

HORIBA's Contribution to the future of pharmaceutical innovation and human health



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A handwritten signature in black ink that reads "Kentaro Nishikata".

Since its founding, HORIBA has focused on instrumental analysis, including materials, life science research and medical fields. In the 1980s, HORIBA began a full-scale business activity, via its MEDICAL segment, in the blood analysis field. Looking back on the history of academic fields, in the 1960s when our founder, Masao Horiba, obtained his doctor of medical science, biology in a broad sense, including medicine and agriculture, was positioned as the opposite of the physical sciences. Since then, molecular biology and genetic engineering have developed rapidly, and biological and physical sciences have become closer. Furthermore, when we consider the sense of crisis that such technological developments could bring regarding bioethics, life sciences, as a comprehensive academic discipline, have evolved to carefully consider such social aspects. In recent years, HORIBA has envisioned increasingly higher expectations for the applications of spectroscopic analysis in these life science fields, especially in the field of drug discovery and pharmaceuticals.

Since early 2020, the novel coronavirus continues to rage worldwide. As we all know, we are in a pandemic, not seen since the 1918 influenza, effectively once in 100 years. To work towards combatting such events, we need more than vaccines and therapeutic agents in our global medical toolboxes. Conventional small-molecule medicines, macromolecular medicines that use nucleic acids and antibodies, and creation of cells and extracellular vesicles are necessary for the pursuit of health and wellbeing. Research to develop and deploy such novel medicines are in strong demand. To respond to such changes in the market environment and demands, HORIBA has launched a bio-life science project and is strengthening the development of new technologies with our customers, using HORIBA instruments and technologies.

In addition, in order to deliver the developed drugs to society, one requires a production process that supports each drug modality. In recent years, expectations for

spectroscopic technologies that enable non-invasive, non-destructive, no-contact and rapid analyses have increased. These expectations are generating many demands on HORIBA's fluorescence spectroscopy, Raman spectroscopy, and particle analysis. To leverage the advantages of spectroscopic analytical technologies that enable non-destructive, in-situ analysis, various concepts and methods for sample handling and sample pre-treatment techniques are also required. HORIBA has launched a new Industrial Solution Project to meet these demands. In this project, with combining Jobin Yvon's 200-years-old spectroscopic technologies with HORIBA's process monitoring technologies, HORIBA has begun providing valuable solutions across various industrial fields.

Furthermore, it is clear that Data Science technologies are important for processing, accumulating, and utilizing a large amount of obtained spectral data and images for process control. These technologies must contribute to R & D efficiency and productivity improvement in the manufacturing process. In response to these demands, including data science as a core technology, HORIBA has launched a new project (IoT and Data Science Project) to improve the reliability, completeness and added value of the data produced by our instruments and systems.

This year, the Masao Horiba Award will celebrate its 18th anniversary. This award has consistently supported the basic research that offer solutions to solve various social issues. Unfortunately, the COVID-19 pandemic forced us to postpone the Award for 2020. It was an unusual situation. For 2021, we have selected the theme for the Masao Horiba award as "Optical/Spectroscopic Measurement Technologies for Life Science", with an eye on analysis and measurement that will contribute to the future of pharmaceutical innovation and human health.

It is our hope and expectation that the winners of the Masao Horiba award will become major contributors to these endeavors.

The theme of the Masao Horiba award is the highlighted feature of this issue of the Readout.



HORIBA has been developing and selling medical analyzers (medical gas analyzers, etc.) since around 1963. In 1996, HORIBA acquired ABX, a French manufacturer specializing in hematology analyzers, and began full-scale entry into the medical (clinical laboratory) business. In 1997, the company acquired the French company JOBIN YVON, which excelled in analytical technology, and has since expanded and strengthened its technology. Based on the combined technologies and products, the company launched its life science business on a full-scale basis in 2014. Recently, in collaboration with Shimadzu Corporation, a manufacturer of analytical instruments, the company has continued to take on challenges in diverse and changing fields, following the legacy of its founder.

* Editorial note: This content is based on HORIBA's investigation at the year of issue unless otherwise stated.