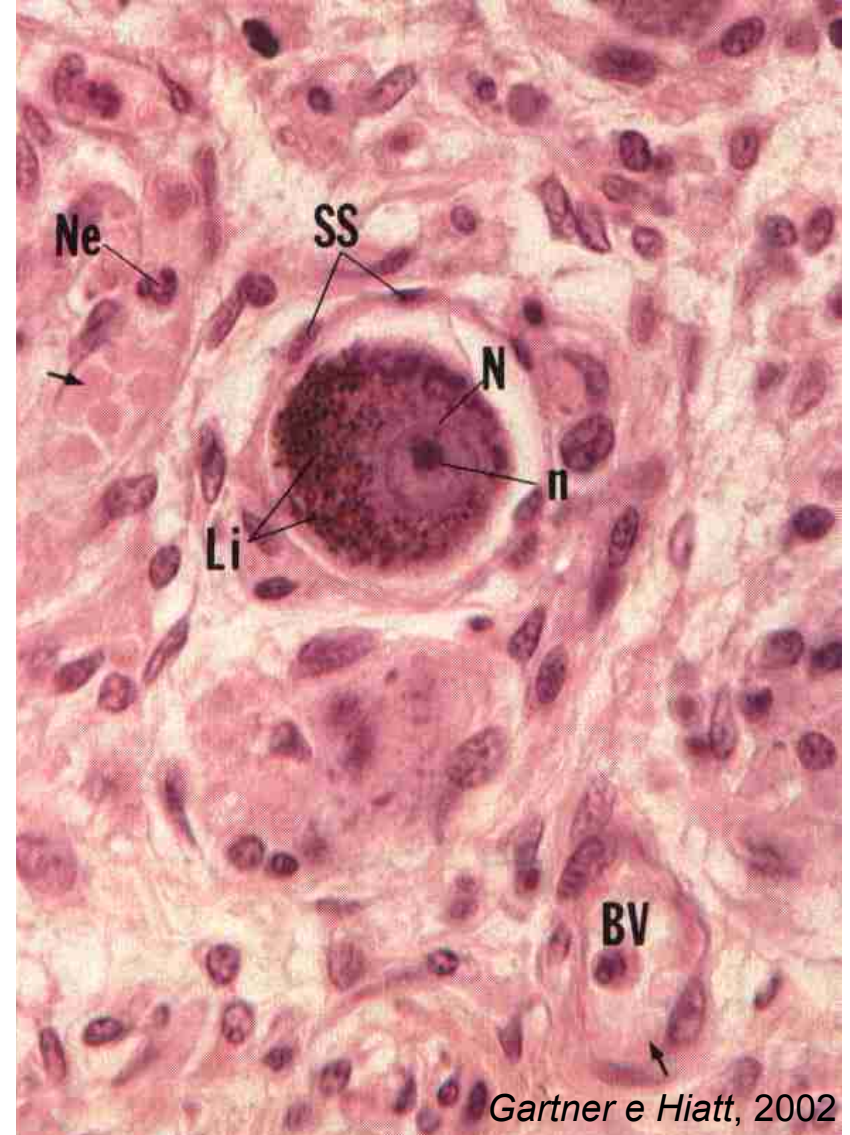
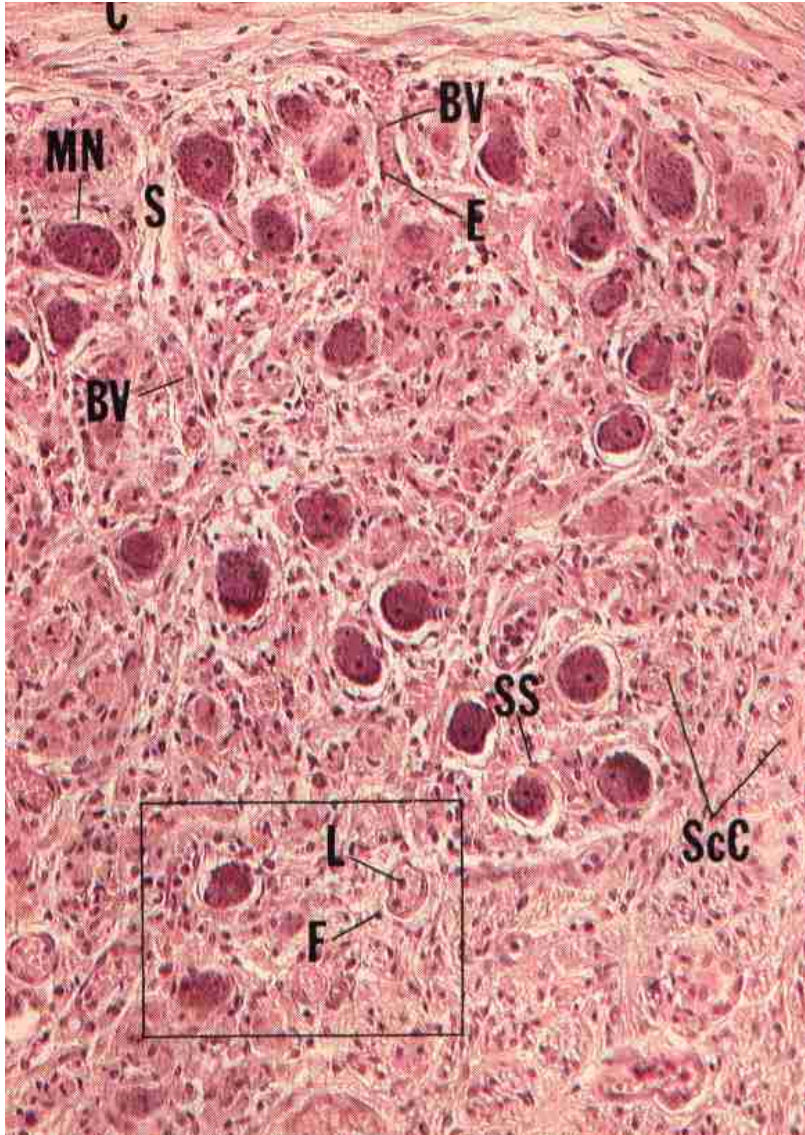




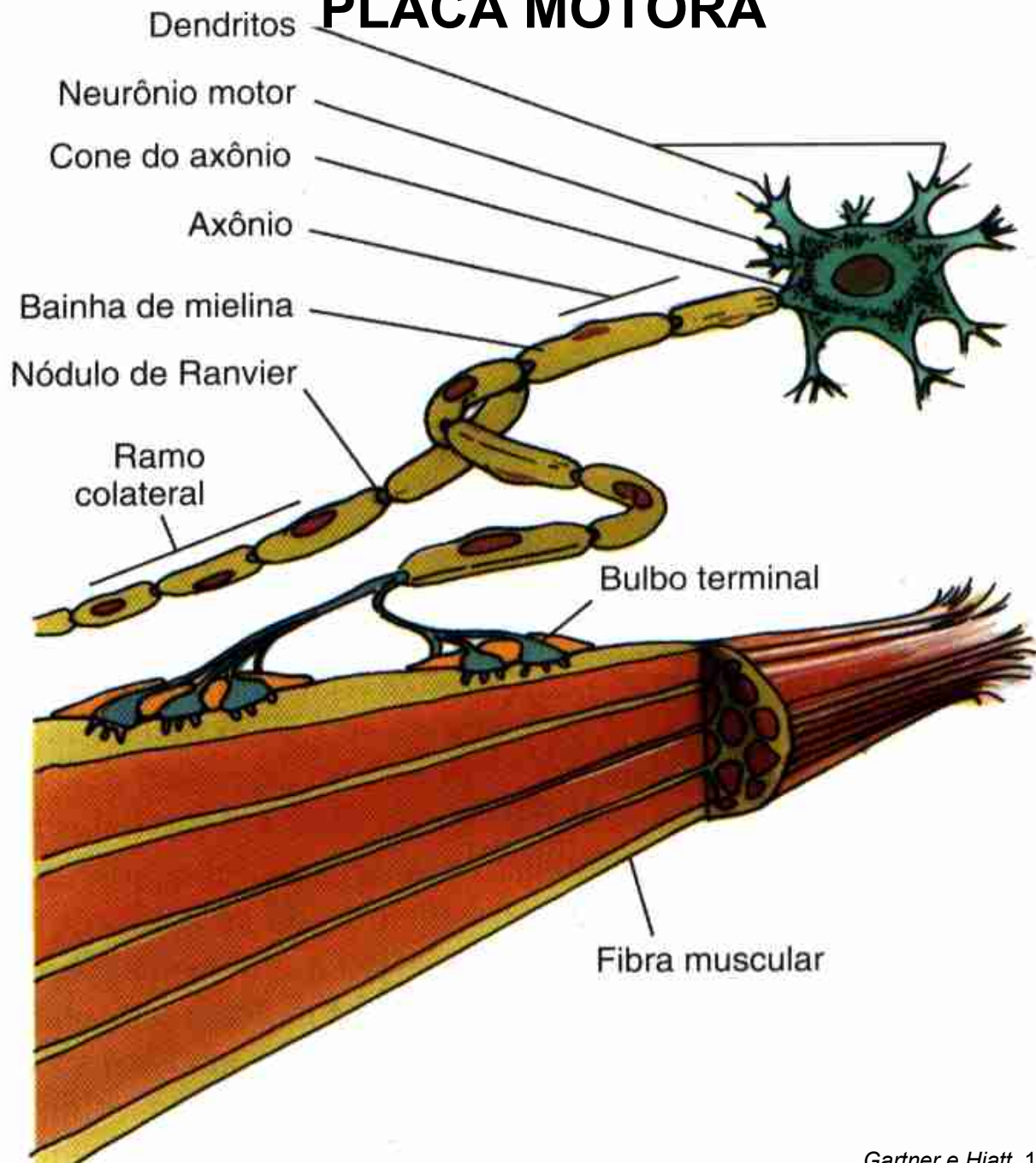
GÂNGLIOS SENSITIVOS



GÂNGLIOS AUTÔNOMOS

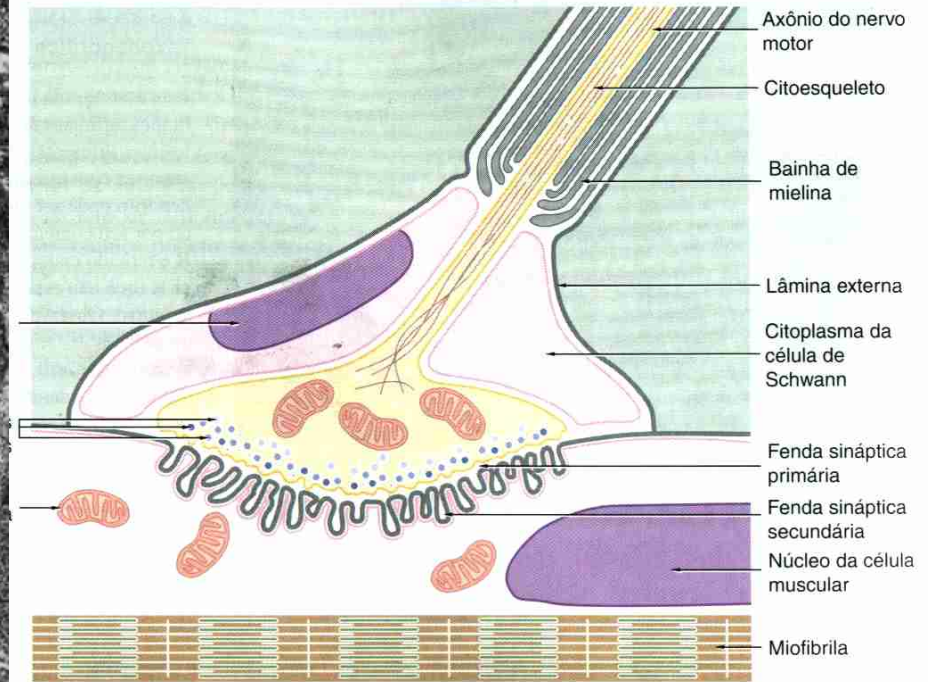
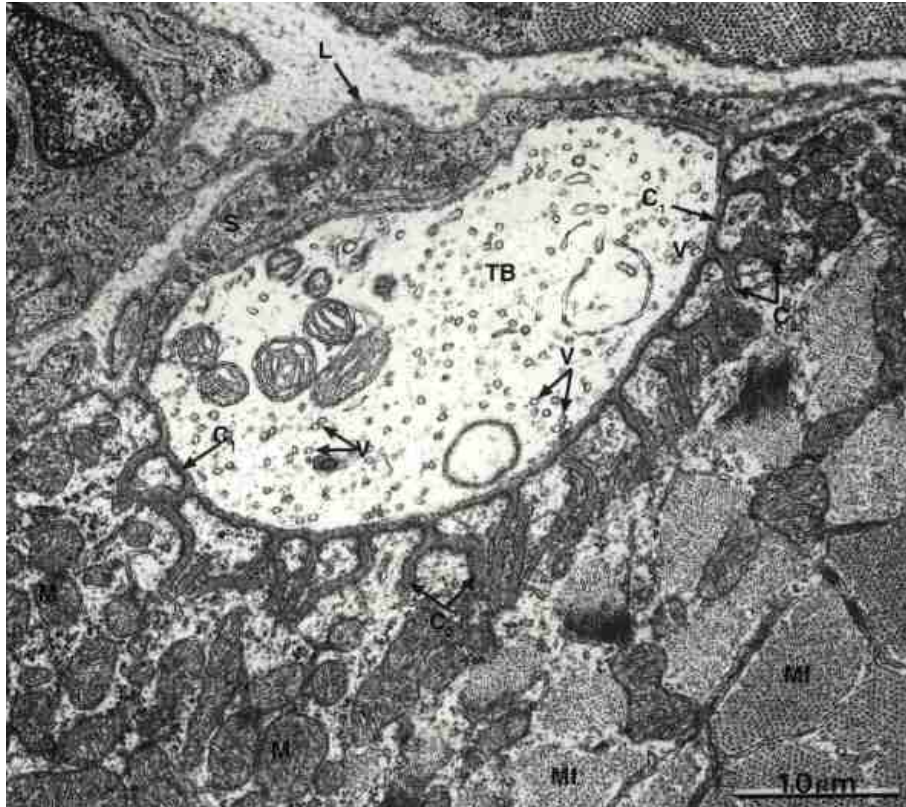


PLACA MOTORA



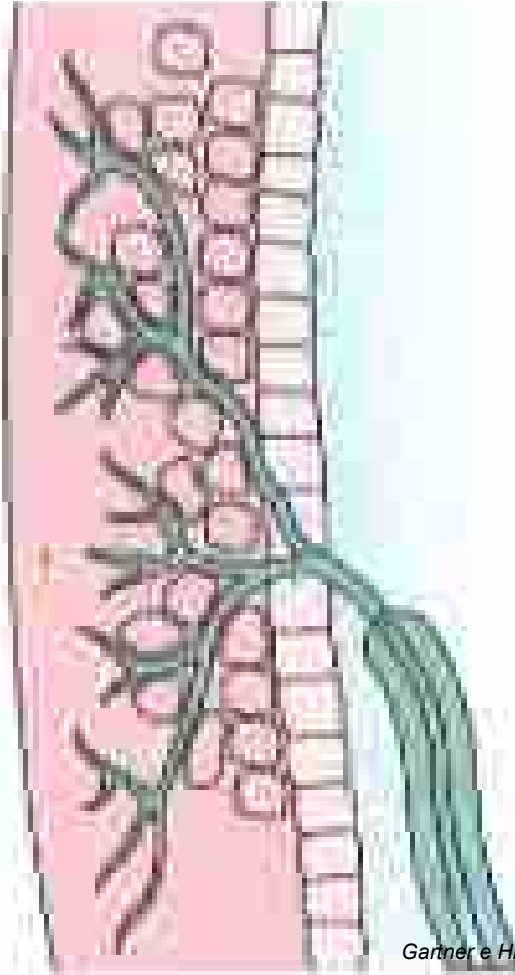
PLACA MOTORA





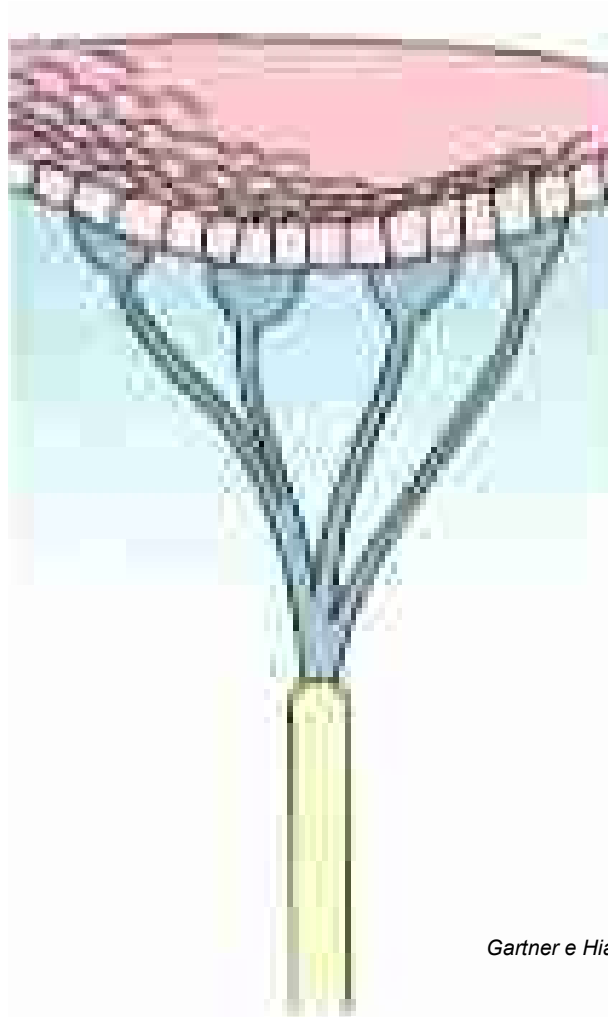
Young e Heath, 2001

TERMINAÇÕES NERVOSAS LIVRES



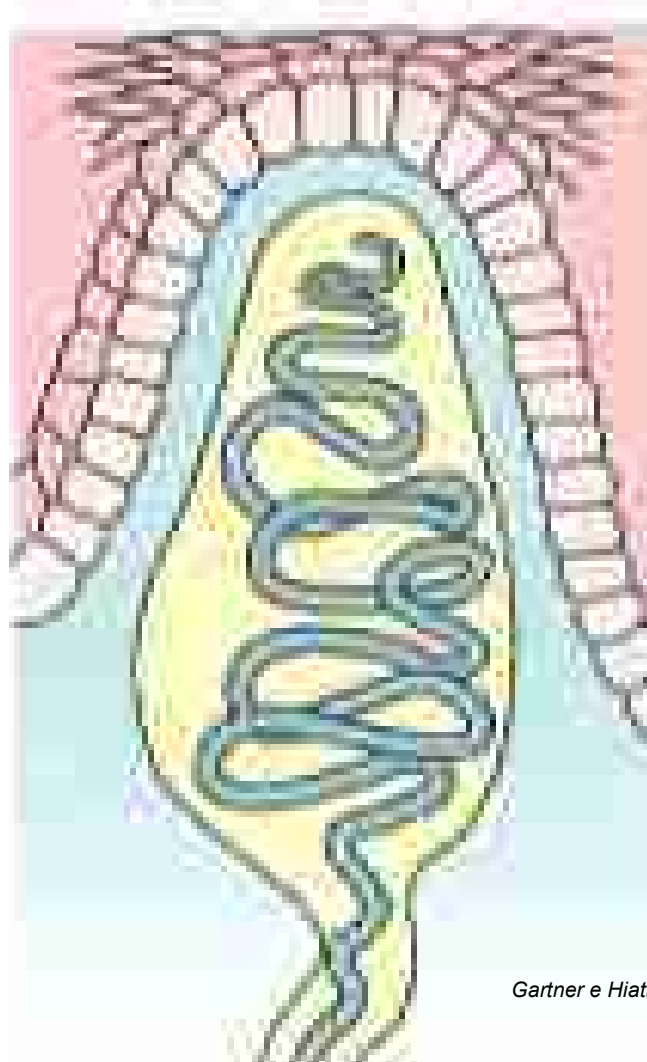
Gartner e Hiatt, 1999

DISCOS DE MERKEL



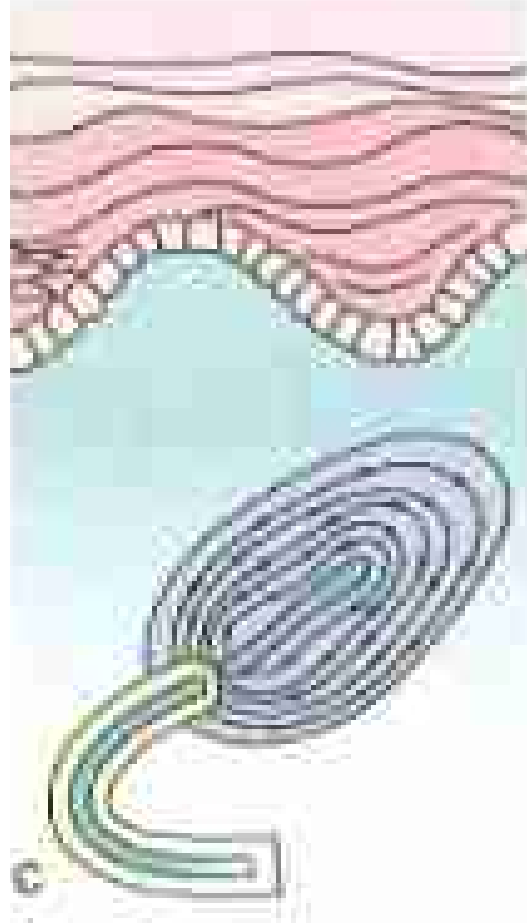
Gartner e Hiatt, 1999

CORPÚSCULOS DE MEISSNER

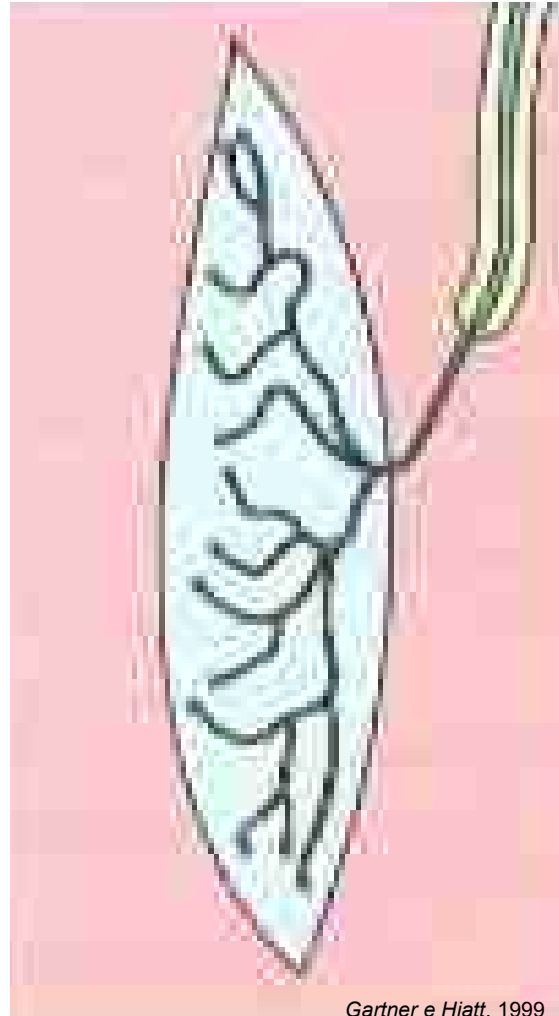


Gartner e Hiatt, 1999

CORPÚSCULOS DE PACINI

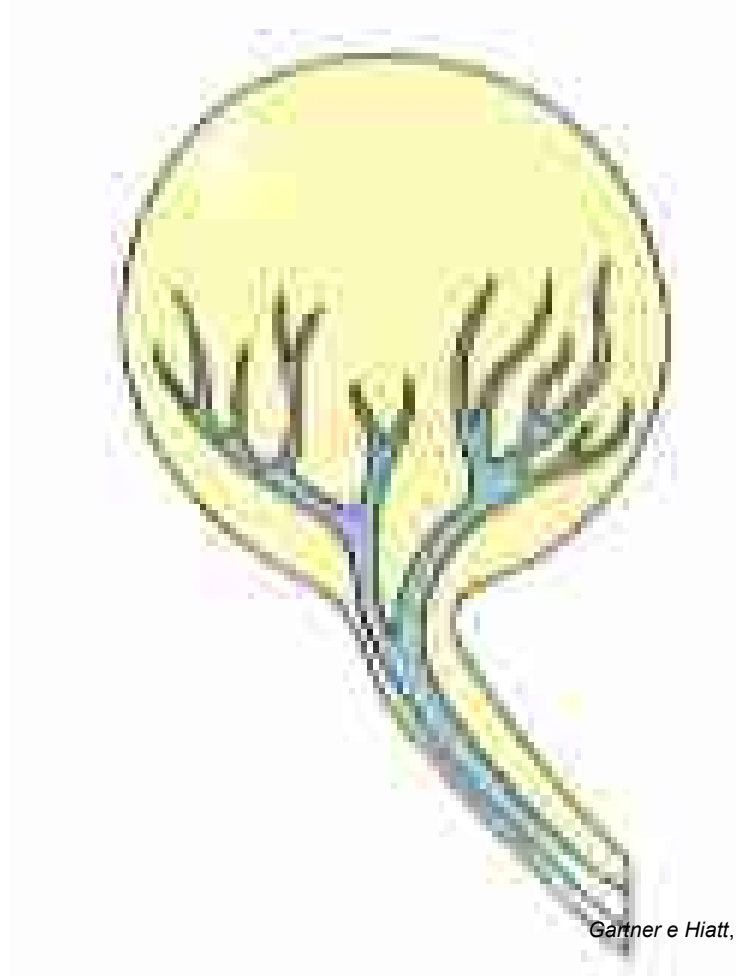


CORPÚSCULOS DE RUFINI



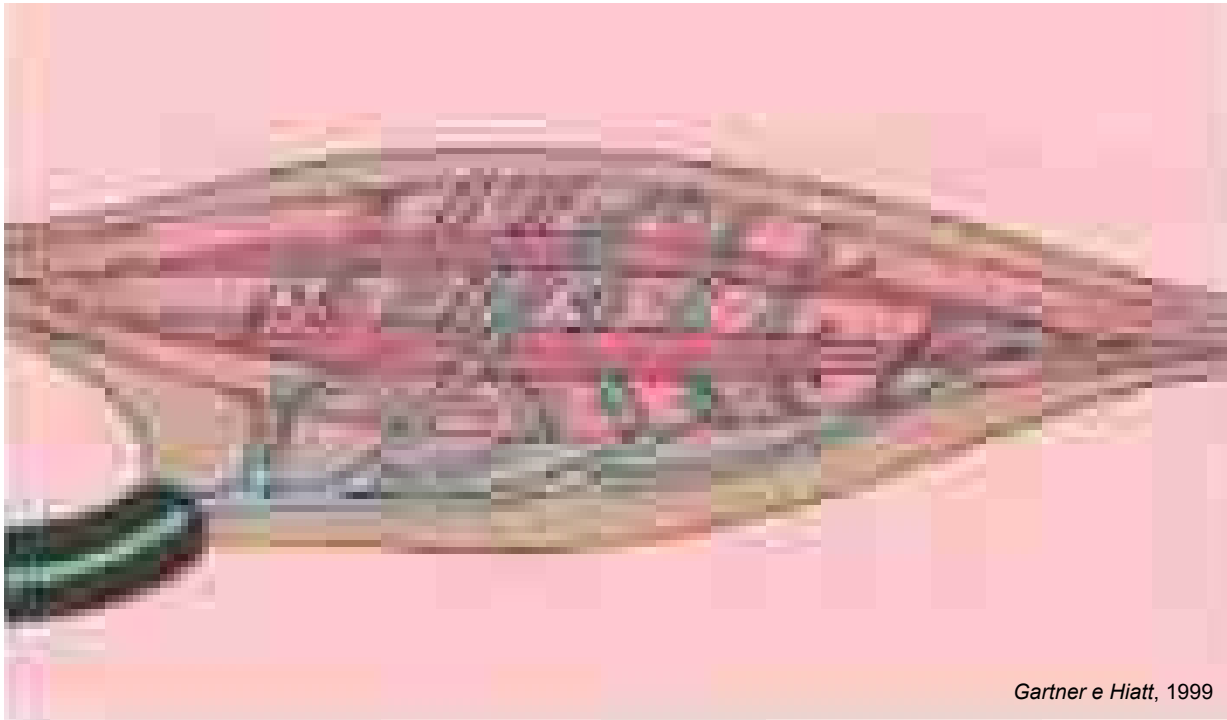
Gartner e Hiatt, 1999

BULBOS TERMINAIS DE KRAUSE



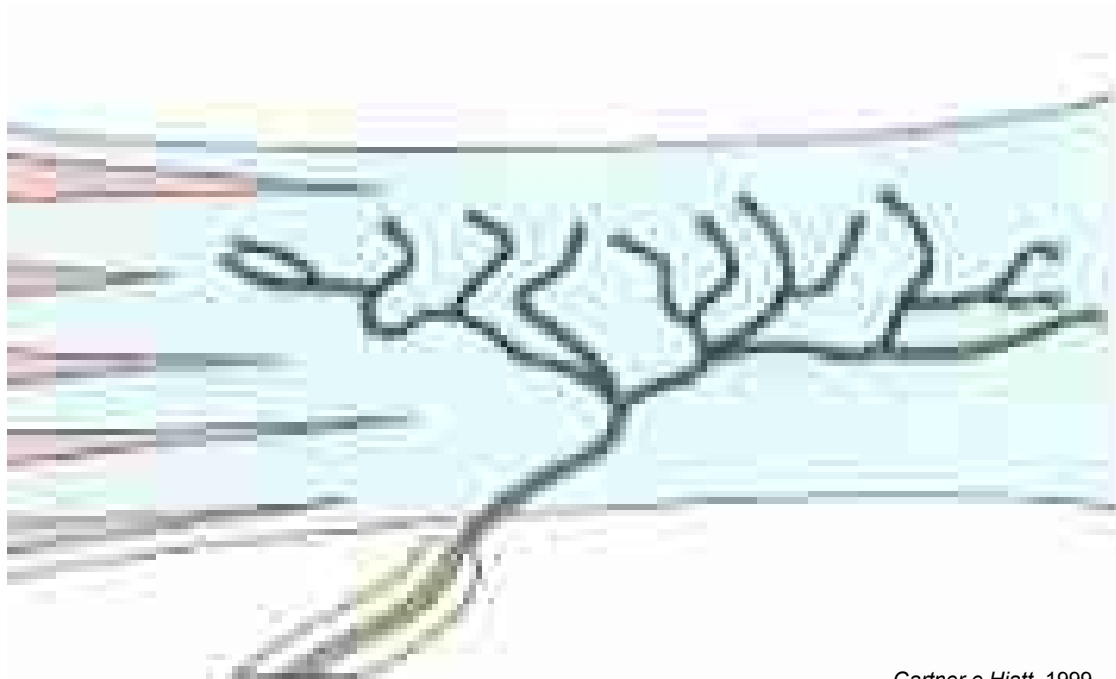
Gartner e Hiatt, 1999

FUSOS NEUROMUSCULARES



Gartner e Hiatt, 1999

ÓRGÃOS TENDINOSOS DE GOLGI



Gartner e Hiatt, 1999

SISTEMA NERVOSO

SIMPÁTICO

PARASSIMPÁTICO

