**Lesson 3 – Regulation of enzyme activity**

**1. Types of regulation of enzyme activity**

Fill in the table

|  |  |  |  |
| --- | --- | --- | --- |
|  | Allosteric regulation | Covalent modification | Limited (partial) proteolysis |
| How does this type of regulation begin begin? |  |  |  |
| How does regulation work? |  |  |  |
| Enzyme activity increases (+/- or yes/no) |  |  |  |
| Enzyme activity decreases (+/- or yes/no) |  |  |  |
| Type of regulation reversible (+/- or yes/no) |  |  |  |
| Examples of enzymes |  |  |  |

**2. Enzyme inhibitors**

What is feedback inhibition?

Fill in the table

|  |  |  |  |
| --- | --- | --- | --- |
| Type of inhibitor | Irreversible inhibitor | Competitive inhibitor | Noncompetitive inhibitor |
| Where does the enzyme inhibitor bind? |  |  |  |
| What are the bonds between the inhibitor and the enzyme? |  |  |  |
| How does the inhibitor decrease the enzyme activity? |  |  |  |
| How do you reverse inhibition? |  |  |  |
| Examples |  |  |  |

**3. Main uses of enzymes in medicine.**

What is an enzymopathy? What causes enzymopathies?

How can enzymes be used for treatment?

How are enzymes used in diagnosis?

Give examples of the use of enzymes in medicine:

|  |  |
| --- | --- |
|  | Examples |
| Enzymes as agents for the treatment of disease  1. Enzyme replacement therapy  2. Enzymes as antibacterial agent  3. Enzymes help wound healing  4. Enzyme inhibitors as drugs to treat disease |  |
| Enzymes to diagnose disorders  1. Diagnostic enzymes  2. Enzymatic method for substance determination in body fluids |  |