

САИДБЕГ САТОРОВ

**ИСТОРИЯ КАФЕДРЫ МИКРОБИОЛОГИИ, ИММУНОЛОГИИ
И ВИРУСОЛОГИИ ГОУ «ТАДЖИКСКОГО ГОСУДАРСТВЕННОГО
МЕДИЦИНСКОГО УНИВЕРСИТЕТА ИМ. АБУАЛИ ИБН СИНО»**



**ПОСВЯЩАЕТСЯ 80-ЛЕТИЮ СО ДНЯ ОБРАЗОВАНИЯ КАФЕДРЫ
DEDICATED TO 80-TH ANNIVERSARY OF THE DEPARTMENT FORMATION**

SAIDBEG SATOROV

**HISTORY OF THE DEPARTMENT OF MICROBIOLOGY,
IMMUNOLOGY AND VIROLOGY OF THE STATE EDUCATIONAL
INSTITUTION «AVICENNA TAJIK STATE MEDICAL UNIVERSITY»**



DUSHANBE - 2021

HISTORY OF DEPARTMENT

State Educational Institution «Avicenna Tajik State Medical University» is justly considered the cradle of medical science in the Republic of Tajikistan. The first departments of theoretical and clinical medicine, which later became the starting point of scientific and pedagogical activities, have been established on the basis of this temple of Tajik medicine.

The history of the Tajik school of infectology is inseparably linked to the organization of the Department of Microbiology of Stalinabad Medical Institute, the first chair of general microbiology in Tajikistan.

Among all the disciplines of medical universities, microbiology, immunology and virology have a special position. On the one hand, it equips future physicians with knowledge to solve problems of prevention and treatment of infectious diseases, on the other hand, the knowledge of biology and ecology of pathogenic microorganisms, immunological processes in the body, that result from penetration of microorganism into the microorganism contribute to the acquisition of fundamental knowledge required to understand clinical disciplines, which involve issues of interaction between micro- and microorganism.

Teaching of microbiology, immunology and virology at a Medical University is aimed to provide students with theoretical knowledge and practical skills; a scientific outlook on the diversity of microorganisms; skills in conducting microbiological, virological, serological and mycological researches; mastering laboratory methods of diagnosing infectious diseases as well as methods of isolation and detection of their pathogens in the external environment.

The Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" will celebrate its 80th anniversary in 2021.

The Department of General Microbiology, which was renamed to "Microbiology, Immunology and Virology" in the mid-1960s, was organized on January 1941 under the leadership of **MARIA PEREKHOZHEVA**.

Regrettably, we have not been able to gather sufficient information about her scientific and pedagogical activities from available sources. The available documents indicate that M.N. Perekhozheva's research and practical activities were devoted to the study of brucellosis in animals and humans. She was the first to study the epidemiology of brucellosis in Tajikistan and developed methodological recommendations for the elimination of this infectious pathology in humans and animals in Tajikistan.



Maria Perekhozheva, the first head of the General Microbiology Department of the Stalinabad Medical Institute

Owing to the fact that M.Perekhozheva had no scientific degree and scientific title, on June of the same year (1941),

VIKTOR KONSTANTINOVICH ZHITOMIRSKY who belongs to the bright pleiad of scientists, who have made



Zhitomirsky Viktor Konstantinovich (January 30, 1894, Taganrog, Russian Empire - 1954, Moscow, USSR).

invaluable contribution to the development of practical medicine and medical science in our country, was invited to the post of the head of the department. He can be called the first scientist microbiologist and epidemiologist in Tajikistan.

V.K.Zhitomirsky has graduated Kharkov Imperial University (1919). After graduation, he worked for a long time at the Mechnikov Research Institute of Vaccines and Sera in Moscow. He was the head of the Far East Institute of Epidemiology and Microbiology in prewar years (1938-1941), simultaneously holding the position of professor of the department of microbiology in Khabarovsk Medical Institute (1939-1941).

Viktor Zhitomirsky actively participated in the original work in Khabarovsk against measles. Because of the shortage of vaccines, specialists under his leadership decided on an original way to prevent this infection. Epidemiologists, having decided

that the "gates of infection" could be the eyes, they began the practice of dropping disinfectant drops into them in children who had been in contact with sick people. According to witnesses, the results were very positive and prevented many boys and girls from becoming infected.



Zhitomirsky Viktor Konstantinovich and his wife Emilia Zinovievna

The USSR Committee for Higher Education invited him on June 1941 to head the department at Stalinabad Medical Institute, which was under construction, and a part-time position at the Institute of Tropical Infections. Emilia Zinovievna, wife of Viktor Konstantinovich also worked at the Medical Institute in Stalinabad (now Dushanbe) as an assistant in the department of inorganic chemistry.

During this period, M. N.Perekhozheva, D.I.Bushueva, L.A.Chernaya worked at the department as assistants, who carried out research work along with their teaching activities.

During those times, there was a typhus epidemic in Tajikistan, along with malaria and other parasitic diseases. On

autumn 1943 there was organized a two-month expedition to Vanj district to fight the epidemic of this infection, in which Zhitomirsky V.K. took an active part. It is remarkable that his essay "Pamir Notes", which was based both on his personal travel impressions and on extensive statistical data he had collected, belongs to this expedition.



Expedition to Pamir

It should be noted that Zhitomirsky's first visit was in 1938, when he took part in a three-month expedition to Tajikistan to prevent the introduction of cholera from Afghanistan.

In autumn 1944, family of Zhitomirsky returned to Moscow. Viktor Konstantinovich got a job at Mechnikov Research Institute of Vaccines and Sera. He was appointed to the position of head of the experimental laboratory of the parasitic typhoid department.

Zhitomirsky was invited to Stalinabad again in 1949, as head of the Microbiology Department of the Medical Institute and a researcher at the Institute of Tropical Infections. In 1953, he had

to leave his work in Tajikistan for some objective and subjective reasons.

Following the successful defense of candidate dissertation M.N.Perekhozheva was repeatedly appointed as the head of the department and headed the department from 1953-1959. During this period, there were invited specialists G.A. Kapelgarodskaya and A.M.Pilosoov to the position of assistants of the department. In some years, experienced bacteriologists as O.I.Andreeva, L.V.Zarubinich, A.E.Kenena, R.M.Chernavskaya, A.D.Sergienko, A.N.Vansman, N.N.Lavrova were part-time assistants of the department.

The scientific staff began training from 1952, and the first graduates of Avicenna Tajik State Medical Institute defended their doctoral dissertations in various fields. Graduates of Tajik State Medical Institute were sent to the leading scientific centers of Moscow and St. Petersburg to perform and defend candidate dissertations in microbiology. U.Sidikov and A.M.Pilosoov were the pioneers in this field of science.

After the successful defense of his candidate dissertation in 1959, the candidate of medical sciences, associate professor **U. SIDIKOV**, was elected to the position of the head of the department.

UMAR SIDIKOV was born in 1931 in Shaidon town, Asht district. In 1956, graduated faculty of general medicine of Tajik State Medical Institute and was sent to work at the Department of Microbiology as an assistant. In 1957 he entered full-time postgraduate study under the Department of Microbiology at Sechenov Moscow Medical Institute. During his full-time postgraduate study, he defended his dissertation for the degree of candidate of medical sciences under the supervision of Professor

M. N. Lebedova on "Microflora of pharynx and tonsils in angina and chronic tonsillitis" (1956). He was awarded the title of Associate Professor of the Department in 1956.



Umar Sidikov (1931 - 1970)

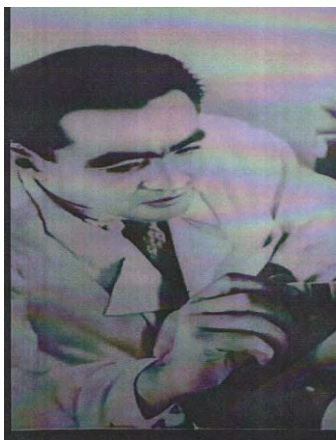
It is remarkable that U. Sidikov was the first national staff to become a scientist in the field of microbiology.

At the beginning of the 1960s, thanks to scientific and friendly relations of U. Sidikov, the Department of Microbiology of Avicenna Tajik State Medical Institute obtained an electron microscope, which was not available at other universities not only in Tajikistan, but also at all the scientific centers of other Central Asian republics.

U.Sidikov was the first to establish a methodology for studying the antimicrobial properties of mummy (mountain wax) and found the expressed effect of this natural compound against some pathogenic for humans and animals microorganisms.

U. Sidikov planned to defend his doctoral dissertation, devoted to the study of characteristics of leprosy and tuberculosis

pathogens, treatment and prevention of these infectious pathologies. He repeatedly reported on the results of his research at various symposiums and conferences (Baku, 1960, Leningrad, 1962). He strengthened scientific ties with Sechenov Moscow Medical Institute until the end of his professional activities, organizing joint scientific conferences or exchanging the experiences of his coworkers



Umar Sidikov is studying oropharynx microflora using an electron microscope

Unfortunately, his untimely death (1970) made it impossible for him to defend his doctoral dissertation.

Between 1960 and 1970, the health care system of the Republic of Tajikistan paid great attention to the training of microbiologists and bacteriologists. As a result of this, 12 graduates of the Institute were sent and completed their residency under the Department. Such specialists as N.V.Pushkar, L.V.Tlatova, Z.V. Savelieva, M.N.Shnaiderman, Z.Davlatbekova,

R.M.Bakaeva, and others simultaneously worked in different bacteriological laboratories of the country.

In 1970, after the death of U.V. Sidikov, **PILOSOV AKHIYA MOISEEVICH** (1920, Tashkent - 1980, Dushanbe) took charge of the department. A.M. Pilosov graduated medical faculty of Tashkent State Medical Institute named after V.M.Molotov in 1942. A.M.Pilosov spent all his medical and labor activity for 15 years in Tajikistan.

A.M.Pilosov, as a young physician, began his practice in a remote mountainous region of Tajikistan, in the rural-medical area of the former Vakhsh district of Mountainous Gorno-Badakhshon Autonomous Region (Pamir), in the position of head of the District Health Department. After more than two years of work in Pamir, he was transferred and appointed to the position of head of City Health Department, Stalinabad, in 1948.



A.M.Pilosov during his work in Mountainous Gorno-Badakhshan Autonomous Region of Tajik SSR

A.M.Pilosov was sent to the Department of Medical Microbiology of N.F.Gamaleya Scientific Research Institute of Epidemiology and Microbiology of USSR Academy of Medical Sciences for postgraduate study in 1952. He performed a number of clinical and experimental examinations under the supervision of the head of the department of medical microbiology, corresponding member of USSR AMS, Professor V.L.Troitskiy with the purpose of fulfilling his doctoral dissertation, which was devoted to the study of the influence of chemotherapeutic agents on the normal intestinal flora of animals and patients with dysentery.



A.M. Pilosov during his work as a Head of the Department of Microbiology, Immunology and Virology

A. M.Pilosov has successfully defended his dissertation on January, 1955 and by the decision of the Scientific Council of the Department of Hygiene, Microbiology and Epidemiology of SSSR AMN dated February 25 of the same year, he was conferred the degree of candidate of medical sciences and was elected by

competition for the position of associate professor of the Department of microbiology on May, 1955.

A.M.Pilosov, while carrying out a number of experimental studies, has obtained new scientific data of great practical importance. He found that some chemotherapeutic drugs such as synthomycin, levomycetin, streptomycin and grisemin inhibit normal intestinal microflora of animals. When a combination of two different antibiotics is used, the suppression increases and is more prolonged, leading to a delay in the formation of antibiotic-resistant forms of bacteria. Clinical and bacteriological studies performed by him showed that the combination of cintomycin (levomycetin) with streptomycin or with grisemin creates a high concentration of drugs in the blood and in the lumen of the patient, significantly increasing antibacterial effect of drugs, which is accompanied by a sharp delay in the formation of resistant forms of bacteria. The results of the research were published in the book "Issues of active immunization against intestinal infections", published by Medgiz in 1955.

A.M.Pilosov, after defending his thesis, successfully continued his scientific research. The results of his further research were reflected in scientific articles: "On the mechanism of the Shwartzman phenomenon", "On the influence of snake venom on the development of inflammatory (allergic) reactions".

Familiarity with the scientific-pedagogical and practical activities of A.M. Pilosov gives reason to believe that he has made a significant contribution to the solution of actual issues of both bacteriology and immunology.

Professor M.I.Orzuev was elected as the head of the Department in 1976 after defending his doctoral dissertation.

ORZUEV MAHDI ISKANDAROVICH (1933, Garm settlement, Tajik SSR - 1999 Dushanbe, RT), graduated Avicenna Tajik State Medical Institute with honors. He worked as Infectious Disease Physician in Garm district hospital and acting Chief Physician of sanitary-epidemiological station of the same district since 1958 to 1960. On September, 1960 was sent to postgraduate study in N.F.Gamaleya Research Institute of Epidemiology and Microbiology of USSR Academy of Medical Sciences (Moscow) by the Ministry of Health of Tajik SSR.



Orzuev Mahdi Iskandarovich

On April 1964, M. I.Orzuev defended his doctoral dissertation on "Tetanus in Tajikistan" and was sent to work at Avicenna Tajik State Medical Institute as an assistant at the Department of Microbiology, Immunology and Virology. He was appointed to the position of associate professor in 1968. On August 1970 transferred to the position of a senior researcher of the department to complete his doctoral dissertation and was sent to

Gamaleya Research Institute of Epidemiology and Microbiology of USSR Academy of Medical Sciences.

M.I.Orzuev defended his doctoral dissertation on "Prophylaxis of staphylococcal infection and tetanus in maternity and newborn in Tajikistan" on December 1974.

Many young specialists, who later became leading specialists in the field of microbiology, immunology and virology in Tajikistan, were invited to the department between 1978 and 1981.



Staff of the Department of Microbiology, Immunology and Virology in 1979

Particularly in 1978, there were invited the graduates of Avicenna Tajik State Medical Institute as assistants: M.R.Boltaeva and M.N.Shnaiderman. In 1981, S.Satorov, a graduate of Kharkov Medical Institute, was invited to the department as a young specialist.

The Department established a graduate program in 1978 and the first full-time graduate students were M.R.Boltaeva (1978-1981) and S.Sattorov (1983-1986).



Advanced Training Course, Leningrad, SANGIG, 1977

M.I.Orzuev, as a leading specialist in the field of infectiology, was a hard-working, responsive, sensitive and modest scientist. He worked hard to raise the level of his scientific and pedagogical knowledge. Being a highly skilled teacher and researcher, he constantly did a lot of pedagogical and scientific work. Conducted practical training, lectured the students on general and private microbiology, virology with immunology course and accepted tests and examinations of the students.

M.I.Orzuev has attended in courses of professional development for 4 times: in 1967 - Central Institute for Advanced Training of Physicians on topical issues of virology, in 1970 - at the first Moscow Medical Institute - on teaching microbiology virology, in 1977 and in 1983 - in Leningrad (now St. Petersburg)

at SANGIG (Health Affairs) on exchange of pedagogical experience.

M.I.Orzuev took an active part in the social life of Avicenna Tajik State Medical Institute. Between 1973 and 1982, he worked as deputy dean and dean of the faculty of medicine.

He was appointed to the position of Director of Tajik Research Institute of Epidemiology and Hygiene by the Order of the Minister of Health of Tajik SSR from 1986.



Meeting of the Academic Council of ATSMU

For the time of his work at the institute, M.I. Orzuev carried out extensive organizational work to improve the structure and scientific direction of the institute. He initiated the opening of new laboratories, such as communal hygiene, viral hepatitis and AIDS, staphylococcal infections laboratory. The number of research topics developed by the scientific workers of the Institute has significantly increased. It became a policy to study environmental protection. This aspect of the institute in the field of sanitation and hygiene, successfully implemented the issue "Study of the effects

of harmful factors of industrial enterprises and pesticides on healthy workers and the population". There have been established a comprehensive study of the etiological role of different Enterobacteriaceae in intestinal infections and the etiology of purulent-septic and purulent-inflammatory diseases under the direct supervision of M.I. Orzuev in the field of infectious pathology.

Thanks to the efforts of M.I.Orzuev for transferring the Institute of Epidemiology and Hygiene from the 3rd category to the 1st in remuneration of scientific staff. The work of training scientific staff significantly improved at the Institute during his leadership. During this period active research work was carried out. Among the research workers, 2 people worked on candidate dissertation, 8 people worked on doctoral dissertation.

There were fulfilled and defended seven candidate dissertations under the leadership of M.I. Orzuev. He has published 107 scientific papers, 4 invention certificates, 3 rationalization proposals.

As Director of Tajik Research Institute of Epidemiology and Hygiene, M.I. Orzuev constantly maintained contact with the Department of Microbiology, giving lectures and conducting practical classes.

M.I.Orzuev was awarded a diplom of "Excellent Worker of Public Health" by the Order of the Minister of Health as well as, according to the results of the XI Five-Year Plan awarded the Order of "Badge of Honor". By the Decree of the President of the Republic of Tajikistan M.I.Orzuev was awarded the honorary title "Honored Scientist of the Republic of Tajikistan".

In 1986, due to transfer of Professor M.I. Orzuev to the position of the Director of Tajik Research Institute of

Epidemiology and Hygiene, Professor L.D. Gutorova, who worked until 1991, was elected to the position of the Head of the Department.

GUTOROVA LARISA DENISOVNA (29.10.1932 Vitebsk –03.04.1991 Dushanbe), graduated Leningrad Sanitary-Hygienic Institute. In 1956 after graduating Institute she entered the postgraduate course. In 1959 she successfully defended her dissertation for the degree of candidate of medical sciences and was sent to work at the Department of microbiology of Avicenna Tajik State Medical Institute.



Gutorova Larisa Denisovna

L.D.Gutorova began working at Scientific Research Institute of Epidemiology and Hygiene of the Ministry of Health in 1962 and performed the duties of a senior researcher and headed the Laboratory of Ecology of Intestinal Microorganisms until 1977.

L.D.Gutorova has published 152 scientific articles, which focus on the study of bacteriophagy, microbiology and immunology of intestinal infections, ecology and genetics of Enterobacteriaceae, and biocenosis of intestinal microorganisms.

Her doctoral dissertation topic dealt with "Aerobic gut microflora of healthy and sick children".

Professor M.I.Orzuev was again elected to the position of the Head of the Department after L.D.Gutorova death in 1991. In 1997 the department was transferred to a new base and occupied the first floor of the new building of ATSMU in Karabolo micro district.



Professor L.D.Gutorova, Candidate of Medical Sciences N.S.Mamonova, Associate Professor N.V.Pushkar, and Professor M.I.Orzuev (from right to left)

During this period, the staff of the department worked on the problems of staphylococcal infection, studied the etiological structure of purulent-inflammatory diseases and conducted research related to the impact of industrial factors on the microflora

of the body, studied the microbiology and epidemiology of nosocomial infections.

It should be noted that during the period from 1970 to 1990, a large pleiad of specialists, who remained faithful to their chosen professions to the end of their professional lives, contributed to the development of microbiology, virology and immunology as key medical disciplines.

PUSHKAR NINA VASILYEVNA, candidate of medical sciences, associate professor, graduated faculty of general medicine of Avicenna Tajik State Medical Institute in 1959. Later, she underwent residency (1959-1961) at the Department of microbiology of the institute. During the period of 1961-1968 she worked as an assistant to the department and in 1969 she was sent to the First Moscow Medical Institute for targeted postgraduate study. She proved to be an enterprising, industrious and thoughtful researcher while working on the topic of her dissertation. She had successfully completed her post-graduate study ahead of schedule. She defended her Candidate's thesis on "Factors of Acquired Immunity in Experimental Tuberculosis" on June, 1972.

As a teacher, Nina gained extensive experience in conducting practical classes with students, and at the same time she was engaged in scientific work.

N.V.Pushkar was a qualified scientist with a great experience in scientific and pedagogical work. She passed the advanced training in Leningrad Pediatric Institute on April, 1974 and appointed to a position of the Associate Professor of Microbiology Department on a competitive basis in 1979.

On January 1985, she attended a refresher training course in Moscow. She repeatedly attended seminars on "Basic Computer Science and Computer Technology for Medical Universities",

which were held by visiting specialists in Dushanbe between 1986 and 1990.



Pushkar Nina Vasilyevna (1935 г. – 1999 г.)

Her further research work was aimed at studying immunity in tetanus and tuberculosis, as well as the clinical significance of pathogenic *Staphylococcus aureus* in rheumatic lesions, studying the etiology of out-of-hospital purulent infections. She published 45 scientific articles and had 2 invention certificates.

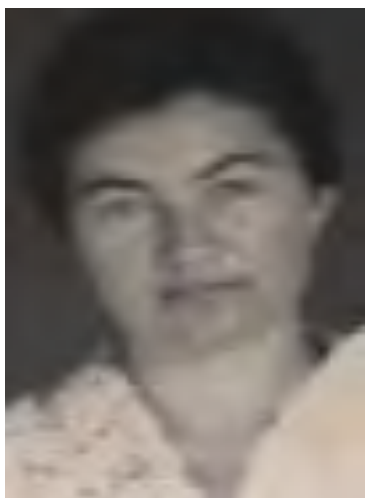
N.V. Pushkar conducted a great educational and methodical work, gave lectures to students on the course of private and general microbiology with a course of virology. During her tenure as associate professor of the department, she prepared working programs on microbiology for all faculties and guidance papers for teachers.

N.V. Pushkar was systematically engaged in improving their scientific and pedagogical knowledge, actively participated in the

public life of the department, and for a long time performed the duties of the department's trade union.

N.V.Pushkar took an active part in the social life of the institute. She was the secretary of the Academic Council of the Faculty of Pediatrics, a member of the editorial board of "Soviet Medical Worker", a member of the professional committee of the staff of the Faculty of Medicine, a member of the methodical commission of the theoretical departments.

PERSHINA LARISA PORFIRYEVNA, candidate of medical sciences, associate professor (born in 1939), graduated faculty of general medicine of Tajik State Medical Institute in 1962. After graduation she was sent to work in Parhar district, where she performed duties of the Head of bacteriological laboratory in the Sanitary-Epidemiological Station.



Pershina Larisa Porfiryevna at the beginning of professional activity and during her work at the Department of Microbiology

L.Pershina was invited to the Department of Microbiology as an assistant in 1967, where she received extensive theoretical training and teaching skills.

She defended her candidate dissertation on "Ampicillin in Bacterial Dysentery" in 1974.

She proved herself to be a competent, energetic, proactive worker and an erudite teacher during her work in the department. Successful combination of pedagogical skills with scientific work allowed her to become a highly qualified teacher.

L.Pershina used to constantly improve her knowledge, gave her experience to young employees of the department, actively participated in public life of the department and medical institute. She was responsible for the preparation of practical classes at the Faculty of Dentistry, conducted educational work among students, and actively participated in classes in the network of political education. She has published 30 scientific works.

She improved her professional skills (FPC) in the Leningrad Sanitary and Hygienic Medical Institute in 1988.

She enjoyed well-deserved respect among students and staff. She was awarded with commendations for her conscientious attitude to work. She was awarded the badge "Excellent Worker of Public Health" of the Republic of Tajikistan.

ISHENKO INNA PAVLOVNA (born in 1939), graduated faculty of Biology of the Leningrad State University in 1961 with a specialization in microbiology. Following graduation, she was assigned to work in Tajikistan. She worked at the Institute of Gastroenterology of Academy of Sciences of Tajik SSR from 1962 till 1983, and was first as a senior lab assistant at the bacteriological laboratory of the intestinal pathology department, then as a junior

research associate at the same laboratory. She was appointed as Scientific Secretary of the Institute in 1970.

I.Ishenko defended her dissertation for the degree of candidate of biological sciences on "Bacteriological and immunological disorders in ulcerative colitis" in 1971. Following the defense of her dissertation, with the purpose of raising the level of her professional qualification, she was sent to Prague (Czechoslovakia) University of Prague, where she undertook an internship at the Faculty of Medicine of the University of Prague.



Ishenko Inna Pavlovna at the beginning of professional activity and during her work at the department of microbiology

I.Ishenko was elected by competition to the position of assistant to the department of microbiology, immunology and virology of Avicenna Tajik State Medical Institute. She is the author of 29 published works. I.P. Ishenko actively participated in public work: headed the SSS of the department for 4 years, member of the editorial board of the journal "Health of Tajikistan".

I.Ishenko is listed in the institute's book of honor for her many years of scientific and organizational work at the Research Institute of Gastroenterology and awarded with the badge "Excellent Worker of Public Health".

BOLTAEVA MARIYA RASULOVNA, candidate of medical sciences, associate professor, born in 1955. She graduated faculty of general medicine of Avicenna Tajik State Medical Institute in 1978 with honors. She was a full-time postgraduate student at the Department of Microbiology, Immunology and Virology from October 1978 to February 1982. After graduating from postgraduate study, she worked from February 1982 to 1991 as an assistant at the same department.



Boltaeva Mariya Rasulovna

She defended candidate dissertation for the degree of candidate of medical sciences in 1985 on the topic: "Urinary tract microflora in calculous pyelonephritis in children". She is the author of 32 scientific works, more than 4 methodological recommendations, and 4 rationalization proposals. In 1994, she

was awarded the academic title of associate professor of the Department of Microbiology, Immunology and Virology.

Between 1992 and 1993 was assigned to Khujand University, where she worked as a Head of the Department of Microbiology, Immunology and Virology. In 1993 she again returned to Tajik State Medical University and continued to work as an Associate Professor at the Department.

M. Boltaeva attended advanced training at the Department of Microbiology, Immunology and Virology, Leningrad Sanitary and Hygienic Medical Institute in 1984. She underwent a specialized course on the cycle "Fundamentals of tropical medicine" at Central Order of Lenin Institute for Advanced Training of Physicians in Moscow, Russian Federation, in 1985.

In 1994, M. Boltaeva went to work in the WHO structures, holding the position of WHO regional coordinator in the Republic of Tajikistan. In 1995 she was trained in laboratory diagnosis of diphtheria at the WHO international course in London, where she received an international certificate.

Her recent scientific works are devoted to the most acute problems of infectious diseases diagnostics in the Republic of Tajikistan (diphtheria, typhoid fever). She performs a great practical activity to provide practical assistance in training bacteriologists in the Republic of Tajikistan and solving problems related to the functioning of the bacteriological service in the Republic of Tajikistan.

In her capacity as the WHO coordinator at the Ministry of Health of Tajikistan for laboratory diagnosis of diphtheria, M.R. Boltaeva trained bacteriologists from all laboratories of the republic in new methods of diphtheria diagnosis, as well as repeatedly conducted seminars on typhoid fever diagnosis for

microbiologists and bacteriologists from all regions of our country. She conducted monitoring of the state of laboratory services in the Rasht Valley districts together with representatives of international organizations and the staff of the Republican Sanitary and Epidemiological Station and made a great effort to provide these laboratories with modern laboratory equipment.

M.Boltaeva as an experienced teacher has prepared a cycle of lectures and practical classes for students of the Faculty of Pharmacy according to the new program and has developed methodological recommendations and developments for students and teachers of this faculty regarding the course of immunology. She conducted practical and lecture classes in an accessible form, using visual materials with the most up-to-date scientific information.

M.R. Boltaeva as a highly qualified specialist and experienced teacher, constantly improved her professional skills and was an exemplary mentor for young specialists. She systematically improved her professional skills, which contributed to improving the quality of the educational process at the department. During the years of her work in the department she was responsible for the scientific research work (SRW). She was a co-author in the development of the scientific theme of the department "Study of hospital-acquired infections in Tajikistan".

M.Boltaeva combined her scientific and pedagogical activities with a great deal of social work. She performed the duties of the responsible curator of foreign students in the department, was the chairman of the Council of Young Scientists and a member of the All-Russia Society of Inventors and Efficiency Experts of Avicenna Tajik State Medical Institute, as well as a member of the Republican Council of Young Scientists.

M.Boltaeva's professional achievements have been recognized with Diplomas of the District Committee of the Komsomol and the Central Committee of the Young Communist League of Tajikistan.

AKSENENKOVA LARISA KHAMIDOVNA (born in 1946), graduated biological faculty of V.I.Lenin Tajik State University in 1969. She worked as a senior laboratory assistant at the Department of Histology of Tajik State Medical Institute, where she mastered histological technique for the preparation of medications. She transferred to training department of the Medical Institute in 1975, as a teacher of Biology.



Aksenenkova Larisa Hamidovna

L.Aksenenkova started working at the Department of Microbiology, Immunology and Virology as a senior laboratory assistant on April 1979. She has mastered microbiological, immunological and virological methods of diagnostics of bacterial and viral nature pathologies during her work at the department. Completed a full course of lectures on microbiology and attended

practical classes of experienced teachers. She was elected by competition to the position of assistant of the department in 1980.

She completed a specialization in FPK at the First Moscow Sechenov Medical Institute in 1980. She has completed 2-years seminar course at the Department of Philosophy on "Legal and Pedagogical Knowledge".

L.Aksenenkova participated in the research work conducted by the staff of the department on the topic: "Etiology of community-acquired purulent infections". She studied the issues of spread of HBV among outpatients and the structure of morbidity of purulent infections among workers and employees of "Textilmash" and "Cotton Association". She has published 6 scientific works.

RECHKINA NADEZHDA EVGENEVNA (born in 1954). She graduated Lenin Tajik State University in 1977. She was appointed to the position of senior assistant of department in the Department of Microbiology, Immunology and Virology of Tajik Medical Institute after graduation. She was transferred to the position of Acting Assistant of the Department on September 1980.

She completed a full course of lectures in microbiology and conducted practical classes with students of 2-3 years during her work at the department and was formed as a capable teacher. She regularly tutored students who were falling behind and was the supervisor of groups assigned to her.

N.Rechkina took an active part in the scientific-research work of the department on the topic: "Etiology of community-acquired purulent infections". The results of her research work revealed that in the structure of pyoinflammatory diseases (PID) of outpatients there was an increased frequency of registration of such diseases as furunculosis, carbunculosis, panaritis, hand abscesses

and infected hand wounds among the workers of "Textilemash" and "Cotton Association". Based on the results of the research, there were published 10 scientific articles.



Rechkina Nadezhda Yevgenevna

N.Rechkina has proved to be a hard-working and capable employee her work in the department, constantly improved her knowledge, mastered bacterioscopic and microbiological methods of research.

N. Rechkina deservedly enjoyed respect in the team and among students, as a responsive and hardworking employee. She actively took part in public life of the institute and the department, in carrying out Saturday voluntary work day. Has long performed the duty of the trade-union of the department.

N.Mamonova, M.Kasymov, G.Mirkhaidarova, J.Prudius, R.Bakaeva, M.Schneiderman also worked at the department as assistants in the period from 1980 to 1990.

After the death of Professor M.Orzuev in 1999 the duties of the head of the department were assigned to d.m.s., Professor **Saidbeg Satorov**.

SAIDBEG SATOROV was born in 1955 in Sufiyon village, Ordzhonikidzeabad district (now Vahdat district). He graduated faculty of Sanitation and Hygiene at the Kharkov Medical Institute (now Kharkov State Medical University) in 1978. Following his graduation, he was sent to work in Orjnikizabad district of the Republic of Tajikistan, where he worked as the chief physician of Chamber of Health Education. He was invited to work as an assistant at the Department of Microbiology, Immunology and Virology of Avicenna Tajik State Medical University in 1981.



S. Satorov- the first years of work at the department

Later he was admitted to the full-time postgraduate study of the department and sent for training in the Gamaleya Research Institute of Epidemiology and Microbiology (Moscow, Russian

Federation), where has fulfilled the main part of his dissertation work on the basis of staphylococcal infection laboratory under the guidance of doctor of medical sciences, Professor A.K. Akatov.

Having completed his postgraduate study, in 1988 he successfully defended his candidate dissertation for the degree of candidate of medical sciences on "Comparative Characteristics of Staphylococcus aureus isolated from humans and animals" at G.N.Gabrichevsky Moscow Scientific Research Institute of Epidemiology and Microbiology (Moscow, Russian Federation).



Gamaleya Research Institute of Epidemiology and Microbiology

Following the break-up of the USSR and the outbreak of civil war, there began an intense outflow of highly qualified specialists, including medical workers from our country. Only in the early 90-ies the associate professors of the department - N.Pushkar, L.Pershina and I.Ishchenko, assistants - candidate of medical sciences N.Mamonova, L.Aksenenkova, N.Rechkina, Y.Prudius, G.Mirkhaidarova and many others left the country.

Some of them had more than 40 years of scientific and pedagogical experience. Associate Professor M.Boltaeva moved to another job.

Therefore, the department was in need of qualified specialists. The management of the Medical University faced an acute issue of providing the department with scientifically trained staff. Accordingly, the Rector of the University - Corresponding Member of the Academy of Medical Sciences of USSR, Professor Yusuf Bashirkhanovich Iskhoki addressed a letter of request to the Director of the St. Petersburg Pavlov Research Institute of Experimental Medicine Academician of USSR Academy of Medical Sciences, Professor B.Tkachenko for providing the opportunity to send S.Satorov for a doctoral dissertation on the base of this scientific center.



Yu.B. Iskhaki

M.G. Gulyamov

B.I. Tkachenko

Also, we would like to note here the active support of the Vice-Rector for Research and Publishing of the Medical University, Corresponding Member of the Academy of Medical Sciences of USSR, Professor M.G. Gulyamov.

Thus, on October 1992 S.Satorov was directed to St. Petersburg Pavlov Institute of Experimental Medicine to the Department of Molecular Microbiology, which was headed by Academician Artem Akopovich Totolyan.

Due to the versatility of the thesis topic, the work was performed on the basis of three leading research centers: Department of Molecular Microbiology of St. Petersburg Pavlov Institute of Experimental Medicine (head - Academician A.A. Totolyan), Laboratory of intestinal infections of the St.Petersburg Paster Research Institute of Epidemiology and Microbiology (Head - d.m.s., Professor L.Kaftyreva), and the Chair of Microbiology, Immunology and Virology of St. Petersburg State Medical University (Head - d.m.s., Professor, Corresponding Member of the Russian Academy of Natural Sciences V.Tets).

Aleksandr Suvorov - d.m.s., Professor, Head of the Laboratory of Genetics of Microorganisms of the Department of Molecular Microbiology of the Pavlov Institute of Experimental Medicine and Professor Viktor Tetz were approved as scientific advisors of the dissertation work.



L.A. Kaftyreva A.A. Totolyan V.V. Tets A.N. Suvorov

S.Satorov has devoted his dissertation to "Microbiological and genetic characterization of typhoid pathogens isolated in different natural and climatic regions", and has defended it at the Scientific Research Institute of Military Medicine (St. Petersburg, RF). Conducted researches had allowed perform a complex microbiological and molecular-genetic analysis of different variants of typhoid fever virus circulating in different countries with specific natural and climatic conditions. The rapid molecular genetic method of indication and identification of morphologically, biochemically and serologically typical as well as changed variants of Salmonellae - the causative agents of salmonellosis and typhoid paratyphoid diseases by means of Polymerase Chain Reaction was developed for the first time.

Creation of an S.typhi strain, which is mutant for the ogt - gene through integrative mutagenesis, made it possible to elucidate the genetic mechanisms that ensure the resistance of these bacteria to various environmental factors. It is shown that S. typhi strains defective in the ogt gene acquire hypersensitivity to various physical and chemical factors, including various antimicrobial agents. Some pesticides in subinhibitory concentrations have been found to affect the interaction of the ogt-defective S. typhi strain with antibiotics. The key role of the protein, which is encoded by the ogt gene, in the reparative processes of S. typhi indicates the prospects for creating new drugs that specifically inhibit this bacterial protein.

The data were presented at an international conference in Bratislava, Slovakia, in 1998. The results of the study were published in English and Russian in international scientific journals, in particular in Folia Veterinaria (Slovak Republic),

Journal of Microbiology, Epidemiology and Immunology (Moscow, Russian Federation).

It should be noted that in connection with some objective and subjective reasons there was not carried out training of scientific staff and also was not defended any dissertations from 1988 to 2000 at the base of the department.

The scientific-research activity of the department staff has changed a little since 1999, after arrival of Professor S. Satorov on a post of the Head of the department. The material and technical equipment of the department has improved. There was an increase in the number of classrooms, offices, teaching and auxiliary laboratories. The department has activated its scientific research work.



Staff of the Department of Microbiology, Virology and Immunology in 2005

After a long break, an assistant of the department, I.A. Kenjaeva, defended her doctoral dissertation in 2000 under the supervision of S. Satorov

First PCR laboratory in the Republic of Tajikistan was organized at the Department in 2006, where the staff of the Department of Microbiology, Immunology and Virology, as well as researchers from other departments mastered and began to conduct research work related to the molecular and genetic characteristics of infectious pathogens and non-infectious diseases.

A promising new and original direction of scientific research involved the study of antibacterial activity of new synthesized chemical compounds, clinical and diagnostic significance of HLA antigens in infectious, non-infectious and autoimmune diseases; study of clinical significance of H.pylori bacteria and Campylobacter species in gastrointestinal pathologies; molecular and genetic characteristics of microorganisms circulating in Tajikistan, a region with specific natural, climatic and social and domestic conditions.

One of the first in the country candidate dissertation, devoted to the antimicrobial activity of some thiadiazole-pyrimidine derivatives was carried out by Z.Gulmakhmadzoda - postgraduate student of Pharmacognosy Department of SEI "Avicenna Tajik State Medical University" "Synthesis and antimicrobial activity of some 1,3,4-thiazolo[3,2-a] pyrimidine derivatives" (under supervision of Corresponding member of Academy of Sciences of Tajikistan M.Kukaniev and Professor S.Satorov, 2004).

The obtained results allowed him to develop 1, 3, 4-thiazolo[3,2-a] pyrimidine derivatives, which has an antibacterial

effect more pronounced than that of its analogue - pyrimidine-quinazolinone.

Z.Gulmakhmadzoda having developed his scientific potential, is preparing to defend his doctoral dissertation "Synthesis and development of drugs based on 1,3,4-thiazolo[3,2-a] pyrimidine derivatives" and is currently working as Deputy Head of the Social Development Department of the Executive Office of the President of the Republic of Tajikistan. There has been and continues an active scientific cooperation with both the theoretical and clinical departments of the medical university.



M.Kukaniev (1960 г. -2012 г.)



Z.Gulmakhmadzoda

Particularly, one of the first joint scientific-research works with clinical departments is the dissertation work of full-time postgraduate student of the Department of General Surgery № 2, Ibodzoda S.T., dedicated to "Surgical treatment of pyloroduodenal ulcer stenoses with regard to Helicobacteriosis", the laboratory part of which was carried out on the basis of the Department of Microbiology, Immunology and Virology.



Ibodzoda Saidmukim Tillokhuja

Subsequently, S.Ibodzoda has defended his doctoral dissertation and currently works as Academic Vice-Rector of SEI “Avicenna Tajik State Medical University.

One more example of successful research cooperation with clinical departments is the training of candidates of science from the staff of the Department of Obstetrics and Gynecology. Particularly, under the supervision of professors M.Abdurakhmanov and S.Satorov, a postgraduate student of Obstetrics and Gynecology Department № 2, N.Umarova performed a laboratory part of her dissertation work on the theme "Endometritis after cesarean section in women with anemia", 2009 and the postgraduates of the same department M.Sharipova "Treatment and prevention of postabortion endometritis", 2011 and M.Pirova, who is



Maknuna Pirova

completing her dissertation on “Optimization of prevention of purulent-septic complications of the anterior abdominal wall and premium in laboring women with iron deficiency anemia”/

After a successful defense, M.B. Sharipova continues her research activity as director of the Medical Genetic Center at the Research Institute of Obstetrics and Pediatrics of the Ministry of Health and Social Protection of Population of the republic of Tajikistan, and N.G. Umarova works as the head of a department in one of the Military Units of the Russian Federation.

Postgraduate students and staff of the department, as well as applicants for scientific degrees from other scientific and practical centers, along with the microbiological characterization of microorganisms, have set up and conducted studies of molecular and genetic aspects of pathogens of pyoinflammatory pathology (staphylococci, streptococci), anthrax, urinary infections, chelicobacteriosis and campelobacteriosis under the supervision of Professor S.Satorov

Dissertation work of J.Muminzoda - Deputy Director for Science, Methodological Work, Innovation and International Relations of Republican Medical College of Dushanbe city was dedicated to "Characteristics of Helicobacterpylori isolated at different forms of Helicobacteriosis in Tajikistan", 2006; Kh.Abdulloev - Chief Physician of Health Center "Solehon" of Vahdat district "Spread of Helicobacteriosis among rural population of Tajikistan, and evaluation of effectiveness of eradication therapy in outpatient conditions" in 2011; K.Kurbonov - Head of the Department of Epidemiology and Infectious Diseases, Tajik National University "Modern epizootological-epidemiological features and surveillance of brucellosis in Tajikistan", 2016; A.Kurbonov who works in MEDICUS - Family Medicine, Moscow RF "Comparative characteristics of S.typhi strains circulating in Tajikistan"



Kh.Abdulloev

J.Muminzoda

A.Kurbonov

Totally, during the period from 2000 to 2020 under the supervision of Professor S.Sattorov, 13 dissertations for the degree

of candidate of medical sciences were executed and defended by: I.Kenjaeva., 2000; A.Kurbonov, 2001; Z.Gulmakhmadzoda, 2004; M.Hakimova, 2005; G.Ahmedova, 2006; J.Muminzoda, 2006, M.Khakimova, 2005, G.Akhmedova, 2006, J.Muminzoda, 2006, Kh.Saidov, 2006, P.Kurbonbekova, 2006; N.Umarova, 2009; M.Sharipova, 2011; Kh.Abdulloyev, 2012; G.Ayubova, 2012; K.Kurbonov, 2016.

Since 2000, there expanded the research and educational ties with scientific centers from near and far abroad, through the development and implementation of joint research projects. In 2005, professor S.Satorov, together with colleagues from U.S. National Laboratory (Berkeley, California) developed a research project aimed at "Study of anthrax pathogen features circulating in Tajikistan", which was completed in 2008. Professor Tamas Torok was the coordinator of this project on the part of US colleagues.



Professor Tamas Torok



**National Research Laboratory,
Berkeley, California, USA.**

In 2006 the executors of the project were invited to the Research Center located in Porton Down, UK, where they were

familiarized with laboratory conditions of highly pathogenic microorganisms.

The conducted work has created methodological prerequisites and laid theoretical grounds for a number of studies of epidemiological and molecular-genetic character aimed at studying the properties of the anthrax pathogen, its accurate identification and, ultimately, the effective prevention and treatment of this pathology.



I. Raskin



V. Dushenkov

The results of the study were presented at the "International Conference on Bacillus anthracis, B.cereus, and B.thuringiensis" (Oslo, Norway, 2007, June) and published in the conference proceedings, "Problem of anthrax in Tajikistan".

The department's staff maintains constant scientific ties with Rutgers University (New Jersey, USA). In collaboration with the Laboratory (Plants and Human Health) of this university headed by professor Ilya Raskin and professor Vyacheslav Dushenkov, applied research is carried out to find natural sources

of compounds with antibacterial, antiviral, fungicidal and immunomodulatory activity.



Participants of the International Biodiversity Research Collaborative Workshop, Chicago, USA, September, 2007

In 2005-2007 the Department actively participated in the “International Cooperative Biodiversity Groups” (ICBG) program entitled ‘Building Pharmaceutical Capacity and Biodiversity Conservation in Central Asia.’ The program was centered on the collection and pharmacological screening of natural products extracted from plants, fungi and bacteria. The program was designed to generate thousands of well-characterized and authenticated extracts from one of the least explored region in the world famous for bio- and chemo-diversity. The success of the

program was built on collaborations with at least 40 leading scientists in Uzbekistan, Tajikistan, Kazakhstan, and Kyrgyzstan, who are actively involved in the collection and screening program. The program partnered with Pennington Biomedical Research

Center on metabolic syndrome and diabetes screening, and with Missouri Botanical Garden and Illinois Natural History Survey, which serve as the repositories for the herbaria collections produced by the program.

Prokaryotic Microorganisms Associate Program (PMAP) group of the ICBG program developed cultivation techniques that enhance the ability to harness the biochemical potential of hard to culture microorganisms. The group also screened metagenomic libraries for genes involved in important biochemical transformations and have explored means for expressing metabolic genes from metagenome libraries.



Visit of representatives of Rutgers University - professors I.Raskin and V.Dushenkov to Avicenna Tajik State Medical University, November, 2018, Dushanbe

Participants of the program presented the results of their research work at an international seminar held on September 2007 in Chicago, USA.

During the period from 2014 to 2019 the staff of the department, together with other scientific and pedagogical centers of our country (Institute of Botany of National Academy of Sciences of Tajikistan, Pamir Biological Institute of National Academy of Sciences of Tajikistan), participated in the Educational Program "International Research Center for Botanicals and Metabolic Syndrome (CBMS) in Tajikistan". The International Symposium "Plants and Human Health" was organized within the framework of this program and the Annual Scientific and Practical Conference of the staff of "Avicenna Tajik State Medical University" on November 2016, in Dushanbe city.

Staff of the Departments of Microbiology and other divisions of the Medical University, undergraduate and graduate students took an active part in the symposium.

Professor of Rutgers University I.Raskin has noted in his report that young specialists of our republic, attending courses of remote seminars (online seminars) have mastered modern methods of studying antibacterial, antiviral and fungicidal activity of medicinal plants, and they have published several articles in English in foreign scientific journals.

The participants of the program from among the staff of our department have obtained interesting results. Their results indicate that our country, as a region with a sufficiently large diversity of endemic plant species, has a sufficient resource of medicinal herbs where of can be obtained and developed new highly effective antibiotics. According to our preliminary data, some endemic plants growing in specific natural and climatic regions of our country possess effective antibacterial, fungicidal and antiviral activity.



Group of participants in the International Seminar "Plants and Human Health," 2016, Dushanbe

Based on the research results, one thesis for the degree of candidate of medical sciences on "Microbiological, antioxidant and polyphenolic properties of *Allium*, growing in Tajikistan" (F.Mirzoeva) was prepared and approved, as well as more than 20 articles have been published in domestic and foreign scientific journals in Russian and English languages.

Scientific and pedagogical relations with other scientific centers of the USA, Indonesia, Mongolia, Italy and other countries of near and far abroad have been established by the staff of the department. Leading scientists from these scientific centers repeatedly visited Avicenna Tajik State Medical University, as well as other universities and scientific centers of our country, giving demonstrative lectures. In particular, at the annual scientific and practical conference of our university staff in 2018, participated 6 professors from the United States: professor Ilya Raskin and David Ribniki - Rutgers University, New Jersey; professor Vyacheslav Dushenkov - Head of Department of New

York University; professor Anna Maria Leila - Director of "Plant and Human Health Institute", North Carolina; professor William Cefalho - Director of "Biomedical Research Center", Louisiana; professor Philip Brantley - Assistant Director of "Biomedical research center" state of Louisiana.

The department staff members take an active part in various conferences, symposiums, congresses, both within the country and in scientific events organized in neighboring and far abroad countries. They publish articles in scientific journals, publish educational and methodical manuals.



Joint photo with colleagues from the United States, Indonesia, Mongolia, and Kazakhstan, participants in the symposium "Plants and Human Health" as part of the annual scientific and practical conference of the staff of Avicenna Tajik State Medical University, Dushanbe, November, 2018

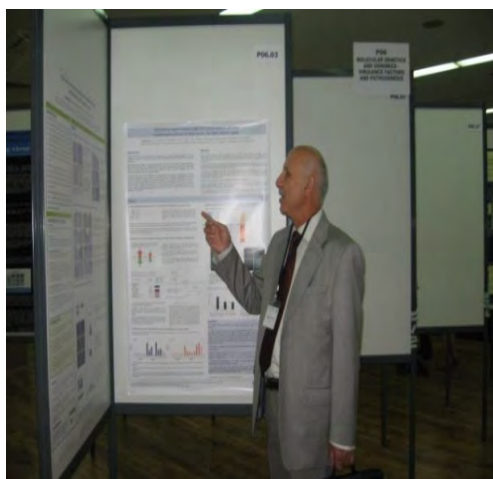
Noteworthy is that the faculty members of the Department, over the past 20 years, have made reports in all the annual scientific conferences of students and young scientists of the ATSMU. The results of their research reported and presented at both plenary and sectional meetings.



Department staff - participants of the scientific and practical annual conference of ATSMU

Professor S.Satorov has repeatedly participated and simposiums infectious and noninfectious diseases. In particular: "Educational Seminar on Avian Influenza", Novosibirsk, Russia, 2008; "International Conference on Helicobacterpylori", Porto,

Portugal, 2009; "Epidemiological Surveillance for Influenza", Ljubljana, Slovenia, 2011; Seminar of WHO Regional Office "Food as a Factor of Infection Transmission", St. Petersburg, Russia, 2011; "Epidemiological surveillance of measles and rubella", Bonn, Germany, 2011; "26th WHO Regional Office for Europe Polio Commission", Copenhagen, Denmark, 2012; "International Symposium on Prevention and Control of Zoonoses in the Central Asian Region", Urumqi, China; WHO Commission Meeting on "Laboratory Diagnosis of measles and rubella", Bishkek, 2012, RK, 2012; "Central Asian Network for Education, Research and Innovation in Environmental Health" (CANERIEH), Gothenburg (Sweden), Tartu (Estonia), Milan (Italy), 2013, Conferences and seminars on Medicinal Plants, Metabolic Syndrome and Non-Communicable Diseases, 2016, 2017, 2018, Washington and New Jersey, USA.



International Conference on Helicobacter pylori, Porto, Portugal, 2009



Participants of the program "Central Asian Network for Education, Research and Innovation in Environmental Health" Milan, 2013

Only for the last of 20 years more than 400 scientific articles in Russian, English and Tajik languages were published by the staff of the department in such journals as: Vestnik Avicenna (RT), Health Care of Tajikistan (RT), Epidemiology and Infectious Diseases, Current Issues (RF), Problems of Dentistry (RF), American Scientific Journal (USA), Journal of Dental and Medical Science (USA), Folia Veterinaria (Slovak Republic), and etc.

The department staff received 5 certificates of authorship (rationalization proposal) and one patent (in co-authorship) for inventions.

Professor S.Satorov is the author and co-author of 4 monographs. He has compiled a textbook on general microbiology for medical students in Tajik language.

Currently there work 17 persons: 1 - professor; 1 - associate professor, 12 assistants. 1 - senior laboratory assistant and 2 - laboratory assistants work at the Department.

Due to retirement, from September 2021 assistant of the department F.Mirzoeva works as acting head of the department.

Mirzoeva Fazila Davlatalievna (born in 1988). She graduated faculty of public health of SEI "Avicenna Tajik State Medical University" in 2013. Between 2013 and 2016 worked in the virology laboratory of the Tajik Scientific Research Institute of Preventive Medicine of the Ministry of Health of Tajikistan. On September 2016 moved to the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" as an assistant and currently performs the duties of the head of the department.



Mirzoeva Fazila Davlatalievna

Her research work mainly involves the study of antibacterial, fungicidal and immunomodulatory properties of

medicinal plants in the regions of Tajikistan. She has first studied biological activity (antioxidant properties and content of polyphenols), as well as correlation between antibacterial properties and content of polyphenols of Representatives of the onion genus, in particular endemic species such as *Allium pamiricum* and *Allium schugnanicum*.

F.Mirzoeva is the author of 35 scientific publications, including 6 articles in peer-reviewed journals of the Republic of Tajikistan and the Russian Federation and 3 methodological recommendations.

She periodically gives reports at annual scientific and practical conferences and conferences of young scientists and students of Avicenna Tajik State Medical University and in various symposiums.

F.Mirzoeva, along with her temporary duties as head of the department, is responsible for international students. She gives lectures and conducts practical classes for students of all faculties in the state, Russian and English languages.

KENJAEVA INOYAT ABLOKULOVNA (born in 1958), candidate of medical sciences, associate professor - enrolled to faculty of general medicine of Avicenna Tajik State Medical Institute in 1975 and in graduated the institute with honors in 1981. She began her professional activity as an assistant of the Department of Microbiology, Immunology and Virology of the same institute.

She was elected to the position of senior lecturer of the department in 1994. She successfully defended her thesis for the degree of candidate of medical sciences on "Species composition and biological characteristics of hospital strains of causative agents of pyoinflammatory diseases" in 2000.

I.Kenjaeva has published 121 scientific articles, one informational letter, and she is the author of five rationalization proposals on medical microbiology. She developed and published 35 methodical recommendations in medical microbiology and virology for students of medical universities, teachers and physicians.



**Kenjaeva Inoyat Ablakulovna -Associate Professor of
the Department**

Inoyat Ablakulovna's research work is devoted to the etiological structure of hospital-acquired infectious diseases (HAIs). While studying the features of HAIs she established that in the inpatient departments of hospitals in Dushanbe since the early 2000s there was a sharp change in the species composition of the etiological structure of the pathology of infectious nature. Established that over the past decades nosocomial strains of microorganisms have become more resistant to commonly used

antibiotics and the incidence of variants with simultaneous resistance to many antibacterial drugs is increasing annually. A special attention was paid to the state of immunity of the population of our country. Her study showed a steady increase in the number of virtually healthy young people with reduced reactivity and low reversibility of these changes, indicating a growing level of susceptibility of the population to pathogenic agents.

Much credit must be given to I.Kenjaeva for the practical health care of our republic. Due to the beginning of the civil war in 1990, many scientific and practical centers and laboratories in our country were left without highly qualified specialists. In this regard, at the request of the management of the Republican Clinical Hospital № 3 (National Medical Center of the Republic of Tajikistan) she began to hold a position of responsible physician of the bacteriological laboratory of this hospital and made an invaluable contribution to the practical health care of our country. She repeatedly participated in field expeditions to provide practical assistance in epidemic areas of intestinal infections.

Over the years of work, I.Kenjaeva has become a competent specialist-bacteriologist with a number of certificates from the WHO on the diagnosis of typhoid and diphtheria (1997), on "Modern diagnostics of infectious diseases, hormones, and oncomarkers (2014)". She completed advanced training course on cycle of "Baclaboratory" at Tajik Institute of Postgraduate Education of Medical Specialists of Dushanbe city in 2001.

I.Kenjaeva has held the position of associate professor of the department since 2001 and for 20 years has been the responsible teacher for the scientific activities of the department's staff and training of young specialists. She is a leading specialist

in the field of microbiology, immunology and virology of our country.

She pays much attention to organization of educational process and preparation of pedagogical staff during 40 years of professional activity and successfully combines scientific work with pedagogical and social activity. She gives lectures and conducts practical classes at the medical, dental, pediatric and public health faculties in the state and Russian languages on a credit-module system using new teaching technologies. She regularly raises her pedagogical level, passed the refresher course for teachers of higher education institutions of the Leningrad Sanitary and Hygienic Medical Institute (1987), received a diploma of a patent specialist at All-Russia Society of Inventors and Efficiency Experts of the Republic of Tajikistan.

I.Kenjaeva actively participates in the public life of the university. She was an academic secretary of the dissertation council on "Epidemiology" and "Hygiene" from 2001 to 2007. She is also a member of the Academic Council of the faculty of public health and the problem commission on theoretical medical disciplines. She is responsible for conducting practical and lecture classes in the state language, science and primary specialization course for physicians in practical laboratories in the cycles of "Medical Bacteriology" and "Virology" at the department. Kenjaeva I.A. participated in drafting work programs for these cycles.

I.Kenjaeva was awarded certificates of merit of the Ministry of Health and Social Protection of the Republic of Tajikistan, the Committee of Trade Unions of the Republic of Tajikistan and trade unions of medical workers of Tajikistan for active scientific, pedagogical, social and practical activities. She

is an "Excellence in public education and science of the Republic of Tajikistan" (2009) and "Excellent Worker of Public Health of the Republic of Tajikistan" (2014).

PARDAEVA GULNORA SAFARALIEVNA, senior lecturer of the department, born in 1969. She graduated medical faculty of Avicenna Tajik State Medical University in 1996. She studied in an internship at the central regional hospital of Vahdat city in 1997 - 1998 years. During the period from 1998 to 2002, she worked as an obstetrician-gynecologist in the rural outpatient clinic "Chillamazor" of Vahdat district. In 2002 was invited to work at the Department of Microbiology, Immunology and Virology in the position of assistant, where she is working now.



Pardaeva Gulnora Safaraliyeva

She performed the duties of the teaching assistant of the department during 10 years and in 2020 she was elected as a senior lecturer for the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University". Pardaeva G.S. is the author of 15 scientific works. She participated

in the development of 56 work programs in the state and Russian languages for all faculties of the Medical University. She is also the author of 8 recommendations for students in general and private microbiology and basis of immunology.

G.Pardaeva constantly improves her qualification level of knowledge. Has completed a specialization course on "Pedagogy" - in 2015, the course of "Effective teacher" - in 2020. She is a mentor to young professionals in the department and is actively involved in the development of practical skills on their part. She also conducts lectures and practical classes in the state and Russian languages at all faculties of the university.

G.Pardaeva is a member of the Academic Council of the Faculty of Pharmacy, supervises the assigned curatorial groups and actively participates in the social life of the University.

TIRANDOZOVA JUMAGUL ISMATULLOEVNA, academic assistant of the department (born in 1983), graduated faculty of general medicine of SEI "Avicenna Tajik State Medical University" in 2008. She worked as a medical representative in the pharmaceutical company "Fortex" from 2008 to 2013. She has been working as an assistant at the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" since 2013 up to now.

J.Tirandozova actively participates in public, methodological and scientific life of the department. She was the head of the student scientific society at the department from 2016 to 2021, held monthly meetings of SSS participants, helped students prepare for scientific conferences. Along with this, she is an active participant of the annual scientific conferences of the medical university.



Tirandozova Jumagul Ismatulloevna

J. Tirandozova has been performing the duties of a teaching assistant in the department since September 2021. She is working on her thesis for the degree of candidate of medical sciences. Her main area of dissertation work includes the study of "Modern etiological composition of causative agents of pyoinflammatory diseases and antibiotic susceptibility of hospital strains circulating in surgical hospitals of Dushanbe". She has 14 published articles and 15 abstracts. She purposefully increases the level of her knowledge by regularly attending lecture classes by experienced faculty members of the department. She gives lectures and conducts practical classes for students of stomatological, therapeutic and preventive, pediatric and medical faculties in state and Russian languages.

RASULOV RAVSHAN NEMATULOEVICH (born in 1979), graduated medical-preventive faculty of SEI "Avicenna Tajik State Medical University" in 2003 on specialty of physician hygienist-epidemiologist. She worked as physician-epidemiologist

in Sanitary-Epidemiological Department of Vahdat city from 2003 to 2005.

R.Rasulov started his pedagogical activity in 2005 as an assistant of the Department of Microbiology, Immunology and Virology at ATSMU, where is currently working. During the years of work at the department has showed himself as a hard-working, goal-oriented specialist. Conducts practical and lecture classes in the state language on the course of immunology, private and general microbiology. Actively involved in the development of work programs and working "Syllabuses" on credit-module system of training in the state language. He has developed methodological recommendations on the topics: "Immunobiological preparations", "Effects of physical, chemical and biological factors on microorganisms", "Pathogenic microorganisms".

He passed the cycle on: "Program for teachers with work experience more than 5 years" in the Center of professional development and retraining at SEI "Avicenna Tajik State Medical University" in 2012 in order to improve pedagogical qualification, in 2009 - cycle of improvement of professional training on specialty "Microbiology" on the base of Tajik Institute of Postgraduate Education of Medical Specialists. On the same base in 2013 passed a cycle of advanced training on the program "Information technologies". At the Federal State Research Institution Central Scientific Research Institute of Epidemiology of Rospotrebnadzor (Russian Federal State Agency for Health and Consumer Rights) on "PCR - diagnosis of infectious diseases" within the international cooperation in the fight against tropical diseases between the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Russian Federation) and the Ministry of Health of the Republic of

Tajikistan; Participated in the VII All-Russian Scientific Conference with International Participation "Molecular diagnosis -2010", Moscow, SC "Cosmos", 2010. In 2010 on the basis of Tajik Scientific Research Institute of Preventive Medicine on the course "Enzyme multiplied immunoassay". In 2020 passed the course "Effective Teacher".



Rasulov Ravshan Negmatulloevich

R.Rasulov has an active involvement in the social life of the department and the university. He supervises the attached curatorial groups and is responsible for the economic part of the department.

R.Rasulov performs joint work with the Scientific Research Institute of the Republic of Tajikistan on nutrition on the topic: "Malnutrition among children aged 6 months to 5 years". He is the author of 27 scientific articles and 6 theses.



Staff of the Department of Microbiology, Immunology and Virology and guests from Bukhara Medical University, Dushanbe, 2018

SODIKOVA MAVZUNA MAHMADSHARIFOVNA, (born in 1990). She graduated medical faculty of SEI “Avicenna Tajik State Medical University” in 2015 majoring on "General Medicine". She completed her clinical residency at Avicenna Tajik State Medical University on the basis of the urological center at the National Medical Center from 2016 to 2018 and completed a full course on specialty of "Urology".

M.Sodikova has been working as an assistant at the Department of Microbiology, Immunology and Virology of Avicenna Tajik State Medical University since 2018 up to now.

M.Sodikova is the author of 14 scientific articles and theses. The main direction of her research activity involves the

study of the etiological structure of pyoinflammatory diseases of the urogenital area.



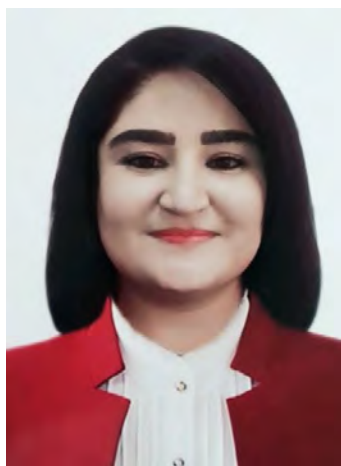
Sodikova Mavzuna Mahmadsarifovna

According to the results obtained, she periodically gives scientific reports at the annual scientific-practical conferences and conferences of young scientists of the university. Being a young specialist, she constantly improves her pedagogical and scientific level of knowledge. Regularly attend classes of experienced teachers of the Department. Conducts practical classes for students of all faculties in the state and Russian languages. Has passed the cycle of improvement of pedagogical qualification on program "Effective teacher" for improvement of pedagogical qualification of teachers of higher and secondary medical educational institutions in 2020.

VOSIEVA NASIBA YUSUFSHOEVNA (born in 1989), graduated faculty of public health of SEI "Avicenna Tajik State Medical University" in 2012. She worked as a senior laboratory

assistant in the Department of Microbiology, Immunology and Virology in SEI "Avicenna Tajik State Medical University" from 2018 to 2019. On September 2020 she was appointed as an assistant of the department.

Periodically participates in scientific conferences of the university. She conducts practical classes with students in all faculties, in state and Russian languages. Constantly improves her professional level by regularly attending practical and lecture classes of experienced professors.



Vosieva Nasiba Yusufshoevna

She participates in the development of students' independent work on the credit-module system of learning and their introduction into a unified computer system. She has prepared exam tests and situational tasks in the sections "Immunology" and "Private microbiology", developed methodological recommendations "Immunity, history of immunology development. Classification of Immunity" and "Non-spore-

forming anaerobes". N.Y. Vosieva is the author of 4 scientific articles and theses.

NOSIROVA FAIZIYA SIROJIDINOVNA (born in 1993), graduated faculty of public health of SEI "Avicenna Tajik State Medical University" in 2018. She underwent internship at the Department of Epidemiology of SEI "Avicenna Tajik State Medical University" since 2018-2019 and received a diploma in "Epidemiologist, hygienist and public health organizer". She moved to work to a position of assistant of the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" on February of 2020.



Nosirova Faiziya Sirojidinovna

F.Nosirova is actively involved in scientific and research work of the department, she is the author of 5 published scientific works. Actively participates in annual scientific-practical conferences of the university.

F.Nosirova conducts educational and methodical work, conducts practical classes with students of all faculties on the

course of private and general microbiology. She showed herself as hardworking, responsive and actively involved in the development of students' independent work on the credit-module system of training and their introduction to a unified computer system. She has developed methodological recommendations for the sections: "Respiration of microorganisms", "Spore-forming anaerobes", "Human body microflora", "Antigens, their property and classification".

KHUSEINOVA SHIFO DAVRONOVNA (born in 1995), graduated faculty of general medicine of SEI "Avicenna Tajik State Medical University" in 2018. She underwent clinical residency in the period from 2018 to 2020 at State Educational Institution "Institute of Postgraduate Education in Health Care of the Republic of Tajikistan", under the Ministry of Health and Social Protection of Population of the Republic of Tajikistan, majoring on "Obstetrics and Gynecology". She holds a position of assistant of the Department of Microbiology, Immunology and Virology in SEI "Avicenna Tajik State Medical University" since September 2020.

Sh.Khuseinova is the author of 5 scientific works. She periodically gives reports at annual scientific conferences of the university and in 2017 was awarded the 2nd degree diploma for the best report at the XII scientific-practical conference of young scientists and students of ATSMU with international participation "Role of youth in the development of medical science", dedicated to the "Year of Youth". As a young specialist, constantly improves her pedagogical and scientific level of knowledge. She regularly attends classes of experienced teachers of the department.

She provides practical classes for students of all faculties in state and Russian language, as well as in English language for foreign students of medical faculty.



Khuseinova Shifo Davronovna

ALINAZAROVA SHAKHNOZA MUZAFAROVNA (born 1994), graduated faculty of public health of SEI "Avicenna Tajik State Medical University" majoring on "Epidemiologist, hygienist and organizer of public health" in 2018. She underwent an internship in the State Center for Sanitary and Epidemiological Surveillance of GBAO between 2018 and 2019 and simultaneously worked as a physician-epidemiologist in the Regional Centre for prevention and control of HIV infection.

She worked as Head of the Department of "Specially Dangerous Infections" at the State Center for Sanitary and Epidemiological Surveillance in GBAO between 2019 and 2020. Sh.Alinazarova is an assistant of the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" since 2020 to now. She regularly presents scientific

reports at annual scientific-practical conferences and conferences of young scientists of the University. As a young specialist, constantly improves her pedagogical and scientific level of knowledge. Regularly attend classes of experienced teachers of the Department. She conducts practical classes with students of all faculties in the state and Russian and English languages. She is the author of 3 scientific articles and theses



Alinazarova Shakhnoza Muzaffarovna

She worked as Head of the Department of "Specially Dangerous Infections" at the State Center for Sanitary and Epidemiological Surveillance in GBAO between 2019 and 2020.

Sh. Alinazarova is an assistant of the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" since 2020 to now. She regularly presents scientific reports at annual scientific-practical conferences and conferences of young scientists of the University. As a young specialist, constantly improves her pedagogical and scientific level of knowledge. Regularly attend classes of experienced teachers of

the Department. She conducts practical classes with students of all faculties in the state and Russian and English languages. She is the author of 3 scientific articles and theses.

TURAZODA PARVIZI MIRZOAMIN (born in 1991), graduated faculty of public health of SEI "Avicenna Tajik State Medical University" in 2016. He has worked as an epidemiologist at the State Sanitary Epidemiological Center of Sino district from 2016 to 2017.



Turazoda Parvizi Mirzoamin

P.Turazoda started his pedagogical activity as an assistant of the Department of Microbiology, Immunology and Virology of Avicenna Tajik State Medical University in 2017, and still works there. He conducts practical and lecture classes in the state language in the course of immunology, private and general microbiology. He was actively involved in the development of work programs and working "Syllabuses" on credit-module system of training in state language. He is responsible for educational work in the department. He passed a specialization course on

"Effective Teacher" course in 2020. Also, has successfully completed a professional development course on "Laboratory research at COVID-19" in 2021 on the basis of the Center of development of professional qualification of health workers of the Ministry of Health of the Republic of Uzbekistan. He is the author of 11 scientific articles and 8 theses.

SHAFIEV BEHZOD RASULBERDIEVICH, graduated general medical faculty of SEI "Avicenna Tajik State Medical University" in 2016. He underwent clinical residency at the Urology Center at the National Medical Center and completed a full course majoring on "Urology" between 2016 and 2018. He worked as an assistant at the Department of Microbiology, Immunology and Virology of SEI "Avicenna Tajik State Medical University" from 2018 to 2021.



Shafiev Behzod Rasulberdievich

RASULOVA MANZURA MUKIMJONOVNA (born in 1991), graduated faculty of general medicine of SEI "Avicenna Tajik State Medical University" in 2008 majoring on "General medicine". She had an internship in SEI "Institute of Postgraduate

Education in Health Sphere of Republic of Tajikistan" under the Ministry of Health and Social Protection of Population of the Republic of Tajikistan majoring on "Allergology and Immunology" in 2014-2015.

M.Rasulova is working at the Department of Microbiology, Immunology and Virology as an assistant of the department since 2016 up to present. She conducts practical classes in all faculties. Also, conducts lectures and practical classes in English for foreign students - bachelors of medical faculty. She is the author of 4 scientific articles and 3 guideline papers for practical lessons on "Immunology" and "Physiology of microorganisms".

It is to be noted that a large number of assistants worked in the department during the period from 2000 to 2020. However, due to some objective and subjective reasons, many of them could not continue their professional activities in the department.

SAIDOV KHURSHED MIRZOKARIMOVICH, candidate of medical sciences, associate professor (1969 Vahdat city - 2021 Vahdat city), graduated faculty of general medicine of Avicenna Tajik State Medical Institute in 1993. He was a resident doctor at Central District Hospital of Vahdat city from 1993 till 1994. He worked as a surgeon at the same hospital from 1994 to 2000. He was elected as assistant of the Department of Microbiology, Immunology and Virology of Avicenna Tajik State Medical University in 2000.

Kh.Saidov was active in the scientific field and defended his thesis for the degree of candidate of medical sciences on "Microbiological and genetic characteristics of pustular skin pathogens" in 2006. He is the author of more than 50 scientific works. He taught practical and lecture classes in all faculties in the state and Russian languages during his work in the department. He

was the responsible assistant for the Faculty of Dentistry during his work in the department and developed methodological recommendations on the topics "Oral microflora and pyoinflammatory diseases of the oral cavity".



Saidov Khurshed Mirzokarimovich

He moved to the position of Deputy Director for Scientific Work at the Tajik Research Institute of Preventive Medicine of the Ministry of Health of the Republic of Tajikistan in 2014.

Kh.Saidov has been awarded "Excellent Worker of Public Health of the Republic of Tajikistan".

AKHMEDOVA GULNORA MAKHMUDJANOVNA was born in 1970 in Dushanbe. She entered pediatric faculty of Avicenna Tajik State Medical Institute in 1987. She graduated with honors from the pediatric faculty of the said university in 1993 majoring on "Pediatric physician". She attended clinical residency at the Department of Pediatric Diseases for subordinates in 1994.

She completed her residency in 1997 and was retained as an assistant of the department.

She was recruited as an assistant to the Department of Microbiology, Immunology and Virology since October 1998. She gave practical classes and lectures to students of general medicine, dental and pharmaceutical faculties. G.Akh-



Akhmedova G.M. – assistant of the Department

medova G.M. had an active participation in practical lessons and lectures of experienced teachers. She and other assistants of the department were engaged in the translation of guideline papers for foreign students.

G.Akhmedova was an external doctorate student of the Department of Microbiology, Immunology and Virology of ATSMU since 2003. She was the first in Tajikistan to conduct microbiological research of campylobacteriosis on the base of laboratory of the department. Her dissertation work for the degree of candidate of medical sciences "Etiological role of

campylobacter in the structure of acute bacterial intestinal infections of children in Tajikistan" (2006) was devoted to the actual scientific problem: to determine the specific weight of Campylobacter in the etiological structure of acute intestinal infections, to study the specific weight of these bacteria in the structure of acute intestinal infections in different age groups, to characterize the microbiological pathogen, including sensitivity of isolated strains to antibacterial drugs and to improve bacteriological research on Campylobacter in the Republic of Tajikistan.

G.Akhmedova first established that campylobacteriosis infection in Tajikistan is characterized by specific epidemiological parameters. She has shown that campylobacteriosis infection most often affects children under 1 year old in Tajikistan. The study of biological characteristics of isolated Campylobacter strains revealed that the cultures of these microorganisms are characterized by high adaptive properties, the presence of pathogenicity factors and the presence of resistance to such active anticampylobacter drugs as erythromycin and ciprofloxacin, which determines their ability to induce the infection process and participate in the pathogenesis.

G.Akhmedova is the author of more than 40 scientific articles. There have been prepared guideline papers for students and teachers on the following topics: "Campylobacter family bacteria", "Hepatitis viruses" "Herpes viruses", "Oncogenic viruses", "Human immunodeficiency virus", "Genetics of microorganisms" in Russian language, as well as developed methods of diagnostics of campylobacter infection in conditions of Tajikistan, which have been reflected in the information letter "Microbiological methods of campylobacteriosis research".

G.Akhmedova worked as Deputy Director of scientific and publishing work of Tajik Scientific Research Institute of Preventive Medicine from 2009 to 2012. In this capacity, she did a lot for retention and training of scientific experts in various fields of preventive medicine.

G.Akhmedova was actively involved in social activities of both the Research Institute of Preventive Medicine and ATSMU, where she performed the duty of secretary of the Problem commission for theoretical medical disciplines for a long time.

Akhmedov's family moved to Kaliningrad, Russian Federation in 2013. Gulnora Makhmudjanovna continues her work there as Head of the bacteriological laboratory at the TB Dispensary in Kaliningrad region.

KHOLOV SAIDBEG BOYEVICH (1961, Faizabod district - 2021, Faizabod district), was admitted to pediatric faculty of Avicenna Tajik State Medical Institute in 1982. He served in the ranks of the Soviet Army in 1987 to 1989 and after service continued his studies at the Medical Institute. He graduated the Institute in 1992 majoring on "Pediatric physician".



Kholov Saidbeg Boyevich

After graduating from medical institute, Kholov S.B. worked as an Infectious Disease Physician at the infectious diseases hospital in Roghun from 1992 to 2000. He simultaneously combined practical work with pedagogical activities at the Roghun branch of Medical School of Dushanbe city on microbiology and infectious diseases. He was recruited as an assistant to the Department of Microbiology of ATSMU in 2000, where he had worked until 2002. Kholov S.B. has mastered methodology of teaching practical lessons of microbiology, immunology and virology during years of work at the department and became one of the perspective pedagogical staff. He moved to another job in 2002 due to family reasons.

URMANOVA ZAMIRA KHOLJURAEVNA, born in 1970, was admitted to the pediatric faculty of ATSMU in 1987, and successfully graduated the university in 1993 majoring on "Pediatric physician". She worked as a pediatric physician in Children's Polyclinic № 14 between 1993 and 1996.

Z.Urmanova worked as an assistant at the Department of "Microbiology, Immunology and Virology" of ATSMU beginning from 1996 to 2014. Then, she worked at City Medical Center №14 as a Head of Laboratory since 2014 to 2017. She returned to the department again and worked as a department assistant from 2017 to 2021.

She taught practical and lecture classes in all faculties in the state and Russian languages during her work in the department. She was a teaching assistant in the department and actively participated in the pedagogical activities of the department, as well as educating young professionals, simultaneously improving her pedagogical and scientific potential.



Z.Urmanova conducts practical classes with students of the 3rd year of faculty of general medicine



Z.Urmanova (2nd from left) advising young department assistants

Urmanova Z.Kh. was active in the scientific field and carried out scientific work on the section: "Modern etiological structure of pyoinflammatory diseases of gynecological patients". There has been set up microbiological diagnostics of non-sporulating anaerobes, modern molecular-genetic diagnostics (PCR method) of herpesvirus, chlamydia and ureoplasmosis infections at the department with her direct participation.

Z.Urmanova has actively participated in national and international seminars and has the following certificates: "Laboratory diagnosis of anthrax", Dushanbe, 2007; "Enzyme multiplied immunoassay", Dushanbe, 2009; "Molecular genetic testing of infectious diseases (PCR)", Moscow, 2010. She participated actively in an international conference in Yerevan on "Probiotics" in 2010; a seminar on "Improvement of the specialty in the educational process", held in 2010. She also underwent specialization in advanced PCR diagnostics of infectious and noninfectious diseases at the Scientific Research Institute of "Epidemiology" in Moscow in the same year.

Z.Urmanova is the author of 35 scientific works, as well as has prepared 12 educational-methodical papers for practical classes, training programs for all faculties. She was actively involved in public life of the university and the department, simultaneously was the curator in the assigned groups, enjoyed the respect of the staff and students of the university.

Z.Kholjuraevna moved to Moscow, Russian Federation, on September 2021 due to family reasons.

GAZIEVA NIGORA SAIDJANOVNA, born in 1970. She admitted to pediatric faculty of Avicenna Tajik State Medical University in 1987. She successfully graduated Medical Institute in 1994 majoring on "Pediatric physician". She worked in a

capacity of an assistant at the Department of Microbiology, Immunology and Virology of Avicenna Tajik State Medical University since 2000 to 2014.



Gazieva Nigora Saidjanovna

In a capacity of an assistant of the department, during her work activity has conducted practical classes, lectures in all faculties in the state and Russian languages and actively participated in pedagogical activities of the department. She was actively involved in the development of the curriculum in immunology and microbiology for the general medicine and pediatrics faculties.

N. Gazieva conducted research work and her scientific activity was mainly focused on studying the modern etiological structure of bacterial vaginosis. She is the author of 10 scientific works and 4 educational and methodological papers for students.

ASHUROVA ZEBUNISO JAMOLOVNA (born in 1971). She graduated veterinary faculty of Tajik Agrarian University in 1993 majoring on "Veterinary Medicine".

She enrolled in graduate school at State Academy of Veterinary Medicine and Biotechnology of K.I. Scriabin in 2002 and successfully conducted scientific work in the Laboratory of Biotechnology and Infection. She worked as an assistant of the department from 2014 to 2016.



Ashurova Zebunisso Jamalovna

She joined the department of "Functional Diagnostics and Clinical Laboratory" at the Medical Faculty of the Tajik National University in 2016, where she currently holds the position of the head of the department.

ZIYOEVA OYDINOI IBODULLOEVNA (1958 - 2020), graduated pediatric faculty of SEI "Avicenna Tajik State Medical University" in 1982. She was recruited to work at the Department of Microbiology, Immunology and Virology, as an assistant in 2007, where she worked until 2017. She has published 8 scientific works during the years of work at the department.



Ziyoeva Oydinovi Ibodulloevna

KHOLMURODOVA ZEBOGUL ABDULKHAIROVNA (1964), graduated pediatric faculty of Avicenna Tajik State Medical Institute in 1990. She underwent internship in 1990-1991 on the base of City Clinical Emergency Hospital of Dushanbe city, under the medical institute. She worked as a Pediatric physician in Children's Polyclinic № 10 of Dushanbe city from 1991 to 1992.

Z.Kholmurodova started her pedagogical activity in 1992. She was recruited as an assistant at the Department of Microbiology, Immunology and Virology of Avicenna Tajik State Medical Institute, where had worked until 2012.

MISKINOVA FARZONA KHUJANAZAROVNA born in 1988. She enrolled at faculty of public health of SEI "Avicenna Tajik State University" in 2007 and graduated in 2013 having obtained a diploma on specialty of "Epidemiologist, hygienist and organizer of public health".

She held a post of an assistant at the department from 2014 to 2021, taught practical classes at the pediatric, medical and public



F.Miskinova

health faculties in Russian, Tajik and English languages. She is the author of 10 published works and 2 guidance papers in English language. She has participated in the preparation of the work program for foreign students of the 3rd year of medical faculty.

DEVLOKHIEVA KHUSNAFRUZ ASKARSHOEVNA, born in 1976. She graduated pediatric faculty of SEI "Avicenna Tajik State Medical University" in 2000 majoring on "Pediatric physician". She was accepted as an assistant of the Department of Microbiology, Immunology and Virology in 2001, where she worked up to 2006. Then, between 2006 and 2012, she worked in the medical institutions of the health department of Dushanbe city as a practicing physician. She completed her internship at the Department of Pediatrics of Avicenna Tajik State Medical University in 2019, and concurrently she combined her studies with work at the Department of Microbiology until 2021. She is

the author of 11 scientific works and 4 guidance papers on practical classes in Russian and state languages.

RAKHMATULLOEVA MUKHABBAT, (born in 1976). She graduated faculty of general medicine of SEI "Avicenna Tajik State Medical University" in 2000 majoring on "Obstetrician-gynecologist". She underwent an internship at Maternity Hospital № 2 in Dushanbe city from 2000 to 2001. She worked as an obstetrician-gynecologist physician at the Danghara central regional hospital during 2001-2004. She was appointed as an assistant to the department in 2005.

She is the author of 12 scientific articles and 4 methodological recommendations in the state language.

M. Rakhmatulloeva moved to India for permanent residence in 2012.

SCIENTIFIC RESEARCH WORK AND TRAINING OF SCIENTIFIC-PEDAGOGICAL AND PRACTICAL STAFF

The department has carried out scientific research work on the following topics in recent years:

1. Microbiological and molecular genetics monitoring of nosocomial infections and hospital strains in Tajikistan (Head - doctor of medical sciences, Professor S.Satorov).
Duration: 2014 – 2016
2. Molecular and genetic monitoring of methicillin-resistant staphylococci circulating in hospitals of different profiles in Dushanbe (Head - doctor of medical sciences, Professor S.Satorov)
Duration: 2016 - 2018.

3. HLA system: infectious and noninfectious diseases.
(Head - doctor of medical sciences, Professor S.Satorov).
Duration: 2016 - 2018.

The results of research within the framework of the above projects are presented in more than 300 papers, including 25 articles in the journals indexed in the Web of Science database or in the VAK journals of the Russian Federation and the Republic of Tajikistan in Russian and English and published 2 monographs.

The department prepares scientific and pedagogical staff in the form of postgraduates, masters and interns, prepares scientific specialists both from its own staff and in cooperation with other departments of the medical university.

Currently, acting head of the department F. Mirzoev has completed her dissertation and passed the primary defense (approbation). Her dissertation work focused on topical issues of modern medicine, i.e., the search for new natural sources of compounds possessing antibacterial, fungicidal and immunomodulatory effects.

The dissertation work of J.Tirandozova, teaching assistant of the department, is of great interest. Her scientific research activity is focused on studying the modern etiological structure of causative agents of pyoinflammatory diseases of surgical patients.

At the department, the laboratory part of their dissertations performed by S. Yuldasheva, postgraduate student of the department of ophthalmology performed the laboratory part of her dissertation work on the topic: "HLA B-27 immunological status of patients with uveitis" (scientific supervisor - associate professor H.Karim-Zade and scientific advisor doctor of medical sciences, Professor S.Satorov); correspondence postgraduate student of the

Department of Pediatrics L.Jumaeva on "Features of course and treatment of bacterial pneumonia in newborns and children of the first year of life" (scientific supervisor - doctor of medical sciences, Professor K. Ismoilov and scientific advisor doctor of medical sciences, Professor S. Satorov); the external doctorate student of orthopedic stomatology department M.Makhmudov on "Integrated assessment of impact of dental prosthesis constructions on paradontium" (scientific advisor - candidate of medical sciences, associate professor S.Zaripov and scientific advisor doctor of medical sciences, professor S.Satorov) .



M.Makhmudov



L.Jumaeva

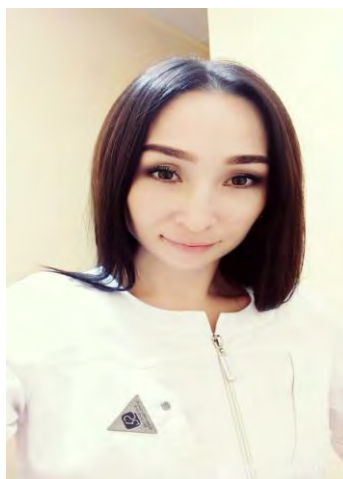
At this stage postgraduate students of pharmaceutical direction perform their dissertation research at the department. In particular, a full-time postgraduate student of the department of pharmacognosy S. Mavlonazarova (research supervisor - doctor of philosophy, Professor S.Yusufi and doctor of medical sciences, professor S.Satorov) is preparing to approve the topic of her dissertation. Her scientific research work is directed to the study of

antioxidant and antiviral activity of endemic ferula species - *Ferula Kuhistanica*.

The Department has opened a master's degree program beginning in 2018-2019 academic year. The first student of this level of professional education was Maftuna Rakhimova, a graduate of faculty of public health of SEI "Avicenna Tajik State Medical University", who successfully defended her master's thesis on " Antibacterial, antifungal properties of Anzur onion, growing in Tajikistan" in 2020.



S.Mavlonazarova



S.Yuldasheva

Currently, the holders of a master's degree of the 2nd year are 3 more graduates of faculty of public health: G.Kholova M.Ismoilova and J.Kholboboev Since 2020-2021 academic years, taking into account requirements of the Republic of Tajikistan in preparation of experts in the field of infectiology there is organized primary postgraduate specialization - internship, on specialty

virology at the department. This academic year, 5 graduates of medical faculty of Tajik National University were accepted for training: M.Kahorova, Sh.Saidmurodova, F.Makhsumova, M.Nuralizod, M.Tagoeva and one graduate of "Avicenna Tajik State Medical University" - M.Mirzonazar. Besides, 3 medical university graduates - Y. Miralibekova, H. Sadulloeva and Y. Abdullozoda are admitted for 2021-2022 academic year.



M.Rakhimova



G. Kholova



J.Kholboboev



M. Ismoilova



Associate Professor I.Kenjaeva gives a practical lesson to interns of the department

The Department has a Student Scientific Society (SSS). The group of 8 to 10 students is formed annually from the number of willing students, who under the guidance of their supervisors master microbiological, serological and virological methods of scientific research, do some work on topics they are interested in and their research results are reported on the annual scientific conferences of students and young scientists of SEI "Avicenna Tajik State Medical University".

EDUCATIONAL AND PEDAGOGICAL ACTIVITIES AND EDUCATIONAL WORK

The department now prepares students of medical, pediatric, preventive medical, dental and pharmaceutical faculties in the following disciplines: microbiology, virology, immunology.

The microbiology discipline has its own specific features: first of all - classes are held in conditions as close as possible to the

organization and equipment of a practical laboratory. Secondly, under the control of the teacher, strictly observing safety rules, using methodical instructions, students independently prepare the preparations - smears, staining, microscopy and study the morphology of microorganisms.

The issue of profiling and optimization of the educational process is given great importance. Modern methodological approaches to teaching and control are widely used in lectures and practical classes. The methods of conducting practical classes, individual work with students, as well as independent work of students during after-hours activities are constantly being improved. There is an excursion in the field of mixed theoretical and clinical disciplines, including general hygiene, epidemiology, physiology, pathophysiology, infectious diseases, skin venereology, etc. for the purpose of integration on lectures.



Faculty members of the Department of Microbiology, Immunology and Virology, Dushanbe, October, 2021

Particular emphasis is placed upon the organization and conduct of practical classes, equipping the student's workplace with microscopes, a spirit-lamp, and sets of necessary equipment. Each new topic is discussed weekly at the departmental meeting, drawing the teachers' attention to current scientific achievements on the given problem. The newest scientific achievements in the field of microbiology, immunology and virology are discussed regularly at the departmental meetings; the conferences with the teachers' abstracts are held, which contributes to the improvement of theoretical training of the department's teaching staff.

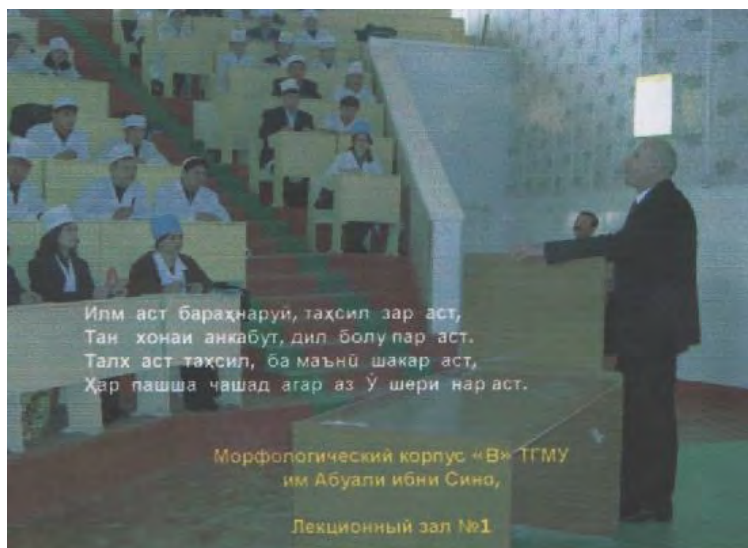


Associate Professor I. Kenjaeva and department staff are discussing the upcoming topic of the practical lesson during a department meeting

In rebuilding of the educational process on the module-credit system, there are introduced working programs,

methodological recommendations on practical classes, thematic situational tasks and tests in electronic website of the university according to the curriculum of each faculty, taking into account the specifics.

Lectures are read by professor, associate professor of the department and experienced teachers with experience of more than 5 years, including - Professor S.Satorov, associate professor I.Kenjaeva, senior lecturer G.Pardaeva, F.Mirzoeva, J.Tirandozova, R.Rasulov. The lecture classes are held with the use of multimedia. There are electronic versions of presentations of lectures, thematic videos on sections of general and private microbiology, immunology and virology on each lesson. About 400 to 600 students daily attend the department and practical classes are held in 3 shifts.



Professor S. Satorov gives a lecture to students of the 3rd year of faculty of general medicine

There are allocated priority sections for each faculty in the curricula and plans for lectures and practical classes: for medical and prophylactic - sanitary microbiology, for dental - oral microbiology, for pharmaceutical - microflora of medicinal raw materials, for medical and pediatric - general questions of medical microbiology, virology and mycology, the clinical significance of conditionally pathogenic and highly pathogenic microorganisms, microbiological and molecular-genetic diagnosis of human infectious diseases.



F. Mirzoeva is conducting a practical class with students from India

The department also conducts practical and lecture classes in English for foreign students at medical faculty. The responsible teachers are F.Mirzoeva, Sh.Husseinova and Sh.Alinazarova. They prepared working programs, methodological recommendations on practical lessons, a short course of lectures according to the

thematic plans of classes on credit-module system, for students - bachelors of medical faculty.



F. Mirzoeva and students from India



M. Fakhruddin



Z. Mirzoeva



Z. Bobonazarova

The quality of teaching and achievements of the department directly depend on the coordinated work of teaching and support staff. Senior laboratory assistant - M. Fakhruddin, and laboratory assistants - Z. Bobonazarova and Z. Mirzoeva are qualified specialists who give much effort to the organization of the educational process and scientific work.

The great attention is paid to social and political upbringing of university students at the department. The work is carried out with the attached curatorial groups and students of academic groups, there is annually developed departmental plan of ideological - educational work in accordance with the general plan of the university education department, based on which each curator has his individual work plan.

There are organized curatorial lessons and discussed topics of important due to political and educational significance, including "Role of the Founder of Peace and National Unity, Leader of the Nation, President of Tajikistan Emomali Rahmon in Creating Peace and Unity of the Nation", "Achievements of the Republic of Tajikistan in the Years of National Independence", "Constitution Day", "Reconciliation and National Unity Day", "State Language Day" on a weekly basis in the framework of the implementation of the plans set forth by the plan.

Navruz is one of the oldest holidays of the Tajik people and is celebrated on March 21, and is considered the day of the equinox and the beginning of spring. Under the initiative of the Leader of the Nation, the Founder of Peace and National Unity, the President of the Republic of Tajikistan Emomali Rakhmon, Navruz was declared as an international holiday at the UN meeting on February 19, 2010 and annually it is celebrated in many countries of the world, including Tajikistan, Uzbekistan, Iran, Azerbaijan,

Turkmenistan, Kazakhstan, Kyrgyzstan and Turkey. Every year in Tajikistan Navruz is celebrated with enormousness.

The Medical University also hosts Navruz celebrations, and the department's staff, along with the students of the curatorial groups has an active participation in it. They set up a festive dastarkhan (table), with a demonstration of the traditional "Haftsin" and "Haftshin".



Department assistants are on duty in student dormitories on a monthly basis according to the approved plan of the Vice-Rector on educational work, where they get familiar with the living conditions of students. There are also weekly educational activities with students during lectures and practical classes.

In conclusion, the Department staff members express their sincere appreciation to those professors and specialists who

contributed their invaluable services to the organization of the Department of Microbiology and the creation of the school of microbiology - the basis of infectiology in Tajikistan.

The present staff of the department will remember and transmit to the younger generation the valuable contribution of the teaching staff, thanks to whom was formed and is operating the present Department of Microbiology, Immunology and Virology.



Department staff at the Navruz festive dastarkhan

Department assistants are on duty in student dormitories on a monthly basis according to the approved plan of the Vice-Rector on educational work, where they get familiar with the living conditions of students. There are also weekly educational activities with students during lectures and practical classes.

In conclusion, the Department staff members express their sincere appreciation to those professors and specialists who contributed their invaluable services to the organization of the Department of Microbiology and the creation of the school of microbiology - the basis of infectiology in Tajikistan.

The present staff of the department will remember and transmit to the younger generation the valuable contribution of the teaching staff, thanks to whom was formed and is operating the present Department of Microbiology, Immunology and Virology.

The Department staff members will make every effort to continue the succession of experience focused at educating young specialists in the field of infectiology, in particular microbiologists, virologists and immunologists of our republic.