GLYCOSIDE AND VOLTAGE GATED SODIUM AND POTASSIUM CHANNELS

PRESENTED BY 1ST YEAR STUDENTS:

Ahmed Hijazy

Rajab alshaki

Fatima abdullah

ILO'S

- What is glycoside.
- What are the types of glycosides.
- The main functions of glycosides.
- What is the voltage gated.
- How it works.

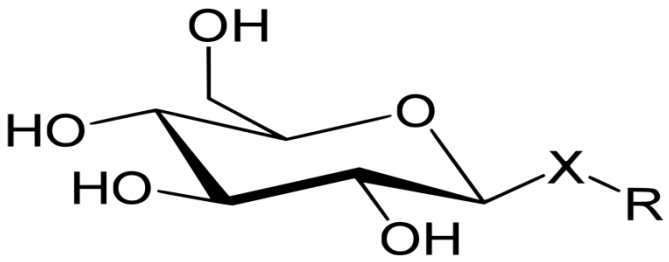
GLYCOSIDE

What is glycoside

GLYCOSIDE

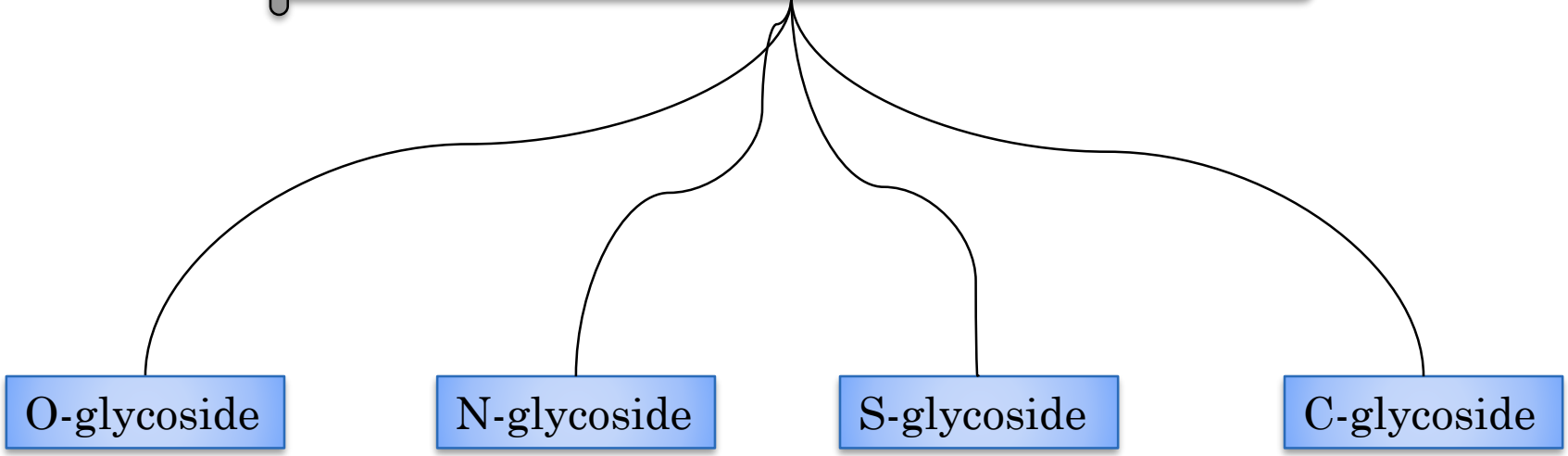
Consist of

hydroxyl group of the anomeric carbon of a monosaccharide



a second compound that may or may not be another monosaccharide

TYPES OF GLYCOSIDE



Note: These are the types according to the acetal link

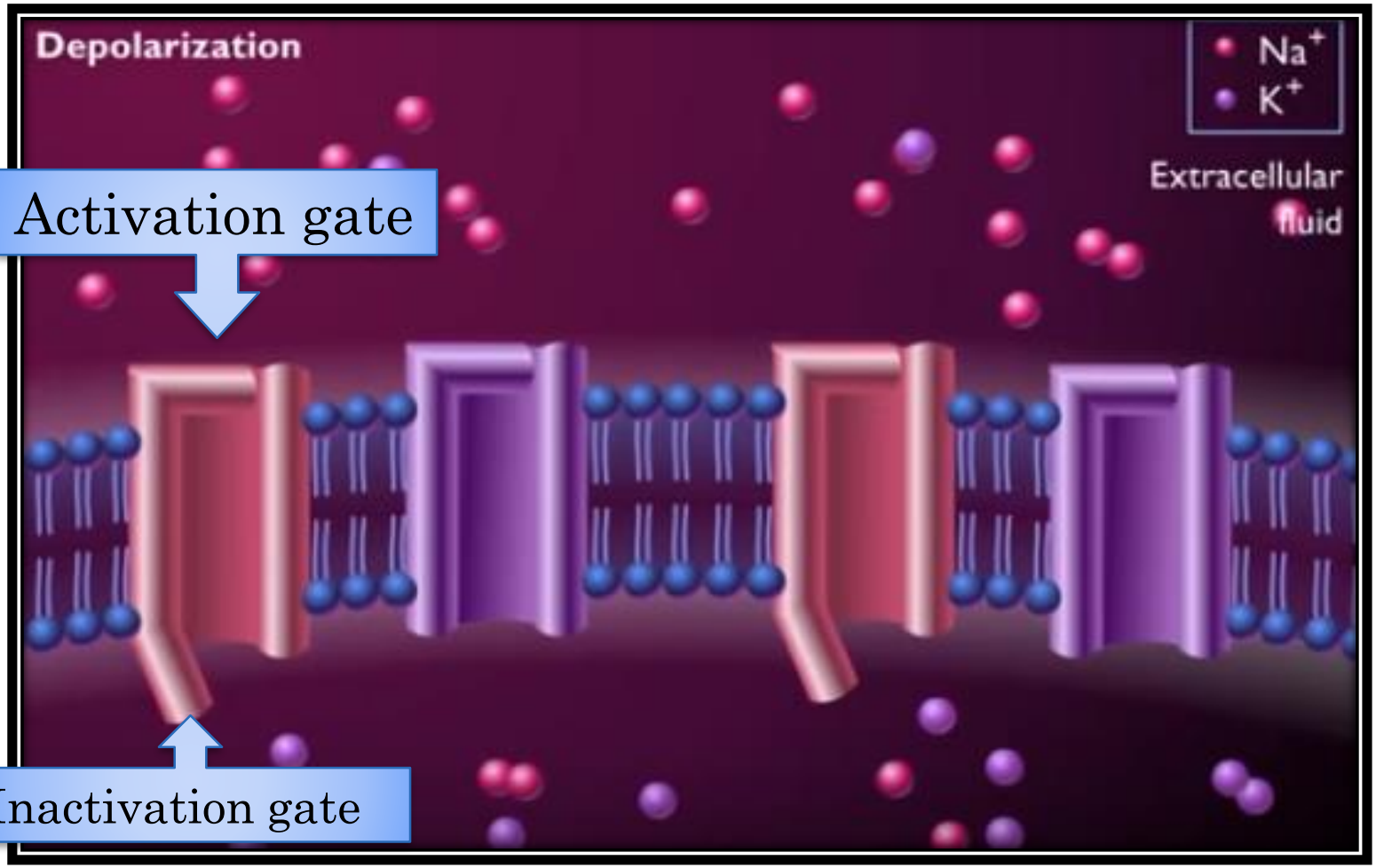
Main functions of glycosides

The glycosides that important in medicine because of their action on the heart (cardiac glycosides)

An inhibitors of the sodium potassium pump

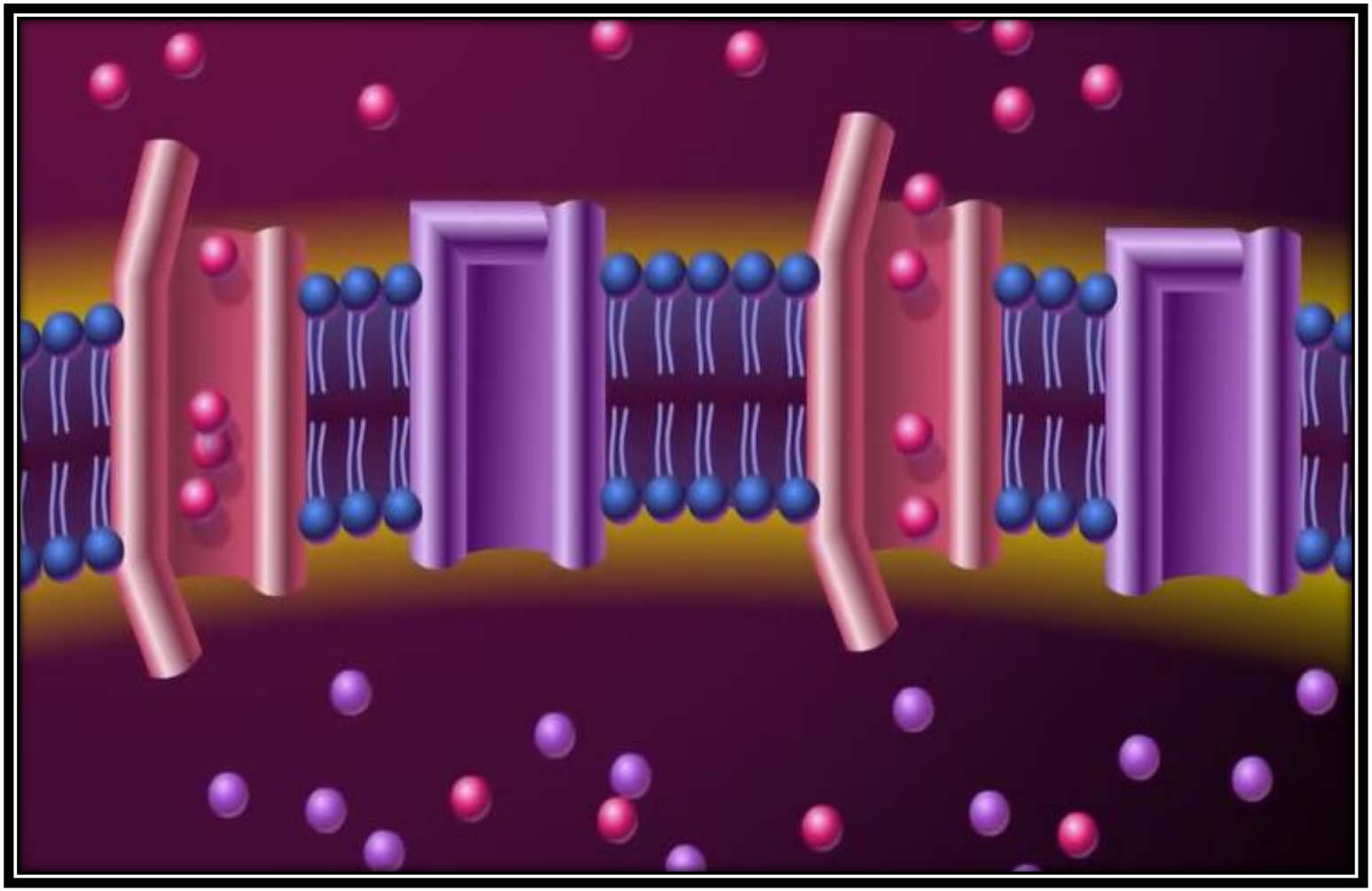
Voltage gated potassium and sodium channels

How sodium channel works



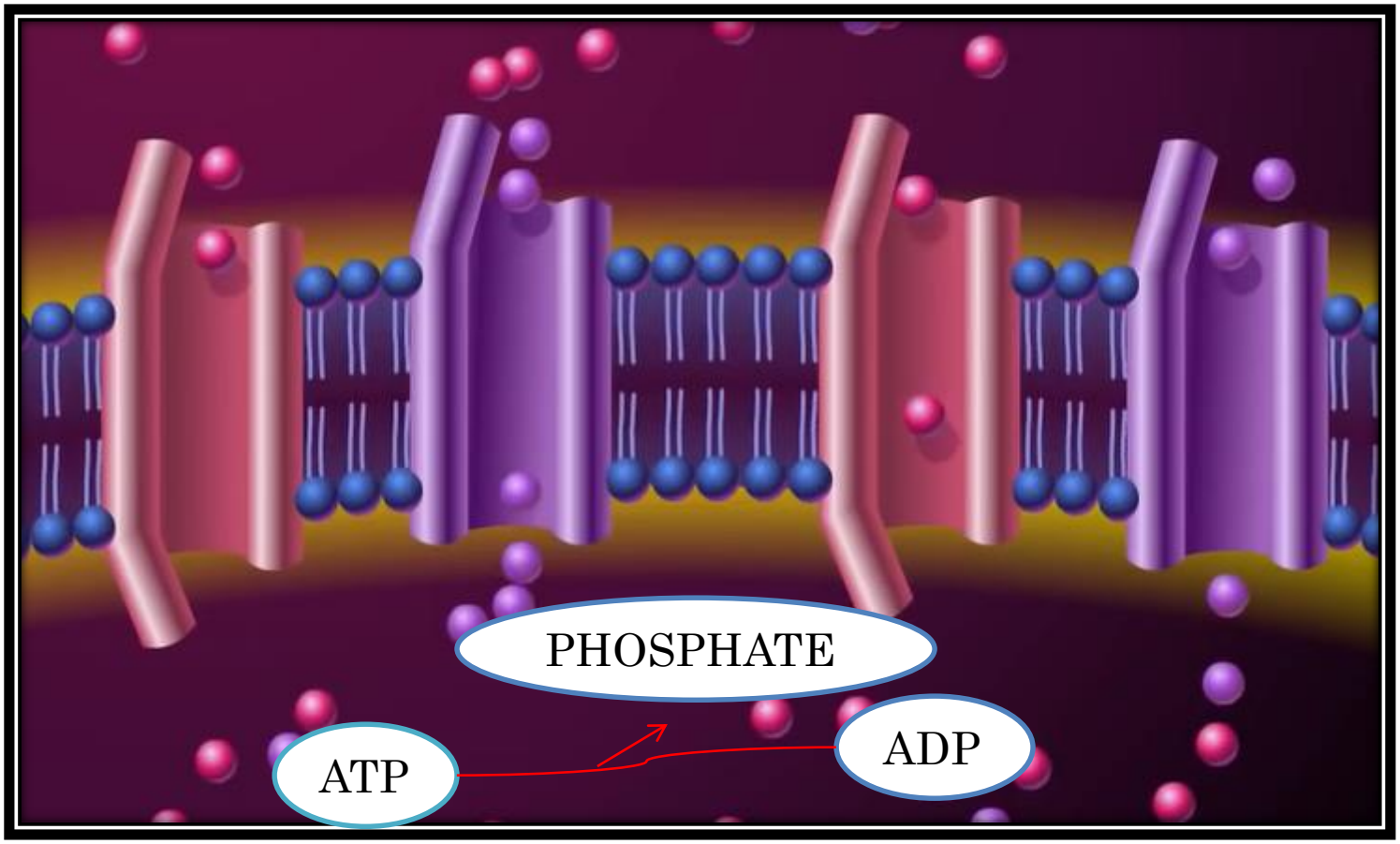
The membrane is in the resting state (-90 millivoltes)

When the negativity changes towards the zero the activation gate will open



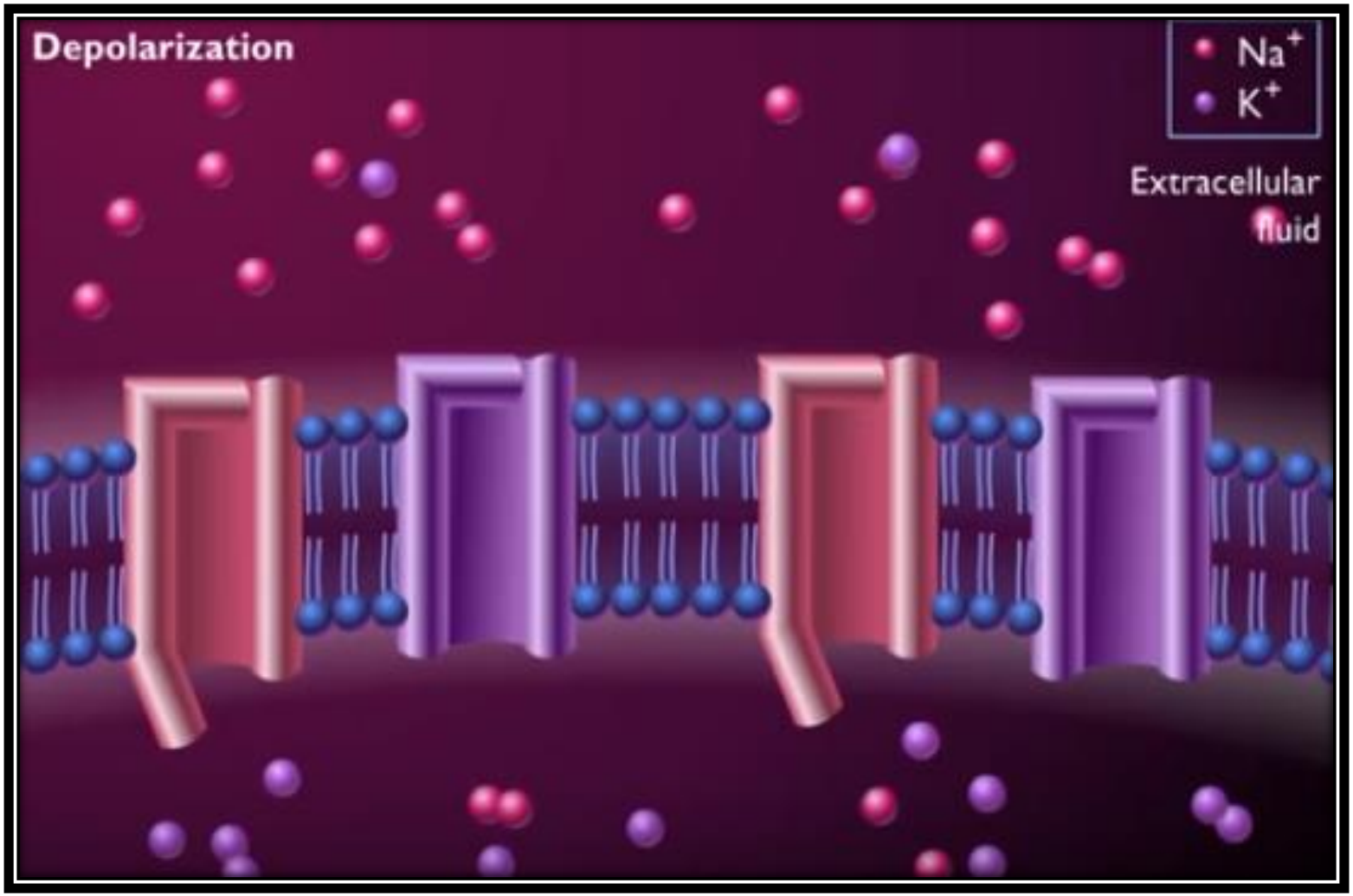
The opening and closing in the gates is due to the charge in and out side

The potassium channels opens more slowly allowing the ions to pass



Depolarization occurs because more sodium ions diffuse in to the cell then potassium ions diffuse out of it (3:2).

When the charge returns to (-90 millivoltes) the membrane return to the rest state and the channels closes



Sodium potassium pump

- Sodium potassium pump present in all eukaryotic cells and have many functions including:

1. Maintains sodium potassium concentration difference across the cell membrane.
2. Maintains volume of the cell
3. Causes negative electrical charge inside the cell electrogenic pump
4. Essential for oxygen utilization by the kidneys

Summary

- The glycoside is mainly composed of a monosaccharide and another compound.
- There are 4 types of glycoside (O-C-S-N-glycoside).

References

- Guyton and Hall Textbook of Medical Physiology 12th Edition.
- Harper's Biochemistry 26th ed

Thank you