## Message from the Director

Dr. Satoshi Omura, Distinguished Doctor of Science at the Tokyo University of Science (TUS), became the third Japanese Nobel Prize winner in Physiology or Medicine in 2015. The main reason for winning the Nobel Prize was his discovery of a new treatment for nematode infections. Dr. Omura began his research in earnest at the TUS Graduate School. He joined the laboratory of Professor Yojiro Tsuzuki at the Department of Chemistry VIII of the Graduate School of Science, where he acquired knowledge and skills in determining the structure of organic compounds using a high-performance nuclear magnetic resonance (NMR) machine.

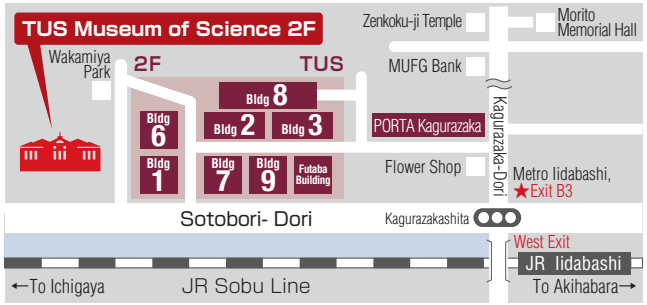
After completing his graduate studies at TUS, he worked as an assistant in the Department of Fermentation and Production in the Faculty of Engineering at the University of Yamanashi in his hometown, before moving to the Kitasato Institute in search of a research environment where he could apply both chemistry and microbiology. There, he continued his research to determine the structures of substances using NMR and succeeded in elucidating the structures of leucomycin, spiramycin, tylosin and other macrolide antibiotics, which were already being used as antibiotics.

Later, through exploratory research on compounds produced by microorganisms, he discovered more than 520 new compounds, including ivermectin, which saves the lives of more than 400 million people a year in Africa and other parts of the world, and was the first to successfully analyze the genome of an actinomycete.

Please come and see Dr. Omura's wide-ranging and long-standing achievements at the Kagurazaka campus, the starting point of his research.

Museum of Science, TUS

**Tokyo University of Science**
**Special Exhibition of Nobel Prize Winner Satoshi Omura, TUS**




[Free Admission]

1-3 Kagurazaka,
Shinjuku-ku Tokyo-to 162-8601
TEL.03-5228-8224

[Opening Hours & Holidays]
Announcements are posted on the museum of science, TUS website.

4 minutes from JR Iidabashi Sta. (Sobu Line) West Exit
3 minutes from Metro Iidabashi Sta. Exit B3

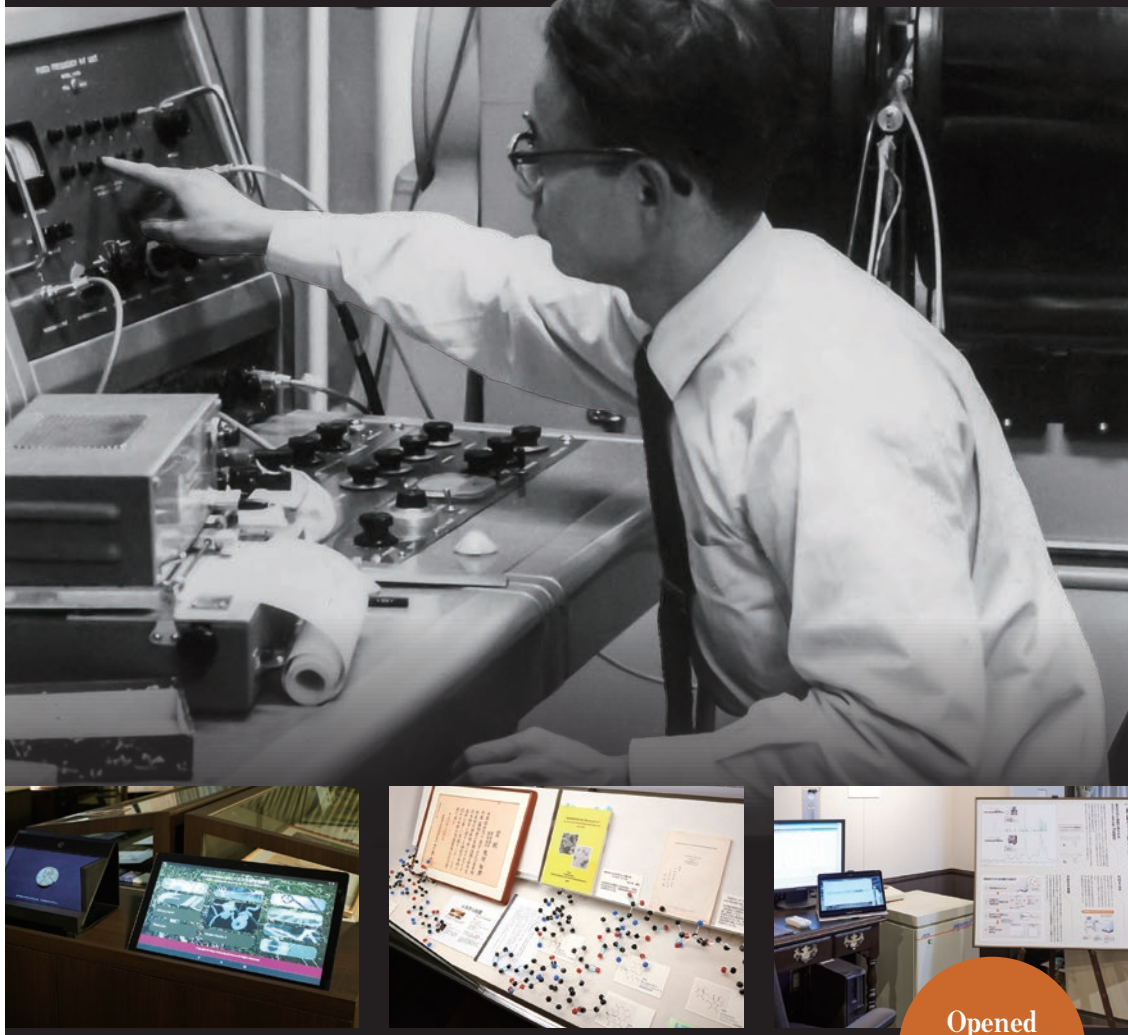
https://www.tus.ac.jp/museum/

MIX
Paper | Supporting responsible forestry
FSC® C012064

2024.1

# *Special Exhibition of Nobel Prize Winner*

# *Satoshi Omura, TUS*

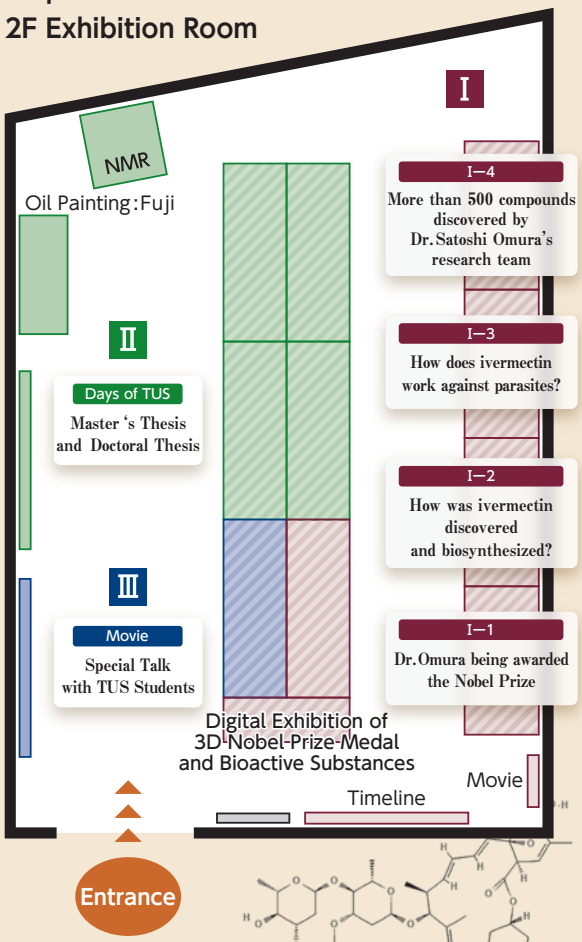


Dr. Satoshi Omura operating a nuclear magnetic resonance (NMR) machine during his third year in the Master's Program
at the Tokyo University of Science Graduate School

Opened
October 2022

# Information

Map of
2F Exhibition Room





Class graduation photograph from Tsuzuki Laboratory, TUS.


Nobel Prize Ceremony, December 10, 2015


Omura teaching chemistry at Tokyo Metropolitan Sumida Technical High School in 1961

## I Receiving the Nobel Prize for Discoveries That Saved the World : Creating Antibiotics from Microorganisms

Satoshi Omura proposed an international industry-academia joint research program to Merck & Co., USA and in 1973, an agreement was signed and joint research began. Omura discovered a new microorganism in the soil of Shizuoka, Japan that exhibited intriguing characteristics. He sent it to Merck & Co. Merck discovered that a substance produced by the microorganism had anti-parasitic effects, and the compound was given the name "evermectin." Later, Merck developed a more effective antiparasitic drug for animals and humans called ivermectin.

Ivermectin saves more than 400 million people from blindness each year and is also used worldwide for treating lymphatic filariasis, scabies, and fecal nematode infections.

## II Using Nuclear Magnetic Resonance Technology to Identify Molecular Structures at Tokyo University of Science

After graduating from Yamanashi University, Omura moved to Saitama and worked as a night school teacher at Tokyo Metropolitan Sumida Technical High School. Inspired by his students, he resolved to pursue further academic endeavors.

Thanks to a reference from Dr. Koji Nakanishi at Tokyo University of Education (now Tsukuba University), he joined the laboratory of Yojiro Tsuzuki and entered the Graduate School of Science at Tokyo University of Science in 1960. In Tsuzuki's laboratory, he learned advanced techniques for identifying the structures of organic compounds using cutting-edge nuclear magnetic resonance (NMR) equipment.

He earned his master's degree in 1963 while studying during the day and teaching high school at night.

## III Omura's Response to Students Who Want to Become Scientists

During my long career as a researcher, I have experienced many failures and disappointments. However, I was firm in my belief that I would eventually succeed, and as a result of my persistent efforts, I was able to win the Nobel Prize.

"Opportunities will present themselves to those who never give up."