

**Thematic lesson plan of lectures
in the discipline "Molecular regulation of metabolism and cell cycle"
for students of the educational program
specialist in the specialty 33.05.01 Pharmacy,
direction (profile) Pharmacy,
form of study full-time
for the 2023-2024 academic year**

№	Topics of lectures	Hours (academic)
1.	Introduction to molecular biology of cells and intercellular interactions. Membrane receptors, main characteristics.	2
2.	Receptors associated with GTPase proteins. Serine and threonine protein kinase cascades. Receptors with tyrosine kinase activity and non-receptor tyrosine kinases. Structure, classification of families of receptors associated with G-protein. secondary managers. cAMP, DAG, IP3, Ca ²⁺ and calmodulin.	2
3.	Regulation of the cell cycle and apoptosis.	2
4.	Molecular organization, physiology, evolution and diversity of ionophore receptors.	2
5	Signaling pathways mediated by nitric oxide. Cellular and molecular mechanisms of proinflammatory signaling cascades.	2
	Total	10

Considered at the meeting of the department of "10" may 2023, protocol No 16

Head of the Department

O.V. Ostrovskiy