

FRONTEO signs license agreement with Takeda Pharmaceutical for drug discovery support to solve issues in drug discovery

TOKYO, March 25, 2020 -- FRONTEO, Inc. ("FRONTEO") (TSE: 2158), a leading provider of artificial intelligence ("AI") services and Takeda Pharmaceutical Co., Ltd. ("Takeda Pharmaceutical") have concluded a license agreement to introduce a drug discovery support AI system developed by FRONTEO.

The drug discovery support AI system FRONTEO will provide to Takeda Pharmaceutical searches for target candidates for new pharmaceutical products using FRONTEO's proprietary natural language processing AI engine "Concept Encoder (conceptencoder®)."

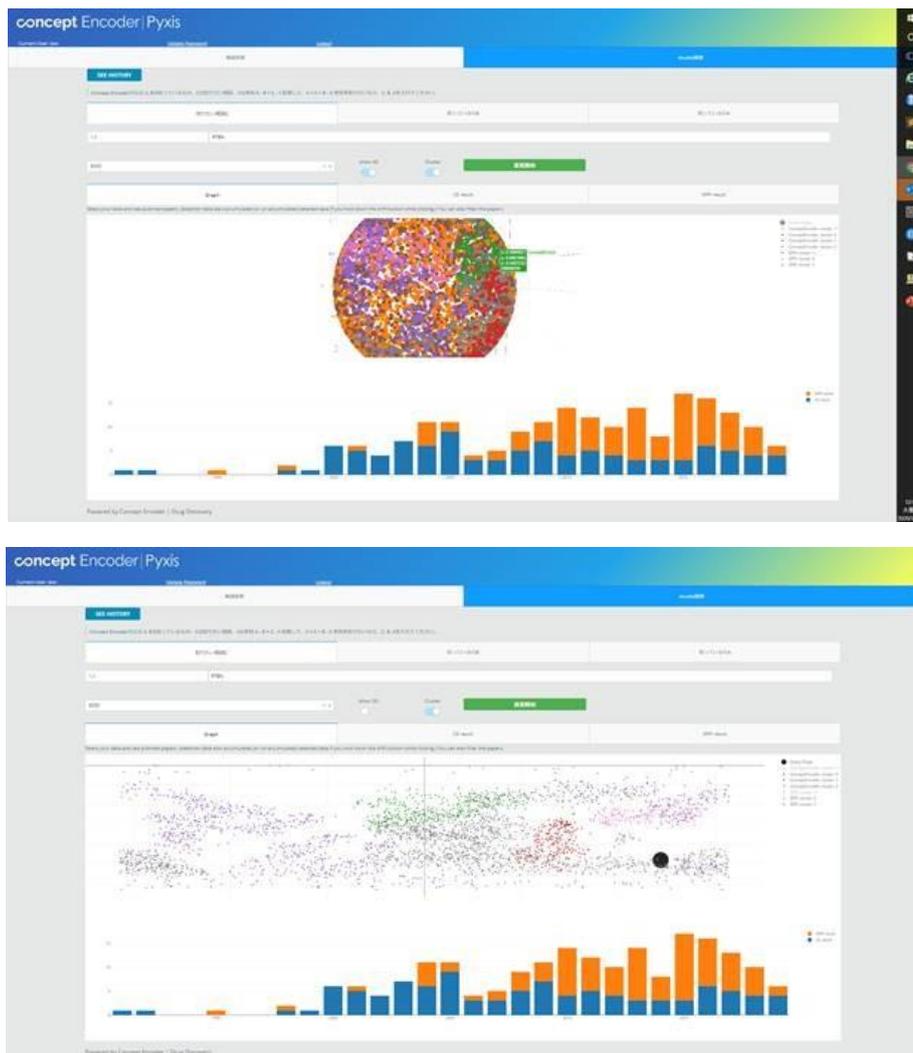
Referring to information in papers and public databases on a daily basis and updating information on development is an important process in drug discovery research. On the other hand, keeping up with trends in pharmaceutical research in Japan and other countries in a timely manner places a significant burden on researchers and is an issue in this field. FRONTEO's drug discovery support AI system learns the latest databases and papers in PubMed*1 and Open Targets*2, and when researchers simply input the hypothesis and information they want to know, Concept Encoder instantly displays the papers and pharmaceutical research data they should refer to. With this system, FRONTEO will support the allocation of resources that will lead to greater efficiency and innovation in drug discovery and support proposals for drug repositioning (the conversion of existing drugs).

Furthermore, this license agreement also includes the provision of an environment that allows users on their own to analyze morphemes and text that Concept Encoder converts into vectors, making it possible for researchers to construct their own paper analysis AI system based on past experiment data and document information. Utilizing original projection models using the company's own data enables the construction of new data-driven hypotheses that are not limited to researchers' experience and subjectivity, and can also contribute to the creation of innovative new drugs.

FRONTEO aims to bring about a paradigm shift in solutions for drug discovery by improving the efficiency of hypothesis verification utilizing AI.

*1 PubMed: A database for searching for biology and medical papers. Created by NCBI (National Center for Biotechnology Information) located in the NLM (National Library of Medicine).

*2 Open Targets: A database for discovering potential drug targets through public-private partnerships.



Document search result screen. A sphere expressing the relevance (top) and an expanded flattened version of it (bottom).

About Concept Encoder URL: <https://lifescience.fronteo.com/>

Concept Encoder (conceptencoder®) is a natural language processing AI (artificial intelligence) system developed by FRONTEO specifically for use in the life sciences field. It was developed in 2018 with the aim of effective, evidence-based analysis and utilization of medical data containing large amounts of free-entry text data. Concept Encoder is also capable of co-analysis with data other than text, and research efforts are underway to co-analyze numerical data such as gene expression information, vital data, and various other test values accumulated in the life sciences domain. Patent Registration Number: Patent No. 6346367

About FRONTEO, Inc. URL: <https://www.fronteo.com/>

FRONTEO, Inc. is a data analysis company that supports information analysis with its proprietary natural language processing AI (artificial intelligence) engines “KIBIT ®” and “conceptencoder®.” Established in August 2003 as a company to support e-discovery (electronic evidence discovery), which supports evidence preservation, investigation, and analysis of electronic data necessary for legal matters such as international lawsuits, as well as digital forensic investigations, FRONTEO has applied its proprietary technologies such as its data analysis platforms to assist in roughly 10,000 international litigation measures to date. The AI-related technologies cultivated in the legal business have also been



expanded to areas such as life sciences and business intelligence, and have achieved results in drug discovery research support, diagnostic support, and work style reforms. Listed on TSE Mothers on June 26, 2007. Capital of 2,559,206,000 yen (as of March 31, 2019).

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