

Terminology for Presentations at ATA 53rd Annual Conference, 26 October 2012

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I. Basic Concepts of Pharmacology in Drug Development

Drug: An exogenous (outside of the body) substance that brings about a change in biologic function through its chemical action

Pharmacology: The study of the effects of drugs on the body or system (what the drug does to the body)

Pharmacokinetics: The study of how the body or system absorbs, distributes, metabolizes and excretes drugs (what the body does to the drug)

Receptor: The site of action of most drugs. Drug binds to receptor producing an effect.

Agonist: A drug that activates or stimulates the receptor to produce a response. A drug agonist mimics the action of an endogenous substance.

Antagonist: A drug that blocks the action of an endogenous substance.

Potency: The amount of drug or dose of drug required to produce a response. Potency is dose-related and has nothing to do with efficacy.

Efficacy: The ability of a drug to produce a response.

Full Agonist: Will produce a full or 100% response.

Partial Agonist: Will produce < 100% of the full response.

Occupancy Theory: Response is related to receptor occupancy. A full response is achieved with 100% occupancy.

Spare Receptor Theory: A full response is achieved with < 100% occupancy.

Competitive Antagonism: May be overcome with the addition of more agonist.

Non-Competitive Antagonism: Cannot be overcome with more agonist.

Radioligand Binding: Method used to study drug-receptor interactions.

II. Drugs of Abuse: A Pharmacological Perspective

The Many Ways that Drugs of Abuse Behave in the Body

Drug Category	Specific Drug(s)	Receptor	Type of Action at Receptor Site			
			Agonist	Antagonist	Uptake/Release	
CNS Stimulants	Caffeine	Adenosine		●		
	Nicotine	Nicotinic Cholinergic	●			
	Amphetamine		●	●	Dopamine Serotonin Norepinephrine	
	Cocaine		●	●	Dopamine Serotonin Norepinephrine	
	Bath Salts		●	●	Dopamine Serotonin Norepinephrine	
CNS Depressants	Alcohol	GABA, NMDA		● (?)		
	Opiates	Opiate (mu)	●			
	Barbiturates	GABA	●			
	Benzodiazepines	GABA	●			
Hallucinogens	Psychedelics	LSD	5-HT2A Serotonin	●		
		Psilocybin	5-HT2A Serotonin	●		
		THC	Cannabinoid	●		
		K2	Cannabinoid	●		
		Spice	Cannabinoid	●		
	Dissociatives	PCP	NMDA		●	
		Ketamine	NMDA		●	
		Dextromethorphan	NMDA		●	
		Saliva divinorum	Opiate (kappa)	●		
	Deliriant	Atropine	Muscarinic cholinergic		●	

Acronym key:

LSD: Lysergic acid diethylamide

THC: Tetrahydrocannabinol

PCP: Phencyclidine

GABA: Gamma-aminobutyric acid

NMDA: N-Methyl-D-aspartate