

Neurotransmitter Table

* To be completed throughout course and submitted in Week 8*

Neuro transmitter	Receptor Subtype	Location/Function/Effects/symptoms of excess or deficit if applicable	Distribution (i.e: CNS/PNS, GI, vascular)	Drug classes that target this neurotransmitter or receptor
Glutamate	AMPA	<ul style="list-style-type: none"> -Located at the CNS in glia and neurons -Ligand-gated ion channels that allow flow of sodium and calcium ions into the cell to modulate cell excitability -Excess result in symptoms of mania, epilepsy, and schizophrenia 	CNS	<ul style="list-style-type: none"> -Antiepileptics -Barbiturates -NMDA glutamate antagonists
	NMDA	<ul style="list-style-type: none"> -Located at the CNS in pyramidal neurons, glial cells, astrocytes, and within the hippocampus -Ligand gated ion channels that strengthens synapses and formation of memory -Excess is associated with learning impairments, excitotoxic brain injury, psychosis, and memory impairments 	CNS	<ul style="list-style-type: none"> -Loop Diuretics -NMDA receptor antagonist -Opiates -Antipsychotics -Antidepressants
GABA	GABA-a	<ul style="list-style-type: none"> -Located in the CNS at the synapses -Ligand-gated ion channels that play a role in neuronal firing, emotion regulation, and control of sleep, pain, motor function, and cognition -Excess leads to hypersomnia and sedation while deficit of GABA-a receptors leads to mood disorders, 	CNS Limbic system Spinal cord Striatum Medulla Pancreas	<ul style="list-style-type: none"> -Neuroactive steroids -Hypnotics -Benzodiazepines

		seizures, or epilepsy		
	GABA-b	<ul style="list-style-type: none"> -Located in the CNS and PNS at the pre and post synaptic neurons -G-protein coupled receptor that inhibits pre synaptic neurons by lowering calcium ion entry and inhibiting post synaptic neurons by increasing potassium ion permeability. -Lack of GABA-b causes fear, anxiety, and convulsions 	<ul style="list-style-type: none"> CNS PNS 	<ul style="list-style-type: none"> -Antispastic anesthetics -GABA-b receptor agonists
Serotonin 5HT	5HT 1a	<ul style="list-style-type: none"> -Located on GABA interneurons in the prefrontal cortex -G-protein coupled receptor that promote release of other neurotransmitters with inhibitory and excitatory -Excess of 5HT 1a receptors lead to anxiety, mood imbalance, and psychosis 	<ul style="list-style-type: none"> Midbrain raphe Cerebral cortex Hippocampus Thalamus Basal Ganglia Amygdala 	<ul style="list-style-type: none"> -Selective serotonin reuptake inhibitors (SSRIs) - Serotonin and norepinephrine reuptake inhibitors (SNRIs) - Tricyclic antidepressants (TCAs) - Mood stabilizers - First-generation antipsychotics (FGAs) - Second-generation antipsychotics (SGAs) - Monoamine oxidase inhibitors (MAOIs)