Neurochemistry basics

Effects	NT's are released together combined with other chemicals

3 Principles

Associations	NT's are associated with specific attributes
Categories	NT's are categorized by their chemical structures
Excitatory/inhibitory	NT's are EITHER excitatory OR inhibitory

Small Molecule NT's

Acetylcholine	Chemical messenger
Amines	include dopamine, serotonin, antihistamine
Amino Acids	amine+carboxyl group; include glutamate and GABA

Peptides

Peptides	chains of amino acids; largest group of NT's

Other NT's

Lipids	organic compounds; not water soluble, include cannabinoids
Nucleosides	can be released in places other than the synapse; most prominent is adenosine
Gases	diffuse in other places in the nervous system; include carbon monoxide and nitric oxide

Achetylcholine

Who discovered it?	Otto Lovi
Where does it come from?	the binding of acetate *acetate* and *choline*; choline is found in diet
What breaks down ACh?	AChE (acetylcholinesterase)

Achetylcholine (cont)

What does it do in the PNS?	activates muscles; receptors for activation are Nicotinic receptors
Excitatory or Inhibitory?	excitatory but can excite inhibitory NT's
What does it do in the CNS?	primary NT in the hippocampus; critical for learning and memory; helps maintain attention
How does it affect sleep?	rises during REM sleep; is usually an arousing NT
Is it linked with depression?	if ACh is very high, yes. causation is not proven

Monoamines

Catecholamines	arousing neurotransmitters
What breaks down Catecholamines?	MAO (monoamine-oxidase); allows for more amines in synaptic cleft
How does MAO affect the brain/body?	very low MAO is linked with aggression; low MAO+being abused=high chance of becoming an abuser; combination of life experiences and MAO determine likelihood and severity of depression