ABOUT CELLTRION

All that you'll ever need to know about the company

Have you ever heard about Celltrion?

From biosimilars to novel therapeutics,
Say hello to South Korea's 'hottest' company!
A true 'first mover' within the industry!

There is not a better company on the stock market!

"A true first mover! The Steve Jobs of the biosimilar industry"
Celltrion Chairman Jung Jin Seo (2016.4.6. Pressian)

'Remsima', the world's first monoclonal antibody biosimilar, receives US FDA approval (2016.4.6.)

'Remsima' records a 32% market share, within a year after its European release (Market shares expected to reach 50% in 2016)

Korea's top exporter for biologics in 2015
($430 million)

Scheduled to begin US sales of 'Inflectra (=Remsima)' in partnership with Pfizer, in November 2016

Vision : Become a top-10 global pharmaceutical company within the next 10 years (Product pipeline currently valued at $10 Billion)

Investments made by JP MORGAN, Temasek (Singapore), and Pfizer(Hospira)

2016.6.16. Ranked 42nd on Nikkei's Asia300, a list of Asia's biggest and fastest-growing companies!
(Samsung Electronics ranked 92nd)

CELLTRION

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To the overseas Individual and/or Institutional Investors

Greetings.

We are the minority shareholders of the KOSDAQ (similar to NASDAQ of the US) listed company Celltrion (KOSDAQ No. 068270)

If you (or your company) are a great admirer of the "Oracle of Omaha," Warren Buffett and Berkshire Hathaway, we encourage you to read this book carefully.

Whether you're a full-time investor or a curious individual, we're pretty sure that you've either seen or heard about stories of stocks that have scorched up the price column; fivefold, tenfold, or sometimes even more!

Thus we introduce you to Celltrion, one of those rare 'pebbles' that will surely turn out as a 'diamond in the rough.'

As of September 2016, the price tag for this 'pebble' is a mere $90.

Please hurry before the "Oracle of Omaha" makes his move. (We politely apologize if the reader is Warren Buffett himself!) Don't miss your chance to become the next Warren Buffett.

In November 2016,

Celltrion's Remsima(US brand name: Inflectra), the world's first monoclonal antibody biosimilar, is scheduled to begin sales within the US in partnership with the multinational pharmaceutical company Pfizer.

This new biosimilar is expected to seize over 50% of the original (Remicade) drug's market, which is estimated to be around $6 Billion.

As a reference, it only took Remsima one year to record a market share of 30~40% upon release in Europe. Its market share is expected to expand even more (to nearly 50%) by the end of 2016.

Surprisingly, Remsima is only one constituent of Celltrion's strong biosimilar product pipeline. With more biosimilars to come in the near (and distant) future, Celltrion is more than capable of maintaining its status as a true first mover within the industry.

In conclusion, we confidently recommend Celltrion to all overseas investors. And for those of you who have already chosen Celltrion, Congratulations!

Luck is just around the corner!!

CHAPTER 1

What is CELLTRION?

1) **The Foundation of Celltrion**

2) **The Company at a Glance**

3) **Ownership and Human Resource Structures**

"We at Celltrion, are committed to bringing value to people by helping them achieve healthier lives, and by doing so, hope to promote the health and welfare of mankind."

"At first, I started this business to make money. As the company grew, it became a form of patriotism. But now? I want to set an example for our country's future generation. My interest and investment in the healthcare industry is all because of them. I want to let them know that the future is full of hope."

(Chairman, Jung Jin Seo)

Since its foundation in 2002, we have made significant investments in human resources, facilities and technology to become a global biologics company. Celltrion develops, manufactures, and distributes therapeutics based on Recombinant DNA and molecular biology.

"Advanced Therapeutics within Everyone's Reach"

Our corporate slogan embodies the duties and responsibilities of Celltrion.

We strive to create a new paradigm in the global biologics industry by offering alternative solutions for advanced therapeutics.

We are committed to providing affordable drugs to patients who previously had limited access to advanced therapeutics, in particular, those hindered by the high cost and relative shortage of antibody biologics.

During the decade, we were confronted with the daunting task of building the necessary capacity and technologies. We grappled with the great complexity of developing biosimilar mAbs as well as regulatory hurdles. But with an indomitable spirit, we have taken these challenges head on, relentlessly yet methodically pursuing research and development in promising projects and investing accordingly

Fast forward to 2012, having received marketing approval for RemsimaTM, the world's first biosimilar mAb, we have not only created a new market which credibly challenges the dominance of the world's leading multinational pharmaceutical companies but also secured a favorable position to dominate this market for many years to come.

(Chairman, Jung Jin Seo)

1) The Foundation of Celltrion

Company begins with two researchers in 2002

Celltrion was founded in 2002 by two passionate researchers. At the time, the monoclonal antibody biologics market and related patents were dominated by foreign multinational pharmaceutical companies. This is when Celltrion created the world's first business model based on antibody biosimilars and aimed to establish a multinational pharmaceutical company of its own within Korea.

MISSION
- To promote the health and welfare of mankind

Vision
- To be the world's leading life science company through innovative biologics

Core Values
- Self-esteem and happiness to our employees
- Comfort and help to those who are in need
- Respect and delight to community

CORPORATE BUSINESS PRINCIPLES

Creativity
Biotechnology is a 21st century high-tech industry, where the creativity of individuals becomes the driving force behind growth, so Celltrion employees must value creativity when working on all tasks.

Compliance with Principles
As a business based on valuing human life, the various regulations and principles shall be thoroughly complied with.

Innovative Spirit
The business goal of Celltrion is a difficult one to achieve without infinite innovative spirit, and the Celltrion employees shall work on their duties with an unquenchable innovative spirit when working on all tasks.

Pursuit for the World's Best
The business of Celltrion aims for the global market, instead of only the domestic market, and to achieve success amid the competition with global companies, where all officers and researchers shall aim for the world's best standards and shall have the abilities corresponding to such aim.

Production facility for VaxGen's HIV vaccine is constructed

In 2002, VaxGen, an offshoot of Genentech (the manufacturer of Herceptin, Rituxan, and Avastin), was searching for an opportunity to construct a production facility to test its HIV vaccine 'AIDSVAX.'

At the time, 'AIDSVAX' was in the midst of phase 3 clinical trials, and VaxGen was in need of a major cell cultivation facility for future commercialization. It was within this context in which Celltrion was founded by VaxGen and two other primary investors, Nexol Co. Ltd. and KT&G.

Withdrawal of VaxGen, New CMO agreement with Bristol-Myers Squibb

However, VaxGen's'AIDSVAX' unfortunately failed phase 3 clinical trials and the plans for the 50,000 liter capacity facility that was being built were suddenly thrown up in the air. Celltrion overcame this unexpected crisis by signing a CMO agreement with Bristol-Myers Squibb (BMS).

At the time, BMS was also in the midst of phase 3 trials in the US for Orencia (Abatacept; a drug for treating rheumatoid arthritis). By signing a 10-year supply agreement worth a maximum of $2 Billion, Celltrion established the foundation for acquiring advanced techniques and valuable know-hows for manufacturing biologics.

Biosimilar development and cGMP facility approval

The construction of Celltrion's Plant 1 began in March of 2003, based on the technology and know-how of VaxGen. After its completion in July of 2005, the plant laid the foundation for future CMO businesses and biosimilar production by acquiring cGMP approval from the US FDA and GMP approval from the EU.

In March of 2014, Celltrion struck partnership deals with Mundi Pharma, Kern Pharma, and Biogaran to secure global distribution routes and to receive further investment for biosimilar development.

2) The Company at a Glance

About us

CELLTRION is a compound of the words CELL(the basic unit of all living organisms) and TRIONS (the Big Dipper). It represents the company's ambition to serve as **a guiding star within the bioindustry**. Celltrion's symbol mark is a depiction of a dividing cell, an aspect that characterizes the bioindustry. It is also an expression of both diversity and dynamicity. The green color symbolizes trust and safety regarding Celltrion and its products. As of 2016, Celltrion is being lead by Chairman Jung Jin Seo and co-CEOs Hyoung Ki Kim (Finance sector) and Woo Sung Kee (Manufacturing & R&D sector).

"A coexisting tomorrow will be created" "for the happiness of humanity"
co-CEOs Woo Sung Kee (Manufacturing & R&D sector).and Hyoung Ki Kim (Finance sector)

Location / Capacity

Both of Celltrion's manufacturing facilities, Plant 1 and Plant 2, are located in Songdo, Incheon and have a combined capacity of 140,000 liters. The company is planning to add an additional manufacturing capacity of 170,000 liters by expanding Plant 1 and building a new facility. The new Plant 3 will push Celltrion's total capacity to 310,000 liters, making it one of the largest manufacturing facilities in the world. With a total capital of $1.75 Billion, total assets of $4.2 Billion, and over 1,000 employees, Celltrion is truly a world-class pharmaceutical company.

The First Manufacturing Plant
50,000 liters (4 lines x 12,500 liters)
Asia's First Mammalian Cell Cultivation Facility Approved
cGMP Manufacturing Production Facilities by US FDA

The Second Manufacturing Plant
90,000 liters (6 lines x 15,000 liters)
Capable of manufacturing Active Pharmaceutical
Ingredients (APIs) to final injectable products.

Business strategy

Celltrion's step-by-step business strategy towards becoming a leading global pharmaceutical company

- STEP 01 ▶ Establish core technology and infrastructure (Production of therapeutic monoclonal antibodies), Operate US FDA approved facilities, Secure a stable revenue model, Secure technology for biosimilar development
- STEP 02 ▶ Develop company's own products (Biosimilars/Biobetters), Develop and launch company's own biologics, Establish global marketing and sales network
- STEP 03 ▶ Develop innovate drugs, Develop new antibodies and vaccines for various infections (viral) diseases, Develop innovative therapeutic monoclonal antibodies, Develop next-generation biologics
- STEP 04 ▶ Grow into a leading global pharmaceutical company

BUSINESS STRATEGY

We will grow into a global leading biologics company through phased business strategies.

Innovative Drug

- Development of innovative antibodies and vaccines against various infectious (virus) diseases
- Development of innovative novel monoclonal antibody biologics
- Development of next-generation biologics with ADC technology

Develop our own product
Biosimilars / Biobetter

- Develop and launch our own biologics
- Accumulate technology and know-how in drug development and clinical trials
- Establish global marketing and sales network

Build infrastructure and secure revenue model
Contract Manufacturing Organization (CMO)

- Large scale facility operation approved by U.S. FDA
- Secure stable revenue for next step
- Secure technology for the development of biosimilars

Business Performance / Status

2015 marked the 6th year in a row in which Celltrion recorded a trade surplus. During the first half of 2016, European market shares of Celltrion's Remsima exceeded 32%. In addition, after receiving US FDA approval for Remsima on April 2016, Celltrion is ready to set foot on the $5 Billion US biosimilar market. US sales of Remsima are expected to start some time during the 4th quarter of 2016, and europe market shares for the drug is expected to reach 50%. As can be seen, Celltrion is truly a 'First Mover' within the biosimilar industry.

2016

November	CT-P10 (Truxima) approved by Korea (MFDS)
October	Application for approval of Herzuma is submitted in the EMA
	Application approved for clinical trial phase 2b of CT-P27
June	Begins global clinical trial phase 3 of CT-P13 SC (Remsima SC)
April	Remsima is approved by the US (FDA)
February	US FDA Advisory Committee recommends approval

2015

August	Remsima is approved by Australia (TGA)
July	Remsima is approved by Russia (Minzdrav)
June	The First and the Second Plants receive approval from the FDA of U.S. on all cGMP manufacturing facilities
April	Remsima is approved by Brazil (ANVISA) and Venezuela (INHRR)
February	Remsima begins sales in Europe (Total of 12 countries including Germany, France, UK, Italy)

2014

July	Remsima is approved by Japan (PMDA) and Turkey (TITCK)
January	Herzuma is approved by Korea (MFDS) and Canada (Health Canada)
	Application approved for clinical trial of 2a of CT-P27

2013

November	Applies for temporary bridging clinical trial for US FDA approval of Remsima. Successfully completes clinical trial phase 1 of CT-P27
August	Remsima is approved in Europe (EMA)
June	Successfully completes global clinical trial phase 1 of biosimilar CT-P10
April	Begins global clinical trial of CT-P27

2012

July	Remsima approved by Korea (MFDS)

3) Ownership and Human Resource Structures

As of March 3, 2016, Celltrion's major shareholders include Celltrion Holdings, Celltrion GSC, Ion Investment (14.32%), and ESOP(0.91%). It's noteworthy that the minority shareholders account for 64.17% of the company's shares (Based on data from December 31, 2015).

Ion Investment is an investment company owned by the Singapore government, which became known domestically after its decision to invest $200 Million in Celltrion on May 2010. Ion Investment has further increased its investments since then and currently holds 14.3% of Celltrion's shares.

As of March 2016, Celltrion boasts a stellar human resource pool which includes 36 board members and 1,000 employees. Of the 1,000 employees, the production unit represents the largest portion (46.9%), followed by the R&D unit (38.8%), and the management support unit (11.5%).

- **Celltrion** : R&D, clinical testing, regulation, approval, and production of biologics
- **CelltrionHealthcare** : Global sales and marketing of biologics.
- **CelltrionPharm Inc** : Production and domestic sales of chemically-synthesized drugs. Domestic sales of biologics.
- **Celltrion Chemical Research Institute** : Research and development of chemically-synthesized drugs and biobetters (ADC).

A Glance at : The World of Biologics!

1) Pharmaceuticals : Chemically-synthesized drugs vs Biologics

Generally, drugs can be classified as one of the following:

Pharmaceuticals

Chemically-synthesized drugs :

Any chemically synthesized, extracted, and refined pharmaceutical product.

Generic drugs :

A "chemical copy" of an original drug following its patent expiration. The generic drug is bioequivalent to the original drug, but has a substantially lower cost. However, when compared to new drugs, generic drugs have relatively higher toxicity and lower efficacy.

Biologics :

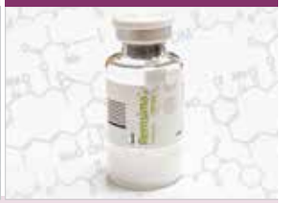
Any pharmaceutical product that is derived from a biological source. Biologics include human blood/plasma and their derivatives, vaccines, recombinant therapeutic proteins, cell therapy, gene therapy, and other products approved by the MFDS(Ministry of Food and Drug Safety, SOUTH KOREA)

Biosimilars :

Generic versions of the original biologics. Also known as biogenerics :Biosimilars may contain micro variations, depending on the organism chosen for production (Yeast, E. coli, animal cell, etc), culture conditions, and purification methods. For a biosimilar to be approved, it must demonstrate that it's either bioequivalent or comparable to the original product through clinical trials.

Biologics are relatively safe and have low toxicity. They show great therapeutic effects, especially in treatment of chronic diseases. However, in many cases, the use of biologics are limited due to their high costs.

In contrast to the classic generics which are structurally identical to their original counterparts, biosimilars, (biogenerics) may display slight differences in structure from the original product depending on the manufacturing process. These 'biosimilars,' which are laboratory generated clones of high-priced biologics, provide the same pharmaceutical effects at much more affordable prices, and improves patient access to medical treatments. (*Reference: Laboratory of Bioantibacterials, College of Pharmacy CHA University, etc)

Generics	1st Generation Biosimilars	2nd Generation Biosimilars
		
Replication is easy as long as the **chemical formula** of the original pharmaceutical product is known	Exact replication is impossible due to subtle **differences in the final products resulting** from varying **culture conditions** and **purification methods.** Thus, '**Biosimilars**' are defined as being highly '**similar**' to the original product.	
Replication is fast and inexpensive as it is done by chemical synthesis	The relatively simple molecular structure allows for lower cost and faster development	Intricate molecular structure leading to difficulties in development, causing immense expenditure and high market barriers
Time taken for development: 2~3 years	Time taken for development: 3~5 years	Time taken for development: 5~10 years
Cost : $17~26 Million	Cost : $17~26 Million	Cost : $260 Million

The differences between chemically-synthesized drugs and biologics can be summarized as the following:

Classification	Biosimilar	Generic drug
Production	Derived from living cells, tissues, etc	Chemical synthesis
Approval	Similar to new drug development	Bioequivalence studies
Structure	Complex	Simple
Molecule Size	Very large	Small
safety	Structurally variable Unstable	Stable
Clinical Trials	Approximately 2~4 years	Approximately 6 months
Development Cost	$250~650 million	$0.8~5 million

Cost for clinical trials : "Approximately $250~650 million" for biosimilars.

Generally, biologics can be categorized as recombinant therapeutic proteins, cell therapeutics, gene therapeutics, or biological products. Biological products can be further divided into blood/plasma derivatives and vaccines.

Biologics					
Category	Recombinant therapeutic proteins	Cell therapy	Gene therapy	Biological products	
				Blood/Plasma derivatives	Vaccines
Active ingredient	Peptides or proteins produced by genetic recombination technology	Living cells cultured, proliferated, selected, and manipulated in vitro	Genetic material	Blood components and plasma derivatives	Proteins or microorganisms used for disease prevention
Korean market (Percentage)	$460 Million (30.1%)	$9 Million (0.1%)	-	$381 Million (25.7%)	$593 Million (39.9%)
Examples	Growth hormone, insulin, anticancer drugs, autoimmune therapeutics	Somatic cell therapeutics, stem cell therapeutics	DNA vaccines	Red blood cells, platelets, plasma albumin, etc	Influenza vaccines, pneumococcal vaccines, etc

2) Understanding therapeutic monoclonal antibodies

Antibodies are an essential component of our immune system. They recognize and bind to specific antigens, thereby neutralizing their effects. The ability to recognize specific targets have helped antibodies become a useful tool in the treatment of many diseases.

The antibodies used for treatment of disease are usually monoclonal, meaning that they are made from identical immune cells and therefore recognize the same part of a certain antigen. These therapeutic monoclonal antibodies bind to specific markers on immunoregulatory proteins or cancer cells, and initiate (or alter) our body's immune response.

3) Development, clinical trials and approval of biosimilars

The following table shows the overall process of developing a biosimilar product.

Cell Line Development & Process Development	Preclinical Development and Studies	IND Approval	Clinical Trials	BLA Approval
Determine structural equivalence with reference drug Analyze dispersion of reference drug	Design preclinical studies Choose appropriate animal model Compare mechanisms of actions (MoA)	Apply data on bioequivalence to the FDA's IND program Design comparative clinical studies	Works to limit the number of clinical cases Compare biosimilar with reference drug	Evaluate the biosimilar's safety and efficacy CMP evaluation
2~5yrs		**2~4 yrs**		**1~1.5 yrs**

- IND : Investigational New Drug, (www.FDA.gov)
- BLA : Biologics License Applications, (www.FDA.gov)
- GMP : Good Manufacturing Practice

The following table describes each stage of the development process in detail.

Stage	Notes	Task
Cell Line Development & Process Development	**- Cell Line Development** The process of developing a stable cell line for biosimilar production. **- Process Development** The step of developing a production process based on the newly established cell line. Characteristically, the production process of biosimilars is similar to that of the original product. However, certain improvements in cell culture and other manufacturing stages are applied to achieve competitiveness. The focus of this process is to develop a biosimilar that is qualitatively comparable to the original drug.	Demonstrate equivalent product quality
Preclinical Development and Studies	The process of studying the toxicity and physicochemical properties of the newly developed biosimilar in animal models (such as mice or monkeys), prior to human clinical trials. The comparability between the biosimilar and the original drug is also investigated during this step. Preclinical studies are outsourced to experienced contact research organizations (CRO) to ensure better preparation for the following IND process.	Perform preclinical studies with CROs in compliance with GLP regulations
IND Approval	The investigation of the preclinical data of the newly developed biosimilar to decide whether it is appropriate for clinical trials. The newly developed biosimilar must obtain IND approval in order to proceed human clinical studies.	Global CRO
Clinical Trials	The process of determining the safety and efficacy of the newly developed biosimilar in humans. Large quantities of the original drug are purchased during this stage (as a reference drug) for comparison with the biosimilar.	Global CRO F&F,L&P, Central Lab
BLA Approval	A comprehensive process which reviews the product quality and the results of both preclinical and clinical studies. Once the application is cleared and receives final approval, the drug may be sold on the market.	Global CRO

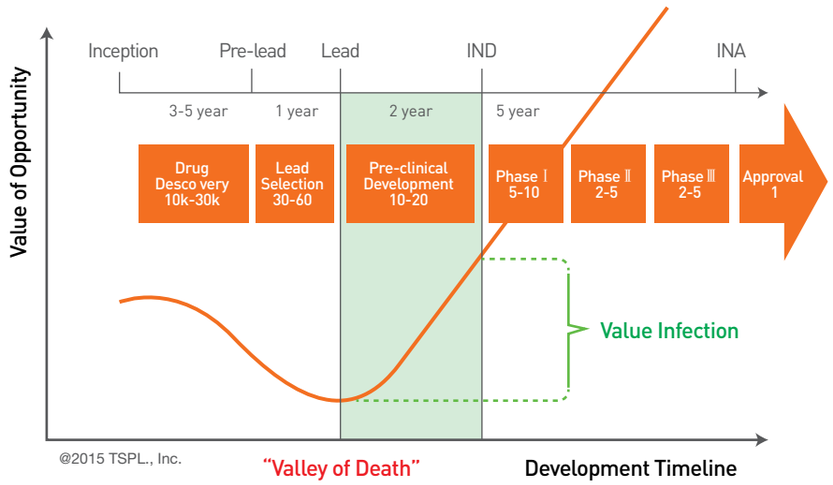
Clinical trials are classified into the following phases. The results of the clinical trials are reviewed during the Biological License Application(BLA) process.

Clinical Trial Phase	Notes
Phase 1	Testing within a small group of people to evaluate the safety of the drug and to identify side effects. The aim is to screen drug safety while testing different administration methods and doses.
Phase 2	Testing within a larger group of people to further evaluate the safety of the drug and determine its efficacy. As with phase 1 trials, different drug administration methods and doses are tested.
Phase 3	Testing within large groups of people to confirm the drug's safety and efficacy at a specific dose/administration method, which was determined as a result of phase 1 and 2 trials

In contrast to new drug development which must undergo all three phases, clinical development of biosimilars typically skip phase 2 trials because the administration methods and doses have already been established by the original drug.

Yet, as can be seen below, the failure rates for new drugs are very high. Even for drugs that have entered phase 3, failure rates are nearly 50%. Biosimilars are thought to have similar failure rates to new drugs.

Failure rates for different development proceses The 'valley of death' in new drug development



Biologics must undergo the following production processes before registering for final approval.

Bioprocessing					
Upstream				Downstream	
Microorganism selection	**Seed train culture**	**Main culture**	**Cell harvest**	**Purification**	**Fill & finish**
The selection of the final production microorganism	The small volume culture for generating an adequate number of cells for the innoculation of a roduction bioreactor	The final culture of cells using production bioreactors	The extraction of a protein from the production microorganism	Filtration, precipitation, chromatography, etc / Takes 2~4 days	Addition of buffers

* **Culturing** : The process in which the frozen cells are thawed and expanded with flasks, seed bioreactors, and production bioreactors, and the substance of interest (such as a protein) is extracted by centrifugation.

* **Purification** : The process in which the impurities and viruses are eliminated from the extracted protein. The purified substance is called the drug substance (DS), and is filled into a bottle.

* **Fill and Finish (F&F)** : The process in which the drug substance (DS) is formulated to an injectable form and is filled into a container (vials, syringes, etc). The final product of this process is called the drug product (DP).

For a manufactured product to be sold on the market, it must go through an FDA (or a regulatory body in a different country) approved 'fill & finish (F&F)' and 'labeling & packaging (L&P)' process.

The F&F process may slightly differ depending on whether the final product is desired to be a liquid form or a lyophilized form (powder). The initial steps for both forms are identical: the drug substance is mixed with a buffer and filled into a vial.

If the final drug product is desired to be a liquid, a rubber stopper is inserted and the vial is capped. In contrast, if the final product is desired to be a powder, the rubber stopper is halfway inserted and the drug substance is lyophilized before capping.

Once capping of the vial is complete, it is put into a plastic tray and packaged in a shipping box.

The result of the F&F process is an unlabeled vial containing the drug substance. Naturally, the next step is adding a label onto the vial. This label must include specific information on the drug such as descriptions, precautions, and expiration date. The drug product must complete a regulated L&P process in order to be available for sale.

For pharmaceuticals, both the product and the manufacturing facility must be approved by the responsible regulatory body. Conditions for approval may vary among different regulatory bodies.

A flow chart illustrating the overall process of Celltrion's biosimilar development and its sales

Product Development (Laboratory Stage) – Quality Check – Non-clinical Batch Production – Non-clinical studies (Animal Testing) – Clinical Batch Production – Clinical Trials (Phase 1/2/3) – Manufacturing Facility & Product Check (Process Validation Batch Production) – Finish Clinical Trials – Common Technical Document(CTD) Registration (Overview + Quality + Nonclinical + Clinical Modules) – Marketing Approval – Production & Sales

CHAPTER 3

Core Technologies & Product Pipeline of CELLTRION Surprising the World!

"On April 6th of 2016, Chairman Jung Jin Seo let out a big sigh of relief and unleased a huge smile. The US FDA's had just approved Celltrion's biosimilar product 'Inflectra(Remsima)' for marketing. It was a moment of redemption for both him and the company which had to pave its own road and endure for 14 years, despite all of the doubters and naysayers. The FDA approval meant that the doors were open to the world's biggest market, which was estimated to be around $ 20 Billion. It also cemented Jung Jin Seo's status as a 'Salary-man legend,' whom started off as a ordinary salary man and later became the chairman of one of the world's rising bioenterprises. This is truly a feel-good story, not only for the Koreans, but also for the people in general around the globe."

1) The Core Technologies of CELLTRION

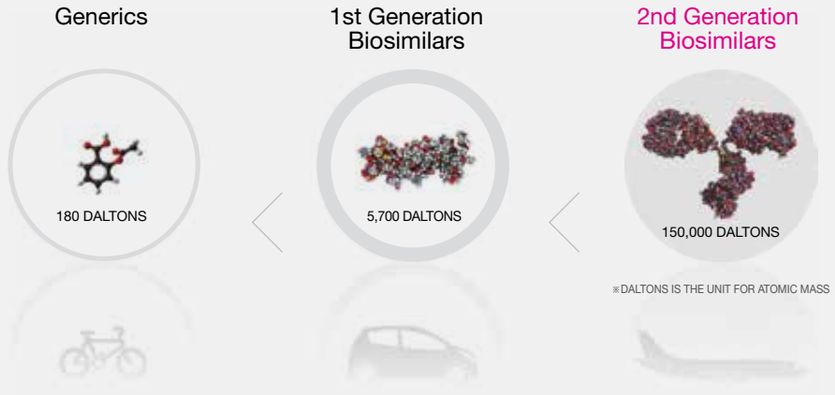
Celltrion is a global biopharmaceutical company that is committed to the development and production of monoclonal antibody biosimilars and novel therapeutics.

In general, biosimilars can be classified as either first generation or second generation biosimilars. The first generation biosimilars are relatively simple in structure and examples include proteins and hormones such as Somatropin (human growth hormone, HGH), Filgrastim (granulocyte colony stimulating factor, G-CSF), Epoetin(erythropoietin, EPO), and Insulin. In contrast, second generation biosimilars are more complex in structure and have a higher molecular weight, and therefore, require higher technical skills for its production. Quality analysis is also essential, as the biosimilars are produced by living cells. The different skill levels of different companies participating in biosimilar development and production can be compared to either a bicycle, car, or plane.

Difficulties in the Development of Biologics

Compared to chemically synthesized pharmaceuticals, biologics display complex crystal structures resulting in a more challenging process for development an d production.

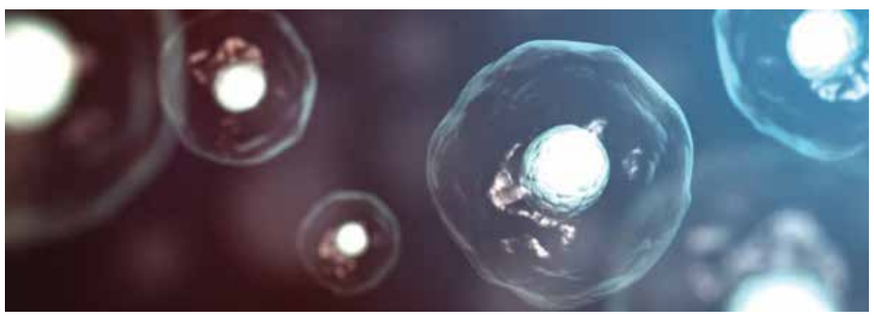
Differences in the level of technology required for the development of biologics compared to generic pharmaceuticals are analogous to the technological differences observed between development of a bicycle, automobile and airplane.



The therapeutic monoclonal antibodies being studied and produced by Celltrion are one of the following;

1) mouse antibodies originating from 100% mouse amino acid sequences,
2) chimeric antibodies constituted by mouse variable regions and human constant regions,
3) humanized antibodies in which the mouse framework sequences are replaced by human sequences, or
4) human antibodies originating from 100% human amino acid sequences.

The four major technologies of Celltrion are:



▶ Cell Line Development : Unlike the production of chemically-synthesized drugs, which use organic synthesis, the production of biosimilars require the use of living cells. Therefore, it is essential for any company trying to break into the biosimilar business to have an established cell line development technology. Celltrion currently holds its own cell line development methods, including a vector system.

Establishing a stable expression of the foreign DNA of interest in a mammalian cell line requires the use of selectable marker genes (such as neomycin phosphotransferase) which are transduced into the host cell. The foreign DNA and the selectable marker genes can be introduced to the host cell as a single vector or co-transfected as separate vectors.

The host cells most commonly used for commercial-scale manufacturing of biologics are CHO (Chinese hamster ovary), DHFR (dihydrofolate reductase) negative CHO, CHO K1, BHK (Baby Hamster Kidney), NS0, SP2/0 and human cells.

Efficient gene expression requires the help of different cellular components. One example is MAR (matrix attachment region), also known as SAR (scaffold attachment region), a sequence in the DNA that regulates gene expression by mediating structural organization of the DNA. Generally, the MAR sequence must be inserted into the host genome for it to properly function.

In addition, MAR sequences (which are more than 70% AT-rich) are known to increase the expression of transgenes of the transformed animal cell line.

Celltrion has developed its own animal cell expression vectors to ensure the efficient expression of foreign DNA. The company has also developed its own method for selecting highly efficient recombinant cell lines.

▶ Cell Culture Process Development : After developing an adequate cell line, a proper cell culture process must be established to ensure optimal production. And since cell cultures require expensive media and equipment, a stable and

high-output culture process is crucial for the reduction of production costs. In other words, the cell culture process is one of the most important factors in securing price competitiveness of the final drug product (medicinal product). In particular, developing optimal environments for various processes (from small-scale research to large-scale commercial production) calls for state-of-the-art technologies and know-how. The cell culture media used for the mass production of Remsima is currently being supplied by HyClone, a subsidary of General Electric.

An overview of cell line development and cell culture

▶ **Purification Process Development** : The extraction and purification of therapeutic monoclonal antibodies from the culture media is an important step in production. This step requires the use of high-priced consumable materials, and therefore, establishing an optimized purification process is essential in reducing production costs.
The two most important factors for reducing production costs are antibody recovery efficiency and purification efficiency.

Celltrion has developed its own purification techniques such as protein A chromatography using switching column with continuous feeding, calcium phosphate precipitation, and mixed-mode chromatography, **resulting in a two-fold increase in antibody yields.**

The purification process

The bioreactor animal cell culture process

▶ **Assay Method Development** : After a cell line has been established and the resulting antibodies have been purified, the next step is to analyze the glycosylation patterns of the antibodies. Glycosylation analysis is essential in understanding the structure of the antibody that has been produced, and demonstrating its biosimilarity to the original drug in terms of safety, purity, and potency. Therefore, developing an elaborate assay for glycosylation analysis is essential in determining the overall success of the biologic. These assays must be conducted regularly, as cells are constantly undergoing change.

In addition, the handling and preservation of biologics can be tricky, when compared to chemically-synthesized drugs, and there is always a risk for the drug being spoiled during distribution. Therefore, biologics need extra attention.

2) Celltrion biosimilar and pharmaceutical surprising the world

Biologics				
Product Name	Target Substance	Original Name	Major Indication	Development Status
Remsima/ Inflectra	Infliximab	Remicade (J&J)	Autoimmune diseases	Approved by the US FDA and MFDS(SOUTH KOREA). Also approved in EU, Canada and Japan

Biosimilar Candidates				
Product Name	Target Substance	Original Name	Major Indication	Development Status
CT-P06	Trastuzumab	Herceptin (Roche)	Breast cancer	Approved by the MFDS(SOUTH KOREA)
CT-P10	Rituximab	Rituxan/MabThera (Roche)	Non-Hodgkin lymphoma	Applied for EMA approval
CT-P05	Etanercept	Enbrel (Amgen)	Rheumatoid arthritis	Pre-clinical study
CT-P15	Cetuximab	Erbitux (BMS)	Colorectal cancer	Pre-clinical study
CT-P14	Palivizumab	Synagis (Asterazeneca)	Respiratory diseases	Under process development
CT-P17	Adalimumab	Humira (Abbott)	Rheumatoid arthritis	Pre-clinical study
CT-P16	Bevacizumab	Avastin (Roche)	Colorectal cancer	Pre-clinical study

Biosimilar Candidates			
Product Name	Research Partner	Target indication	Development Status
CT-P27	Severance Hospital, US CDC, Seoul National University, etc	Influenza	Completed global clinical trial phase 2a
CT-P26	Celltrion Chemical Research Institute	Breast cancer (ADC)	Pre-clinical study
CT-P19	US CDC, etc	Rabies	Under process development
CT-P24	Severance Hospital, Konkuk University, etc	Hepatitis B	Under process development
CT-P25	-	Influenza	Under process development

Blockbuster drugs are either one or the other; the first drug to be developed “First in Class” or the best drug to be developed “Best in Class”.

Celltrion’s Inflectra(Remsima) is a “First in Class” biosimilar of the “Best in Class” anti-TNF-α agent Remicade, which is used to treat rheumatoid diseases.
Celltrion’s Herzuma is a “First in Class” biosimilar of the “Best in Class” anti-cancer drug Herceptin, which is used to treat breast cancer.
Celltrion’s Truxima is a “First in Class” biosimilar of the “Best in Class” anti-cancer drug Rituxan, which is used to treat Non-Hodgkin lymphoma. Truxima is currently competing with Sandoz’ rituximab biosimilar.
The following table shows the top 10 best-selling biologic drugs. Celltrion currently has biosimilar pipelines for 6 of these drugs.

1. CT-P13 (Remsima)

Generic Name : Infliximab
Brand Name : Remsima, Inflectra
Indications : Rheumatoid arthritis, Ankylosing spondylitis, Crohn’s disease, Ulcerative colitis, Psoriasis, etc

- The world’s first biosimilar monoclonal antibody. Currently exported to 72 countries
- Seizes over 40% of the European market within a year, US debut scheduled for November of 2016
- CT-P13 Will be sold under the brand name “Inflectra” by Pfizer

Remsima is a biosimilar of Johnson & Johnson’s TNF-α autoimmune drug, Remicade.
TNF-α is a proinflammatory cytokine that can be seen in many different types of autoimmune diseases. Many drugs target this TNF-α (anti-TNF-α drugs) for treatment. The blockbuster drugs Humira, Enbrel, and Remicade are good examples.

The US-based global pharmaceutical company Johnson & Johnson is currently selling an anti-TNF-α drug under the brand name Remicade. Celltrion's Remsima is a biosimilar of this drug. Remsima received approval from the MFDS(SOUTH KOREA) in July of 2012, and a year later, the EMA (European Medicines Agency) approved its use within Europe as well. In April of 2016, Remsima became the first biosimilar monoclonal antibody approved by the US FDA.

Remsima is expected to compete not only with the original drug (Remicade), but also with other TNF-α inhibitors, which share the same indications. The global market for TNF-α inhibitors is estimated to be around $ 30 Billion, with the US market alone accounting for $ 20 Million. The three blockbuster drugs within this market are Remicade (J&J), Humira (AbbVie), and Embrel (Amgen).

Assuming that Remsima succeeds in taking over 20% of the market, this would lead to a **sales of approximately $ 7 Billion**.

The reasoning behind this assumption (that Remsima will take over 20% of the market) is the fact that Remsima quickly took over more than 30% of the original drug market in several major European countries within a year upon release. Moreover, the US CMS (Center for Medicare & Medicaid Services), which covers half of the US market, recently finalized a policy that gives incentives to physicians who prescribe biosimilars.

The newly modified CMS Biosimilar Reimbursement Rule under Medicare Part B is especially noteworthy, as it gives a 6% incentive to physicians who prescribe biosimilars based on the average sales price of the reference biologic product (the original drug). According to the updated Reimbursement Rule, physicians will continue to receive the 6% incentive when prescribing a biosimilar, but not nearly as much when prescribing the original drug.

Considering the biosimilar-friendly environment of the US market, the $7 Billion-in-sales of Remsima is a realistic scenario.

- The indications for the drug are rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, Crohn's disease (adults), ulcerative colitis, and psoriasis. The original drug, Remicade, recorded a global sales of 8.36 billion dollars in 2015.

- The effectiveness of administering Remicade for the treatment of pediatric Crohn's disease is currently under investigation through PMS(Postmarketing surveillance) by Johnson & Johnson. If pediatric Crohn's disease is approved as an indication of Remicade use, the same would be held true for Remsima as well.

- Remsima is an effective biosimilar replacement for Remicade. It shares similar indications with Humira and/or Enbrel, and therefore, can be used in patients taking such drugs as well.

- As with Remicade, Remsima is administered to the patient via intravenous injection. However, for some patients the regular hospital visit and subsequent 2-hour drug injection may be a bothersome task. Celltrion has recently applied for clinical trials for a new drug, Remsima SC, which can be administered via subcutaneous injection by the patients themselves (similar to Humira and Enbrel), reducing patient inconvenience.

- It must be noted that although US sales of Remicade, Humira, and Enbrel saw an increase, their sales outside of the US decreased. This observation highly suggests that Remsima, which shares the same mechanism of action as the other TNF-α inhibitors, was successful in taking away patients who were previously on Humira and Enbrel.

- Sales breakdown of Remicade, Enbrel, and Humira, by indication

- J&J, AbbVie Shares Drop on “Potential Drug Competition (Celltrion)“(The Wall Street Journal, 2016.2.5)

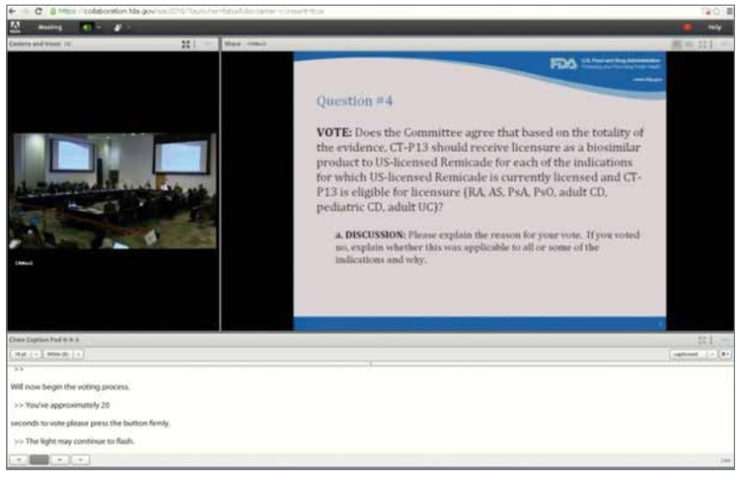
Show: Most Recent Annual — Add or remove columns

	Company name	Price	Change	Chg %	d | m | y	Mkt Cap
				Valuation		
AMGN	Amgen, Inc.	145.04	-4.87	-3.25%		113.68B
JNJ	Johnson & Johnson	100.50	-3.40	-3.27%		287.37B
TKPYY	Takeda Pharmaceut...	24.12	-0.07	-0.29%		38.23B
AZN	AstraZeneca plc (...	30.02	-0.45	-1.48%		76.67B
CELG	Celgene Corporation	97.89	-4.04	-3.96%		80.64B
NVS	Novartis AG (ADR)	74.33	-0.73	-0.97%		198.80B
PFE	Pfizer Inc.	29.02	+0.02	0.07%		179.05B
LLY	Eli Lilly and Co	74.32	+0.04	0.05%		82.25B
RHHBY	Roche Holding Ltd...	31.69	-0.38	-1.18%		215.21B
ABBV	AbbVie Inc.	53.13	-3.63	-6.40%		92.84B
MRK	Merck & Co., Inc.	49.38	+0.79	1.63%		136.15B

- The shares of several pharmaceutical companies on NASDAQ, such as J&J and AbbVie, took a hit due to the emergence of Celltrion’s biosimilar product, Remsima. This marked the first time a South Korean pharmaceutical company made direct impact on NASDAQ shares.

- The FDA Advisory Committee approves Celltrion’s Remsima, making it the first biosimilar monoclonal antibody to be approved in the US (2016.2.9).

- The US FDA provides webcasts (internet streaming) of the meetings to the public, in order to show the fairness and objectivity of the process.



- Celltrion's biosimilar takes over the Norwegian market…Records 59% market share during the first quarter: Sales of the trio of original drugs, including Enbrel, take a hit – The graph on the left shows the first quarter shares of the Norwegian TNF-a market. Remsima took over 22% of the market within a single quarter (3 months), while the market shares of Enbrel, Humira, and Remicade fell by 6%p, 3%p, and 13%p respectively.

- The drop in market shares for Humira, which previously lacked biosimilar competition, and Enbrel, which was in competition with Benepali (another biosimilar), is especially noteworthy. This suggests that the decrease in market shares of Enbrel+Humira from 55% (end of 2015) to 34% (first quarter of 2016) was directly due to the success of Remsima. As was reported earlier by Celltrion(2016. 5. 20.), "the number of prescriptions for Remsima have greatly exceeded those of several original drugs, leading to the speculation that these drugs have been successfully replaced by Remsima. In addition, Remsima seems to have also penetrated the TNF-a market as well, shown by the decrease in market shares of Enbrel and Humira."

- **According to statistics from April of 2016, the market shares of Remsima was 92.9% in Norway, 96% in Denmark, and 88% in Finland.**

- **Study suggesting that it is possible to switch Remicade with the infliximab biosimilar (Remsima) in patients with psoriasis.**

- Although there were limitations in the number of patients and length of follow-up, a recent study conducted by the American Academy of Dematology (2016. 6), reported that switching Remicade with Remsima in patients with psoriasis did not induce any significant change in clinical response or additional adverse effects. The authors of the study also suggested that the use of Remsima could potentially reduce the growing pressure on health care budgets. The results of this study (and any many other reports) have greatly heightened the credibility of Remsima, and may serve as a barrier against future biosimilar competition.

2. CT-P10 (Truxima)

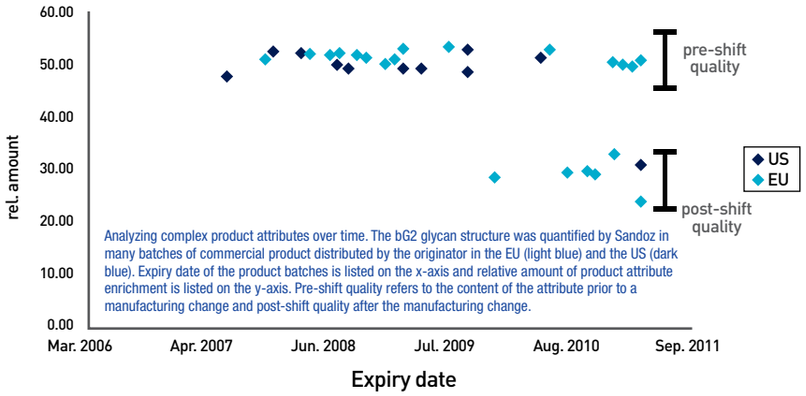
Generic Name : Rituximab
Brand Name : Truxima
Indications : Non-Hodgkin lymphoma(NHL), chronic lymphocytic leukaemia(CLL) rhematoid arthritis(RA), microscopic polyangiitis(MPA)

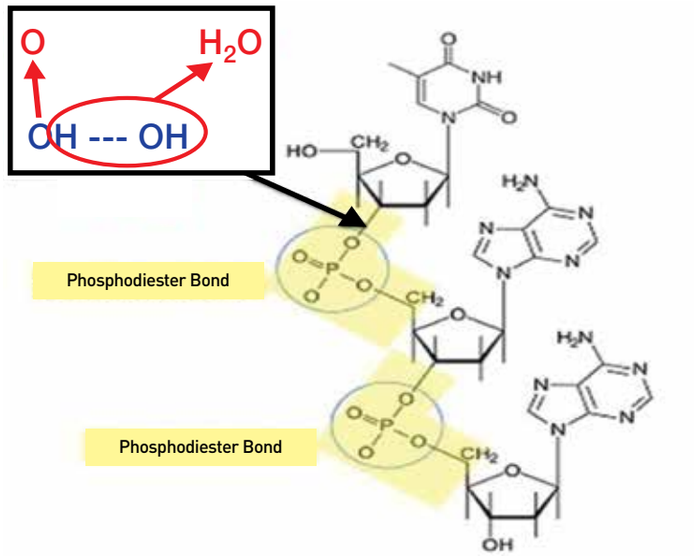
- **Expected to receive EMA approval in 2016. Will be exported to 31 countries**
- **Several multinational pharmaceutical companies, including Samsung, halt Rituxan biosimilar development**

The US FDA-approved Rituxan is a chimeric anti-CD20 monoclonal antibody, which is used to treat diseases such as non-Hodgkin lymphoma and rheumatoid arthritis. It was developed by the multinational pharmaceutical company Roche. CT-P10 (Truxima) is the biosimilar of this drug. The indications for CT-P10 (Truxima) are non-Hodgkin lymphoma and rheumatoid arthritis. The original drug, Rituxan, recorded a global sales of $ 7.12 billion in 2015.

Truxima was submitted to the EMA on October 2015. On 15 December 2016, the Committee for Medicinal Products for Human Use (CHMP) adopted a positive opinion, recommending the granting of a marketing authorisation for the medicinal product Truxima, intended for the treatment of non-Hodgkin's lymphoma (NHL), chronic lymphocytic leukaemia (CLL), rheumatoid arthritis (RA), granulomatosis with polyangiitis (GPA) and microscopic polyangiitis (MPA). The applicant for this medicinal product is Celltrion Healthcare Hungary Kft.

If approved by the EMA, Truxima will be available for sale in a total of 31 European countries (28 EU countries and 3 EEA countries).
In 2010, a study reported changes in bG2 attributes of Rituxan (see picture on the right). The bG2 (also referred to as BGL2 or BglII) protein, which full name is Glucan endo-1,3-beta-glucosidase acidic isoform, is a restriction endonuclease (an enzyme that cuts DNA). These restriction endonucleases cut the phosphodiester bonds of foreign DNA (see picture) by recognizing specific DNA sequences, while leaving the host DNA untouched.





Rituxan was already perceived as a tricky drug to produce a biosimilar copy, but the manufacturing changes reported in 2010 made it an even more daunting task. This lead to **several multinational pharmaceutical companies such as BoehringerIngelheim, Teva, Lonza and Samsung's Bioepis halting their Rituxan biosimilar development. However, unlike the other companies, Celltrion was ultimately successful in producing the Rituxan biosimilar, thanks to its world-class monoclonal antibody manufacturing techniques and vigorous efforts.** Celltrion's biosimilar is currently awaiting EMA approval.

3. CT-P06 (Herzuma)

Generic Name : Trastuzumab
Brand Name : Herzuma
Indications : Breast cancer (adjuvant therapy), metastatic breast cancer, metastatic gastric cancer, etc

- The world's first anti-cancer biosimilar…Approved by the MFDS(SOUTH KOREA)
- Drug used during targeted anticancer therapy. Scheduled to apply for approval in both Europe and the US within the second half of 2016

Herceptin, which was developed by Genentech, a subsidary of the multinational pharmaceutical company Roche, is one of the most frequently used drugs in targeted therapy of breast cancer. It specifically "targets" certain cancer cells while minimizing damage done to normal cells. The drug was first developed based on the observation that certain breast cancer cells overexpressed the epidermal growth factor HER2, compared to normal cells. This overexpression of HER2 induces cell growth beyond its normal limits, ultimately leading to tumor formation.

Herzuma, Celltrion's biosimilar of the original drug Herceptin, received marketing approval from the MFDS(SOUTH KOREA) in 2014, making it the world's first anti-cancer biosimilar.
The MFDS(SOUTH KOREA) approved the use of Herzuma in 'metastatic breast cancer, early-stage breast cancer, and metastatic gastric cancer.'

- The domestic approval of Herzuma is especially noteworthy because **it marks the beginning of biosimilar use in the treatment of severe diseases such as cancers.** Herzuma is a targeted therapy drug which interferes with the HER2 receptor, and selectively destroys HER2-overexpressing cancer cells.

- Herzuma is scheduled to apply for marketing approval in Europe(EMA) within the second half of 2016, while application for US FDA approval is expected to happen in the near future as well.

- The indications for Herzuma are breast cancer and gastric cancer. The original drug, Herceptin, recorded a global sales of $ 6.6 billion in 2015.

4. CT-P16 (Avastin)

Generic Name : Bevacizumab
Brand Name : Avastin
Indications : Metastatic colorectal cancer, breast cancer, non-small cell lung cancer, cervical cancer, etc

- CT-P16 is a biosimilar of Avastin, a drug developed by the Swiss pharmaceutical company Roche. The global sales for the original drug, Avastin, marked 6.75 billion dollars in 2015.

The indications for CT-P16 are metastatic colorectal cancer, metastatic breast cancer, non-small cell lung cancer, advanced or metastatic renal cell carcinoma, glioblastoma, epithelial ovarian/fallopian cancer, or primary peritoneal cancer, and cervical cancer. It's main competitor is Merck's Erbitux.

5. CT-P17 (Humira)

Generic Name : Adalimumab
Brand Name : Humira
Indications : Crohn's disease, ulcerative colitis, ankylosing spondylitis, etc

CT-P17 is a biosimilar of the drug Humira (the drug is marketed under 'Abbott,' but was developed by AbbVie, which is a spin-off of Abbott Laboratories), one of the true blockbuster drugs of all-time. Humira recorded a global sales of nearly 15 billion dollars in 2015. The indications for the drug are Crohn's disease (both adult and pediatric forms), ulcerative colitis, rheumatoid arthritis, ankylosing spondylitis, sever non-radiographic axial spondyloarthritis, psoriasis, psoriatic arthritis, polyarticular juvenile idiopathic arthritis, intestinal Behcet's disease, hidradenitis suppurative(HS), enthesitis-related arthritis (in patients over 6 years of age), panuveitis, and moderate to severe chronic plaque psoriasis.

6. CT-P14 (Synagis)

Generic Name : Palivizumab
Brand Name : Synagis
Indications : Respiratory tract disease, pneumonia, etc

Synagis was originally developed by MedImmune, a subsidary of AstraZeneca, and then co-marketed by MedImmune and AbbVie. The indications for the drug are respiratory tract disease and pneumonia. Synagis recorded a global sales of 660 million dollars in 2015.

7. CT-P05 (Enbrel)

Generic Name : Etanercept
Brand Name : Enbrel
Indications : Rheumatoid arthritis, spondyloarthritis, etc

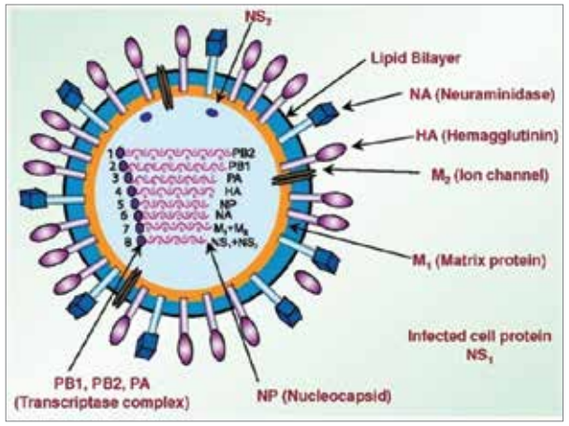
CT-P05 is a biosimilar of Pfizer's TNF-a blocker Enbrel. The indications for the drug are rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, axial spondyloarhtritis, and polyarticular juvenile idiopathic arthritis. However, due to a recently granted patent, Enbrel is protected from biosimilar competition until November 2028 in the US.

1. CT-P27 (Navivumab)

Generic Name : Navivumab
Indications : Influenza – H1N1(Swine flu), H2N2(Asian flu), H5N1,H9N2,H7N2,H7N9 (Avian flu), H3N2(Hong Kong flu)

A universal influenza treatment monoclonal antibody drug.

Phase 2a clinical trials complete…US FDA designation as a "breakthrough therapy" highly anticipated, following completion of phase 2b clinical trials. Aiming to produce the world's first commercialized biological new medicine. If successfully developed, will replace Tamiflu, while potentially being selected as a government stockpiling medicine.



'Influenza', An innovative influenza treatment & vaccine for influenza types A, B and C. The drug was developed in collaboration with the US CDC(Centers for Disease Control and Prevention) and Severance Hospital of Korea. Phase 2a clinical trials for Navivumab have been completed.

- Celltrion's CT-P27 has demonstrated efficacy over various epidemic and seasonal influenza subtypes affecting humans including most of the avian influenza subtypes (H1, H2, H3, H5, H7, H9), through experiments in collaboration with both the US

CDC and Chinese government. Moreover, CT-P27 has the ability to neutralize influenza viruses that have become resistant to currently existing treatments such as Tamiflu, as it shows a different mode of action compared to the preexisting drugs.

- Influenza viruses frequently undergo mutations and genetic recombinations, therefore causing the need for new vaccines each and every year. This can especially be problematic when lethal variations of the influenza virus become pandemic, since development of new vaccines take a significant period of time. In contrast to these vaccines, antibodies can be deployed immediately to treat the virus.

Thus, if successfully developed, it is highly likely that CT-P27 would be selected by governments from around the world as a stockpiling medicine, in preparation for a future pandemic. Therefore, CT-P27 is expected to replace preexisting drugs such as Tamiflu.

Celltrion's CT-P27 is scheduled to start phase 2b clinical trials by the end of the year. The drug samples for phase 2b clinical trials have already been manufactured, and the company is currently searching for an appropriate region to conduct subsequent clinical trials.
If CT-P27 successfully completes phase 2b clinical trials, the drug is highly likely to be designation as a "breakthrough therapy" by the US FDA. The company is looking to conditionally commercialize the drug in certain countries before phase 3 trials.

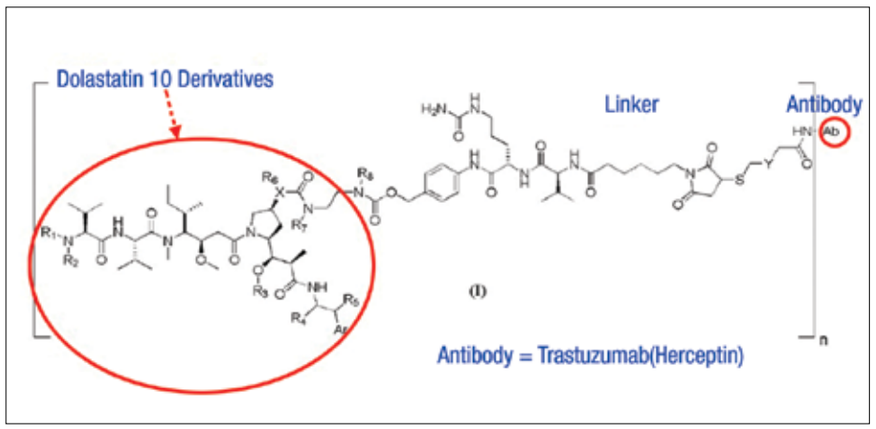
A study on the hemagglutinin recognition by CT-P27 was published in Nature Communications in July of 2015 (CT-149 is a major component of CT-P27)
(http://www.nature.com/ncomms/2015/150721/ncomms8708/full/ncomms8708.html)
CT-P27 has shown the ability to neutralize the recent Chinese avian flu, leading to the US CDC approval for further clinical testing as a response to the Chinese government's request.
CT-P27 is actually a combination of two monoclonal antibodies, CT-P22 and CT-P23. CT-P22 recognizes the viral antigens H1N1, H2N2, H5N1 and H9N2, while CT-P23 recognizes the viral antigens H3N2 and H7N2. The core technology behind the production of CT-P27 is making sure that the actions of CT-P22 and CT-P23 don't interfere with each other.

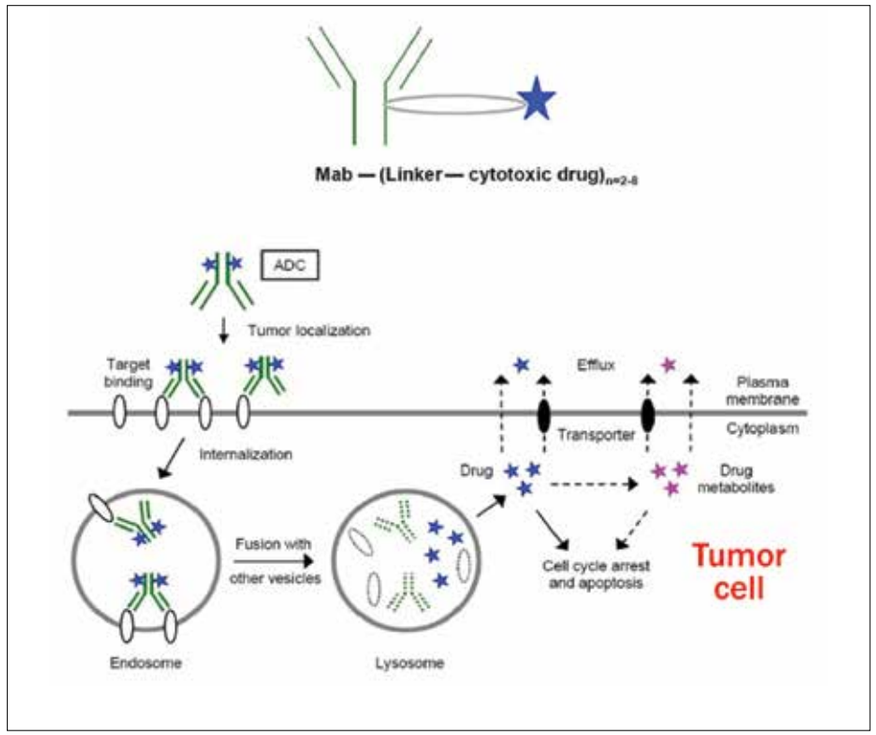
2. CT-P26

ADC Technology-applied Biobetter
Indications : Breast cancer

- An ADC(Antibody-drug conjugate) biobetter…Next-generation breast cancer treatment
- celltrion holds various domestic and international patents for targeted antibodies and linkers
- CT-P26 is an ADC(antibody-drug conjugate) technology-applied biobetter, expected to become a next-generation therapeutic antibody for the treatment of breast cancer.

A biobetter is an enhanced or 'better' version of a biosimilar or original drug. They are genetically modified (for example, by substituting a certain amino acid sequence, or by fusing it with different materials) to acquire improvements in stability and efficacy. A good example of a biobetter is an ADC.
An **ADC is a conjugation of an antibody with a chemotherapeutic agent, and is used for targeted therapy in the treatment of patients with cancer.** Unlike chemotherapy, in which the chemotherapeutic agent affects both cancer cells and normal cells, an ADC can specifically target and kill only the cancer cells resulting in milder side effects.





Three components are needed to construct an ADC: (1) an antibody that can be internalized by the targeted cancer cell, (2) a cytotoxic agent for attacking the cancer cell, and (3) a linker that connects the antibody with the cytotoxic agent. The linker, in particular, must contain a region that is cleavable when exposed to an acidic microenvironment.

The first ADC to receive FDA marketing approval was Abbott's Brentuximabvedotin (Brand name: Adcetris) in 2011. This was followed by Genentech's Trastuzumabemtansine (Brand name: Kadcyla), which is a conjugation of Herceptin and the cytotoxic agent emtansine, in February 2013.

Celltrion has received several patents (both domestically and internationally) for its own ADC as well, the CT-P26. These patents relate to the antibody-linker-drug conjugate and its preparation methods, and the composition of the anticancer drug. Celltrion's CT-P26 is a conjugate of Herzuma (CT-P06) and a dolastatin-10 derivative (anticancer drug).

The antibody portion of the ADC recognizes a specific tumor marker on the surface of a tumor cell and is internalized in the form of an endosome. The endosome fuses with a lysosome, and as a result, the internalized ADC is exposed to an acidic microenvironment. This exposure triggers the cleavage of the linker and subsequent release of the anticancer drug. The anticancer drug diffuses across the lysosome membrane into the cytoplasm and kills the cancer cell. This mechanism of action allows the ADC to selectively target and kill cancer cells while limiting any damage done to normal cells. ADCs can have one, two, or even four anticancer drugs linked to them.

The multinational pharmaceutical company Roche is selling its own Herceptin-based ADC, Kadcyla, but the drug comes with a significantly high price tag. In addition, recent attempts by the company to expand the indications of use for Kadcyla have failed. In one phase 3 trial (GATSBY), Kadcyla failed to show superiority over taxanes in the treatment of HER2-positive locally advanced/metastatic gastric cancers and gastroesophageal junction cancers. (As a reference, taxanes are a class of anticancer drugs which include paclitaxel and docetaxel).

Roche also reported that Kadcyla failed to meet the primary endpoint of another phase 3 trial (MARIANNE), which was investigating the use of Kadcyla in the first line treatment for metastatic breast cancer. The three-arm phase 3 study was conducted to evaluate three HER2-targeted regimens; 1) Kadcyla plus Perjeta, 2) Kadcyla alone, and 3) Herceptin plus taxane chemotherapy. However, Kacyla failed to demonstrate a significantly improved progression-free survival when compared to Herceptin and chemotherapy.

In the light of these events, Celltrion's CT-P26 is looking to gain a step against its competition with an upgraded efficacy and consumer-friendly price.

3. CT-P04

Indications : Breast cancer, lung cancer, uterine cancer, prostate cancer, pancreatic cancer

- Novel therapeutic for breast cancer…Currently being co-developed with A&G Pharmaceuticals
- Other potential indications include lung, uterine, prostate, and pancreatic cancer

CT-P04 is a chimeric monoclonal antibody which targets the growth factor GP88 (progranulin), which is expressed in 80% of breast cancer patients.

The drug is being co-developed by Celltrion and A&G Pharmaceuticals, a company which possesses 150 US patent applications and 38 US patent registrations for the anti-GP88 antibody. The two companies agreed to terms on May 24th, 2006, giving Celltrion exclusive rights to produce and market CT-P04.

If CT-P04 is successfully developed, Celltrion will be able to gain access to a completely new market that is potentially 4-times larger in size. While all of the preexisting anti-cancer antibodies (Herceptin, Kadcyla and Perjeta) target HER2, which is only expressed in 20% of breast cancer patients, CT-P04 targets GP88 which is expressed in 80% of breast cancer patients.

Even more surprisingly, **experts have suggested that CT-P04 could potentially be used in other types of cancers as well, including lung cancer, uterine cancer, prostate cancer**, and pancreatic cancer. CT-P04 is expected to begin phase 1 trials in the near future.

4. CT-P24

Indications : Hepatitis B

- An anti-HBsAg human monoclonal antibody
- Ability to neutralize various subtypes of the hepatitis B virus

CT-P24 is being developed along with Severance Hospital and SCW. The drug is currently under process development.
Hepatitis B virus (HBV) is a DNA virus belonging to Hepadnaviridae and is a major causative factor of cirrhosis and liver cancer

According to 2012 WHO reports, over 240 million people are chronically infected by HBV, and an estimated 500,000 to 700,000 people die every year due to hepatitis B related complications. In Korea, 5~8% of adults are thought to be HBV carriers. Approximately 80% of chronic hepatitis, 65% of liver cirrhosis, and 70% of hepatocellular carcinoma are caused by HBV infections in adults.

Since the 1980s, the prevalence rate of hepatitis B in Korea has decreased significantly due to the distribution of vaccines. However, HBV infection still remains as the single leading cause of chronic liver diseases, which in turn, continues to be a cause of concern within the nation.
Treatment with antiviral agents is essential for preventing disease progress in HBV infected individuals, while also preventing new infections.

In the past, hepatitis B vaccines were derived from the plasma of persons with HBV infection. The harvested antibodies were highly purified and residual infectious particles were inactivated by various methods.
However, securing sufficient amounts of plasma for vaccine production and meeting the increasing demands was a challenge.
In addition, public concerns about transmission of bloodborne pathogens hampered

the acceptance of plasma-derived hepatitis B vaccines in many populations. This ultimately led to the development of recombinant hepatitis B vaccines.

The HBV is classified according to serotypes and genotypes. The HBV species is highly variable, with one genotype usually having two or three different serotypes. The virus also shows specific geographic distributions, and therefore can serve as epidemiological markers. For example, the genotype C and serotype adr accounts for 90% of all infected Koreans, while in China, genotypes B (usually with the serotype adw2) and C are distributed among the patient population. In India, yet another genotype, genotype D (usually with the serotype ayw2), is the dominant species with a mix of genotype A (usually with the serotype adw2) being seen in certain regions.

Due to these characteristic geographical distributions, the HBV vaccine must be able to recognize a site that is common to all genotypes.
Celltrion's CT-P24 is an anti-HBsAg human monoclonal antibody, and has successfully demonstrated the ability to neutralize various subtypes of HBV.
According to Global Data, the global HBV market is predicted to grow from $2.4 billion to $3.0 billion between 2014 and 2024.

5. CT-P25

Indications : Pandemic and seasonal influenza

- A quadrivalent vaccine for pandemic / seasonal influenza…Currently studying the effects of mixing the influenza vaccine CT-P25 with the influenza antibody CT-P27

Celltrion's CT-P25 is a quadrivalent vaccine for preventing pandemic and seasonal influenza. The company has developed a cell culture process which allows both a rapid and efficient production of the vaccine.
Influenza, more commonly known as the "flu," results from the infection of our respiratory system by the Influenza virus. Influenza outbreaks mainly occur during the winter. The virus is highly infectious and can affect anyone regardless of their age, although older people are at higher risk.

The influenza virus belongs to the family Orthomyxoviridae. It is characterized by an envelope containing 8 negative-sense single strands of RNA. Influenza viruses are further classified as types A, B and C (A fourth type, Influenza D, does not cause illness in humans). Influenza A viruses, in particular, are divided into subtypes based on the two surface proteins hemagglutinin(HA) and neuraminidase(NA).

To this date, 18 different hemagglutinin subtypes and 11 different neuraminidase subtypes have been identified. Based on various combinations of these two proteins, the influenza virus can infect different hosts such as birds, pigs and/or humans. Moreover, the RNA strands of the viruses are susceptible to frequent mutations and recombinations. These constant changes make it very difficult to acquire permanent immunity against the influenza virus. At present, the most effective way for preventing influenza infection is by receiving yearly vaccinations which cover the strains of influenza that are most likely to circulate during the corresponding season.

The influenza vaccines currently used today are either trivalent or quadrivalent. They include the hemagglutinins of influenza A subtypes H1 and H3, along with either one or two of the influenza B hemagglutinin.

Many vaccines (including the influenza vaccine) include adjuvants, which are substances that are added to increase the body's immune response to the vaccine. Adjuvants approved for use in humans include: Alum (aluminium hydroxide, aluminium phosphate), Oil-in-water emulsions (MF59, AS03), TLR4 agonists (MPL) and AS04 (MPL absorbed to aluminium hydroxide).

Studies have been carried out to determine the effects of injecting antigen-antibody mixtures and to see whether they can boost the immune response. Similarly, **Celltrion is currently studying the effects of mixing the influenza vaccine CT-P25 with the influenza antibody CT-P27.**

According to Global Information, the global market for influenza vaccines is expected to grow from $6.1 billion to $10.2 billion between 2016 and 2022.

6. CT-P19

Indications : Rabies

- Monoclonal antibody against rabies being co-developed with CHINA CDC
- Has the ability to neutralize 40 different types of rabies viruses

Celltrion's CT-P19 is a novel therapeutic monoclonal antibody being developed in collaboration with the US CDC and the CHINA CDC. Celltrion is currently leading both cell line development and preclinical studies. The drug is expected to be used as treatment as well as a vaccine, and process development is currently under progress.
As with CT-P27, CT-P19 is a conjugation of two different antibodies, and has the ability to neutralize 40 different types of rabies viruses which have been identified by the CDC.

Rabies is a viral disease that affects humans and other mammals, and causes acute inflammation of the brain. Rabies infection nearly always results in death and, along with AIDS, is one of the most fatal diseases known to mankind. Over 10 million patients worldwide are treated for Rabies each year, while 40,000 to 70,000 of these patients die annually.

Rabies is usually spread when an infected animal, such as a dog or cat, scratches or bites another animal or human. It can also be transmitted through contact with the saliva of an infected animal. Rabies can occur in nearly all mammals including skunks and bats. Symptoms of infection arise once the virus reaches the central nervous system via the peripheral nerves. In humans, a structure called the blood brain barrier (BBB) usually serves as a wall of defence against viruses and other antigens. However, the rabies virus utilizes a special peptide named the rabies virus glycoprotein (RVG) to elude this defensive system and enter and infect the central nervous system.

The early symptoms of rabies may be very similar to those of the cold. There may also be a tingling or itching sensation at the site of exposure. These symptoms are followed by more severe symptoms such as anxiety, fear of water, hypersensitivity to wind, uncontrolled excitement, paralysis, and confusion. Once these symptoms appear nearly all patients die due to respiratory failure.

Rabies can be prevented and treated by thoroughly washing the wound and administering the rabies immunoglobulin and the rabies vaccine.

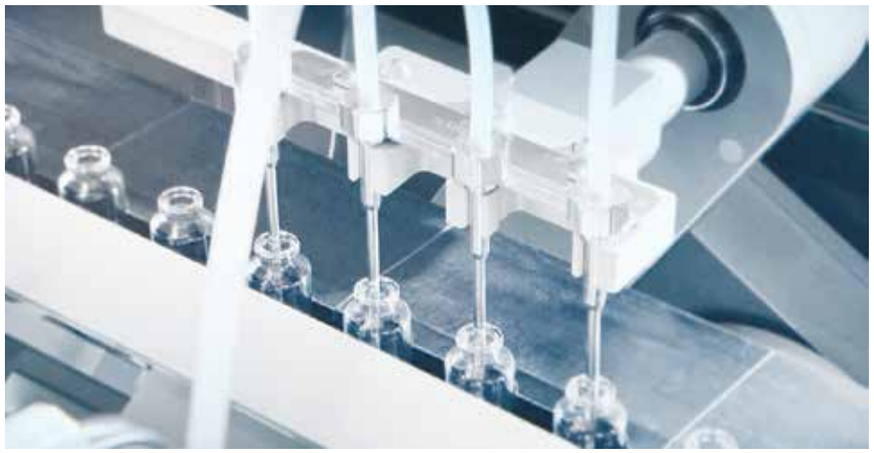
As of today, two kinds of anti-rabies immunoglobulins have been developed: the human rabies immunoglobulin(HRIG) and the equine rabies immunoglobulin(ERIG). The HRIG is expensive and only limited amounts are available. And since it is derived from human blood, there is a risk for obtaining blood-transmitted diseases such as AIDS. In addition, the efficacy HRIG is relatively low because it is a polyclonal antibody.

As for the ERIG, higher doses are needed for treatment as it is equine origin. Although it is a considerably cheaper option to HRIG, availability is limited as well and the ERIG may also potentially cause anaphylaxis.

Due to these shortcomings, the idea of replacing these anti-rabies immunoglobulins with a safer and more widely available product had been suggested. This lead to the development of neutralizing murine monoclonal antibodies.

However, even the neutralizing murine monoclonal antibodies came with their own set of problems, as their short serum half-life, lack of ability to induce human effector function, and development of unwanted human anti-murine antibody (HAMA) responses have limited clinical use.

These circumstances highlight the need for Celltrion's CT-P19, which is not only safe (as it isn't derived from blood) but also suitable for high quality mass production.

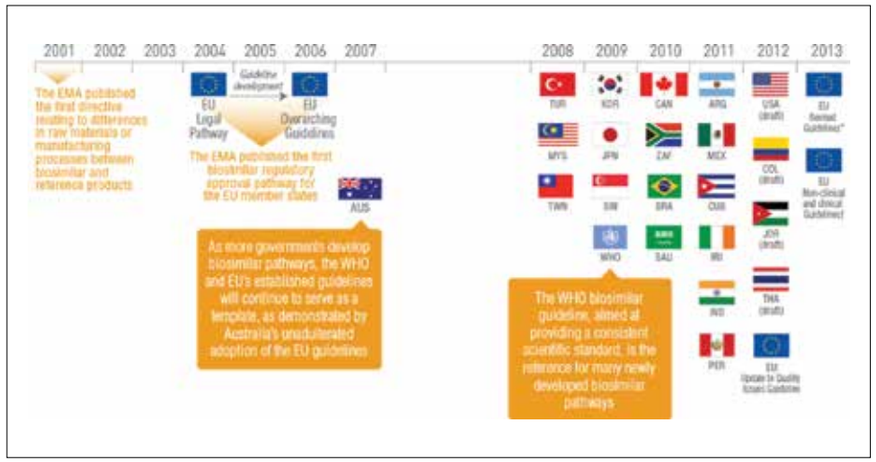


CELLTRION, South Korea's Future Engine of Growth! Biosimilar and CMO Market Forecasts

1) **Biosimilar Market Forecast**
2) **Marketing Strategies**
3) **Product Pipelines and Future Predictions**
4) **CMO Market Forecast**
5) **Production Facilities**

1) Biosimilar Market Forecast

The global pharmaceutical market of today is estimated to be around $1 trillion, with biologics accounting for approximately 20% ($200 billion). This figure is expected to grow up to 70% within the next 20 years.



In 2011, the global biosimilar market was estimated to be around $390 million, which represented only 0.38% of the entire global biologics market. This was mainly due to lack of sales in the US, the world's largest market, and also because most doctors at the time were conservative about the use of biosimilars.

However, as of 2015, the global biosimilar market has seen a ten-fold growth to an estimated $3.9 billion. However its proportion within the global biologics market remains minimal (2.3%).

Research groups have made different predictions about the future biosimilar market. In 2014, Frost & Sullivan predicted that the biosimilar market would see an average annual growth of 60.4% between 2012 ($900 million) and 2019 ($23.9 billion). Meanwhile, in June 2015, a report by CBR Pharma Insights predicted an average annual growth of 22.4% between 2015 ($2 billion) and 2020 ($55 billion). The reason for this discrepancy is due to the different views on when certain biosimilars would hit the market following patent expiration of the original drug, and also because of the different opinions on the growth of the US biosimilar market.

Previously, the US has been cautious with its approach to biosimilars. However, change started with the legislation of the Biologics Price Competition and Innovation Act (BPCIA), which was included in Obamacare (the Affordable Care Act) on March 2010. In 2014, the US FDA followed these footsteps by issuing the Purple Book, which is a list of biological products licensed by the FDA under the Public Health Service(PHS) Act 351(a). The list includes details such as approval dates, exclusivity expiry dates, and names of biosimilars or interchangeable biological products licensed under section 351(k). As a reference, 351(k)(7) of the PHS Act describes that new drugs (the originators) are granted 12 years of data exclusivity from the point of first licensure, while 351(k)(4) describes the interchangeability of biosimilars.

Data exclusivity refers to protection of drug clinical data submitted to the FDA for market approval. It is different from a patent. In contrast to a patent which protects a drug for 20 years, protection of data exclusivity lasts for 7 years in chemically-synthesized drugs and 12 years in biosimilars. On October 2015, the Trans-Pacific Partnership (TPP) agreed to terms on shortening the period of data exclusivity from 12 years to 5~8 years.

Amidst this change in the perception towards biosimilars, the US FDA approved the first biosimilar drug Zarxio in March 2015, followed by the first biosimilar monoclonal antibody Remsima in April 2016. Moreover, the US CMS(Center for Medicare & Medicaid Services) announced a policy which includes incentives given to physicians whom prescribe biosimilars. Theses changes are expected to accelerate the growth of the biosimilar market, not only in the United States but also globally as well. The cost-cutting effects of biosimilars are of particular interest amongst developing countries.

However, the biosimilar market has its own obstacles as well, as their development requires a higher level of technology, greater amount of expenses, and more patience in approval and marketing when compared to chemically-synthesized drugs. And as the market grows competition will intensify, making it even more important for companies to become a first mover.

In this aspect, Celltrion's first mover drug Remsima is expected to hold an advantage against secondary and tertiary competition for a prolonged period of time.

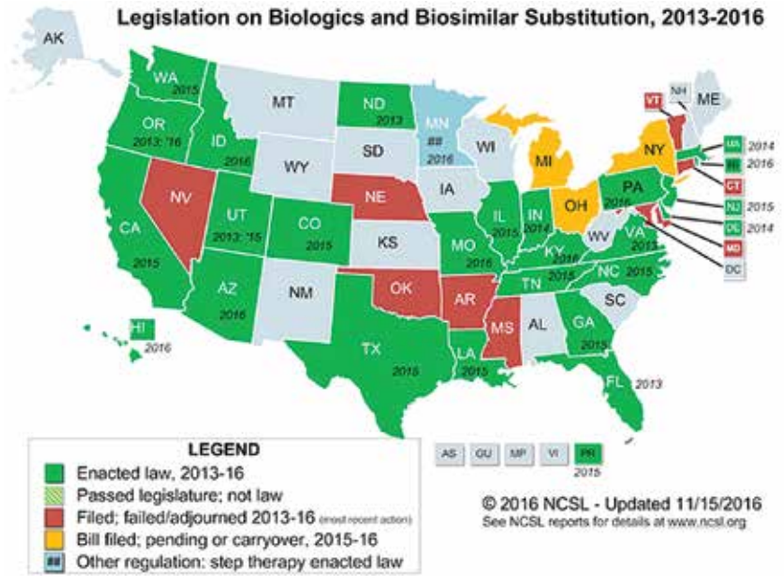
Global Biosimilar Guideline/Regulation Development

Biosimilars Market to grow at significant CAGR of 49.1% from 2014 to 2020

Allied Market Reserch has pubished a report titled, "World Biosimilars Market (follow-on-biologics) Opportunities, and Forecast, 2014-2020". The report offers a comprehensive and in-depth insight into key market dynamics, current and emerging trends, changing competitive landscape, regulatory framework, pro-file of key market players along with detailed segmentation and forecasts. As per the report, Global Biosimilars Market contributed an approximate revenue of $26,551.3 million by 2020, growing at a CAGR of 49.1% from 2015 to 2020.

▲ A report predicting the biosimilar market to grow at a significant compound annual growth rate (CAGR) of 49.1% from 2015 to 2020 (Reference : https://medium.com)

US States with legislation on biologics and biosimilars substitution



(As of November 2016 : Approved by 25 states)

"(CVS) will no longer supply branded (original) drugs."


Life | Wed Aug 3, 2016 9:17am EDT

CVS drops Sanofi's diabetes drugs for biosin

PARIS | BY MATTHIAS BLAMONT

A person walks by a CVS Pharmacy store in Pasadena, U.S., May 2, 2016.

U.S. pharmacy benefit manager CVS will drop Sanofi's main insulin drug Lantus from the list of medicines it reimburses on behalf of health insurers, dealing a blow to the French drugmaker's key diabetes business.

Zarxio (Biosimilar of Neupogen) / Basaglar (Generic of the insulin Lantus)

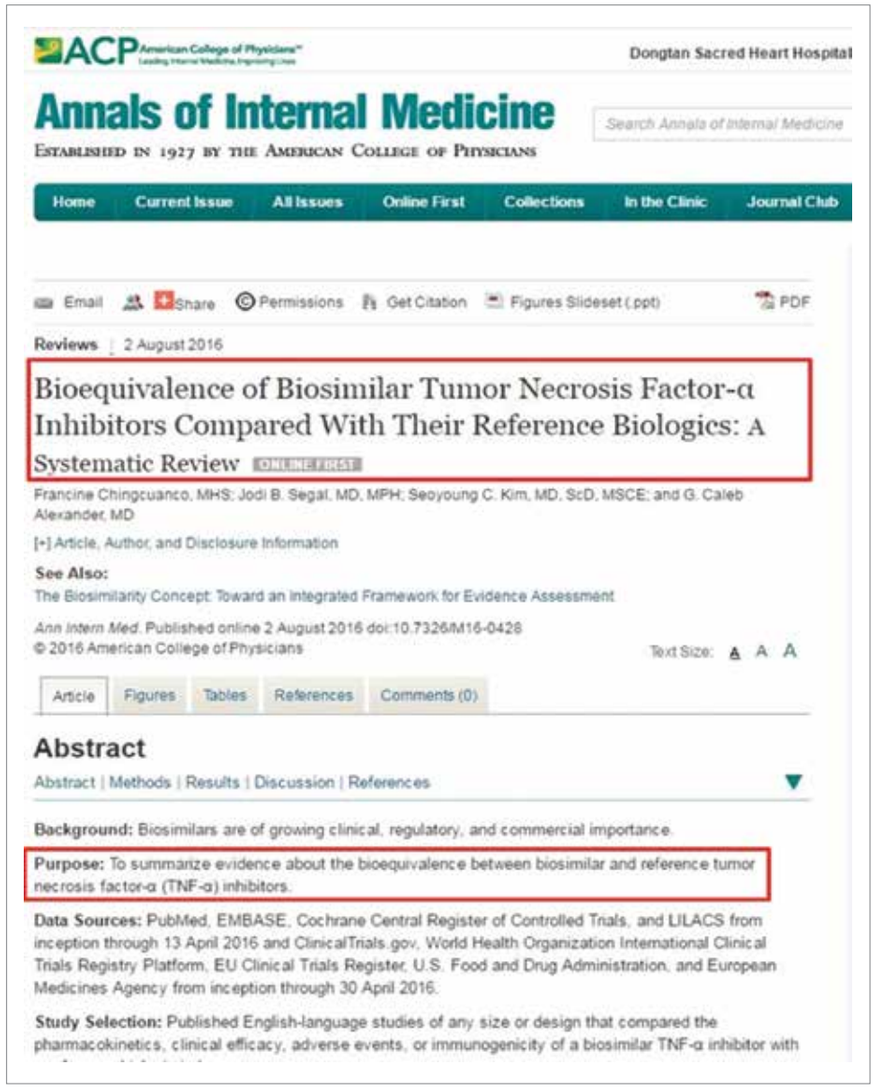
CVS will replace two branded drugs with their biosimilar counterparts (mentioned above) starting from 2017. Several follow-up articles on CVS's decision are being written, hinting a change in perception on the use of biosimilars within the US.

The article shown on the left also describes biosimilars as equivalents to their originators in both safety and efficacy.

The online drugstore and pharmacy CVS, which has 80 million registered members, recently announced that it will replace Sanofi's insulin Lantus (original drug) with Lilly's biosimilar product, Basaglar.

Many other pharmaceutical benefit managers like CVS believe that the introduction of biosimilars will help them negotiate better drug prices for their customers, while also playing a key role in reducing health care costs. Simply put, as one US analyst said, 'the dawn of the biosimilar era' seems to have begun.

Celltrion's first mover biosimilar Remsima is sure to benefit from the winds of change that are blowing within the US.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Reviews | 2 August 2016
Bioequivalence of Biosimilar Tumor Necrosis Factor-α Inhibitors Compared With Their Reference Biologics: A Systematic Review ONLINE FIRST
Francine Chingcuanco, MHS; Jodi B. Segal, MD, MPH; Seoyoung C. Kim, MD, ScD, MSCE; and G. Caleb Alexander, MD
[+] Article, Author, and Disclosure Information
See Also:
The Biosimilarity Concept: Toward an Integrated Framework for Evidence Assessment
Ann Intern Med. Published online 2 August 2016 doi:10.7326/M16-0428
© 2016 American College of Physicians
Text Size: A A A
Article | Figures | Tables | References | Comments (0)
Abstract
Abstract | Methods | Results | Discussion | References
Background: Biosimilars are of growing clinical, regulatory, and commercial importance.
Purpose: To summarize evidence about the bioequivalence between biosimilar and reference tumor necrosis factor-α (TNF-α) inhibitors.
Data Sources: PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and LILACS from inception through 13 April 2016 and ClinicalTrials.gov, World Health Organization International Clinical Trials Registry Platform, EU Clinical Trials Register, U.S. Food and Drug Administration, and European Medicines Agency from inception through 30 April 2016.
Study Selection: Published English-language studies of any size or design that compared the pharmacokinetics, clinical efficacy, adverse events, or immunogenicity of a biosimilar TNF-α inhibitor with

2) Marketing Strategies

Celltrion is exercising different marketing strategies for its domestic and overseas operations.

Celltrion's domestic operations are led by Celltrion Pharmaceutical. Celltrion Pharmaceutical currently holds 48.85% of Celltrion shares (March 2016), and is constituted by 18 executives and 405 employees. The company holds exclusive rights for domestically marketing the biosimilars developed and produced by Celltrion.

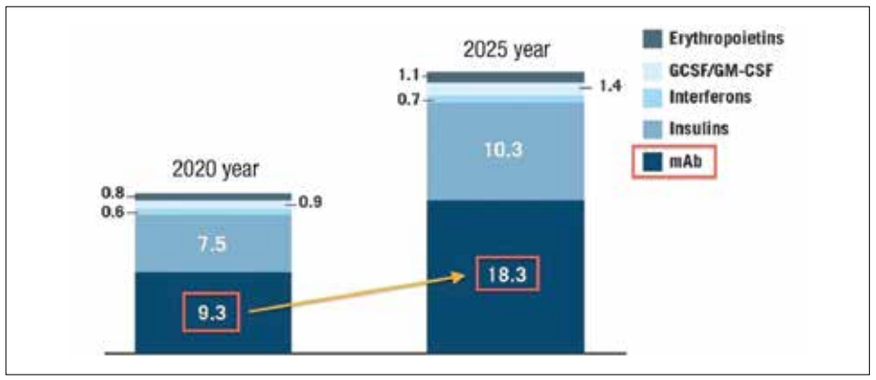
Celltrion's overseas operations are led by Celltrion Healthcare. The company holds the right to market Celltrion's biosimilars in overseas markets. Celltrion Healthcare is also involved in forging partnerships with global pharmaceutical companies.

As the result of Pfizer's acquisition of Hospira in February 2015, Celltrion has obtained co-exclusive rights for marketing and selling Remsima within the US, Canada, Europe, Australia, New Zealand, Brazil, and Mexico. Unfortunately, Pfizer recently cut some ties with Celltrion as the company is undergoing phase 3 trials for its own Rituxan, However, Celltrion is looking to rebound by actively pursuing new marketing partners.

3) Product Pipelines and Future Predictions

Even with a conservative view, the global monoclonal antibody biosimilar market is predicted to grow from $9.3 billion to $18.3 billion between 2020 and 2025.

Global Biosimilar Market Predictions



The patents of therapeutic monoclonal antibodies due to expire by 2020 include Humira, Remicade, Rituxan, Enbrel (except in the US), Avastin (except in Europe), Herceptin, Erbitux and Synagis.

Celltrion has currently completed cell line establishment and process development for its Synagis biosimilar CT-P14 and Enbrel biosimilar CT-P05. The company is giving the lowest priority to its Enbrel biosimilar, as the US patent for the drug is scheduled to run through November of 2028.

biosimilar CT-P17 and Avastin biosimilar CT-P16 are targeting 2018 for FDA application and approval. As a note, the competition for developing a Humira biosimilar is particularly intense among pharmaceutical companies, and Celltrion is looking to release its CT-P17 some time near the launch of Abbvie's improved form of Humira.

Celltrion's novel influenza therapeutic Navivumab (CT-P27) is scheduled to start phase 2b trials during the second half of 2016. The company is targeting FDA designation as a 'breakthrough therapy' and conditional commercialization of the drugs in certain countries before conducting phase 3 trials.

Celltrion's novel therapeutic ADC biobetter CT-P26 has completed preclinical trials and is currently under preparation for phase 1 clinical trials.

The average market capitalization of pharmaceutical companies with 2~3 novel therapeutical monoclonal antibodies are around $200~300 trillion. Surprisingly, Celltrion's current market capitalization is a mere $11 trillion. This is surely to change, as the company possesses 3 first mover biosimilars, a novel influenza therapeutic that has completed phase 2a trials (CT-P27), a novel therapeutic ADC preparing for phase 1 trials (CT-P26), and many more products within the pipeline.

European biosimilar market breakdown (2015)

The picture above is a market breakdown of the 2015 European biosimilar market. The market is still being dominated by the easier-to-make first generation biosimilars. Even so, the market is being split by three different companies: Sandoz, Teva and Hospira.

What would happen when the more complex second generation antibody biosimilars hit the market? Not only will first movers like Remsima replace original drugs at lightning pace, but they will also accumulate valuable clinical data along the way. This will prove to be an important factor in separating Celltrion from the rest of its competition.

Norway is conducting a government-funded 'switch' study to assess the safety and efficacy of switching Remicade with Remsima for all indications in a group of 500 patients. The primary end point of this so called 'NOR-SWITCH' study is scheduled for July 2016, while the study is expected to be completed by January 2017.

In addition, Celltrion's Remsima shows a closer similarity to Remicade when compared to Biogen's Flixabi, as the biosimilar is produced from the same Sp2/0 cell line (Flixabi is produced from CHO cell lines).

In other words, at least for antibody biosimilars, the first drug has the greatest chance for dominating the market.

Of course, biosimilars are different from new therapeutics as they aren't protected by patents, meaning that sooner or later they will face competition. Nevertheless, even patent protected new therapeutics are subjected to competition of one sort or another, so this is not thought to be an important factor.

Celltrion's upcoming Truxima and Herzuma are expected to follow the footsteps of Remsima and establish their status as first movers.

As a conclusion, the biosimilar market is predicted to grow along with the continued development of new biosimilar monoclonal antibodies and improved biobetters. Therefore, Celltrion must continue its push to be amongst the leaders for both areas.

4) CMO Market Forecast

Pharmaceutical market forecast

The population of developed countries is aging fast. Japan (the world's oldest nation), Korea, the United States and Scandinavian countries are all among the leading countries in terms of the population of the elderly. Even the population of China is aging rapidly as well. Because of such increase in the aging population the pharmaceutical market is expected to continue to grow steadily.

Celltrion established itself in the early days as a contract manufacturing organization (CMO). As the company grew through experience, it turned into a biopharmaceutical company of its own, and now is one of the most active researchers/developers of biosimilars, biobetters, and novel therapeutics.

The CMO market is expected to continue its growth as more global pharmaceutical companies are beginning to use outsourcing services for biologics and generics. According to GBI Research, the global CMO market was an estimated $21.2 billion in 2008, and $28.8 in 2011. The market is expected to expand to $59.8 billion by 2018 (10.8% annual growth).

There are over 600 CMOs currently operating around the globe. Among them, the 12 major companies are generating yearly sales of over $250 million, the 45 medium-sized companies are generating between $100~250 million, and the remaining 500+ smaller companies are generating yearly sales of under $100 million.

The major CMOs are generally multi-national companies armed with capital strength, highly-trained workforce, state-of-the-art R&D and manufacturing facilities, and intellectual properties. Lonza (Switzerland), Catalent (US), and Fareva (France) are some examples.

The pharmaceutical CMO market is expected to continue its growth as several key patents expire and the demand for generics, biologics and biosimilars continue to increase.

5) Production Facilities

Celltrion recently added an additional 50,000 liters to its manufacturing capacity by expanding Plant 1. The company is also planning to build another 120,000 liter facility, Plant 3, to meet the increasing demands for Remsima and other contract manufactured drugs.

The expansion of Plant 1 is expected to be completed by 2018 and operations are expected to begin by 2019. Construction of Plant 3 is expected to be completed by 2019, and operations are expected to begin by 2021. As a result, Celltrion's total manufacturing capacity will reach a total of 310,000 liters, making it one of the largest manufacturing facilities in the world (Reference: BoehringerIngelheim– 300,000 liters, Lonza– 280,000 liters).

CHAPTER 5

Why have the minority shareholders worked together to publish this book?

1) **Spreading the word**
2) **Fund-raising**
3) **Collective action against short selling**

"Celltrion is quickly becoming one of the world's leading pharmaceutical companies. However, this was not the case 3~4 years ago as the company was exposed to massive levels of short selling. The short selling situation became so abnormal to a point that the company's shares actually dropped 20% following Remsima's US FDA approval. For this reason, the minority shareholders decided to take action of their own by starting an internet fund-raising movement on June 2016. As a result, 3,000 shareholders made a total donation of nearly $100 Thousand during a 10 day period.
As you can see, the minority shareholders of Celltrion are truly as attentive and aggressive as they come."

1) Spreading the word

The minority shareholders are actively sharing Celltrion-related information and organizing various campaigns on a Korean-language based internet community. The community has become one of the fastest and most accurate places to hear about information on Celltrion and the pharmaceutical industry in general..

Based on all the information that has been accumulated within the community, we are convinced that Celltrion is sure to become a world-leading company.

[The "Buy one stock per each trade day" campaign]

In fact, we were so convinced (that the shares of Celltrion had no where to go but up) that we actually started a campaign in which voluntary participants would add one Celltrion stock per each trading day. As a result, a countless number of participants have made profits during the recent 18 months.

[Publication/distribution of promotional material]

To spread the word on such a great company, we published a 140-page introductory guide to Celltrion and distributed over 17,000 copies to different investors, hospitals and public institutions. The material that you are reading now is an English-written condensed version of the guide. We're sure that there aren't many minority shareholders around the world, who possess this much passion towards a certain company.

[Newspaper advertisement]

The minority shareholders have also put newspaper advertisements (on four separate occasions) to publicize the value of Celltrion, and also to protect the rights of shareholders. We are also contemplating a future advertisement within the Wall Street Journal or the New York Times.

2) Fund-raising

On June 2016, the minority shareholders started an internet fund-raising campaign, and as a result, 3,000 shareholders made a total donation of nearly $100 Thousand during a 10 day period. Donations ranged every between $1 and $300. This was an unprecedented event.

3) Collective action against short selling

Celltrion has seen massive amounts of short selling in the past, which in turn greatly hindered the rise of stock prices. This lead to the decision by minority shareholders to take action against such abnormal patterns of trading.

The minority shareholders put several advertisements in Korean newspapers, reporting the negative effects of short selling on both the company and the stock market in general. This collective action has become a significant example of a movement done by the minority shareholders.

▼ **Celltrion's Global Partners**

▼ **Pfizer, Teva and 21 other partners**

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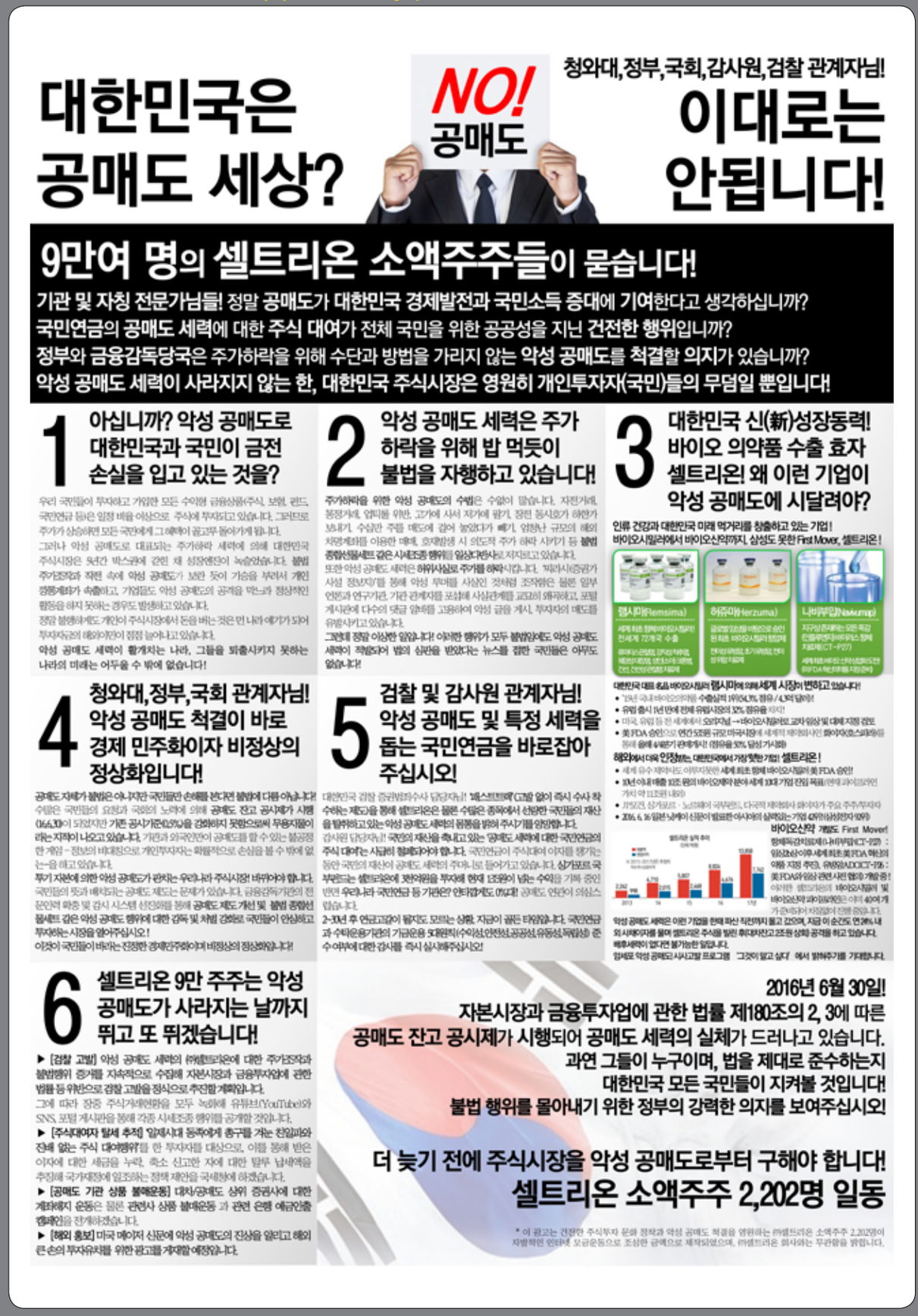

"Newspaper Advertising by Celltrion Small Shareholders Fund"

'흙수저'와 '금수저'가 평등한 세상을 꿈꿉니다!
국민 여러분과 청와대 · 국회 · 검찰 · 감사원에 드리는 호소문

대한민국 ㈜셀트리온 소액주주 일동

◆ "개인 주식투자자의 5%만 성공투자" ('15.9.29. 한국일보) ▶▶▶ 나머지 95%의 돈은 누가 가져갈까요?
"개인이 순매수한 코스피 10개 종목의 평균수익률은 -12.83%. 반면, 기관은 6.6% 수익, 외국인도 선방." ('16.6.3. 한국경제TV)
◆ 해외주식에 투자하는 개인 – "개미필패의 법칙은 여전했다. 개미들이 수익률을 찾아 해외증시로 눈을 돌리고 있다." ('16.5.25. 헤럴드경제)
◆ 5년 째 '박스피(BOXPI)'로 전락한 KOSPI – 세계증시의 활황 속에서도 1800~2100 사이 박스권. 기관/외국인이 외면하는 코스닥.

방향을 잃은 한국증시…무엇이 문제일까요? 바로 악성 공매도 세력의 투기적 공매도가 한 몫을 하고 있기 때문입니다!

느끼지 못하시겠지만,
우리 국민 대다수는 악성 공매도로 인한 피해자입니다!

대한민국 검찰(증권범죄수사 관련) 관계자께 호소합니다!
- 악성 공매도 세력 근절로 '비정상의 정상화'를 이끌어 주십시오!

"삼성도 못한 '퍼스트 무버(First Mover)' 신화! 바이오시밀러 업계의 스티브 잡스" - '셀트리온' 서정진 회장 ('16.4.6. 프레시안)

그런데, 왜 '셀트리온'에 대한 공매도의 공격은 끝이 없을까요?

국민여러분! 산업 패러다임 변화의 중심에 '셀트리온'이 있습니다.

5천만 국민의 미래를 위해 감사원 관계자께 호소합니다!

청와대와 국회에 호소합니다!
경제에 활력을! 공매도 제도를 개선해주십시오!

서기 2016년 6월 20일

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List(ID) of 2,202 people who participated in fundraising

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32 김수*********
33 김현*********
34 김성*********
35 김영*********
36 김영*********
37 눈팅*********
38 me*********
39 강신*********
40 tu*********
41 hy*********
42 감사*********
43 황인*********
44 큰돌*********
45 최경*********
46 이영*********
47 한만*********
48 이영*********
49 지호*********
50 이순*********
51 최윤*********
52 이영*********
53 푸른*********
54 이옥*********
55 허종*********
56 이완*********
57 주상*********
58 이왕*********
59 차주*********
60 이용*********
61 최병*********
62 이용*********

63 최형*********
64 이용*********
65 트윈*********
66 이슬*********
67 필명*********
68 이용*********
69 해심*********
70 이우*********
71 홍진*********
72 이원*********
73 존버*********
74 이원*********
75 지땡*********
76 이윤*********
77 진질*********
78 이윤*********
79 청라*********
80 이윤*********
81 최동*********
82 이은*********
83 최영*********
84 이은*********
85 최종*********
86 이은*********
87 컵라*********
88 이인*********
89 태영*********
90 이임*********
91 팔공*********
92 필리*********
93 이장*********
94 하인*********
95 이재*********
96 한정*********
97 이재*********
98 행복*********
99 이재*********
100 혜동*********
101 이재*********
102 황기*********
103 이재*********
104 희망*********
105 이정*********
106 좋은*********
107 이정*********
108 주원*********
109 이정*********
110 지식*********
111 이승*********
112 진두*********
113 이정*********
114 찌닝*********
115 이정*********
116 채수*********
117 이종*********
118 초록*********
119 이종*********
120 최규*********
121 이종*********
122 최민*********
123 이종*********
124 최순*********

125 이종*********
126 최용*********
127 이종*********
128 최재*********
129 이종*********
130 최진*********
131 이주*********
132 추명*********
133 이준*********
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135 이준*********
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137 이준*********
138 톰슨*********
139 이준*********
140 파이*********
141 이중*********
142 평사*********
143 이진*********
144 풍악*********
145 이진*********
146 필명*********
147 이진*********
148 하니*********
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150 한경*********
151 이찬*********
152 한성*********
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158 허남*********
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160 허찬*********
161 이천*********
162 홀리*********
163 이춘*********
164 황규*********
165 이태*********
166 황용*********
167 이평*********
168 훨훨*********
169 이학*********
170 희망*********
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172 존세*********
173 이한*********
174 죠낸*********
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179 이형*********
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182 지영*********
183 이혜*********
184 직장*********
185 이호*********
186 진성*********

187 이호*********
188 짐은*********
189 이희*********
190 차봉*********
191 이희*********
192 참맨*********
193 이히*********
194 채훈*********
195 악산*********
196 청와*********
197 인겸*********
198 초심*********
199 인내*********
200 최규*********
201 인무*********
202 최기*********
203 일명*********
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205 일보*********
206 최범*********
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224 최흥*********
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226 캐스*********
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229 임대*********
230 퀴사*********
231 임동*********
232 키달*********
233 임민*********
234 탁재*********
235 임민*********
236 태풍*********
237 임병*********
238 투덜*********
239 임영*********
240 파워*********
241 임영*********
242 팍스*********
243 임원*********
244 팬더*********
245 임원*********
246 포항*********
247 임자*********
248 푸이*********

249 임자*********
250 플러*********
251 임정*********
252 필명*********
253 임지*********
254 필명*********
255 임창*********
256 ㅎㅅ*********
257 임한*********
258 하이*********
259 임형*********
260 학동*********
261 임호*********
262 한대*********
263 자연*********
264 한미*********
265 자하*********
266 한승*********
267 작은*********
268 한종*********
269 작은*********
270 해든*********
271 작은*********
272 해우*********
273 작은*********
274 햇살*********
275 작지*********
276 향기*********
277 잔고*********
278 허식*********
279 잔잔*********
280 허지*********
281 잘될*********
282 허춘*********
283 잠긴*********
284 호야*********
285 잠피*********
286 홍종*********
287 장가*********
288 화이*********
289 장경*********
290 황금*********
291 장고*********
292 황부*********
293 장광*********
294 황의*********
295 장남*********
296 황현*********
297 장문*********
298 휴산*********
299 장미*********
300 희망*********
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302 이수*********
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304 존버*********
305 장상*********
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307 장산*********
308 좌동*********
309 장승*********
310 주덕*********

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314 주얼*********
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322 지산*********
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347 재덤*********
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349 재팔*********
350 천선*********
351 챙글*********
352 청아*********
353 저절*********
354 청주*********
355 전경*********
356 초리*********
357 전경*********
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359 전근*********
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361 전덕*********
362 최규*********
363 전성*********
364 최기*********
365 전시*********
366 최길*********
367 전우*********
368 최동*********
369 이승*********
370 최미*********
371 전태*********
372 최민*********

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386 최용*********
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399 정동*********
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406 최형*********
407 정문*********
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409 정민*********
410 추교*********
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412 칸첸*********
413 정상*********
414 캥거*********
415 정상*********
416 케세*********
417 정상*********
418 코스*********
419 정선*********
420 퀀덤*********
421 정성*********
422 크라*********
423 정세*********
424 클라*********
425 정세*********
426 킹조*********
427 정소*********
428 타작*********
429 정순*********
430 태백*********
431 정영*********
432 태인*********
433 정영*********
434 텀블*********

435 정옥*********
436 퇴청*********
437 정용*********
438 트와*********
439 정용*********
440 파사*********
441 정우*********
442 파이*********
443 정원*********
444 파코*********
445 정윤*********
446 팍스*********
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448 팔순*********
449 정일*********
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451 정재*********
452 평택*********
453 정정*********
454 푸란*********
455 정종*********
456 푸른*********
457 정종*********
458 풀내*********
459 정종*********
460 프뢰*********
461 이승*********
462 피러*********
463 이신*********
464 필명*********
465 정준*********
466 필명*********
467 정진*********
468 필명*********
469 정찬*********
470 필명*********
471 정충*********
472 필명*********
473 정태*********
474 하나*********
475 정태*********
476 하이*********
477 정필*********
478 하이*********
479 정혁*********
480 하초*********
481 정현*********
482 한강*********
483 정현*********
484 한근*********
485 정현*********
486 한라*********
487 정현*********
488 한모*********
489 정혜*********
490 한상*********
491 정화*********
492 한송*********
493 정환*********
494 한윤*********
495 정희*********
496 한정*********

497 제가*********
498 한창*********
499 제주*********
500 항상*********
501 제천*********
502 해밀*********
503 조광*********
504 해오*********
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509 조남*********
510 행복*********
511 조동*********
512 행신*********
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520 허준*********
521 조석*********
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525 홍세*********
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531 홍용*********
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534 조선*********
535 홍수*********
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543 홍정*********
544 조숙*********
545 홍중*********
546 조순*********
547 이순*********
548 홍형*********
549 조순*********
550 화이*********
551 조용*********
552 황금*********
553 조용*********
554 황금*********
555 조은*********
556 황병*********
557 조은*********
558 황영*********

List(ID) of 2,202 people who participated in fundraising

559 조은*********
560 황은*********
561 조인*********
562 황인*********
563 조재*********
564 황종*********
565 조준*********
566 회이*********
567 조중*********
568 훨룡*********
569 조창*********
570 흐르*********
571 조철*********
572 희망*********
573 조한*********
574 희망*********
575 조현*********
576 힘*********
577 조현*********
578 조화*********
579 이상*********
580 온돌*********
581 언덕*********
582 샐트*********
583 윤세*********
584 살롬*********
585 안계*********
586 서경*********
587 오명*********
588 서경*********
589 유공*********
590 서광*********
591 삼척*********
592 서달*********
593 쑥져*********
594 서란*********
595 애짱*********
596 서벙*********
597 연합*********
598 서산*********
599 오정*********
600 서석*********
601 욱1*********
602 서순*********
603 유지*********
604 서연*********
605 응원*********
606 서영*********
607 이루*********
608 서영*********
609 심희*********
610 서영*********
611 아니*********
612 서영*********
613 안정*********
614 서은*********
615 양종*********
616 서은*********
617 여경*********
618 서인*********
619 예술*********
620 서재*********

621 오스*********
622 서정*********
623 오케*********
624 서정*********
625 우꼬*********
626 서정*********
627 원조*********
628 서종*********
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631 육심*********
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633 윤정*********
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635 이강*********
636 석류*********
637 이동*********
638 선사*********
639 이병*********
640 선상*********
641 이석*********
642 선우*********
643 쌍둥*********
644 선우*********
645 씽크*********
646 설백*********
647 아자*********
648 설악*********
649 안동*********
650 설자*********
651 알찬*********
652 설재*********
653 양산*********
654 설탄*********
655 어부*********
656 섬바*********
657 엉겁*********
658 섬진*********
659 여행*********
660 섬진*********
661 영암*********
662 성민*********
663 오남*********
664 성정*********
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666 성진*********
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668 세모*********
669 오중*********
670 세아*********
671 오혜*********
672 사랑*********
673 왕희*********
674 세트*********
675 우유*********
676 셀,*********
677 울산*********
678 셀5*********
679 원추*********
680 셀l*********
681 유수*********
682 셀가*********

683 유짐*********
684 셀가*********
685 유치*********
686 셀같*********
687 윤규*********
688 셀개*********
689 윤영*********
690 셀공*********
691 윤찬*********
692 셀과*********
693 이가*********
694 셀과*********
695 이경*********
696 셀굿*********
697 이기*********
698 셀나*********
699 이동*********
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701 이미*********
702 셀너*********
703 이봉*********
704 셀맴*********
705 이상*********
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707 이선*********
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711 써기*********
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727 앞으*********
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730 셀사*********
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734 셀쌍*********
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738 셀옹*********
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743 연성*********
744 셀쪽*********

745 염순*********
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748 셀큰*********
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758 셀트*********
759 오재*********
760 셀트*********
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764 셀트*********
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803 윤완*********
804 셀트*********
805 윤준*********
806 사리*********

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810 사면*********
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817 이기*********
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1103 심재*********
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1107 이성*********
1108 신현*********
1109 이세*********
1110 신혜*********
1111 이수*********
1112 심상*********
1113 심술*********
1114 봉황*********
1115 박광*********
1116 마이*********

List(ID) of 2,202 people who participated in fundraising

1117 권순*********
1118 박종*********
1119 권영*********
1120 동참*********
1121 권영*********
1122 무지*********
1123 권오*********
1124 박세*********
1125 권오*********
1126 배강*********
1127 권태*********
1128 대전*********
1129 권혁*********
1130 류시*********
1131 그럴*********
1132 멋진*********
1133 그럽*********
1134 미수*********
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1192 만놀*********
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1595 노승*********
1596 배철*********
1597 노영*********
1598 백규*********
1599 노옥*********
1600 백마*********
1601 노준*********
1602 백상*********
1603 노창*********
1604 백운*********
1605 노치*********
1606 백이*********
1607 노현*********
1608 버디*********
1609 노호*********
1610 범진*********
1611 눈팅*********
1612 변수*********
1613 보야*********
1614 병신*********
1615 보혜*********
1616 보라*********
1617 복뎅*********
1618 보령*********
1619 본전*********
1620 보배*********
1621 본전*********
1622 봉공*********
1623 복덩*********
1624 눈팅*********
1625 복동*********
1626 눈팅*********
1627 본전*********
1628 늘감*********
1629 봄빛*********
1630 늘늘*********
1631 봉담*********
1632 늦가*********
1633 부산*********
1634 니맘*********
1635 부자*********
1636 다라*********
1637 북한*********
1638 다이*********
1639 블랙*********
1640 다이*********
1641 비레*********
1642 다크*********
1643 비처*********
1644 다크*********
1645 비회*********
1646 닥치*********
1647 빈깡*********
1648 단디*********
1649 빛이*********
1650 단풍*********
1651 빨간*********
1652 달통*********
1653 뿜빠*********
1654 당산*********
1655 대구*********
1656 고삼*********
1657 sh*********
1658 n5*********
1659 13*********
1660 wl*********
1661 20*********
1662 LS*********
1663 20*********
1664 PK*********
1665 3자*********
1666 TA*********
1667 4년*********
1668 강선*********
1669 4년*********
1670 KT*********
1671 77*********
1672 mi*********
1673 aa*********
1674 ok*********

List(ID) of 2,202 people who participated in fundraising

1675 ab*********
1676 Rm*********
1677 ac*********
1678 sp*********
1679 ac*********
1680 TO*********
1681 ac*********
1682 yy*********
1683 AL*********
1684 강희*********
1685 AL*********
1686 공매*********
1687 AN*********
1688 le*********
1689 AR*********
1690 ma*********
1691 AR*********
1692 MS*********
1693 ar*********
1694 ni*********
1695 AS*********
1696 PA*********
1697 au*********
1698 QN*********
1699 Au*********
1700 SE*********
1701 aw*********
1702 SK*********
1703 ba*********
1704 su*********
1705 BA*********
1706 TI*********
1707 BD*********
1708 Un*********
1709 BH*********
1710 yh*********
1711 bi*********
1712 가치*********
1713 Bi*********
1714 강정*********
1715 bj*********
1716 고견*********
1717 bl*********
1718 고추*********
1719 BN*********
1720 곽일*********
1721 Bo*********
1722 KY*********
1723 bo*********
1724 li*********
1725 BR*********
1726 M1*********
1727 BU*********
1728 80*********
1729 bu*********
1730 MI*********
1731 bu*********
1732 mu*********
1733 bw*********
1734 ne*********
1735 CA*********
1736 nu*********
1737 Ca*********
1738 OP*********
1739 ca*********
1740 pe*********
1741 ca*********
1742 pr*********
1743 cb*********
1744 re*********
1745 ce*********
1746 S1*********
1747 CE*********
1748 se*********
1749 ce*********
1750 si*********
1751 ce*********
1752 Sm*********
1753 ce*********
1754 St*********
1755 CE*********
1756 su*********
1757 ce*********
1758 th*********
1759 ce*********
1760 tj*********
1761 ce*********
1762 tt*********
1763 ce*********
1764 wa*********
1765 ce*********
1766 WO*********
1767 CE*********
1768 yo*********
1769 ce*********
1770 가야*********
1771 CE*********
1772 감사*********
1773 CE*********
1774 강영*********
1775 ce*********
1776 강진*********
1777 ce*********
1778 겐팅*********
1779 ce*********
1780 고동*********
1781 ce*********
1782 고재*********
1783 ce*********
1784 공룡*********
1785 ce*********
1786 과천*********
1787 ce*********
1788 광*********
1789 ce*********
1790 KT*********
1791 ce*********
1792 ky*********
1793 Ce*********
1794 LE*********
1795 ce*********
1796 lm*********
1797 cg*********
1798 m0*********
1799 ch*********
1800 ma*********
1801 CH*********
1802 ma*********
1803 CH*********
1804 MI*********
1805 Ch*********
1806 mi*********
1807 CH*********
1808 MO*********
1809 CH*********
1810 MS*********
1811 ch*********
1812 MU*********
1813 CH*********
1814 na*********
1815 CH*********
1816 ne*********
1817 ch*********
1818 NP*********
1819 cj*********
1820 oh*********
1821 ck*********
1822 ON*********
1823 cl*********
1824 PA*********
1825 CL*********
1826 pc*********
1827 CO*********
1828 Pi*********
1829 co*********
1830 PO*********
1831 CO*********
1832 ps*********
1833 co*********
1834 RA*********
1835 cr*********
1836 re*********
1837 cr*********
1838 RO*********
1839 Cr*********
1840 sa*********
1841 CT*********
1842 se*********
1843 Cu*********
1844 Se*********
1845 cy*********
1846 si*********
1847 cy*********
1848 SJ*********
1849 cz*********
1850 sm*********
1851 da*********
1852 so*********
1853 da*********
1854 ss*********
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1856 SU*********
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1858 su*********
1859 DA*********
1860 SU*********
1861 da*********
1862 ta*********
1863 DH*********
1864 Th*********
1865 dh*********
1866 ti*********
1867 DI*********
1868 tk*********
1869 dk*********
1870 TO*********
1871 dk*********
1872 Tu*********
1873 dl*********
1874 VA*********
1875 do*********
1876 wi*********
1877 DO*********
1878 wo*********
1879 do*********
1880 ye*********
1881 DS*********
1882 yo*********
1883 du*********
1884 yp*********
1885 e8*********
1886 가드*********
1887 eb*********
1888 가을*********
1889 EB*********
1890 갈릭*********
1891 ee*********
1892 강미*********
1893 en*********
1894 04*********
1895 en*********
1896 강정*********
1897 eo*********
1898 강정*********
1899 eo*********
1900 강철*********
1901 eo*********
1902 거제*********
1903 EQ*********
1904 경우*********
1905 es*********
1906 고길*********
1907 fa*********
1908 고맙*********
1909 fc*********
1910 고영*********
1911 fe*********
1912 고주*********
1913 fe*********
1914 곰캔*********
1915 ff*********
1916 공매*********
1917 fi*********
1918 공포*********
1919 fl*********
1920 곽봉*********
1921 fo*********
1922 곽희*********
1923 fo*********
1924 ˝셀*********
1925 Fu*********
1926 kt*********
1927 G0*********
1928 ky*********
1929 G1*********
1930 KY*********
1931 ga*********
1932 la*********
1933 GA*********
1934 le*********
1935 ge*********
1936 LG*********
1937 GG*********
1938 LJ*********
1939 gk*********
1940 lo*********
1941 Go*********
1942 LU*********
1943 GO*********
1944 M1*********
1945 go*********
1946 ma*********
1947 go*********
1948 ma*********
1949 go*********
1950 23*********
1951 go*********
1952 mb*********
1953 go*********
1954 me*********
1955 go*********
1956 mi*********
1957 go*********
1958 mi*********
1959 GO*********
1960 mi*********
1961 GO*********
1962 mk*********
1963 gr*********
1964 mr*********
1965 GU*********
1966 ms*********
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1968 mu*********
1969 Gz*********
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1971 HA*********
1972 my*********
1973 HA*********
1974 na*********
1975 ha*********
1976 Na*********
1977 ha*********
1978 ne*********
1979 HA*********
1980 NH*********
1981 Ha*********
1982 NL*********
1983 HA*********
1984 nu*********
1985 HA*********
1986 ob*********
1987 hd*********
1988 ok*********
1989 he*********
1990 OM*********
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1993 he*********
1994 ou*********
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1996 pa*********
1997 hi*********
1998 pa*********
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2000 PE*********
2001 HJ*********
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2003 hn*********
2004 PI*********
2005 ho*********
2006 Po*********
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2012 QK*********
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2014 qu*********
2015 HS*********
2016 RA*********
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2018 Re*********
2019 HU*********
2020 re*********
2021 hu*********
2022 RO*********
2023 hu*********
2024 S0*********
2025 hu*********
2026 s3*********
2027 HU*********
2028 sa*********
2029 hy*********
2030 SE*********
2031 hy*********
2032 SE*********
2033 ♡♡*********
2034 se*********
2035 ia*********
2036 sh*********
2037 IC*********
2038 si*********
2039 ic*********
2040 si*********
2041 ID*********
2042 SI*********
2043 ie*********
2044 sk*********
2045 lj*********
2046 sk*********
2047 ij*********
2048 SM*********
2049 IM*********
2050 sm*********
2051 IM*********
2052 SO*********
2053 in*********
2054 ss*********
2055 IN*********
2056 SS*********
2057 in*********
2058 St*********
2059 IR*********
2060 Su*********
2061 is*********
2062 SU*********
2063 is*********
2064 SU*********
2065 is*********
2066 su*********
2067 it*********
2068 sw*********
2069 j0*********
2070 TA*********
2071 J7*********
2072 TG*********
2073 JA*********
2074 TH*********
2075 JA*********
2076 TI*********
2077 ja*********
2078 ti*********
2079 JA*********
2080 tj*********
2081 jb*********
2082 tk*********
2083 jc*********
2084 TO*********
2085 jd*********
2086 to*********
2087 je*********
2088 TS*********
2089 je*********
2090 10*********
2091 je*********
2092 TY*********
2093 jg*********
2094 UR*********
2095 JI*********
2096 Vo*********
2097 ji*********
2098 wb*********
2099 JI*********
2100 wi*********
2101 jj*********
2102 WO*********
2103 JJ*********
2104 wo*********
2105 JK*********
2106 x거*********
2107 jk*********
2108 Yg*********
2109 jm*********
2110 ym*********
2111 jo*********
2112 YO*********
2113 jo*********
2114 yo*********
2115 jo*********
2116 YU*********
2117 jo*********
2118 ze*********
2119 JO*********
2120 가라*********
2121 jo*********
2122 가우*********
2123 JO*********
2124 가족*********
2125 JO*********
2126 갈대*********
2127 감사*********
2128 감사*********
2129 강광*********
2130 10*********
2131 강동*********
2132 JS*********
2133 강대*********
2134 ju*********
2135 강명*********
2136 ju*********
2137 강석*********
2138 ju*********
2139 강순*********
2140 ju*********
2141 강연*********
2142 jw*********
2143 강이*********
2144 jy*********
2145 강정*********
2146 k,*********
2147 강정*********
2148 Ka*********
2149 강종*********
2150 KA*********
2151 강진*********
2152 ka*********
2153 강태*********
2154 KB*********
2155 거제*********
2156 kc*********
2157 검팔*********
2158 kc*********
2159 경기*********
2160 kd*********
2161 계룡*********
2162 kg*********
2163 고기*********
2164 kh*********
2165 고날*********
2166 kh*********
2167 고래*********
2168 KH*********
2169 고명*********
2170 ki*********
2171 고생*********
2172 ki*********
2173 고은*********
2174 KI*********
2175 고정*********
2176 KI*********
2177 고진*********
2178 ki*********
2179 고흥*********
2180 ki*********
2181 공공*********
2182 kj*********
2183 공매*********
2184 KJ*********
2185 공매*********
2186 KJ*********
2187 공순*********
2188 kj*********
2189 과일*********
2190 kn*********
2191 곽기*********
2192 ko*********
2193 곽선*********
2194 KS*********
2195 곽한*********
2196 KS*********
2197 관우*********
2198 ks*********
2199 광명*********
2200 ks*********
2201 ks*********
2202 (비*********

First of all, thank you for carefully reading this material.

As the manufacturer of the world's first monoclonal antibody biosimilar, the experience that Celltrion will accumulate within the European and US markets, along with its strong product pipeline, is sure to propel the company to a top-10 global pharmaceutical company within the next 10 years.

In particular, Celltrion's CT-P27, which is currently in the midst of global clinical trials, is a breakthrough therapy candidate that can potentially become the world's first cure for influenza.

If CT-P27 is successfully commercialized, the drug is sure to replace Tamiflu (another blockbuster drug) and launch Celltrion into the upper echelon of global pharmaceutical companies.

Successful investors are people who have the ability to predict the future.
As many countries are looking for ways to keep health care costs in check, Celltrion is rising as the perfect candidate for investment.

(IMS Research :Biosimilars could save up to $110 billion (in health care costs) in EU, US through 2020/ Frost&Sullivan : Global biosimilars market will see exponential growth from $1.2 billion to $24 billion between 2013 and 2019)
Luck is knocking at your door.
Be the first one to answer it.

For more information about Celltrion, please visit the company's official website.

www.celltrion.com/en

The minority shareholders are actively exchange opinions on Celltrion through the message boards of the Korean securities website 'THINKPOOL.' (Language: Korean).

www.celljuju.com

Please feel free to contact us through the following e-mail address if you have any questions.

E-mail : jyy010@hanmail.net

ABOUT CELLTRION :
All that you'll ever need to know about the company

PUBLISHER & EDITOR
WWW.CELLJUJU.COM in KOREA

BOOK DESIGN & ARTWORK
DesignToje (02-325-7745 / holypop@nate.com)

The list above includes the names (or IDs) of the 3,000 minority shareholders who have made donations during our fund-raising campaign.

“ Understanding CELLTRION, means understanding the FUTURE of South Korea. ”

Celltrion Minority shareholder committee(THINKPOOL)