Acetylcholine (ACh)

- Classified as a neuropeptide neurotransmitter
- Works through the Nicotinic ACh Receptors (ionotropic) and Muscarinic ACh receptor (metabotropic)
- Travels via vesicular uniport transporters
- Used in neuromuscular junctions, adrenal medulla, and parasympathetic/sympathetic nervous systems

Glutamate (Glu)

- Classified as an amino acid neurotransmitter
- Works through Ionotropic receptors
- Important in normal brain function
- Removed via excitatory amino acid transporters

GABA

- Classified as an amino acid neurotransmitter
- Inhibitory neurotransmitter
    - Inhibits chlorine channels and hyperpolarization
- GABA(a) works through Ionotropic receptors while GABA(b) works through Metabotropic receptors
- Removed via GABA transporters

Glycine

- Classified as an amino acid neurotransmitter
- Inhibitory properties
- Works through ionotropic receptors (Gly)
- Synthesized in presynaptic neuron via other amino acids
- Removed via Gly transporters

Monoamines

- Group of neurotransmitters
- Contains: catecholamines, indolamine, and imidazoline
- Contains amine group and carbon ring
- Associated with mood control
- Work through metabotropic receptors (GPCRs)
    - Serotonin is the exception as it works via Ionotropic receptors (ligand gated channel)

Dopamine

- Cleared via DAT (dopamine transporter)
- Classified as a Catecholamine (Monoamine)
- Degradation in presynaptic neuron is a pharmaceutical target
- Work through metabotropic receptors (GPCRs)

Epinephrine/Norepinephrine

- Associated with fight or flight response
- Classified as a Catecholamine (Monoamine)
- Epinephrine is associated with increased heart rate, increased blood pressure, increase blood sugar levels, and faster respiration
- Norepinephrine is associated with increased blood pressure
- Work through metabotropic receptors (GPCRs)

Serotonin

- Associated with most of CNS
- Classified as a Indolamine (Monoamine)
- Works in conjunction with other neurotransmitters
- Works via Ionotropic receptors (ligand gated channel)

Histamine

- Classified as a Imidazolamine (Monoamine)
- Fire during wakefulness
- Works through metabotropic receptors (GPCRs)

Purines

- “Building blocks of DNA”
- Work via Ionotropic and Metabotropic receptors
- Activates presynaptic and postsynaptic neurons
- Includes ATP and Adenosine
    - ATP functions w ACh
    - Adenosine inhibits Glutamine, ACh, norepinephrine, serotonin, and dopamine

Neuropeptides

- Processing occurs in Ribosomes
- Work through Metabotropic receptors (GPCRs)
- Act as neuromodulator
- Effect is long lasting
- Typically released through neurons (one or more)

Neuropeptide Y

- Classified as a Neuropeptide (who would've thought)
- Works through GPCRs
- Inhibits Adenylyl Cyclase
- Most abundant neuropeptide
- associated with obesity, alcoholism, and depression

Gasotransmitters

- Classified as a Neuropeptide
- Carbon dioxide and Nitric oxide
- Small, non-polar molecule that rapidly diffuses through cell membranes
- Nitric Oxide (NO) is synthesized form Arginine and activates Guanylate Cyclase
- Work through Metabotropic receptors (GPCRs)

Endocannabinoids

- Classified as a Neuropeptide
- Lipids in plasma membrane that are converted to neuronal signals
- GPCRs inhibit release
- Targets receptors bound by Tetrahydrocannabinol