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Building on principles

Biotech

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ABL Bio
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A bispecific antibody developer with an extensive pipeline

- ABL Bio is a bispecific antibody developer with a large pipeline
- Bispecific antibodies are a newly emerging market attracting massive investments from big pharmas
- ABL Bio's key strengths are its pipeline and large number of licensing deals

A bispecific antibody developer with an extensive pipeline

ABL Bio is a bispecific antibody developer set to go public on the KOSDAQ on December 19th. Bispecific antibodies, which bind two different targeted antigens simultaneously, are considered a more effective therapy than monoclonal antibodies. ABL Bio has a number of candidates in its pipeline based on its bispecific antibody platform technologies and focuses on treatments for cancer and neurodegenerative diseases.

The IPO price range has been set at W13,000 to W17,000, implying a market value of W588.9bn to W770.2bn (including stock options exercisable within a year). The company plans to raise W78bn to W102bn in the IPO, most of which will be used for R&D and working capital.

A newly emerging market attracting massive investments from big pharmas

The bispecific antibody market has only recently begun to take off. There are still no drugs generating meaningful sales, but the market is expected to grow to US$5.8bn by 2024, driven by Amgen's acute lymphoblastic leukemia treatment Blincyto (which targets CD19 of B-cells and CD3 of T cells) and Roche's hemophilia treatment Hemlibra (which targets coagulation factors IX and X).

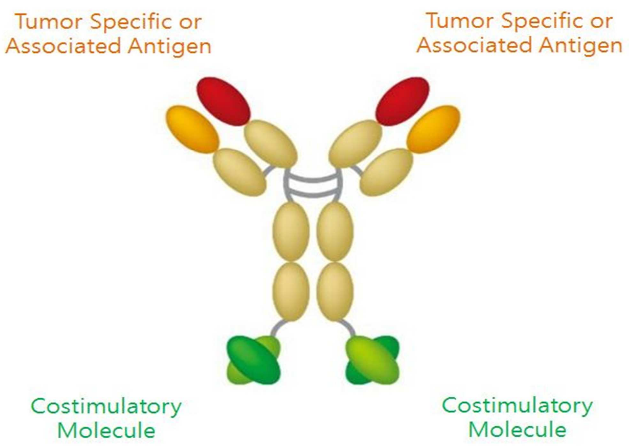
Global pharmas have also shown strong interest in bispecific antibodies. Bispecific antibodies have attracted around US$110bn from major pharmas in licensing deals this year—the fourth largest investment by candidate type, following small molecules, monoclonal antibodies, and gene therapies. Since 2017, Merck, Amgen, Janssen, and Genentech have licensed bispecific antibody technologies for more than US$1bn each <Table 4>.

Licensing deals for bispecific antibodies are generally made during the development or preclinical stage (rather than during phase 1 or 2 trials). Looking at the seven bispecific antibody deals made by big pharmas since 2016, three of them were concluded during the development stage, while the remaining four were signed during the preclinical stage. It is also interesting to note that, despite being in the early stages of development, each bispecific antibody candidate has fetched a value of around W300bn on average.

FY (Dec.)	2016	2017	2018F	2019F
Revenue (Wbn)	-	0.1	5.7	9.6
OP (Wbn)	-3.5	-9.7	-17.4	-18.9
OP margin (%)	-	-	-	-
NP (Wbn)	-13.7	-74.7	-110.6	-18.9
EPS (W)	-712	-3,890	-2,443	-418
ROE (%)	-	-	-	-
P/E (x)	-	-	-	-
P/B (x)	-	-	-	-
Dividend yield (%)	-	-	-	-

Note: All figures are based on non-consolidated K-IFRS
Source: ABL Bio estimates

Figure 1. Bispecific antibody diagram



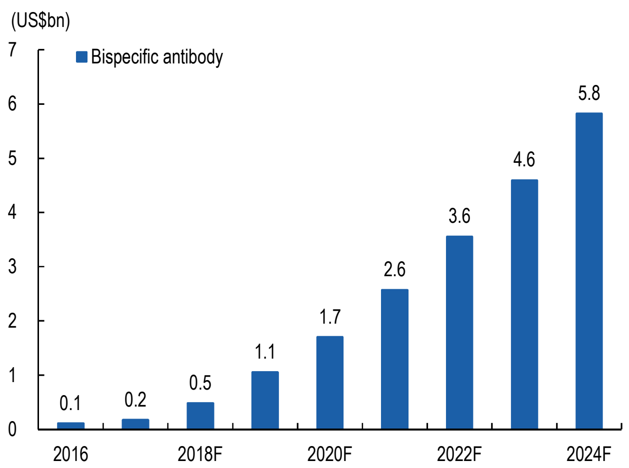
Source: Company data, Mirae Asset Daewoo Research

Figure 2. Deal value by candidate type (2018 YTD)

Type	Total deal value (US$mn)
Small molecule	165,125
Monoclonal antibody	136,087
Gene therapy	124,771
Bispecific monoclonal antibody	109,314
RNA drug	96,188
Recombinant protein	94,421
Cell therapy	93,071
Protein	86,290
Synthetic peptide	85,581
Recombinant enzyme	84,503
Vaccine	83,094
Antibody	82,512

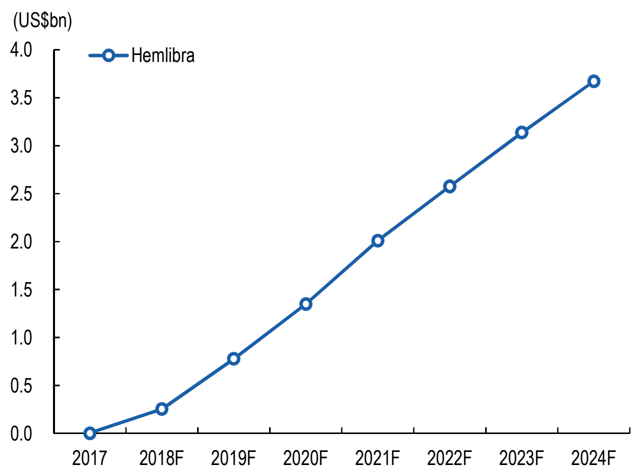
Source: GlobalData, Mirae Asset Daewoo Research

Figure 3. Bispecific antibody market forecasts



Source: GlobalData, Mirae Asset Daewoo Research

Figure 4. Hemlibra sales forecasts



Source: GlobalData, Mirae Asset Daewoo Research

Key strengths: Pipeline and various licensing deals

Key strengths: 1) A broad pipeline built on platform technologies

One of ABL Bio's biggest strengths is its extensive pipeline built upon its bispecific antibody platform technologies. Within bispecific antibody combinations, the company focuses on T-cell engagement and dual targeting and has strengths in oncology therapies for blood, gastric, ovarian, and colon cancers. The company has developed a bispecific antibody with high penetration of blood-brain barriers (BBB), which is currently in a non-clinical study as a potential treatment for Parkinson's and Alzheimer's. The company is also developing an antibody-drug conjugate (ADC) for the treatment of cancer in collaboration with LegoChem Biosciences.

Table 1. ABL Bio's pipeline

Program	Indication	Stage	Notes
Antibodies for angiogenesis inhibition/ monoclonal antibodies for oncology	Gastric/ovarian/colon cancer	Phase 1	
	Brain tumor	In vivo efficacy & POC	Licensed to TRIGR
	Brain tumor	Antibody search	Licensed to TRIGR
	Gastric/breast/hematologic cancer	In vivo efficacy	Licensed to TRIGR
Bispecific T-cell engager	Hematologic cancer	In vivo efficacy	Licensed to TRIGR
	Breast cancer (triple negative)	Antibody search	Licensed to TRIGR
	Hematologic cancer/solid tumor	In vivo efficacy	Licensed to Dong-A ST
	Colon/breast/gastric cancer	In vivo efficacy	Licensed to Yuhan
Bispecific antibodies for cancer immunotherapy	Solid tumor 1	In vivo efficacy	Licensed from I-Mab
	Solid tumor 2, 3	In vivo efficacy	Collaboration with I-Mab
	Solid tumor 4	Antibody search	Collaboration with I-Mab
Immuno-oncology	Colon/renal/ovarian cancer	In vivo efficacy	
	Triple-negative breast/ovarian/liver cancer	Antibody search	
	Solid tumor	Antibody discovery	Collaboration with Genome & Company
Bispecific antibodies for neurodegenerative diseases	Parkinson's	Nonclinical	BBB penetration
	Alzheimer's	Antibody discovery	BBB penetration
ADC	Hematologic cancer, solid tumor	In vivo efficacy and cell line development	Collaboration with LegoChem Biosciences
	Solid tumor	Antibody search	Collaboration with LegoChem Biosciences

Source: Company data, Mirae Asset Daewoo Research

Key strengths: 2) Large number of licensing deals suggest competitiveness

ABL Bio has signed five licensing agreements this year alone. These include partnerships with top domestic drugmakers Dong-A ST and Yuhan, and two massive contracts worth US$546mn (July) and US$595mn (November), respectively, with US-based TRIGR Therapeutics. The July deal with TRIGR Therapeutics was for five assets, while the November deal was for ABL001, a bispecific antibody targeting VEGF and DLL4.

Table 2. ABL Bio's licensing deals

Counterparty	Milestone	Amount received	Stage	Date of contract
Dong-A ST			Under development	1/24/18
TRIGR	US$546mn	US$4.3mn	Under development	7/30/18
Dt&SanoMedics			Under development	8/22/18
Yuhan	W59bn	W0.2bn	Under development	9/10/18
TRIGR	US$595mn	US$5mn	Domestic phase 1	11/30/18

Source: Company data, Mirae Asset Daewoo Research

Table 3. Financial details in registration statement (Wbn)

	2017	2018F	2019F	2020F	2021F	2022F
Operating revenue	0.1	5.7	9.6	27.8	56.4	123.8
Operating expenses	9.7	23.1	28.5	28.4	30.3	38.1
Operating profit	-9.7	-17.4	-18.9	-0.5	26.1	85.6
Non-operating income	-65.1	-93.2	0.0	0.0	0.0	0.0
Pretax profit	-74.7	-110.7	-18.9	-0.5	26.1	85.6
Net profit	-74.7	-110.7	-18.9	-0.5	26.1	85.6

Source: Company data, Mirae Asset Daewoo Research

Table 4. Bispecific antibody licensing deals by big pharmas

Licensee	Licensor	Deal value (up-front)	Indication	Stage	Notes	Contract date
Sanofi	Innate Pharma	US$440mn	Cancer	Under development	Two candidates	1/10/16
Janssen	MacroGenics	US$740mn (US$75mn)	Cancer	Preclinical	One candidate	5/18/16
Incyte	Merus	US$470mn (US$120mn)	Cancer	Preclinical	Eight candidates	12/20/16
Merck	F-star Biotech	US$1.13bn (US$130mn)	Cancer	Preclinical	Five candidates	6/4/17
Amgen	CytomX	US$1.47bn (US$40mn)	Cancer	Preclinical	Probody technology	10/3/17
Janssen	Zymeworks	US$1.45bn (US$50mn)	Cancer	Under development	Six candidates	11/13/17
Genentech	Affimed	US$1.2bn (US$96mn)	Cancer	Under development	ROCK technology	8/27/18

Source: Press reports, Mirae Asset Daewoo Research

APPENDIX 1

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