

Drugs from Plants:

ما كتبت باقي المصادر لانهم والاذنين

. Alkaloids*, Steroids, Some Vitamins

. Tannins, Volatile oils, Gums

*Alkaloids: atropine, morphine, caffeine

Theophylline, quinine
 ↳ asthma ↳ anti-malarial

Non-organic: ↳ anti-cancer
 metals: Platinum, Zinc ↳ anti-septic

non-metals: Sodium chloride, Magnesium sulfate

Belladonna alkaloids → atropa belladonna

Digitalis leaves → Digitalis glycosides

Chemical name:

Aspirin → Acetylsalicylic acid

Paracetamol → Acetaminophen

Generic:

Adrenaline, Noradrenaline UK

Epinephrine, Norepinephrine USA, WHO

Generic:

Salbutamol (UK) → Albuterol (USA)

Commercial:

Diclofenac Na (Voltaren, Inflanban, Diclogesic)

→ Lec. 2

Physical action: Mannitol
Radio-isotopes

Chemical reaction: Gastric antacids
Chelating agents

Transmembrane Ligand-gated ion channels:

- neurotransmission
- cardiac conduction
- muscle contraction

Examples:

Nicotinic receptors

~~γ-aminobutyric~~ γ-aminobutyric acid (GABA)

Transmembrane G-protein-coupled receptor

Receptor for transmitters

Muscarinic receptors

Enzyme-linked receptor

Receptor for insulin

" " growth factors like EGF, PDGF

" " immune cytokines

→ Lec. 3

Antagonists

- Chemical antagonist → Alkeline antacids
Protamine (Basic)
Chelating agents
- Physiological: Adrenaline (physiological antagonist to histamine)

• Pharmacological antagonist:

Competitive → Atropine is competitive reversible antagonist to ACh at muscarinic receptor

→ Beta-blockers are competitive antagonist to adrenaline at beta-adrenergic receptors

Allosteric antagonism → Binding of benzodiazepines to GABA-A receptors can enhance the depressant GABA effect on brain neurons.

Lec. 4

ED_{50} → median effective dose

TD_{50} → median toxic dose

LD_{50} → median lethal dose

Potentiation = synergism

↳ Treatment of AIDS by combination therapy

with AZT (nucleoside analog that inhibit HIV reverse transcriptase) and a Protease inhibitor (protease activity is important for viral replication)

TI → Therapeutic index

Idiosyncrasy → hemolysis by sulfonamide or antimalarial drug primaquin in patients with genetic deficiency of enzyme (G-6-PD) in their RBC

→ Resistance of vitamin D or to oral anti-coagulant warfarin

Special toxicity
• Genotoxicity leading to Mutagenicity
Alkylating agents

Delayed toxicity → idiosyncratic aplastic anemia due to
Chloramphenicol

Chronic toxicity → Cushing syndrom
from long-term use of
steroids

Dependence → Alcohol, Opioids like morphine

EC_{50} → potency

E_{max} → Maximal efficacy

Lec. 4

Adverse effect may be caused by:

① Over extension of same mechanism of action on same target tissue

→ sedative-hypotonics
anti-coagulant

Beta-adrenoceptor blockers

② Effect on same receptor type but on another tissue → anti-muscarinic drugs

Beta-blockers

Lec. 1

Chemotherapy

Microbe (anti-microbial agents)

Cancer cells (Cytotoxic anti-cancer drugs)