BIOTECHNOLOGY and BIOPHARMACEUTICS

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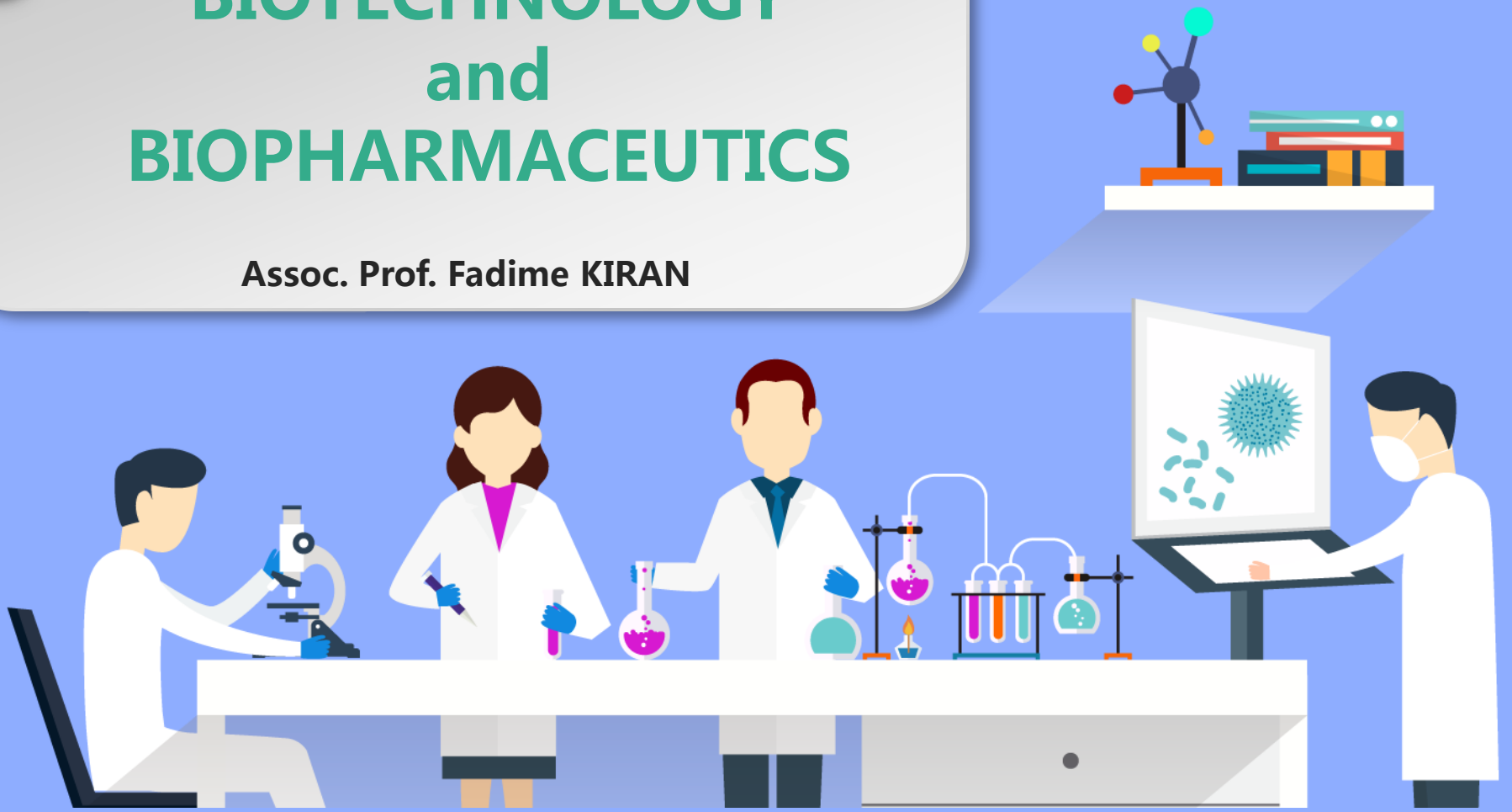

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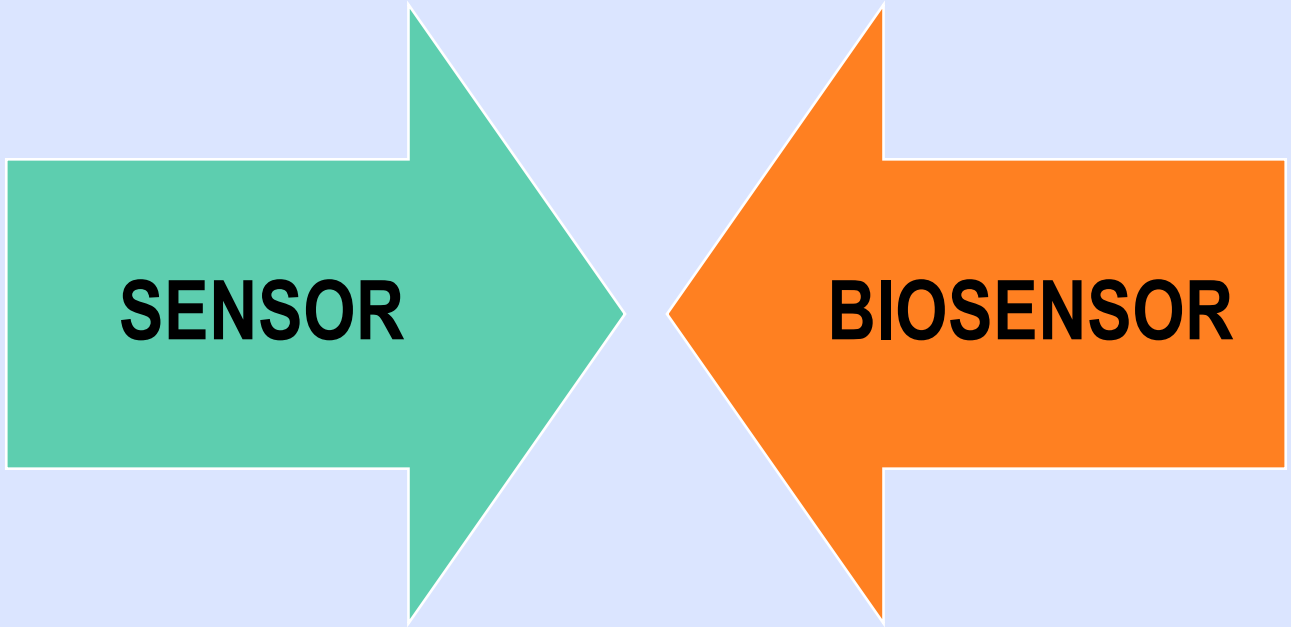
Therapeutic and Clinical Applications of Biopharmaceuticals

BIOSENSORS


SENSOR
BIOSENSOR

What is a Biosensor?

- **Definition of the Term “ Biosensor ”**

device incorporating a biological sensing element connected to a transducer

“A self-contained integrated device which is capable of providing specific quantitative or semi-quantitative analytical information using a biological recognition element which is in direct spatial contact with a transducer element.” ***(IUPAC)***

Main Components of the Biosensors

- ***Analyte*** : a substance of interest that needs detection

Main Components of the Biosensors

- ***Bioreceptor*** : a molecule that specifically recognizes the analyte

Main Components of the Biosensors

- ***Bio-recognition*** : the process of signal generation (in form of light, pH, etc.) upon interaction of the bioreceptor with the analyte.

Main Components of the Biosensors

- ***Transducer*** : its role is convert the bio-recognition event into a measurable signal

Main Components of the Biosensors

- ***Electronics*** : this part processes the transducer signal & prepare it for display

Main Components of the Biosensors

- ***Display*** : the output signal on the display can be numeric, graphic , image or tabular depending on the requirement of the end user.

Basic Characteristics of Biosensors

1. LINEARITY (high)	Linearity of the sensor should be high for the detection of high analyte/substrate concentration
2. SENSITIVITY (high)	Value of the sensor response per analyte/substrate concentration
3. SELECTIVITY (high)	Chemicals interference have to be minimized for obtaining the correct result
4. RESPONSE TIME (short)	Time necessary for having 95% of the response
5. REPRODUCIBILITY *(high)*	The ability of the biosensor to generate identical responses for a duplicated experimental set-up

ANY
QUESTION?

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Thank you