

(2) Visit of Yamaguchi University, Division of Natural Science and Symbiosis  
Yamaguchi City, August 16–October 15, 1998

Associate Professor, Ilya N. Skovorodkin

Laboratory of Cytology of Unicellular Organisms, Institute of Cytology, Academy of Science of Russia,  
Sankt-Peterburg, Russia

**Introduction**

I met Prof. Dr. M. Fujishima in Sankt-Peterburg at the meeting of biologists involved in investigations of Holospora-Paramecium symbiotic system in 1996. Since that for several times I had a very interesting and enjoyable discussions about our scientific topic with him. In fact, we have a very similar interests in our research field and for a long it was my wish to make a joint research work with him. Therefore, I was pleased very much when Prof. Dr. Fujishima invited me to visit his laboratory for two months. During this two months, I was employed as a Visiting Associated Professor of Venture Business Laboratories, Graduate School of Science and Engineering, Yamaguchi University. This was a big honor for me.

During my staying in Japan, we were able to fulfill a scientific program concerning investigation of specificity of infection of macro- or micronucleus of Paramecium caudatum by bacterial endonuclear symbionts Holospora obtusa and H. undulata. I enjoyed this work very much. I was able to use the perfect laboratory equipment and I always got a cordial cooperation with the members of the laboratory of Prof. Dr. Fujishima. I also have got a lot of good impressions by warm and friendly communication with the members of the laboratory and other stuffs of the University. Especially interesting for me was learning new about culture and history of Japan and about the way of common live of people here. Unfortunately two month was too short to learn enough about the culture of this country which

was so reach with beautiful ancient traditions.

**Research**

The main topic of my scientific work is : host-symbiont relationships taking place in the symbiotic system Paramecium-Holospora. One of the most intriguing character of that system is a strong specificity of infection of functionally differentiated nuclei of the host cell (a macronucleus and a micronucleus) by different species of symbiotic bacteria : Holospora obtusa and H. undulata. The main aim of our experiments was to find out the possible reasons for such a specificity. By using the microinjection method, we introduced bacteria at different stages of their life cycle into a specific or non-specific type of nucleus of the host cell.

In general, we found that bacteria injected into specific nucleus (injection of H. obtusa into macronucleus of P. caudatum) can grow there and continue their life cycle ; however bacteria injected into non-specific nucleus (H. undulata injected into macronucleus) can propagate there only for short time. Two-five days after injection, reproductive or infectious form of H. undulata injected into macronucleus of P. caudatum disappeared from the host cell. The way, how the host cell can get rid of injected bacteria was observed by light microscopy and the possible processes providing the occurrence of this phenomenon will be discussed in a joint paper which we plan to publish.

**Teaching, students, education**

During my stay in Japan, I had two opportunities to have lectures on genetical transformation of ciliated protozoa. The first was held in Ishinomaki-Sensyu University by invitation from Prof. Dr. N. Haga, and the second was in Venture Business Laboratories, Graduate School of Science and Engineering of Yamaguchi University. In addition, I had twice opportunities to present results of our joint research and of my former experiments in Russia at the seminar of the laboratory of Prof. Dr. Fujishima. In all cases, I was very grateful to people attending there for their interests to my investigations and for informative and useful comments.

At the beginning of my staying in Yamaguchi, I was invited by Prof. Dr. Fujishima to join 3 days-long excursion for experiments on marine biology for students of Biological Institute, Faculty of Science. I enjoyed this very much. It was very interesting for me to observe the fauna of that place and to see how the teaching process was going on. It was especially useful for me, because I am a zoologist of invertebrates and for 5 years I participated at summer practical course for students of Sank-Petersburg State University. I am sure that my colleagues and lectors of invertebrate zoology of St.-Petersburg State University will be quite interested in how such a practical course is organized in Japan.

**Visiting other university in Japan**

During my staying in Japan, I had several opportunities to visit other universities. I am very grateful to Prof. Dr. M. Fujishima, Prof. Dr. K. Hiwatashi and Prof. Dr. N. Haga who were kindly provided me these opportunities. During September 26-28, I attended to the Annual Meeting of Japan Society of Zoologists held in Hiroshima University. During September 29 - October 1, I visited laboratories of Prof. Dr. K. Mikami

(Miyagi College of Education, Sendai) and Prof. Dr. Watanabe (Tohoku University, Sendai), and laboratory of Prof. Dr. N. Haga (Ishinomaki-Sensyu University, Ishinomaki). During staying there, I was introduced to many protozoologists leading the field of ciliate biology in Japan. It was unique chance for me to meet these people who I knew before just by their publications. When I returned back to Russia, I will talk about my great impressions at the seminar of Russian Society of Protozoologists.

**Summary**

I guess that I could spend very nice and productive time and I could enjoy very much my staying in Yamaguchi University from many respects. We successfully carried out our joint experiments, obtained interesting results and had many scientific discussions stimulating the further development of our research interests. I had many opportunities to travel in Japan and to meet many biologists. I was able to learn some about Japanese culture and traditions and to give people whom I met here some impressions about my own country. I will always remember the cordial hospitality which I felt everywhere in Japan.

I would like to express my deep thanks to Prof. Dr. Fujishima who invited me and perfect organization for my staying. I would like to thank Prof. Dr. Hiwatashi and Prof. Dr. Haga for their cordial invitation to Sendai and Ishinomaki. I am very grateful to Japanese Foundation of Promoting of the Young Scientist for the financial support and to the president of Yamaguchi University and the dean of the Faculty of Science for accepting me as an employee of Venture Business Laboratory. I hope my visit here will be helpful for establishing of more close and productive future cooperation between Russian and Japanese protozoologists.