MIRAE ASSET
Building on principles

Biotech/Healthcare

Issue Comment
December 10, 2018

Mirae Asset Daewoo Co., Ltd.

[Biotech/Healthcare]

Taehee Kim
+822-3774-6813
taehee.kim@miraeasset.com

Seunglok Huh
+822-3774-1374
seunglok.huh@miraeasset.com

Eutilex
(Not Listed/Not Rated)

An immunotherapy developer with robust technologies

- A biotech firm specializing in next-generation immunotherapies
- Three differentiated platform technologies: T-cell therapy, antibody therapy, and CAR-T therapy

A biotech firm specializing in next-generation immunotherapies

Eutilex, a biotech firm specializing in the development of next-generation immunotherapies, is set to go public on the KOSDAQ on December 26th. The company has several key technologies, including an autologous T-cell therapy platform, an antibody therapy (immune checkpoint activator) platform, and a CAR-T cell therapy platform. Its most advanced candidate is EBViNT, a treatment for NK/T-cell lymphoma (currently in phase 2).

The IPO price range has been set at W38,000 to W50,000, implying a market value of W302.4bn to W397.8bn (including unexercised stock options). The company plans to raise W27.6bn to W36.4bn in the IPO, most of which will be used for R&D and working capital.

Three differentiated platform technologies

1) Autologous T-cell therapy

Eutilex's autologous T-cell therapy platform works by separating cancer-specific T-cells and reinjecting them into patients. After isolating immune cells from a cancer patient's blood, peptides from target cancer antigens are added to induce 4-1BB-expressing T-cells. These cells are then selectively separated using antibodies that bind to 4-1BB, mass produced, and re-infused into the patient.

The technology reportedly has several advantages. First, it could be highly effective, as it only isolates T-cells of a specific cancer. Second, by modifying cancer antigens in the manufacturing process, it can create a variety of specific T-cells, making it easier to expand indications. Lastly, it provides safer treatment through the use of autologous T-cells.

The company's T-cell pipeline includes EBViNT (NK/T-cell lymphoma treatment), WTiNT (glioblastoma treatment), and TERTiNT (non-small cell lung cancer/breast cancer treatment). Among them, EBViNT is the most advanced candidate.

In a phase 1 study involving eight patients, EBViNT showed an objective response rate (ORR) of 50%, and two of the study's NK/T-cell lymphoma patients experienced complete remission (CR). The company is currently conducting a domestic phase 2 study on the treatment of NK/T-cell lymphoma and is working toward early commercialization after the study's completion.

FY (Dec.)	2015	2016	2017	2018E	2019E
Revenue (Wbn)	-	-	0.133	0.379	26.229
OP (Wbn)	-0.914	-5.178	-9.816	-14.167	-7.520
OP margin (%)	-	-	-	-	-
NP (Wbn)	-0.849	-5.114	-9.594	-13.754	-6.490
EPS (W)	-2,107	-1,085	-1,752	-1,729	-816
ROE (%)	-	-	-	-	-
P/E (x)	-	-	-	-	-
P/B (x)	-	-	-	-	-
Dividend yield (%)	-	-	-	-	-

Note: All figures are based on consolidated K-IFRS; NP refers to net profit attributable to controlling interests
Source: Company data and estimates

2) Antibody therapy (immune checkpoint activator)

Eutilex's antibody therapies act as immune checkpoint activators, which stimulate receptors that activate T-cells to treat cancer. The company has discovered 4-1BB and AITR antibodies, which stimulate killer T-cells. EU101 is the antibody that binds to 4-1BB, and EU102 is the antibody that binds to AITR.

EU101, which stimulates and increases the number of killer T-cells, showed stronger efficacy than Merck's immune checkpoint inhibitor Keytruda in a preclinical study. In September 2017, Eutilex licensed out the Chinese rights to EU101 to Zhejiang Huahai Pharmaceutical for US$8.5mn. Separately, Zhejiang Huahai Pharmaceutical acquired a W30bn stake in the company.

EU102 converts regulatory T-cells into effector T-cells to treat cancer. In a preclinical study, EU102 demonstrated a bigger tumor size reduction than Keytruda based on the same dosage.

The 4-1BB and AITR antibodies are in line with recent moves by big pharmaceutical firms (including Pfizer, Merck, Bristol-Myers Squibb, and Novartis) to develop immune checkpoint activators, and they are expected to create synergies with immune checkpoint inhibitors.

3) CAR-T therapy

Existing CAR-T therapies like Novartis's Kymriah and Gilead's Yescarta, as well as most other CAR-T therapies currently in development, target CD19 antigens of cancer cells. Because CD19 antigens are expressed in both cancer and normal cells, CD19-targeted CAR-T therapies often cause side effects. Eutilex's CAR-T therapy could have fewer side effects, as it targets HLA-DR, which is overexpressed in cancer cells. Compared to CD19-targeted CAR-T therapies, the company's CAR-T therapy has shown a higher B-cell survival rate and lower cytokine release.

Table 1. Eutilex's pipeline

Category	Candidate	Indication	Phase	Location
T-cell therapy	EBViNT	NK/T-cell lymphoma	Phase 2	Korea, US
	WTiNT	Glioblastoma	Phase 1	US
	TERTiNT	NSCLC, breast cancer	Investigator-initiated trial	US
Antibody	EU101	Anti-cancer	Preclinical	Korea
	EU102	Anti-cancer	Preclinical	Korea
	Bispecific antibody		Preclinical	Korea
CAR-T	MVR CAR-T	DLBCL	Preclinical	Korea
	Solid tumor CAR-T	Solid tumor	Discovery	Korea

Source: Company data, Mirae Asset Daewoo Research

Table 2. Eutilex's earnings and forecasts (Wmn)

	2017	2018E	2019E	2020E	2021E	2022E
Revenue	133	379	26,229	25,003	31,185	62,893
Product sales					385	24,208
Royalties		379	26,229	25,003	30,800	38,685
Operating profit	-9,817	-14,167	-7,520	-25,776	-1,553	32,773
Pretax profit	-9,593	-13,754	-6,490	-24,729	88	35,039
Net profit	-9,593	-13,754	-6,490	-24,729	88	35,039

Source: DART, company data

APPENDIX 1

Important Disclosures & Disclaimers

Disclosures
As of the publication date, Mirae Asset Daewoo and/or its affiliates do not have any special interest with the subject company and do not own 1% or more of the subject company's shares outstanding.

Analyst Certification
The research analysts who prepared this report (the "Analysts") are registered with the Korea Financial Investment Association and are subject to Korean securities regulations. They are neither registered as research analysts in any other jurisdiction nor subject to the laws or regulations thereof. Each Analyst responsible for the preparation of this report certifies that (i) all views expressed in this report accurately reflect the personal views of the Analyst about any and all of the issuers and securities named in this report and (ii) no part of the compensation of the Analyst was, is, or will be directly or indirectly related to the specific recommendations or views contained in this report. Mirae Asset Daewoo Co., Ltd. ("Mirae Asset Daewoo") policy prohibits its Analysts and members of their households from owning securities of any company in the Analyst's area of coverage, and the Analysts do not serve as an officer, director or advisory board member of the subject companies. Except as otherwise specified herein, the Analysts have not received any compensation or any other benefits from the subject companies in the past 12 months and have not been promised the same in connection with this report. Like all employees of Mirae Asset Daewoo, the Analysts receive compensation that is determined by overall firm profitability, which includes revenues from, among other business units, the institutional equities, investment banking, proprietary trading and private client division. At the time of publication of this report, the Analysts do not know or have reason to know of any actual, material conflict of interest of the Analyst or Mirae Asset Daewoo except as otherwise stated herein.

Disclaimers
This report was prepared by Mirae Asset Daewoo, a broker-dealer registered in the Republic of Korea and a member of the Korea Exchange. Information and opinions contained herein have been compiled in good faith and from sources believed to be reliable, but such information has not been independently verified and Mirae Asset Daewoo makes no guarantee, representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information and opinions contained herein or of any translation into English from the Korean language. In case of an English translation of a report prepared in the Korean language, the original Korean language report may have been made available to investors in advance of this report.
The intended recipients of this report are sophisticated institutional investors who have substantial knowledge of the local business environment, its common practices, laws and accounting principles and no person whose receipt or use of this report would violate any laws or regulations or subject Mirae Asset Daewoo or any of its affiliates to registration or licensing requirements in any jurisdiction shall receive or make any use hereof.
This report is for general information purposes only and it is not and shall not be construed as an offer or a solicitation of an offer to effect transactions in any securities or other financial instruments. The report does not constitute investment advice to any person and such person shall not be treated as a client of Mirae Asset Daewoo by virtue of receiving this report. This report does not take into account the particular investment objectives, financial situations, or needs of individual clients. The report is not to be relied upon in substitution for the exercise of independent judgment. Information and opinions contained herein are as of the date hereof and are subject to change without notice. The price and value of the investments referred to in this report and the income from them may depreciate or appreciate, and investors may incur losses on investments. Past performance is not a guide to future performance. Future returns are not guaranteed, and a loss of original capital may occur. Mirae Asset Daewoo, its affiliates and their directors, officers, employees and agents do not accept any liability for any loss arising out of the use hereof.
Mirae Asset Daewoo may have issued other reports that are inconsistent with, and reach different conclusions from, the opinions presented in this report. The reports may reflect different assumptions, views and analytical methods of the analysts who prepared them. Mirae Asset Daewoo may make investment decisions that are inconsistent with the opinions and views expressed in this research report. Mirae Asset Daewoo, its affiliates and their directors, officers, employees and agents may have long or short positions in any of the subject securities at any time and may make a purchase or sale, or offer to make a purchase or sale, of any such securities or other financial instruments from time to time in the open market or otherwise, in each case either as principals or agents. Mirae Asset Daewoo and its affiliates may have had, or may be expecting to enter into, business relationships with the subject companies to provide investment banking, market-making or other financial services as are permitted under applicable laws and regulations.
No part of this document may be copied or reproduced in any manner or form or redistributed or published, in whole or in part, without the prior written consent of Mirae Asset Daewoo.

Distribution
United Kingdom: This report is being distributed by Mirae Asset Securities (UK) Ltd. in the United Kingdom only to (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"), and (ii) high net worth companies and other persons to whom it may lawfully be communicated, falling within Article 49(2)(A) to (E) of the Order (all such persons together being referred to as "Relevant Persons"). This report is directed only at Relevant Persons. Any person who is not a Relevant Person should not act or rely on this report or any of its contents.
United States: Mirae Asset Daewoo is not a registered broker-dealer in the United States and, therefore, is not subject to U.S. rules regarding the preparation of research reports and the independence of research analysts. This report is distributed in the U.S. by Mirae Asset Securities (USA) Inc., a member of FINRA/SIPC, to "major U.S. institutional investors" in reliance on the exemption from registration provided by Rule 15a-6(b)(4) under the U.S. Securities Exchange Act of 1934, as amended. All U.S. persons that receive this document by their acceptance hereof represent and warrant that they are a major U.S. institutional investor and have not received this report under any express or implied understanding that they will direct commission income to Mirae Asset Daewoo or its affiliates. Any U.S. recipient of this document wishing to effect a transaction in any securities discussed herein should contact and place orders with Mirae Asset Securities (USA) Inc. Mirae Asset Securities (USA) Inc. accepts responsibility for the contents of this report in the U.S., subject to the terms hereof, to the extent that it is delivered to a U.S. person other than a major U.S. institutional investor. Under no circumstances should any recipient of this research report effect any transaction to buy or sell securities or related financial instruments through Mirae Asset Daewoo. The securities described in this report may not have been registered under the U.S. Securities Act of 1933, as amended, and, in such case, may not be offered or sold in the U.S. or to U.S. persons absent registration or an applicable exemption from the registration requirements.
Hong Kong: This report is distributed in Hong Kong by Mirae Asset Securities (HK) Limited, which is regulated by the Hong Kong Securities and Futures Commission. The contents of this report have not been reviewed by any regulatory authority in Hong Kong. This report is for distribution only to professional investors within the meaning of Part I of Schedule 1 to the Securities and Futures Ordinance of Hong Kong (Cap. 571, Laws of Hong Kong) and any rules made thereunder and may not be redistributed in whole or in part in Hong Kong to any person.
All Other Jurisdictions: Customers in all other countries who wish to effect a transaction in any securities referenced in this report should contact Mirae Asset Daewoo or its affiliates only if distribution to or use by such customer of this report would not violate applicable laws and regulations and not subject Mirae Asset Daewoo and its affiliates to any registration or licensing requirement within such jurisdiction.

Mirae Asset Daewoo International Network

Mirae Asset Daewoo Co., Ltd. (Seoul)
Global Equity Sales Team
Mirae Asset Center 1 Building
26 Eulji-ro 5-gil, Jung-gu, Seoul 04539
Korea

Tel: 82-2-3774-2124

Mirae Asset Securities (HK) Ltd.
Suites 1109-1114, 11th Floor
Two International Finance Centre
8 Finance Street, Central
Hong Kong
China
Tel: 852-2845-6332

Mirae Asset Securities (UK) Ltd.
41st Floor, Tower 42
25 Old Broad Street,
London EC2N 1HQ
United Kingdom

Tel: 44-20-7982-8000

Mirae Asset Securities (USA) Inc.
810 Seventh Avenue, 37th Floor
New York, NY 10019
USA

Tel: 1-212-407-1000

Mirae Asset Wealth Management (USA) Inc.
555 S. Flower Street, Suite 4410,
Los Angeles, California 90071
USA

Tel: 1-213-262-3807

Mirae Asset Wealth Management (Brazil) CCTVM
Rua Funchal, 418, 18th Floor, E-Tower Building Vila Olimpia
Sao Paulo - SP
04551-060
Brasil
Tel: 55-11-2789-2100

PT. Mirae Asset Sekuritas Indonesia
Equity Tower Building Lt. 50
Sudirman Central Business District
Jl. Jend. Sudirman, Kav. 52-53 Jakarta Selatan 12190
Indonesia
Tel: 62-21-515-3281

Mirae Asset Securities (Singapore) Pte. Ltd.
6 Battery Road, #11-01
Singapore 049909
Republic of Singapore

Tel: 65-6671-9845

Mirae Asset Securities (Vietnam) LLC
7F, Saigon Royal Building
91 Pasteur St.
District 1, Ben Nghe Ward, Ho Chi Minh City
Vietnam

Tel: 84-8-3911-0633 (ext.110)

Mirae Asset Securities Mongolia UTsK LLC
#406, Blue Sky Tower, Peace Avenue 17
1 Khoroo, Sukhbaatar District
Ulaanbaatar 14240
Mongolia

Tel: 976-7011-0806

Mirae Asset Investment Advisory (Beijing) Co., Ltd
2401B, 24th Floor, East Tower, Twin Towers
B12 Jianguomenwai Avenue, Chaoyang District
Beijing 100022
China

Tel: 86-10-6567-9699

Beijing Representative Office
2401A, 24th Floor, East Tower, Twin Towers
B12 Jianguomenwai Avenue, Chaoyang District
Beijing 100022
China

Tel: 86-10-6567-9699 (ext. 3300)

Shanghai Representative Office
38T31, 38F, Shanghai World Financial Center
100 Century Avenue, Pudong New Area Shanghai 200120
China

Tel: 86-21-5013-6392

Ho Chi Minh Representative Office
7F, Saigon Royal Building
91 Pasteur St.
District 1, Ben Nghe Ward, Ho Chi Minh City
Vietnam

Tel: 84-8-3910-7715