

May 12, 2023
ARCALIS, Inc.
Hitachi, Ltd.

ARCALIS and Hitachi Enter Joint Research Agreement on mRNA Sequence Design Technology

ARCALIS, Inc. (Headquarters: Kashiwa-shi, Chiba; President and CEO: Tomoyuki Fujisawa; hereinafter 'ARCALIS') and Hitachi, Ltd. (Headquarters: Chiyoda-ku, Tokyo; President and CEO: Keiji Kojima; hereinafter 'Hitachi') are pleased to announce the signing of a joint research agreement with the aim of establishing messenger RNA (mRNA) sequence design technology for drug discovery of mRNA therapeutics.

mRNA therapeutics demonstrate their medical effects when the protein corresponding to the mRNA sequence is expressed in the body. In addition to vaccines against infectious diseases, mRNA therapeutics are expected to be applied to cancer therapy and regenerative medicine. The efficiency of protein expression depends on the sequence of mRNA. Therefore, the design of mRNA sequence is a very important issue in the drug discovery phase.

In this joint research, we will work to solve this problem with ARCALIS's extensive knowledge and expertise in mRNA production and Hitachi's AI-related technology. By making full use of comprehensive cellular experiments for high quality expression data and machine learning that utilize acquired data, we aim to establish mRNA sequence design technology that improves the efficiency of protein expression.

ARCALIS has been collaborating with its group company, Axcelead Drug Discovery Partners Inc. (Headquarters: Fujisawa-shi, Kanagawa; President and CEO: Nobuhiko Yamada), and has started an integrated mRNA drug discovery support service(<https://corp.arcalis.co.jp/en/SERVICES#drugdiscovery>) since July 2022. The results of this joint research are planned to be reflected in the unique mRNA design system used in this drug discovery support service.

About ARCALIS, Inc.

ARCALIS is an mRNA vaccines and therapeutics contract development and manufacturing organization ("CDMO"), jointly established by Axcelead, Inc. (Headquarters: Minato-ku, Tokyo, President & CEO, Yoshinori Ikeura, hereinafter, Axcelead) and Arcturus Therapeutics, Inc. (NASDAQ: ARCT/hereinafter, Arcturus). ARCALIS aims to develop the world's first mRNA vaccines and therapeutics CDMO business that promises a stable supply of high-quality mRNA medicines to all customers, including Arcturus, other pharmaceutical companies, biotech companies, and academic institutes worldwide. The new facility in the city of Minami-soma (Fukushima prefecture) will be equipped with state-of-the-art manufacturing and



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quality control systems that meet the cGMP standards for pharmaceuticals.

For more information on ARCALIS, please visit our website <https://corp.arcalis.co.jp/en>

About Hitachi, Ltd.

Hitachi drives Social Innovation Business, creating a sustainable society through the use of data and technology. We solve customers' and society's challenges with Lumada solutions leveraging IT, OT (Operational Technology) and products. Hitachi operates under the business structure of “Digital Systems & Services” - supporting our customers’ digital transformation; “Green Energy & Mobility” - contributing to a decarbonized society through energy and railway systems, and “Connective Industries” - connecting products through digital technology to provide solutions in various industries. Driven by Digital, Green, and Innovation, we aim for growth through co-creation with our customers. The company’s consolidated revenues for fiscal year 2022 (ended March 31, 2023) totaled 10,881.1 billion yen, with 696 consolidated subsidiaries and approximately 320,000 employees worldwide.

For more information on Hitachi, please visit the company's website at <https://www.hitachi.com>.

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Research & Development Group

<https://www8.hitachi.co.jp/inquiry/hqrd/news/en/form.jsp>

Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.
