INTRINSIC ACTIVITY

By PHARMACO-Study

I.A of drug determine its ability to fully or partially Activate the receptor

AGONISTS

Full Agonist
- Bind & produce MAXIMAL Biol. response (Emax).
- Mimics endo. ligand.
- Intrinsic Activity = 1

Examp: phenylepi - Full ago. of α-1 adrenocep. (mimics endo. ligand Nor-epinep.) & ↑se B.P.

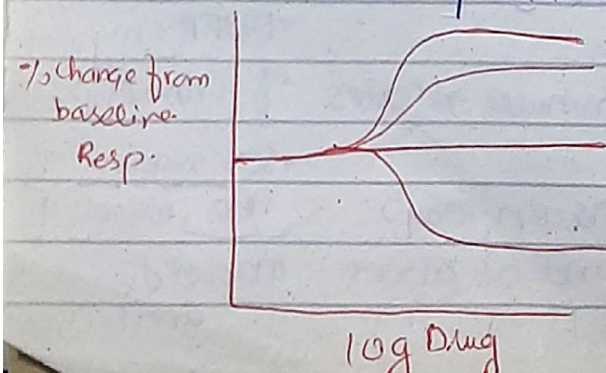
Partial ago.
- can't produce Emax even if all recep. are occupied.
- I.A (0<I.A<1)
- Affinity may be Greater, lesser or equal to phamol. agonist
- No. of recep occup = Emax ↓ses by P. agonis ↑ses
- May act as agonis or antagonist

Examp:- Aripiprazole P. ago. of dopaminergic pathways, used to treat symp of schizophrenia.
- ↙ Inhibit overactive pathways
- ↘ Stimulate underactive p.

→ Improve Symp of Schi & small risk of Extrapyramidal ADRs.

Inverse agonist
(inactive)
- stabilize inactive for of recep.
- cause Active → Inactive
- I.A < 0
- exert oppos. effect

Examp:-
- chlorpheniramine on H_1 recept.
- Chlorpromazine/ Risperidone/ clozapine on 5HT$_{2a}$ recep.



Strychnine : antag. of glycine & Ach receptors
(neurotoxin) ↓ inhibitory ↓ excitatory

ANTAGONIST

By: PHARMACO-study

- Binds ē high affinity BUT I.A = 0
- No effect in absence of agonist.

General MOA

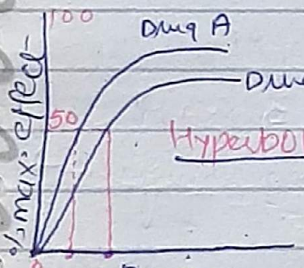
Block drug's ability to bind ← → Blocking its ability to activate the receptor.

Types

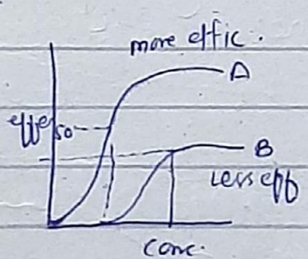
Competitive

- If both agon & antag. binds to same site on recep → Then it is said to be "competitive"
- Maintain recep in inactive state
- Shift Dose-resp. curve to right (↑se EC_{50}) ē out affecting Emax

Conc. at which 50% respon achieve = Cmax (indicate potency)



Drug A = potent
B = less potent



(Emax)

IRr Reversible Anta.

- Bind covalently
- ↓ No. of avail recep.
- causes downward shift of Emax
- No effect on EC_{50} unless spare recep. are present (single drug-recep interaction result in several cellular response)
- Irreversible & allosteric both consider as NON-competitive antago.

Allosteric Anta.

- Bind to site other than recep Drug binding site
- prevent activation
- ↓Emax
- No effect on EC50
- Example picrotoxin binds to inside GABA channel → NO Cl^- pass

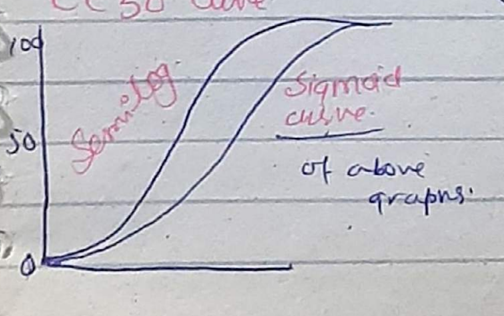
Functional anta.

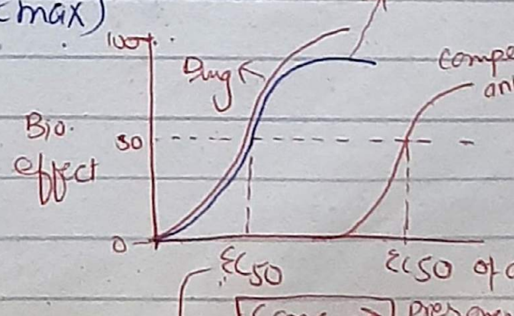
↓ initial effect opp. to that of agonist

e.g. epineph. to Histamine (increase bronchoconstriction)

H₁ = Histamin recep ↓ constrict
B₂ - epineph ↓ relax.

EC 50 curve





Conc. → presence of competitive antag
of drug or in presence of Non-comp

★. PT/INR:-

★ prothrombin — protein produce by liver → for clotting
by help of vit-K

★. PT — Time it takes to clot the blood.
9- 11 sec

⇨ Heart failure, fibrillation (HR fluctuate) — warfarin is suggested
it ↑ses the clotting time ← (anti-coagulant / Blood-thinner)
and ↓se chances of clotting.

→ When a person is taking warfarin, and he bleeds, his clotting time will be large due to warfarin — may lead to blood loss — so doctors suggest INR test

INR Test
- high value → ↑ clotting time
- low value → clotting time is less. rapid clotting — Blood Thicker

$$INR = \frac{\text{Actual PT}}{\text{Constant PT (acc to body wt, age etc)}}$$ e.g $\frac{9}{11} = 0.8$.

Normal 0.8 — 1.2

⇨ INR value should be ↑se slightly (2-3) in pt's who take blood thinner medicine (warfarin)
- < 2 = ↑se dose of warfarin
- 3 < 3.5 = ↓ dose of warfarin
- 3.6 - 4 = with held / NO DOSE