**Структура научного профиля (портфолио) потенциальных научных руководителей участников трека аспирантуры Международной олимпиады Ассоциации «Глобальные университеты» для абитуриентов магистратуры и аспирантуры.**

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| **На английском языке:** |  |
| University | Sechenov University |
| Level of English proficiency | Fluent (C1/C2) |
| Educational program and field of the educational program for which the applicant will be accepted | *31.06.01 Clinical medicine (educational program)*  *14.01.09 Infectious Diseases (field of the educational program)*  *06.06.01 Biological Sciences (educational program)*  *03.01.03 Molecular Biology field of the educational program)* |
| List of research projects of the potential supervisor (participation/leadership) | 1. Elimination of hepatitis B virus cccDNA during chronic infection due to the nucleolytic action of CRISPR/Cas9 systems, epigenetic remodeling and modulation of double-strand break repair pathways (leader).  2. Development of a universal biological platform for packaging and targeted delivery of CRISPR/Cas genetic editing systems (leader).  3. The influence of intracellular immune response factors on the replication and persistence of hepatitis B and D viruses (leader).  4. The role of intranuclear sensors of foreign DNA during hepatitis B virus infection (leader).  5. Epidemiological and clinical significance of the genetic heterogeneity of hepatitis A and B viruses (leader). |
| List of the topics offered for the prospective scientific research | 1. Development of approaches to the treatment of chronic hepatitis B through modulation of antiviral factors;  2. Gene therapy of chronic hepatitis B based on biological nanoparticles;  3. Development of a model of chronic hepatitis B in non-human primates;  4. Study of the mechanisms of action of new intracellular factors on the replication of the hepatitis B virus;  5. Assessing the impact of biocamouflage on the delivery of gene therapeutic agents;  6. Development of a mitochondrial genome system for the treatment of mitochondrial diseases;  7. Genetic factors of the virus and the host that determine the fulminant course of acute hepatitis B;  8. Molecular epidemiology of hepatitis B in small indigenous peoples of the north, Siberia and the Far East. |
| Изображение выглядит как Человеческое лицо, человек, одежда, галстук  Автоматически созданное описание  Research supervisor:  **Vladimir Chulanov**,  PhD, DSc (epidemiology, infectious diseases), Central Research Institute of Epidemiology, Moscow, Russia | *3.03 Medical and Health Sciences, Health Sciences;*  *NN Infectious Diseases;*  *1.06 Natural Sciences, Biological Sciences;*  *CQ Biochemistry and Molecular Biology;*  *ZE Virology* |
| Supervisor’s research interests:  *Infectious diseases (etiology, diagnostics, pathogenesis, clinical features, treatment), viral hepatitis, molecular epidemiology, gene therapy, CRISPR/Cas, drug delivery systems, intracellular immunity factors.* |
| Research highlights:  *Using a wide range of molecular biology methods (cloning, sequencing, high-throughput sequencing, electrophoresis of proteins and nucleic acids, etc.), working with cell cultures, laboratory animals, various types of microscopy* |
| Supervisor’s specific requirements:  *Skills: molecular cloning, Western blot, PCR, cell culture, confocal microscopy. Education: medical, biological, chemical. Presence of at least 1 original article with 1st authorship in Q1; experience of speaking at congresses; GPA at the end of university is not lower than 4.8. Availability of awards, diplomas for success in studies and scientific activities.* |
| Supervisor’s key publications:  *1: Kostyushev D, Brezgin S, Kostyusheva A, Ponomareva N, Bayurova E, Zakirova N, Kondrashova A, Goptar I, Nikiforova A, Sudina A, Babin Y, Gordeychuk I, Lukashev A, Zamyatnin AA Jr, Ivanov A, Chulanov V. Transient and tunable CRISPRa*  *regulation of APOBEC/AID genes for targeting hepatitis B virus. Mol Ther Nucleic Acids. 2023 Apr 20;32:478-493. doi: 10.1016/j.omtn.2023.04.016.*  *2: Pimenov N, Kostyushev D, Komarova S, Fomicheva A, Urtikov A, Belaia O, Umbetova K, Darvina O, Tsapkova N, Chulanov V. Epidemiology and Genotype Distribution of Hepatitis C Virus in Russia. Pathogens. 2022 Dec 6;11(12):1482. doi: 10.3390/pathogens11121482.*  *3: Manuylov V, Chulanov V, Bezuglova L, Chub E, Karlsen A, Kyuregyan K, Ostankova Y, Semenov A, Osipova L, Tallo T, Netesova I, Tkachuk A, Gushchin V, Netesov S, Magnius LO, Norder H. Genetic Diversity and Possible Origins of the Hepatitis B Virus in Siberian Natives. Viruses. 2022 Nov 7;14(11):2465. doi: 10.3390/v14112465.*  *4: Chulanov V, Kostyusheva A, Brezgin S, Ponomareva N, Gegechkori V, Volchkova E, Pimenov N, Kostyushev D. CRISPR Screening: Molecular Tools for Studying Virus-Host Interactions. Viruses. 2021 Nov 11;13(11):2258. doi: 10.3390/v13112258.*  *5: Kostyushev D, Kostyusheva A, Ponomareva N, Brezgin S, Chulanov V. CRISPR/Cas and Hepatitis B Therapy: Technological Advances and Practical Barriers. Nucleic Acid Ther. 2022 Feb;32(1):14-28. doi: 10.1089/nat.2021.0075.* |
|  | Results of intellectual activity:  *1. Patent RU 2 652 899 C1. RNA guides to suppress the replication of the hepatitis B virus and to eliminate the hepatitis B virus from the host cell;*  *2. Patent RU 2 703 532 C1. A system for activating human cytidine deaminases APOBEC/AID and/or human uracil-DNA glycosylase UNG and its use for eliminating ccc DNA of the hepatitis B virus from human cells, in particular from hepatocytes;*  *3. Patent RU 2 694 396 C1. St10 guide RNA for use in the highly specific Streptococcus thermophilus CRISPR/Cas9 (StCas9) nuclease system and the use of said guide RNA and StCas9 protein to suppress the expression of the hepatitis B virus in a host cell and to eliminate viral DNA from the host cell.* |