

**PHARMACODYNAMICS**

**Classroom worksheet**

**Mechanisms of drug effects** – work with the ATC classification and online sources

1) open online <https://www.atccode.com/> the ATC classification of drugs and find the groups of **drugs for acid related disorders**

See the table below and find for each category of mechanism of action (MoA) an example of a specific drug and an approved product, read the SPC (<https://www.medicines.org.uk/emc>, <https://www.drugs.com/>, or other source) in detail and check the pharmacodynamic profile, prescribe one product of your choice

	<b>specific receptor-mediated</b>	<b>specific non-receptor-mediated</b>	<b>nonspecific</b>
<b>MoA</b>			
<b>drug</b>			
<b>product</b>			

2) **Anti-allergy drugs** – choose products containing **ketotifen, cetirizine and levocetirizine** within the ATC group of antihistamines for systemic use

See the table below and compare pharmacodynamic profiles of these 3 drugs, find an example of an approved product for all and prescribe one product of your choice

	<b>ketotifen</b>	<b>cetirizine</b>	<b>levocetirizine</b>
<b>MoA</b>			
<b>product</b>			

What is the exact pharmacodynamic effect of H1-antihistamines?

**3) Anodynes** – identify the mechanism of action of drugs listed in the group of analgesic drugs, which is listed under opioid drugs

a) Assign the following opioid analgesics depending on their receptor interactions into categories listed in the following table:

**buprenorphine, fentanyl, hydromorphone, codeine, methadone, morphine, nalbuphine, naloxone, naltrexone, pentazocine, pethidine, sufentanil**

<b>full agonists</b>	<b>partial agonists</b>	<b>mixed agonists antagonists</b>	<b>antagonists</b>

b) Prescribe morphine in tablets:

**4) NSAIDs** - identify the mechanism of action of drugs listed in the group of other analgesics and antipyretics

a) Assign the following drugs into categories listed in the following table depending on their selectivity towards cyclooxygenase 1 and 2 (COX)

- **celecoxib, diclofenac, ibuprofen, acetylsalicylic acid, meloxicam, naproxen, nimesulide**

a)

<b>irreversible COX inhibition</b>	<b>non-selective / non-specific COX 1 and 2 inhibitors</b>	<b>preferential COX 2 inhibitors</b>	<b>selective / specific COX 2 inhibitors</b>

b)

b) Prescribe ASA indicated for its anti-platelet effects and explain its MoA:

**5) Beta-blockers** – identify the mechanism of action of drugs listed in the group of beta blocking agents

a) Assign the following drugs into categories listed in the following table depending on their receptor affinity:

- **acebutolol, atenolol, betaxolol, bisoprolol, celiprolol, carvedilol, metoprolol, sotalol**

non-selective $\beta$ antagonists	selective / cardioselective antagonists	non-selective $\alpha$ and $\beta$ antagonists	antagonists with intrinsic sympathomimetic activity (partial agonists)

b) Prescribe a beta-blocker in tablet form, indicated for its antiarrhythmic effects: