

Spinal Cord Nuclei

Structure	Location	Function
Anterior Horn Nuclei	Anterior horns of the spinal cord	Motor neurons innervating skeletal muscles
* Medial Group	All spinal cord segments	Innervates axial muscles (intercostal and abdominal)
* Central Group	All segments except thoracic	Innervates neck muscles, diaphragm, and external anal/urethral sphincters
* Lateral Group	All segments except thoracic	Innervates limb muscles
Posterior Horn Nuclei	Posterior horns of the spinal cord	Sensory neurons receiving sensory information
* Posteromarginal Nucleus	Tip of posterior horn	Mediates pain and temperature sensation
* Substantia Gelatinosa	Apex of posterior horn	Mediates pain and temperature sensation
* Main Sensory Nucleus	Center of posterior horn	Mediates crude touch sensation
* Clarke's Nucleus	Base of posterior horn (C8-L3)	Mediates unconscious proprioception
Lateral Horn Nuclei	Lateral horns of the spinal cord (T1-L2)	Autonomic neurons
* Sympathetic Nuclei	T1-L2	Pre-ganglionic sympathetic neurons
* Parasympathetic Nuclei	S2-S4	Pre-ganglionic parasympathetic neurons
Commissural Nuclei	Surround the central canal	Interneurons connecting sensory and motor neurons
Specific Nuclei		
* Phrenic Nucleus	C2-C5	Innervates diaphragm
* Spinal Accessory Nucleus	C1-C5	Innervates trapezius and sternocleidomastoid muscles