In Hungary parts of the prescriptions are as follows:

- **Ordinatio**: The doctor's given orders for the patient.
- **Signatura**: Data of patient, doctor and prescription.
- **Invocatio**: The doctor's given orders for the patient.
- **Subscription**: The doctor's given orders for the patient.
- **Inscriptio**: Choose...
- **Adscriptio**: Rp. (Recipe! = Take!; Antique meaning: asking the help of the muse)

**Question 2**

Rp./
Tablett am Escapelle 1,5mg 1x
Scatul am original em No. I ( unum )
Signetur: 1x1

**Question 3**

Please, name the required fields!
What type of receptorial interactions are illustrated?

- Non-competitive Antagonism
- Competitive Antagonism
- Potentiation

On a graded dose-response curve, at what point does response increase the most rapidly?

Select one:
- a. At 90% maximal response efficacy (Emax)
- b. Initially
- c. At steady-state
- d. At EC50
- e. At LD50

A patient presents with an overdose of acidic Aspirin. The drug ____ can be given to ____ the pH of the urine and trap the Aspirin, preventing further metabolism.

Select one:
- a. NaHCO3; Decrease
- b. NH4Cl; Decrease
- c. NH4Cl; Increase
- d. NaHCO3; Increase
Bioavailability (F) is the fraction or percentage of administered drug that reaches the systemic circulation via a given route as compared to what route?

Select one:
- a. CSF (cerebrospinal fluid)
- b. Oral
- c. IO (intravenous)
- d. Whatever route attains the target drug concentration in plasma (CT)
- e. IV (intravenous)

For first-order drug elimination, given the half-life equation of \( t_{1/2} = \frac{0.693 \times V_d}{CL} \), how many half-lives would be necessary to reach steady state (≈95%) without a loading dose?

Select one:
- a. 4 to 5
- b. 3 to 4
- c. 2 to 3
- d. 5 to 6
- e. 1 to 2

The lipid-soluble form of a base is ____ and the lipid-soluble form of an acid is ____.

Select one:
- a. Unprotonated; Unprotonated
- b. Protonated; Unprotonated
- c. Protonated; Protonated
- d. Unprotonated; Protonated

Which of the following can produce a therapeutic response? A drug that is:

Select one:
- a. Bound to plasma albumin
- b. Concentrated in the urine
- c. Unbound to plasma proteins
- d. Concentrated in the bile
- e. Not absorbed from the GI tract

Options:
- 0.1 microgram (μg) ACh
- 2 mgs of atropine
- 5 mgs of ACh
- 2 microgram (μg) ACh
- 25 mgs of E
- 100 mgs of choline (Choline)
- 100 mgs of NE
- 5 mg prazosin
- Phenolamine
- Metoprolol
- Carvedilol
- Doxazosine
- Alfuzosine
- Yohimbine
- Metoprolol
Dale's experiment showing that acetylcholine (ACh) produces two kinds of effect on the cat's blood pressure. Arterial pressure was recorded with a mercury manometer from a spinal cat.

Please, place the proper dose of drugs to the proper arrow!

**NE - Norepinephrine**

**E - Epinephrine**

**ACh - Acetylcholine**

**NE** is a nonselective β-adrenoreceptor antagonist that also blocks α-adreno receptors, whereas **E** is a β1-selective antagonist. **NE** can also trigger arrhythmias and anginal pain and is contraindicated in patients with decreased coronary perfusion. **E** is selective competitive blockers of the α1 receptor. **NE** is indicated for the treatment of benign prostatic hyperplasia. **E** works at the level of the CNS to increase sympathetic outflow to the periphery. It directly blocks α2 receptors and has been used to relieve vasoconstriction associated with Raynaud disease.

Please match receptorial type to the proper signal transduction process!

- **M4** ↓ cAMP synthesis
- **M3** ↑ IP3, DAG cascade
- **N<sub>M</sub>** ↑ IP3, DAG cascade
- **N<sub>N</sub>** ↓ cAMP synthesis
- **M2** ↓ cAMP synthesis
- **M1** ↑ IP3, DAG cascade
- **M5** ↑ IP3, DAG cascade

Match the drug to the proper description!

- Ultra-short acting β1-selective blocker
- Choose...
- Esmolol

- Useful in myasthenia gravis
- Choose...
- Neostigmine

- Selective β2-stimulant, useful to suppress premature labor and to abolish bronchoconstriction attack
- Choose...

- Cholinesterase regenerator
- Choose...

- Effective mydriatic and decongestant
- Choose...
A soldier's unit has come under attack with a nerve agent. The symptoms exhibited are skeletal muscle paralysis, profuse bronchial secretions, miosis, bradycardia, and convulsions. The alarm indicates exposure to an organophosphate. What is the correct treatment?

Select one:
- a. Administer ecothiophate.
- b. Administer atropine, and attempt to confirm the nature of the nerve agent.
- c. Administer pralidoxime.
- d. Do nothing until you can confirm the nature of the nerve agent.
- e. Administer atropine and 2-PAM (pralidoxime).

Characteristics of beta-blocking agents include all of the following EXCEPT:

Select one:
- a. They occupy beta receptors and competitively reduce receptor occupancy by catecholamines or other beta agonists
- b. They do not cause hypotension in individuals with normal blood pressure
- c. They induce depression and depleted stores of catecholamines
- d. They can cause blockade in the atrioventricular node

Indicate an alpha-receptor antagonist, which binds covalently to alpha receptors, causing irreversible blockade of long duration (14-48 hours or longer):

Select one:
- a. Phentolamine
- b. Doxazosin
- c. Ergotamine
- d. Prazosin
- e. Phenoxybenzamine

Indicate the beta1-selective agonist:

Select one:
- a. Metaproterenol
- b. Dobutamine
- c. Epinephrine
- d. Isoproterenol

Metoprolol and atenolol:

Select one:
- a. Are nonselective beta antagonists
- b. Are members of the beta1-selective group
- c. Have intrinsic sympathomimetic activity
- d. Have an anesthetic action

Which is an α1a subtype specific blocker used in the treatment of BPH?

Select one:
- a. Carvezosin
- b. Metoprolol
- c. Phenoxybenzamine
- d. Prazosin
- e. Tamsulosin
An important difference between propranolol and labetalol is that the latter one

Select one:
- a. has intrinsic sympathomimetic activity.
- b. is a selective blocker of cardiac β1 receptors.
- c. has α1 receptor blocking actions.
- d. stimulates β2 receptors in bronchioles.
- e. is available only for intravenous use.

Stimulation of nitric oxide – cGMP pathway has NO therapeutic benefit in case of:

Select one:
- a. erectile dysfunction
- b. haemophilia A
- c. angina pectoris
- d. pulmonary hypertension

A 75-year-old woman with hypertension is being treated with a thiazide. Her blood pressure responds and reads at 120/76 mm Hg. After several months on the medication, she complains of being tired and weak. An analysis of the blood indicates low values for which of the following?

Select one:
- a. Glucose.
- b. Uric acid.
- c. Sodium.
- d. Potassium.
- e. Calcium.

A 55-year-old man with kidney stones has been placed on a diuretic to decrease calcium excretion. However, after a few weeks, he develops an attack of gout. Which diuretic was he taking?

Select one:
- a. Spironolactone.
- b. Furosemide.
- c. Hydrochlorothiazide.
- d. Urea
- e. Triamterene.

What is the target in the nephron of carbonic anhydrase (CA) inhibitors?

Select one:
- a. Proximal tubule
- b. Thick ascending limb of Henle's loop
- c. Distal tubule
- d. Collecting tubule
- e. Glomerulus

A 48-year-old hypertensive patient has been successfully treated with a thiazide diuretic for the last 5 years. Over the last 3 months, his diastolic pressure has steadily increased, and he has been started on an additional antihypertensive medication. He complains of several instances of being unable to achieve an erection and that he is no longer able to complete three sets of tennis. The second antihypertensive medication is most likely which one of the following?

Select one:
- a. Metoprolol.
- b. Captopril.
- c. Minoxidil.
- d. Losartan.
- e. Nifedipine.
A 61-year-old man suffers from moderate hypertension and metabolic syndrome. What is the most proper choice of treatment regarding antihypertensive drugs in this case? SELECT ONE

Select one:
- a. metoprolol
- b. perindopril
- c. amlodipin
- d. prazosine
- e. irbesartan

A 56-year-old patient complains of chest pain following any sustained exercise. He is diagnosed with atherosclerotic angina. He is prescribed sublingual nitroglycerin for treatment of acute chest pain. Which of the following adverse effects is likely to be experienced by this patient?

Select one:
- a. Anemia.
- b. Bradycardia.
- c. Hypertension.
- d. Throbbing headache.
- e. Sexual dysfunction.

Choose the one FALSE statement

Select one:
- a. NO production by inflammatory cells is much higher than by endothelial cells
- b. peroxynitrite is a reactive free radical formed from NO and O2
- c. NO decreases thrombocyte aggregation
- d. NO has no role in the central nervous system
- e. soluble guanylyl cyclase is a metalloprotein which is activated by NO

Which one of the following drugs decreases de novo cholesterol synthesis by inhibiting the enzyme 3-hydroxy-3-methylglutaryl coenzyme A reductase?

Select one:
- a. Lovastatin.
- b. Fenofibrate.
- c. Cholestyramine.
- d. Niacin.
- e. Gemfibrozil.

Which of the following drugs is not metabolized by CYP450 enzyme system of the liver?

Select one:
- a. Rosuvastatin
- b. Lovastatin
- c. Atorvastatin
- d. Simvastatin
- e. Pravastatin

Which of the following combinations is highly effective in lipid lowering?

Select one:
- a. Simvastatin - Benzafibrate
- b. Clofibrate - Lovastatin
- c. Probucol - Niacin
- d. Rosuvastatin - Ezetimibe
- e. Niacin - Ezetimibe
A 42-year-old white male with rheumatic mitral insufficiency is seen with symptoms and findings of initial left ventricular failure. You give him digitalis and recall that all of the following are pharmacologic effects of digitalis EXCEPT:

Select one:
- a. prolongs the functional refractory period of the A-V node
- b. increases the effects of normal vagal activity of the heart
- c. shortens the effective refractory period of the Purkinje fibers
- d. weakens myocardial contractility
- e. decreases conduction velocity in the A-V node

WARNING!!! Multiple answers are available! Find all of them!

How would you treat digoxin intoxication?

Select one or more:
- a. Administer Digibind
- b. Administer verapamil
- c. Infuse Ca++ containing solution
- d. Administer atropine
- e. Infuse K+ containing solution

WARNING!!! Multiple answers are available! Find all of them!

Where can you find naturally occurring cardiac glycosides?

Select one or more:
- a. Oleander
- b. Digitalis lanata (Wooly foxglove)
- c. Ginseng
- d. Serenoa repens (Saw palmetto)
- e. Digitalis purpurea (Purple foxglove)

A 57-year-old man is being treated for an atrial arrhythmia. He complains of headache, dizziness, and tinnitus. Which one of the following antiarrhythmic drugs is the most likely cause?

Select one:
- a. Quinidine
- b. Propranolol
- c. Amiodarone
- d. Verapamil
- e. Procainamide

1. Class 1C antiarrhythmic

MOA: Na+ channel blocker, but no effect on AP duration

Uses: ventricular tachycardias progressing to VF, intractable SVT, last resort in refractory tachyarrhythmias

Toxicities: contraindicated post-MI or with structural abnormalities, proarrhythmic, prolongs AV RP

Select one:
- a. Procainamide
- b. Lidocaine
- c. Tocainide
- d. Flecainide
- e. Ibutilide
<table>
<thead>
<tr>
<th>Question</th>
<th>Text</th>
</tr>
</thead>
</table>
| **Question 38** | Which sentence is false? Select one:  
- a. dofetilide is a potent IkR blocker  
- b. dofetilide is excreted unchanged by the kidney, therefore should not be used in patient with advanced renal failure  
- c. dofetilide is effective in maintaining sinus rhythm in patient with ventricle fibrillation  
- d. dofetilide is effective in maintaining sinus rhythm in patient with atrial fibrillation |
| **Question 39** | Iodine containing antiarrhythmic drug with possible thyroid dysfunction as a side effect, SELECT ONE  
Select one:  
- a. amiodarone  
- b. lidocaine  
- c. dronedarone  
- d. esmolol  
- e. disopyramide |
| **Question 40** | Which of the following drugs can you choose for treatment of Prinzmetal angina? Select one:  
- a. Propranolol  
- b. Metoprolol  
- c. Oxprenolol  
- d. Amlodipine  
- e. Pindolol |
| **Question 41** | Which of the following compounds is most likely to cause platelet aggregation? Select one:  
- a. Cyclic AMP  
- b. Ticlopidine  
- c. Clopidogrel  
- d. Prostacyclin (PGI2)  
- e. Serotonin |
| **Question 42** | Which of the following statements about heparin is accurate? Select one:  
- a. Heparin is a base with high molecular weight.  
- b. Heparin induced thrombocytopenia is due to increased formation of PGI2.  
- c. Volume of heparin is higher than 70 liters  
- d. Vitamin K is the antidote of heparin  
- e. Potentiates effects of Antitrombin III on Factor X |
| **Question 43** | Which orally used drugs are good for management of patients with thromboembolic disease instead of heparin if heparin-induced thrombocytopenia has developed? Select one:  
- a. enoxaparine  
- b. dabigatran  
- c. Low molecular weight heparins  
- d. hirudin  
- e. lepirudin |
Which of the following has overdose toxicity that includes insomnia, arrhythmias, and convulsions?

Select one:
- a. Metoprolol
- b. Ipratropium
- c. Zafirlukast
- d. Cromolyn
- e. Aminophylline

To treat heart failure which of the following drugs can NOT be administered?

Select one:
- a. Lisinopril
- b. Hydrochlorothiazide
- c. Valsartan
- d. Metoprolol
- e. Verapamil

Statins are beneficial in the treatment of hyperlipidemia, because they are able to decrease the HDL cholesterol level.

Select one:
- True
- False

The antianginal action of propranolol may be due to all of the following mechanisms with the EXCEPTION:

Select one:
- a. Block of exercise-induced tachycardia
- b. Increased end-diastolic ventricular volume
- c. Decreased systolic fiber tension
- d. Reduced myocardial contractile force
- e. Decrease of resting heart rate

One effect that theophylline, nitroglycerin, isoproterenol, and histamine have in common is

Select one:
- a. Increased gastric acid secretion
- b. Postural hypotension
- c. Direct stimulation of cardiac contractile force
- d. Tachycardia
- e. Throbbing headache

Which of the following statements regarding warfarin is true?

Select one:
- a. Administration of Vitamin K is the life-saving drug in acute intoxication
- b. It has low lipophilicity and does not cross the placental barrier.
- c. It is inactivated by protamine.
- d. Hypercoagulability with vascular thrombosis may develop with skin necrosis maybe a rare but serious side effect
- e. It stimulates release of vitamin K-dependent clotting factors from hepatocytes.
A woman who has a mechanical heart valve and who is taking warfarin informs you that she hopes to get pregnant in the near future. What advice should she receive regarding her antithrombotic medication during the anticipated pregnancy?

Select one:

- a. Warfarin should be discontinued, and supplementary vitamin K should be taken throughout the pregnancy.
- b. Warfarin should be replaced with aspirin at analgesic doses.
- c. Warfarin should be replaced with heparin.
- d. All medications that affect the blood should be discontinued.
- e. Warfarin should be continued until the third trimester.