

*Затверджено на засіданні
кафедри нормальної фізіології
Протокол № 1 від 31 серпня 2021 року*

TOPIC'S PLAN
of lectures on the course of
«Molecular physiology and biotechnology for modern medicine»
for 3-nd grade English medium students of Medical Faculty,

No	Theme	Hours	Date	Lector
1.	Molecular physiology and its principal problems.	2	6.10.21	Prof. Zayachkivka O.S.
2.	Cytokines – new class of hormone-like polypeptide regulators of cellular functions. Cell receptors. Intracellular signalization.	2	20.10.21	Prof. Zayachkivka O.S.
3.	Cell cycle, its structure and regulation. Physiological cell “death” in the multi-cellular eukaryotic organisms.	2	3.11.21	Prof. Stoyka R.S.
4.	Tumor cell growth and cancer.	2	17.11.21	Prof. Stoyka R.S.
5.	“Smart medicines”: Molecular design, development and clinical application.	2	1.12.21	Prof. Stoyka R.S.
	Total	10 hrs		

Head of the Physiology Department



Prof. Zayachkivka O.S., MD PhD, DSc

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TOPIC'S PLAN
of practical lessons on the course of
«Molecular physiology and biotechnology for modern medicine»
for 3-nd grade English medium students of Medical Faculty,

No	Theme	Hours
1.	Molecular physiology of functioning of nervous system. Stress reactions. Aging.	2
2.	Molecular physiology of functioning of endocrine and cardio-vascular systems.	2
3.	Molecular physiology of digestion. Molecular mechanisms of liver functioning.	2
4.	Stem cells: Bio-medical and ethical problems of isolation and application.	2
5.	Nanobiotechnologies: definitions, methods and perspectives of application. Bio-sensors: principles of development and bio-medical application.	2
	Total	10 hrs

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TOPIC'S PLAN
of independent students work (ISW) on the course
«Molecular physiology and biotechnology for modern
medicine» for 3-nd grade English medium students of
Medical Faculty

No	Theme	Hours
1.	Apoptosis and autophagy: Two forms of programmed cell “death”.	10
2.	Molecular basis of chemical and viral carcinogenesis.	10
3.	Cytokines (growth factors) in paracrine-autocrine regulation in physiology and pathology. Cytokine storm in COVID -19.	10
4.	Family of transforming growth factor of type-beta: Members and their role in health, clinics and diagnostics.	10
5.	Membrane proteins receptors: Their role in regulation of physiological functions.	10
6.	Molecular mechanisms in adipocytes, endothelial disfunctions and cytoprotection.	10
7.	Stem cells: Methods of isolation and biomedical application.	10
	Total	70 hrs

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