

VIRAL HEPATITIS IN ONCOLOGY PATIENTS: CLINICAL COURSE, DIAGNOSIS,
AND MANAGEMENT

*Sh.R.Yusupov
H.R.Ibraximova
Sh.S.Masharipova
Sh.Z.Otajanov,
O.U.Matyakubova
I.A.Artikov
R.R.Nurllayev
Urgench State Medical Institute*

Background: Viral hepatitis, particularly hepatitis B (HBV) and hepatitis C (HCV), is a common comorbidity in cancer patients. Immunosuppressive conditions associated with malignancy or anticancer therapies increase the risk of viral reactivation, leading to liver dysfunction and potential interruption of cancer treatment.

Aim: To review the clinical course, diagnostic strategies, and management approaches for viral hepatitis in oncology patients, emphasizing preventive antiviral interventions.

Methods: Comprehensive review of current literature, international guidelines, and illustrative clinical cases related to HBV and HCV in cancer patients.

Results: HBV reactivation can occur in up to 50% of high-risk patients receiving chemotherapy or immunosuppressive therapy without antiviral prophylaxis. HCV infection may accelerate liver fibrosis and compromise chemotherapy tolerance. Early screening, continuous monitoring, and prompt antiviral therapy are essential to maintain safe and effective cancer treatment.

Conclusion

Integrating viral hepatitis management into oncology care ensures uninterrupted treatment, reduces hepatic complications, and improves patient outcomes.

Keywords

viral hepatitis, HBV, HCV, oncology, immunosuppression, antiviral therapy

Introduction

Chronic HBV and HCV infections are major causes of liver-related morbidity worldwide. With increasing cancer prevalence and improved survival rates, coexisting viral hepatitis and malignancy are encountered more frequently. Liver dysfunction due to viral hepatitis can restrict chemotherapy options, delay treatment, and negatively impact prognosis. Therefore, understanding the interaction between viral hepatitis and cancer is crucial for optimal patient management.

Cancer-related or treatment-induced immunosuppression facilitates viral replication. In HBV-infected patients, this can lead to viral reactivation, potentially causing acute hepatitis or liver failure. HCV infection is often asymptomatic but may accelerate liver fibrosis due to chronic inflammation and exposure to hepatotoxic drugs. Hematologic malignancies and B-cell-targeted therapies carry the highest reactivation risk. Clinical presentations range from mild, asymptomatic liver enzyme elevation to acute liver failure. Symptoms such as fatigue, anorexia, jaundice, and coagulopathy can overlap with chemotherapy side effects, complicating early recognition. Hematologic malignancies are associated with the highest HBV reactivation risk. All oncology patients should undergo baseline viral screening before initiating therapy: HBsAg and anti-HBc for HBV, anti-HCV for HCV. Liver function and viral load monitoring during therapy



allow early detection of reactivation. Differential diagnosis should consider drug-induced liver injury, tumor-related liver involvement, and viral activity.

A multidisciplinary approach involving oncologists, hepatologists, and infectious disease specialists is recommended:

- **HBV:** Antiviral prophylaxis with nucleos(t)ide analogues significantly reduces reactivation risk.

- **HCV:** Direct-acting antivirals (DAAs) are highly effective and can be safely administered during chemotherapy.

- **Prevention:** Routine viral screening and HBV vaccination are essential to minimize risks.

HBV reactivation occurs in 20–50% of patients receiving immunosuppressive therapy without prophylaxis, particularly those undergoing B-cell-targeted treatments. Even patients negative for HBsAg but positive for anti-HBc may experience reactivation. HCV infection may accelerate liver fibrosis and complicate cancer treatment; however, DAAs improve viral control and allow therapy continuation. International guidelines recommend universal viral hepatitis screening prior to cancer therapy and early antiviral intervention in high-risk patients to prevent hepatic complications and optimize oncologic outcomes. A 52-year-old male patient diagnosed with non-Hodgkin lymphoma underwent baseline screening: HBsAg negative, anti-HBc positive. Initial liver function tests were normal. After the second cycle of chemotherapy, he developed fatigue, anorexia, and elevated ALT and AST. HBV DNA testing confirmed viral reactivation. Antiviral therapy was initiated immediately, and chemotherapy was temporarily paused. Within several weeks, liver enzyme levels normalized, viral load decreased, and chemotherapy resumed under close monitoring. This case highlights the importance of proactive HBV management in oncology patients.

Conclusion

Viral hepatitis complicates cancer treatment by increasing the risk of liver injury and potential therapy interruptions. Immunosuppression is a key factor in HBV and HCV reactivation. Early screening, continuous monitoring, and timely antiviral therapy are essential. Integrating viral hepatitis management into oncology care ensures safer, uninterrupted treatment and better overall patient outcomes.

References

- 1.S., Masharipova S., et al. "A Method for Obtaining Precipitating Serums for the Detection of Human Seminal Fluid Used in the Study of Physical Evidence in Forensic Biological Laboratories." *World Bulletin of Management and Law*, vol. 19, 7 Feb. 2023, pp. 42-44.
2. Машарипова, Ш. С., Ибраимова, Х. Р., & Машарипов, С. М. (2023). Анализ эпидемиологических особенности диарейных заболеваний у детей южного приаралья. *O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI*, 2(15), 884-887.
3. PATHOGENETIC PRINCIPLES OF ACUTE INFECTIOUS INTESTINAL INFECTIONS AND FEATURES OF CLINICAL COURSE AMONG CHILDREN OF DIFFERENT AGES. (2024). *Multidisciplinary Journal of Science and Technology*, 4(2), 357-365. <https://www.mjstjournal.com/index.php/mjst/article/view/877>
4. Машарипова, Ш. С., Ибраимова, Х. Р., & Машарипов, С. М. (2023). Анализ эпидемиологических особенности диарейных заболеваний у детей южного приаралья. *O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI*, 2(15), 884-887.
5. Ибраимова Хаида Рустамовна, Нурллаев Руслон Рустамбекович, & Артиков Икром Ахмеджанович (2020). ВЫЯВЛЕНИЕ ТУБЕРКУЛЕЗА В ХОРЕЗМСКОЙ



- ОБЛАСТИ. Наука и образование сегодня, (6-1 (53)), 83-84. doi: 10.24411/2414-5718-2020-10602
6. PATHOGENETIC PRINCIPLES OF ACUTE INFECTIOUS INTESTINAL INFECTIONS AND FEATURES OF CLINICAL COURSE AMONG CHILDREN OF DIFFERENT AGES. (2024). *Multidisciplinary Journal of Science and Technology*, 4(2), 357-365. <https://www.mjstjournal.com/index.php/mjst/article/view/877>
 7. Аскарлова, Р. И., Юсупов, Ш. Р., & Ибраимова, Х. Р. (2020). Анализ причин развития туберкулеза у детей и подростков. *Главный редактор–ЖА РИЗАЕВ*, 27.
 8. Ибраимова, Х. Р., Отажанов, Ш. З., & Матякубова, О. У. (2019). ТУБЕРКУЛЕЗНЫЙ МЕНИНГИТ У БОЛЬНЫХ, ПРОЖИВАЮЩИХ В ХОРЕЗМСКОЙ ОБЛАСТИ. In *INTERNATIONAL SCIENTIFIC REVIEW OF THE PROBLEMS OF NATURAL SCIENCES AND MEDICINE* (pp. 96-104).
 9. Ibraximova, H. R., Nurllayev, R. R., & Matyayubova, O. U. (2023). KICHIK YOSHDAGI BOLALAR ORASIDA ICHAK PARAZITAR KASALLIKLARINING EPIDEMIOLOGIK XUSUSIYATLARI. *Новости образования: исследование в XXI веке*, 2(15), 109-114.
 10. Artikov, I. A., Sadullaev, S. E., Ibrakhimova, H. R., & Abdullayeva, D. K. (2023). *RELEVANCE OF VIRAL HEPATITIS EPIDEMIOLOGY. IMRAS*, 6 (7), 316–322.
 11. Artikov, I. A., Sadullaev, S. E., Ibrakhimova, H. R., & Abdullayeva, D. K. (2023). *RELEVANCE OF VIRAL HEPATITIS EPIDEMIOLOGY. IMRAS*, 6 (7), 316–322.
 12. Ibrakhimova, H. R., Matyakubova, O. U., Sadullaev, S. E., & Abdullayeva, D. K. (2023). *HELMINTISES IN CHILDREN AMONG THE POPULATION IN UZBEKISTAN. IMRAS*, 6 (7), 323–327.
 13. Ibrakhimova, H. R., Sh YS Artikov IA PARAZITAR KASALLIKLAR, and NATIJASIDA INSON ORGANIZMIDA KUZATILADAIGAN ALLERGIK HOLATLAR. "Новости образования: исследование в XXI веке.–2023." T 2: 97-102.
 14. Ибраимова, Х. Р., Матякубова, О. У., Садуллаев, С. Э., & Абдуллаева, Д. К. (2023). ГЕЛЬМИНТЫ У ДЕТЕЙ СРЕДИ НАСЕЛЕНИЯ УЗБЕКИСТАНА. *IMRAS*, 6(7), 323-327.
 15. Ибраимова, Х. Р. Машарипова Шохиста Собировна, Матякубова Айша Уриновна, & Артиков Икром Ахмеджанович (2023). *ИНФИЦИРОВАНИЕ БОЛЬНЫХ ТУБЕРКУЛЕЗОМ ОТ ЖИВОТНЫХ В НЕБЛАГОПОЛУЧНЫХ ПО ТУБЕРКУЛЕЗУ ХОЗЯЙСТВАХ. Проблемы современной науки и образования*, (7 (185)), 48-53.
 16. Ҳамида Рустамовна Ибраимова (2022). ПАРАЗИТАР КАСАЛЛИКЛАР ТАШҲИСЛАНГАН ТУРЛИ ЁШДАГИ ОДАМЛАРДА ИММУН СТАТУСИГА ТАВСИФ. *Academic research in educational sciences*, 3 (4), 812-819. doi: 10.24412/2181-1385-2022-4-812-819
 17. CLINICAL FEATURES OF ESCHERICHIOSIS IN CHILDREN. (2025). *Multidisciplinary Journal of Science and Technology*, 5(6), 220-224. <https://mjstjournal.com/index.php/mjst/article/view/3928>
 18. Игамова, М. А., and А. Р. Облокулов. "Иброхимова ХР (2023)." *Тениаринхоз таишисланган турли ёшдаги беморларда иммун ва цитокин статусига тавсифи. Тиббиётда янги кун-2023.-5 (55)-P: 613-618.*



19. Sh, Yusupov Sh, and H. R. Ibrakhimova. "IMMUNOLOGICAL CHARACTERISTICS OF PATIENTS WHOSE BODY IS INFECTED WITH CATTLE SOLITAIRE." *Новости образования: исследование в XXI веке* 2.15 (2023): 120-124.
20. Oblokulov, A., Kholov, U., Oblokulova, Z., & Ibrakhimova, X. (2019). Clinical and laboratory characteristics of giardiasis in adults. *New day in medicine. Scientific and practical journal*, 1(1).
21. Ибрахимова Хамида Рустамовна, Нурллаев Руслон Рустамбекович, & Артиков Икром Ахмеджанович (2019). Влияние паразитарных болезней на особенности развития туберкулеза у детей, проживающих в Хорезмской области. *Наука, техника и образование*, (9 (62)), 68-72.
22. Ibraximova , H., Mo'minov , I., & Niyazmetov , T. (2025). OVQATLANISH VA IMMUNITET. *Journal of Science-Innovative Research in Uzbekistan*, 3(2), 134–138. Retrieved from <https://inlibrary.uz/index.php/journal-science-innovative/article/view/65822>
23. Rustamovna, Ibrakhimova H. "Degree of Clinical Symptoms in Children with Parasitic Diseases." *Galaxy International Interdisciplinary Research Journal*, vol. 10, no. 10, 13 Oct. 2022, pp. 273-277.
24. BASICS OF PREVENTING PARASITIC INFECTIONS AMONG CHILDREN. (2025). *Multidisciplinary Journal of Science and Technology*, 5(2), 306-310. <https://www.mjstjournal.com/index.php/mjst/article/view/2630>
25. Хамида Рустамовна Ибрахимова (2022). ПАРАЗИТАР КАСАЛЛИКЛАР ТАШХИСЛАНГАН ТУРЛИ ЁШДАГИ ОДАМЛАРДА ИММУН СТАТУСИГА ТАВСИФ. *Academic research in educational sciences*, 3 (4), 812-819. doi: 10.24412/2181-1
26. Ibrakhimova, H. R., & Artikov, I. A. (2023). CHANGES IN THE IMMUNE STATUS OF PATIENTS WITH PARASITIC DISEASE. *Новости образования: исследование в XXI веке*, 2(15), 103-108.
27. Ибрахимова, X. P., & Облокулов, A. P. (2019). Современный взгляд на распространенность и патогенетические аспекты паразитарных заболеваний у детей. *Новый день в медицине*, 1(25), 30-34.-2022-4-812-819
28. Sh, Yusupov Sh, and H. R. Ibrakhimova. "IMMUNOLOGICAL CHARACTERISTICS OF PATIENTS WHOSE BODY IS INFECTED WITH CATTLE SOLITAIRE." *Новости образования: исследование в XXI веке* 2.15 (2023): 120-124.
29. THE EFFECT OF PROPER NUTRITION ON IMMUNITY IN CHILDREN. (2025). *Multidisciplinary Journal of Science and Technology*, 5(6), 1229-1233. <https://www.mjstjournal.com/index.php/mjst/article/view/4121>
30. EPIDEMIOLOGY OF EXANTHEMIC DISEASES AMONG THE POPULATION OF KHOREZM. (2025). *Multidisciplinary Journal of Science and Technology*, 5(5), 66-71. <https://mjstjournal.com/index.php/mjst/article/view/3370>
31. HELMINTH INFECTIONS: CLASSIFICATION, DEVELOPMENTAL CONDITIONS, AND CLINICAL MANIFESTATIONS. (2025). *Multidisciplinary Journal of Science and Technology*, 5(6), 1241-1245. <https://mjstjournal.com/index.php/mjst/article/view/4123>
32. ROTAVIRUS INFECTION AMONG CHILDREN: TRANSMISSION, RISKS AND PREVENTIVE MEASURES. (2025). *Multidisciplinary Journal of Science and Technology*, 5(6), 225-230. <https://mjstjournal.com/index.php/mjst/article/view/3929>
33. Машарипова, Ш. С., & Машарипов, С. М. (2026). ЭПИДЕМИОЛОГИЯ ВНУТРИБОЛЬНИЧНЫХ ИНФЕКЦИЙ: РАСПРОСТРАНЁННОСТЬ, ФАКТОРЫ



- РИСКА И ПРОФИЛАКТИКА. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 85(2), 237-245.
34. Raximboyevich, Y. S., Rustamovna, I. H., & Sabirovna, M. S. (2025). ROTAVIRUS INFECTION AMONG CHILDREN: TRANSMISSION, RISKS AND PREVENTIVE MEASURES. *Multidisciplinary Journal of Science and Technology*, 5(6), 225-230.
35. Машарипова, Ш. С., Матякубова, О. У., Абдуллаева, Д. К., & Ибодуллаева, С. С. (2025). КЛИНИЧЕСКИЕ И ИММУНОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ИНФЕКЦИОННОГО МОНОНУКЛЕОЗА У ДЕТЕЙ. *Multidisciplinary Journal of Science and Technology*, 5(6), 249-256.
36. Машарипов, С. М., & Машарипова, Ш. С. (2025). ЭПИДЕМИОЛОГИЧЕСКАЯ СИТУАЦИЯ ПО ЭНТЕРОБИОЗУ СРЕДИ ДЕТЕЙ В ХОРЕЗМСКОМ РЕГИОНЕ. *Лучшие интеллектуальные исследования*, 44(3), 419-426.
37. Masharipov, S., & Sh, M. (2024). DEFINITION OF ETIOLOGICAL DOMINANT STRUCTURES OF NOSOCOMIAL PNEUMONIA.
38. Машарипова, Ш., & Машарипов, С. (2024). Распространение ветряной оспы и ее профилактика в Узбекистане. *Общество и инновации*, 5(9/S), 125-130.
39. Sabirovna, M. S., Rustamovna, I. H., & Urinovna, M. O. (2025). PROVIDING MEDICAL CARE TO PATIENTS WITH INFECTIOUS DISEASES. *Multidisciplinary Journal of Science and Technology*, 5(5), 72-78.
40. Rustamovna, I. H., Sabirovna, M. S., & Urinovna, M. O. (2025). EPIDEMIOLOGY OF EXANTHEMIC DISEASES AMONG THE POPULATION OF KHOREZM. *Multidisciplinary Journal of Science and Technology*, 5(5), 66-71.
41. ARTIQOV, I., & ABDULLAYEVA, D. (2025). CHICKENPOX: AMONG YOUNG CHILDREN IN KHOREZM REGION. *Multidisciplinary Journal of Science and Technology*, 5(3), 678-683.
42. ARTIQOV, I., & ABDULLAYEVA, D. (2025). THE SPREAD OF DIARRHEAL DISEASES IN THE KHOREZM REGION. *Multidisciplinary Journal of Science and Technology*, 5(3), 672-677.
43. SH, Y. S., YOQUBOV, Q., & NURLLAYEV, R. (2025). FEATURES OF THE COURSE OF THE HERPES TYPE 4 VIRUS IN CHILDREN. *Multidisciplinary Journal of Science and Technology*, 5(3), 397-402.
44. NURLLAYEV, R., SH, Y. S., & YOQUBOV, Q. (2025). PECULIARITIES OF THE ETIOLOGICAL STRUCTURE OF ACUTE DIARRHEAL DISEASES IN THE CONDITIONS OF THE SOUTHERN ARAL REGION. *Multidisciplinary Journal of Science and Technology*, 5(3), 403-408.
45. Артиков, И. А., Отажанов, Ш. З., & Садуллаев, С. Э. (2025). ПАТОМОРФОЛОГИЧЕСКИЕ АСПЕКТЫ ДЕТСКОГО ЛИМФОБЛАСТНОГО ЛЕЙКОЗА. *Multidisciplinary Journal of Science and Technology*, 5(6), 257-264.
46. Kadamovna, A. D., Rustombekovich, N. R., Zarifboyevich, O. S., & Ernazarovich, S. S. (2025). COMBINATIONS OF HEPATITIS B WITH PULMONARY TUBERCULOSIS. *Multidisciplinary Journal of Science and Technology*, 5(5), 60-65.
47. Rustombekovich, N. R., Zarifboyevich, O. S., Kadamovna, A. D., & Ernazarovich, S. S. (2025). THE STATE OF THE ANTIOXIDANT DEFENSE SYSTEM IN CHRONIC HEPATITIS C. *Multidisciplinary Journal of Science and Technology*, 5(5), 79-84.
48. Ernazarovich, S. S., Zarifboyevich, O. S., Rustombekovich, N. R., & Kadamovna, A. D. (2025). DYNAMICS OF THE COVID-19 PANDEMIC AND ITS CLINICAL CONSEQUENCES. *Multidisciplinary Journal of Science and Technology*, 5(5), 85-90.



48. Аскарлова, Р. И., & Отажонов, Ш. З. (2020). ТУБЕРКУЛЕЗ НА ФОНЕ СОПУТСТВУЮЩЕЙ ПАТОЛОГИИ. *European Science*, (3), 106-108.
49. Аскарлова, Р. И., Атажонов, Ш. З., & Маткурбанов, Х. И. (2019). АНАЛИЗ ПЕРВИЧНЫХ ФОРМ ТУБЕРКУЛЕЗА У ДЕТЕЙ, ПРОЖИВАЮЩИХ В ХОРЕЗМСКОЙ ОБЛАСТИ. *Наука, техника и образование*, (9), 64-68.
50. Ibraximova, H. R., Artiqov, I. A., & Otajanov Sh, Z. (2025). HELMINTH INFECTIONS: CLASSIFICATION, DEVELOPMENTAL CONDITIONS, AND CLINICAL MANIFESTATIONS. *Multidisciplinary Journal of Science and Technology*, 5(6), 1241-1245.
51. Юсупов, Ш. Р., Отажонов, Ш. З., Артиков, И. А., & Ибодуллаева, С. С. (2025). МИКРОБИОЛОГИЧЕСКАЯ СТРУКТУРА ОСТРЫХ ДИАРЕЙНЫХ ЗАБОЛЕВАНИЙ В ЮЖНОМ ПРИАРАЛЬЕ: РЕЗУЛЬТАТЫ ЭПИДЕМИОЛОГИЧЕСКОГО МОНИТОРИНГА. *Multidisciplinary Journal of Science and Technology*, 5(6), 237-242.
52. Urinovna, M. O., Kadamovna, A. D., Zarifboyevich, O. S., & Axmedjonovich, A. I. (2025). PUBLIC HEALTH AND EPIDEMIOLOGICAL INSIGHTS INTO THE COVID-19 PANDEMIC. *Multidisciplinary Journal of Science and Technology*, 5(6), 243-248.
53. Khudaykulova, G. K., & Muminova, M. T. (2025, January). IMMUNOLOGICAL CHANGES IN HIV-INFECTED CHILDREN WITH VIRAL DIARRHEA. In *CONFERENCE ON THE ROLE AND IMPORTANCE OF SCIENCE IN THE MODERN WORLD* (Vol. 2, No. 1, pp. 149-150).
54. Otajanov, S. Z. (2025, January). CYTOKINE LEVELS IN HIV-INFECTED CHILDREN WITH VIRAL DIARRHEA. In *CONFERENCE ON THE ROLE AND IMPORTANCE OF SCIENCE IN THE MODERN WORLD* (Vol. 2, No. 1, pp. 148-148).
55. Худайкулова, Г., Муминова, М., & Отажонов, Ш. (2021). АНАЛИЗ ЭТИОЛОГИЧЕСКОЙ СТРУКТУРЫ ВИРУСНЫХ ДИАРЕЙ У ВИЧ-ИНФИЦИРОВАННЫХ ДЕТЕЙ. *Журнал кардиореспираторных исследований*, 2(3), 31-34.
56. Машарипова Ш. АНТИОКСИДАНТНАЯ АКТИВНОСТЬ СЫВОРОТКИ КРОВИ И МАРКЕРЫ СТАТУСА ЖЕЛЕЗИ У БОЛЬНЫХ ХРОНИЧЕСКИМ ВИРУСНЫМ ГЕПАТИТОМ С.
57. Машарипова Ш., Машарипов С. Заболевание печени у больных с ишемической болезнью сердца среди хорезмского региона : дис. – *Cardiorespiratory Research*, 2021.
58. Машарипов С., Машарипова Ш. Изучение аминокислотного состава фиброина по слоям волокна шелка. – 2021.
59. Машарипов С., Машарипова Ш. Аминокислотный состав фиброина на слоях шелка. – 2021.
60. Хударгенова Д. Р. и др. ЦЕЛЕСООБРАЗНОСТЬ ОТБОРА ЖИВОТНЫХ-ПРОДУЦЕНТОВ ПРИ ПОЛУЧЕНИИ ГИПЕРИММУННЫХ СЫВОРОТОК, ПРИМЕНЯЕМЫХ В СУДЕБНО-МЕДИЦИНСКИХ ЛАБОРАТОРИЯХ. – 2023.
61. Masharipov S., Sh M. DEFINITION OF ETIOLOGICAL DOMINANT STRUCTURES OF NOSOCOMIAL PNEUMONIA. – 2024.
62. Машарипова S., & Машарипов S. . (2024). Распространение ветряной оспы и ее профилактика в Узбекистане. *Общество и инновации*, 5(9/S), 125–130. <https://doi.org/10.47689/2181-1415-vol5-iss9/S-pp125-130>



63. Masharipova S. S., Ibrahimova H. R. Matyakubova OU MORPHOLOGICAL CHARACTERISTICS OF THE ARTERIES OF THE SMALL CIRCULATION OF THE CIRCULATION ON THE BACKGROUND OF EXPERIMENTAL DIABETES //THE THEORY OF RECENT SCIENTIFIC RESEARCH IN THE FIELD OF PEDAGOGY. – 2022. – С. 13.
64. Matyakubova O. U. et al. MEASLES DISEASE AMONG THE POPULATION //JOURNAL OF APPLIED MEDICAL SCIENCES. – 2024. – Т. 7. – №. 3. – С. 40-50.
65. Матякубова О., Машарипова С., & Машарипов С. (2024). Clinical symptoms and laboratory features in the course of pneumonia in children according to the Khorezm region . *Современник аспекти паразитологии и актуальные проблемы кишечных инфекций*, 1(1), 27. извлечено от <https://inlibrary.uz/index.php/problems-intestinal-infections/article/view/32464>
66. Матякубова О., Машарипова С., & Машарипов С. (2024). Detection of opportunistic infections in children with hiv infection. *Современник аспекти паразитологии и актуальные проблемы кишечных инфекций*, 1(1), 28. извлечено от <https://inlibrary.uz/index.php/problems-intestinal-infections/article/view/32465>
67. OPPORTUNISTIC INFECTIONS IN PATIENTS WITH DIABETES MELLITUS. (2025). *Western European Journal of Modern Experiments and Scientific Methods*, 3(04), 43-47. <https://westerneuropeanstudies.com/index.php/1/article/view/2331>
68. Masharipovich M. S. Sabirovna MS TENIOZ KASALLIGI TASHXISLANGAN ALLERGIK FONGA EGA BOLALARNING IMMUN TIZIMINING XUSUSIYATLARI //ЖУРНАЛ ГЕПАТО-ГАСТРОЭНТЕРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ.–2022.–№. SI-2.
69. S., Masharipova S., et al. "A Method for Obtaining Precipitating Serums for the Detection of Human Seminal Fluid Used in the Study of Physical Evidence in Forensic Biological Laboratories." *World Bulletin of Management and Law*, vol. 19, 7 Feb. 2023, pp. 42-44.
70. Машарипова, Ш. С., Ибраимова, Х. Р., & Машарипов, С. М. (2023). Анализ эпидемиологических особенности диарейных заболеваний у детей южного приаралья. *O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI*, 2(15), 884-887.

