

**Thematic lesson plan of seminar
in the discipline “New directions of search and technologies for creating antitumor and
antiviral drugs” for students of the educational program specialist degree
in the specialty of training 33.05.01 Pharmacy,
for students enrolled in 2022,
direction (profile) Pharmacy,
form of study Full-time
for the 2025-2026 academic year**

№	Thematic blocks	Hours (academic)
1.	Scientific approaches to the creation of innovative chemotherapeutic agents. Part 1¹ Chemotherapeutic drugs. Classification. Antimicrobial mechanism of actions. ²	2
	Scientific approaches to the creation of innovative chemotherapeutic agents. Part 2¹ Antibiotic resistance. Mechanisms of occurrence. Development of new antibacterial drugs-issues and possibilities.	2
2.	New approaches and technology of development of antiviral drugs. Part 1¹. The main targets of antiviral drugs. Classification of antiviral agents. ²	2
	New approaches and technology of development of antiviral drugs. Part 2¹ New strategies for the discovery of antiviral drugs aimed at treating and preventing influenza and acute respiratory viral infections (ARVI). Classification, mechanism of action, indications for use, adverse effects. ²	2
	New approaches and technology of development of antiviral drugs. Part 3¹ New directions in the search for antiviral drugs for the treatment and prevention of COVID-19. Classification, mechanism of action, indications for use, adverse effects. ²	2
	New approaches and technology of development of antiviral drugs. Part 4¹ Anti-herpetic drugs. Classification. Characterization. Principles of action. Side effects. Methodological aspects of search and development of anti-herpetic agents. ²	2
	New approaches and technology of development of antiviral drugs. Part 5¹ Drugs for the treatment of HIV infection. Classification. Characterization. Principles of action. Side effects. Methodological features of search and creation of antiretroviral drugs. ²	2
	New directions in the search and technology for the creation of antiviral drugs. Part 6¹ Drugs based on biologically active substances produced by cells of the macroorganism. Interferons. Interferon inducers. Principles of action. Application (indications). Side effects. Methodological features of the search and creation of drugs. ²	2
	New approaches and technology of development of antiviral drugs. Part 7¹ Drugs for the treatment of viral hepatitis. Classification. Principles of action. Side effects. Methodological aspects of search and development. ²	2
	New approaches and technology of development of antiviral drugs. Part 8¹ Formation of a consumer portfolio of antiviral drugs. ²	2
3.	Scientific approaches to the creation of innovative antitumor agents. Part 1.¹ Modern concept of carcinogenesis. Cell cycle. Basic approaches to cancer treatment. ²	2

	Scientific approaches to the creation of innovative antitumor agents. Part 2.¹ General principles of antitumor chemotherapy. Classification of anti-blastoma drugs. ²	2
	Scientific approaches to the creation of innovative antitumor agents. Part 3¹ Cytostatic agents. Alkylating agents and antimetabolites: mechanism of action, indications for use, side effects. Methodological features of searching and creating funds. ²	2
	Scientific approaches to the creation of innovative antitumor agents. Part 4¹ Cytostatic agents. Antibiotics, herbal preparations, enzyme preparations: mechanism of action, indications for use, side effects. Methodological features of searching and creating funds. ²	2
	Scientific approaches to the creation of innovative antitumor agents1. Part 5¹ Antitumor drugs: hormones and their antagonists. Classification, mechanism of action, indications for use, side effects ²	2
	Scientific approaches to the creation of innovative antitumor agents. Part 6¹ Targeted therapy. New approaches of antitumor therapy (monoclonal antibodies; “small molecules” - kinase inhibitors; activators of tumor suppressive signaling pathways (stimulators of necrosis, apoptosis, differentiation); differentiation inducers; antimetastatic agents; metalloproteinase inhibitors; oligosense nucleotides; special dosage forms and delivery systems; gene therapy methods). Antitumor agents: interferons, interleukins. Mechanism of action, indications for use, side effects ²	2
	Scientific approaches to the creation of innovative antitumor agents. Part 7¹ Formation of a consumer portfolio of anticancer drugs. ²	
	Scientific approaches to the creation of innovative antitumor agents. Part 8¹ Auxiliary agents in tumour chemotherapy. Side effects of antitumor agents. Supplementary substances in tumour chemotherapy. Classification, mechanism of action, indications for use, adverse effects. ²	2
	Total	36

¹ -Subject

² - essential content (if necessary)

Considered at the meeting of the Department of Pharmacology and Bioinformatics of May 31, 2025, protocol No 18

Head of the department
pharmacology and
bioinformatics of VolgSMU



A.A. Spasov