

Meetings

Virology: United States-Soviet Health Exchange Visit 1967

In September 1967 a group of U.S. virologists visited the Soviet Union under the terms of the U.S.-Soviet Health Exchange. During its stay in the Soviet Union from 10 to 30 September the group was accompanied by Dr. Felix Yershov and Mrs. Kira Fomina of the Ivanovsky Institute of Virology, Moscow. Mrs. Fomina and Dr. Yershov acted both as guides and interpreters. We visited the Gamaleya Institute, the D. I. Ivanovsky Institute of Virology, the Institute of Molecular Biology, the Institute of Poliomyelitis and Viral Encephalitis, and the Institute of Experimental and Clinical Oncology at Moscow; the Institute of Experimental Pathology and Therapy of the U.S.S.R., Academy of Medical Sciences at Sukhumi, Georgia, the Institute of Microbiology, Riga, Republic of Latvia; and the Institute of Oncology and the Institute of Experimental Medicine, Leningrad. Members of our group presented a joint seminar at the Gamaleya Institute, Moscow, on 21 September and at the Kirchenstein Institute, Riga, on 26 September. In addition, S. Kit presented a lecture on 15 September to the biochemistry department of the Institute of Experimental and Clinical Oncology, Moscow. At each of the institutes the members of our group had the opportunity for discussions of their own experimental results and of Soviet research findings with investigators at each of the laboratories. The exchange of scientific information both at seminars and in informal conversations was open and objective. This report presents some general conclusions formed, and a brief listing of the current activities underway at each of the above institutes as disclosed during the very rewarding visit.

The control of infectious diseases has posed a major problem for Soviet science. The vastness of Soviet territory, the variety of its ethnic groups, and the dislocations of people and destruction of property incurred in World War II all increased the dimensions of the problem. That this problem has been

contained, if not yet fully mastered, is largely the result of the labors of medical leaders such as M. Chumakov, O. Baroyan, V. Zhdanov, and A. Smorodintsev. Our group visited with each of these and other leading virologists such as N. P. Mazurenko, G. J. Svet-Moldavsky, B. A. Lapin, G. I. Deichman, I. S. Irlin, I. N. Kriukova, V. Agol, A. Altstein, A. M. Diadkova, Vasiliev, and Prokofieva-Belgovskaya.

Our group was composed of virologists with a major interest in viral oncology. We formed the opinion that research in viral oncology, although actively engaged in by some of these researchers, is still secondary to control of infectious diseases.

Medical schools in the Soviet Union are organizationally quite distinct from the universities. Medical sciences report to the Academy of Medical Sciences which is a body distinct from the Academy of Sciences. It is difficult for a visitor to gauge the relative status of these bodies and their possible relevance in the progress of medical science. It does appear pertinent to inquire as to the extent to which such a separation influences the progress of virology, which particularly requires an interplay of quite sophisticated chemistry and physics against a broad background in biological science. Our group did observe that the scientists in the institutes near Moscow were in some instances cooperating across organizational structures through collaborations based either in Moscow State University or in the Institute of Molecular Biology at Moscow.

The Institute of Molecular Biology at Moscow appears well equipped with the physical instrumentation required for the molecular elucidation of biological processes. There appeared to be fewer modern physical instruments at other institutes. However, the Ivanovsky Institute of Virology at Moscow appeared to be undergoing reorientation toward a greater emphasis on molecular processes.

The Soviet virologists have access to the world literature on virology and foreign journals seem to be available promptly on publication. In one instance

details were quoted from an American publication which had appeared after our group's departure from the United States. However, in some instances scientists at various institutes around Moscow did not show a comparable knowledge of each other's work. Such a situation, however, is not entirely unknown in the United States.

During visits to the various institutes our group was supplied with considerable literature on recent developments in Soviet virology. These are listed in the bibliography of this report, and they have been deposited at the National Library of Medicine, Bethesda, Maryland.

The current status of Soviet research on infectious viruses is reflected in the various compendia of reports on enteroviruses, arboviruses, and rabies, published by the Institute of Poliomyelitis and listed in the bibliography. Interferon has been the subject of considerable research at several institutes including the Institute of Poliomyelitis, the Ivanovsky Institute of Virology, and the Kirchenstein Institute. Amino-adamantine and its analogs are being evaluated in the prophylaxis of influenza at the Kirchenstein Institute, Riga; the Institute of Experimental Medicine, Leningrad; and at the Institute of Virology, Moscow.

The visit to the Institute of Experimental Pathology, Sukhumi, Georgia, was of special interest in view of a preliminary report by Lapin and his co-workers (*12c*) on the development of a disease resembling an aleukemic leukemia in macaque monkeys after inoculation of blood from humans with various forms of leukemia. Such a report acquires particular importance from the intensive efforts currently underway in the United States and elsewhere, which are aimed at determining the possible viral etiology of human leukemia. Lapin informed the visitors that he has successfully transmitted the disease from monkey to monkey by inoculation with either whole cells or cell-free filtrate. Preliminary electron-microscopic and density-gradient studies of the plasma of infected monkeys have suggested to Lapin that the agent is a medium-sized, membrane-enclosed virus. Studies on the serological classification of the agent and on the titration of the infectivity in macaque monkeys are continuing.

The Rous virus is being studied at the Gamaleya Institute under the able direction of I. N. Kriukova and Abelev who now directs the group formerly directed by the late Professor L. Zilber.

The development of tumors on inoculation of RSV (Rous sarcoma virus) in foreign species and the phenomena underlying the successful recovery of the virus on inoculation of the chicken with such tumor cells is a central interest of this group. Shevliaghyn is particularly interested in the transformation of human cells with RSV. At the Institute for Oncology at Moscow, Svet-Moldavsky reports the induction with RSV of tumors in various lizards. At the same institute, Mazurenko is exploring the possible helper activity of various murine leukemia viruses for tumors of rats and mice induced with RSV. Studies on avian sarcoma virus are also being conducted by Diadkova at the Institute of Experimental Oncology at Leningrad and by R. Kukaine and her colleagues at the Kirchenstein Institute. The unavailability of a viral leukosis-free poultry flock would appear to impose a handicap on research on avian sarcoma and leukosis viruses in the Soviet Union.

Svet-Moldavsky has continued the studies on the "heterogenization" of mice, as shown by the ability to reject skin grafts from strictly syngeneic animals after inoculation of homogenates of certain tumors. He believes that the physical and biological properties of the heterogenizing agent are consistent with the postulate of a small, viruslike agent.

Mazurenko is investigating the biological and immunological aspects of his murine leukemia virus. A particular feature of his recent work has been an exploration of the possible role of interferon on infections with this and other murine leukemia viruses.

Studies are also underway on murine leukemia viruses at the Gamaleya Institute and at the Kirchenstein Institute; but no reports have yet been published by Soviet workers on murine sarcoma viruses.

At L. A. Tarashevitch State Central Institute for Vaccine Preparation, Moscow, Altstein has studied adenovirus SV-40 hybrids. At Gamaleya Institute, Irlin is studying the development of new antigens in cells infected with polyoma virus and the intracellular localization of virus in mouse cultures showing persistent infection. Deichman (Institute of Experimental and Clinical Oncology) is investigating the transplantation antigens of primary SV-40-induced tumors and their metastases.

This visit reaffirmed and strengthened the belief of the visitors that U.S. and Soviet medicine have much to gain through such interchanges. Our group

consisted of Drs. W. P. Rowe, National Institute of Allergy and Infectious Diseases (Chairman); C. F. T. Mattern, National Institute of Allergy and Infectious Diseases; V. Defendi, Wistar Institute, Philadelphia, Pa.; H. R. Morgan, University of Rochester School of Medicine, Rochester, N.Y.; S. Kit, Baylor University College of Medicine, Houston, Tex.; and T. E. O'Connor, National Cancer Institute.

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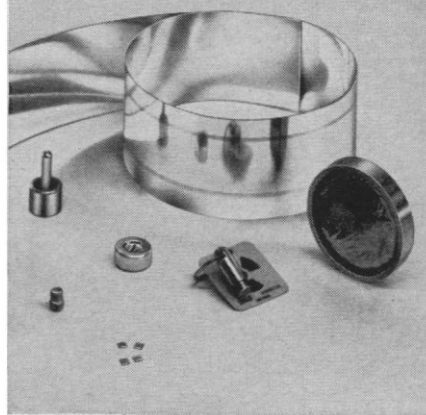
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