Gene	Expression	Function	Role	Regulation	
GTP cyclohydrolase-1	CNS (catecholaminergic & serotonergic neurons)	Rate limiting enzyme for tetrahdrobiopterin (BH4) synthesis. Enzymes that require BH4 as a cofactor include tyrosine and tryptophan hydroxylases and all NO synthase isoforms.	Neurotransmitter metabolism. Neuroprotection via NO synthase.	↑	91, 22, 92.
Endothelin-1	DRG (small and large neurons) Widespread in CNS	Secreted peptide Vasoconstriction and neuromodulation.	Neurotransmitter / neuro-hormone – acts on sensory fibers to produce pain.	↑	93, 94, 95.
CB1 receptor	DRG (large/medium neurons) Spinal cord /CNS	G-protein coupled receptor (Gi-coupled).	Endogenous cannabinoid receptor – Presynaptic inhibition.	↓	96, 97, 98, 99.
Stromelysin-1 53 Kd polypeptide. Matrix-Metalloproteinase 3 (MMP3) / Transin.	Widely expressed	Secreted matrix metalloproteinase	Tissue remodeling. Increased invasion of neurites into basal lamina.	↑	100, 101, 102, 103.
Monocyte chemoattractant protein-1 (IES-JE)	SCG and Motor neurons (induced by axotomy) Schwann cells (induced in cells distal to nerve injury)	Secreted cytokine chemoattractant.	Triggers recruitment and activation of monocytes to site of injury and infection.	↑	104, 23, 105, 106, 107.
Peripheral benzodiazepine receptor	Widely expressed (injury regulated).	Mitochondrial receptor – Controls cholesterol flow into mitochondria for initiation of steroid hormone synthesis.	Cell growth & differentiation, steroid biosynthesis – Neurite outgrowth / anti-apoptotic.	↑	108, 109, 110, 19.
5HT-3A Receptor	DRG (neurons) Nodose ganglia (down after axotomy). CNS (widespread)	Ionotropic serotonin receptor – non selective cation channel.	Pain.	↓	111, 112, 113, 114.
GADD45A	CNS (injury induced - neurons and glia).	Nuclear signaling protein – Growth Arrest and DNA-damage inducible.	Maintenance of chromosomal DNA stability following damage - anti-apoptotic / cell cycle control.	↑	115, 20, 116, 117.
Phospholemman Channel	Abundant in skeletal muscle and heart. CNS (astrocytes & supraoptic neurons)	Ion channel with a single transmembrane domain – volume sensitive anion channel (Chloride).	Maintenance of constant cell volume, pH regulation, and membrane potential.	↑	118, 119, 120, 121.
VGF	DRG (neurons) High levels in hypothalamus.	Secreted peptide precursor In hypothalamus has a role in energy balance.	Neurotransmission.	↑	122, 123, 124.
CLP36 (Elfin)	Abundant in heart and skeletal muscle.	Cytoplasmic protein associated with the cytoskeleton. Protein trafficking and signal transduction.	Cell morphogenisis & migration Neurite outgrowth.	↑	125,126, 127.

Metallothionein 1L	Widely expressed. CNS (Motor neurons and astrocytes)	Small cytosolic protein. Cysteine-rich heavy metal-binding and free radical scavenger	Antioxidant, prevents apoptosis, protects against DNA damage	↑	128, 21, 129.
Alpha 2 macroglobulin	Macrophage/microglia	Secreted protein Pan-proteinase inhibitor.	Sequesters growth factors - Modifies neurite outgrowth.	↑	130, 131, 132, 133.
Lysozyme	Phagocytic macrophages and microglia.	Secreted enzyme Immune response, cell breakdown.	Macrophages have role in damaged cell removal.	↑	134, 135, 136.
SNAP25	DRG (neurons) Motor neurons (down regulated by sciatic nerve injury)	With other SNARE proteins, drives intracellular vesicle-plasma membrane fusion.	Neuro-transmitter release.	↓	137, 138, 139.

Table 3: Summary of expression patterns and functional roles of uncharacterized nerve-injury regulated genes.

Abbreviations, CNS central nervous system, SCG superior cervical ganglia, SNARE soluble, n-ethylmaleimide-sensitive factor attachment-protein receptors.