NOVEL BIOLOGICS FOR BETTER LIFE

ALTEOGEN

Investor Relations | November 2020

Contents

ALTEOGEN Inc.

COMPANY OVERVIEW

Established	13th of May, 2008
CEO	Soon Jae Park
Headquarter	Daejeon
IPO	KOSDAQ: 196170 (2014)
Subsidiary	▸Ceres F&D Inc. (KGMP Certified/cGMP planned) – Teicoplanin – Tacrolimus – Everolimus

▸Altos Biologics Inc.
– Eylea Biosimilar

History

May 2008	Company Establishment
June 2010	CEO Soon Jae Park inaugurated
December 2014	KOSDAQ Market listed
June 2018	A subsidiary company was established (Ceres F&D Inc.)
October 2020	A subsidiary company was established (Altos Biologics Inc.)

ALTEOGEN's Business Domains

Platform Provider for Biobetter Drugs

Biobetter Platforms

- **Long-acting Biobetter**
  - Technology to increase half-life
- **Antibody-Drug Conjugate (ADC)**
  - Novel anti-cancer drug

Prioritized Biosimilars

- **Biosimilars**
  - Differentiated Biosimilar technology

Enabling Technology

- **Hyaluronidase**
  - Novel human hyaluronidase for mAb SC use
  - Dermal and Ophthalmology use

ALTEOGEN's Business Domains

Platform Provider for Biobetter Drugs

Long-acting Biobetter

- long-acting hGH, and GLP-NexP-FGF

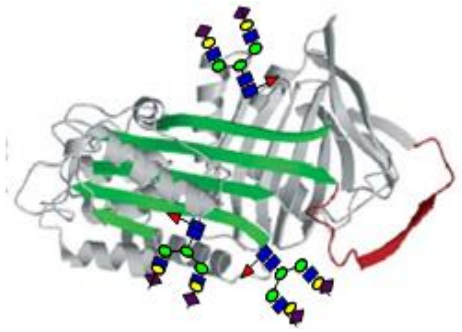
Antibody-Drug Conjugate (ADC)

Hyaluronidase

Biosimilars

Development of NexP™ Fusion Technology – Long acting Biobetter

A1AT (Alpha 1 Anti Trypsin)

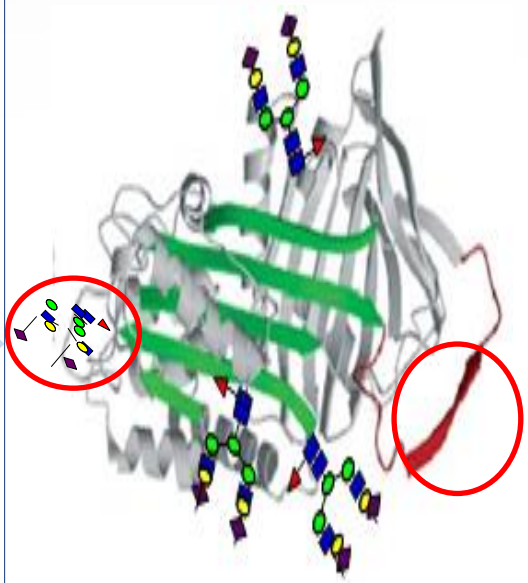


▶ Specification
- Abundant in human blood (1.5~3.5 g/L)
- Long *in-vivo* half life (4.5~6.0 days)

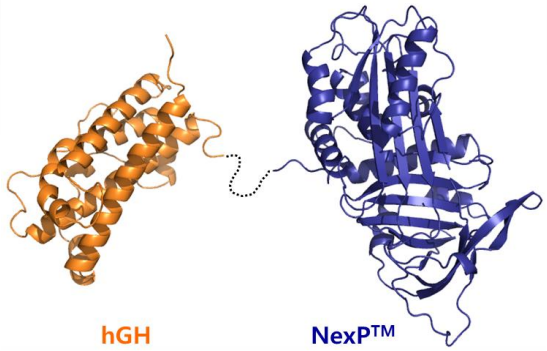
▶ Function
- Serine protease inhibitor
- Have been used for Emphysema

▶ As a long-acting carrier
- No side effect and immunogenicity in case of high dosage in long period
- Long *in-vivo* half life

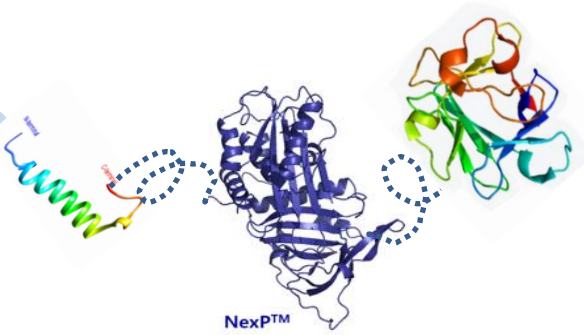
Protein Engineering



NexP Carrier



ALT-P1 (long acting hGH)



ALT-F2 (NASH treatment)

ALTEOGEN's Business Domains

Platform Provider for Biobetter Drugs

Long-acting Biobetter

Antibody-Drug Conjugate (ADC)

- Proprietary NexMab™ conjugation technology
- anti-breast/gastric cancer ADC
- anti-ovarian cancer ADC

Hyaluronidase

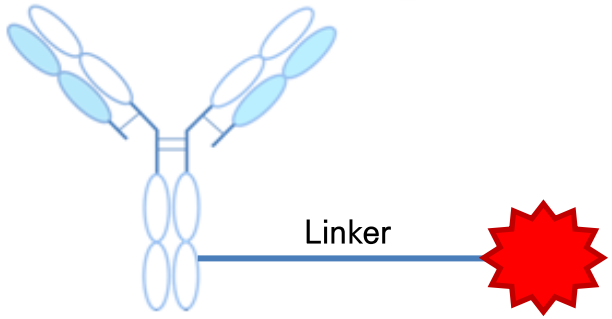
Biosimilars

ADC technology

Novel therapeutic anti –cancer antibody technology, ADC

Concept of ADC technology

Antibody–Drug Conjugate (ADC)



- High specificity to cancer cell
- Low cytotoxicity

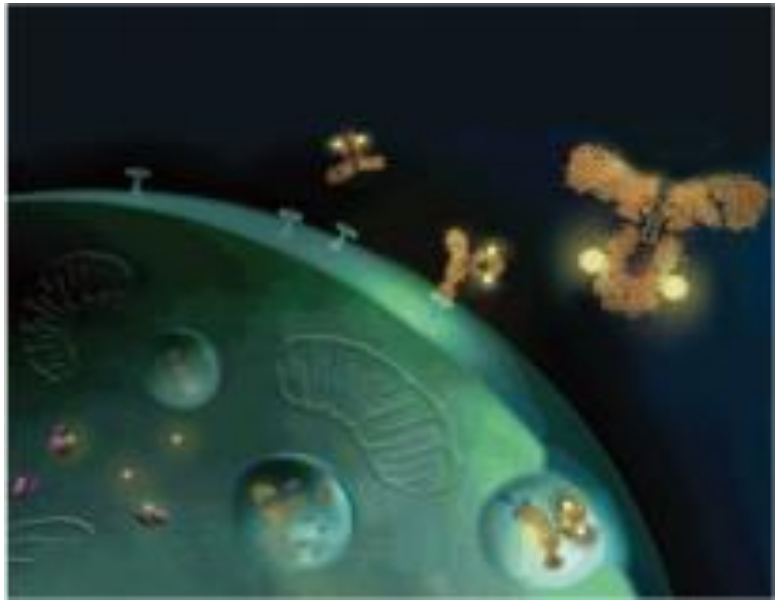
+

- Low specificity to cancer cell
- High cytotoxicity

High specificity + High cytotoxicity
: Higher efficacy but lower side effect

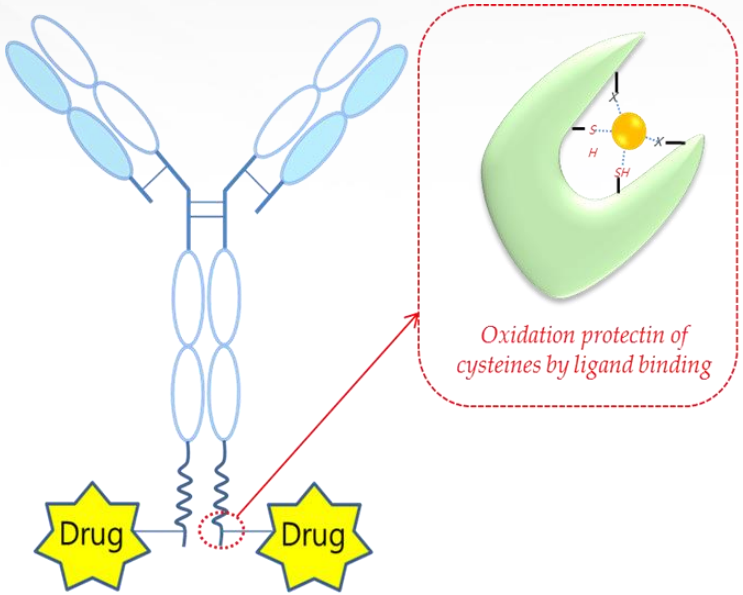
Mode of action of ADC

1. Antibody delivers the drug to the specific target antigen
2. Internalization of ADC
3. Drug released from ADC inside target cells
4. Drug kill the target cells



NexMab™ : Proprietary site-selective ADC conjugation technology

Alteogen's NexMab™ technology



- Site-specific conjugation to C-terminus of Fc
- Simple conjugation process
- High productivity and homogeneity
- High in vivo stability and low toxicity

Simple and efficient site-specific conjugation technology

Patent Registered

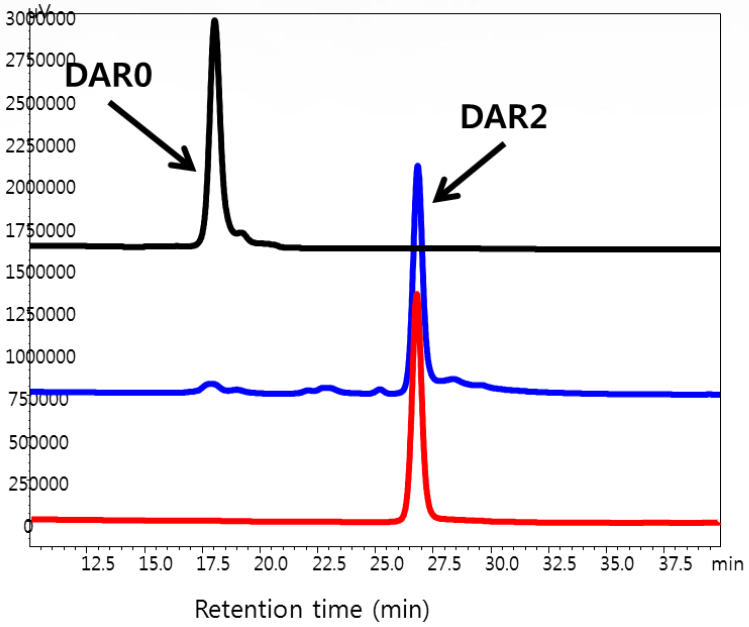
- USA(2017)
- EU (2020)
- Korea (2015)
- Russia (2016)
- Japan (2016)
- Mexico (2018)
- China (2018)
- Australia (2016)

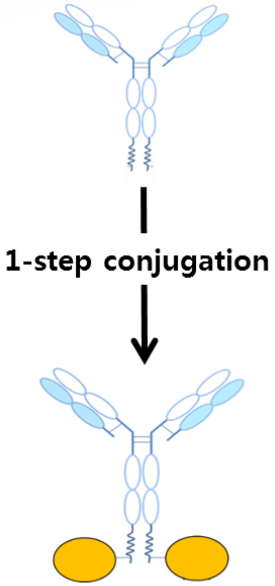
Patent Filed

Canada, Brazil

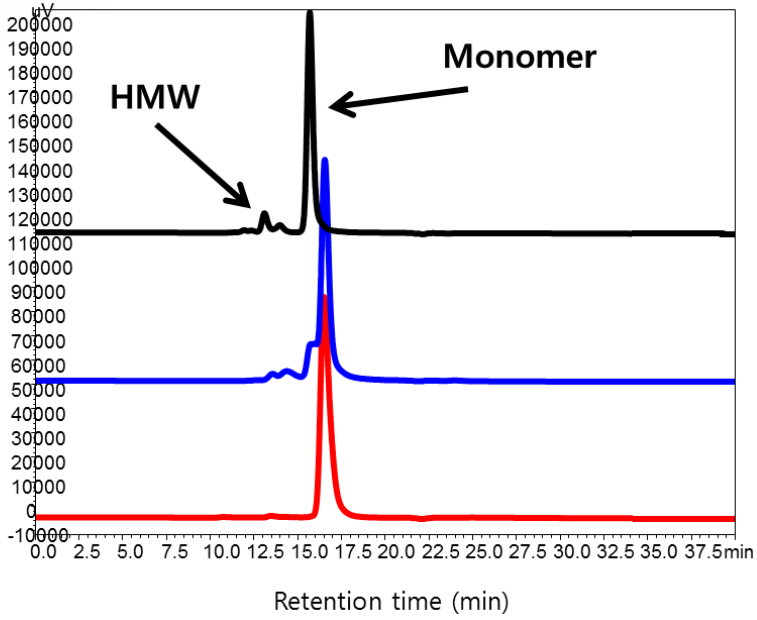
High conjugation efficiency & site-specificity (for MC-vc-PAB-MMAE conjugation)

HI-HPLC





SE-HPLC



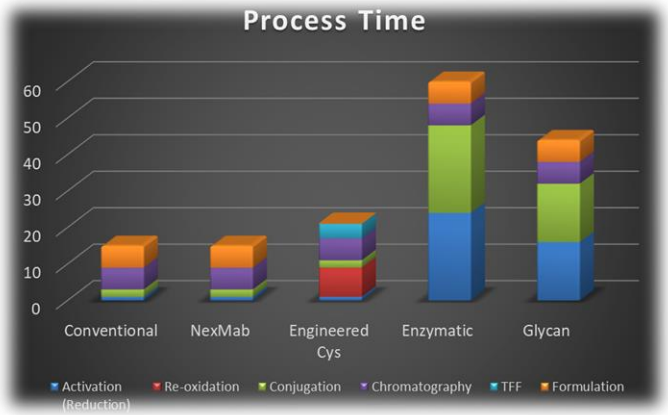
- High conjugation efficiency (more than 85% DAR2 yield)
- High monomer purity

NexMab™: Superior manufacturability and scalability

➢ Process comparison between conjugation methods

Relative Duration

Conventional (Non-specific)	NexMab™ (Site-specific)	Site-specific		
		Engineered Cys	Enzymatic	Glycan
Reduction (<1 hr)	Reduction (<1 hr)	Reduction (<1 hr)	Deglycosylation, Conjugation anchor attachment 1-24 hr	Glycan trimming (tailoring) >16 hr
Conjugation (<2 hr)	Conjugation (<2 hr)	Re-oxidation (4-8 hr)		
Chromatography	Chromatography	Conjugation	Conjugation 1-24 hr	Conjugation >16 hr
Formulation	Formulation	Chromatography	Chromatography	Chromatography
		Formulation	Formulation	Formulation

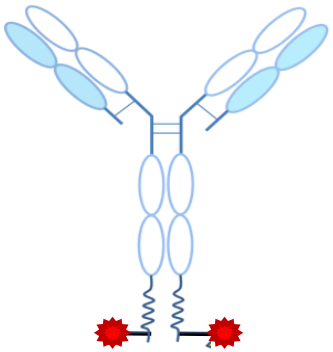


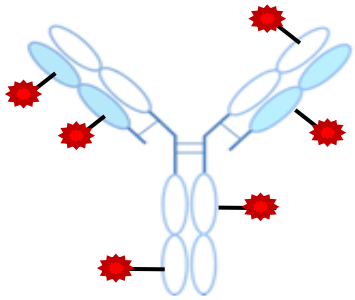
Adopted from Falck and Müller (Antibodies, 2018)

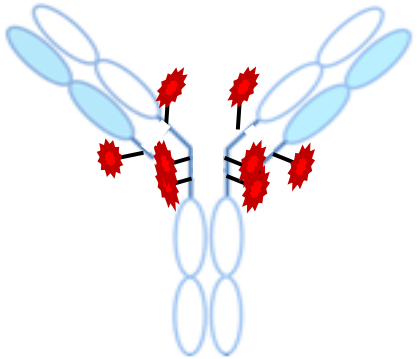
ALT-P7: Anti-breast/anti-gastric cancer ADC

Comparison of ALT-P7 with other HER2-targeted ADC

ADC	ALT-P7 (HM2-MMAE)	T-DM1 (Trastuzumab emtansine)	DS-8201 (Trastuzumab deruxtecan)
Company	Alteogen	Genentech (Roche)	Daiichi-Sankyo AstraZeneca
Linker	cleavable	non-cleavable	cleavable
Payload	MMAE	DM-1	DXd
DAR	2	3.5	~8
dosage	4.5 mpk (RP2D)	3.6 mpk	5.4 mpk







ALT-P7: Anti-breast/anti-gastric cancer ADC

ALT-P7 Phase 1 Summary

Characteristics (Total, n=27)	cohort1 (0.3mg/kg) (n=4)	cohort2 (0.6mg/kg) (n=3)	cohort3 (1.2mg/kg) (n=3)	cohort4 (2.4mg/kg) (n=3)	cohort5 (3.6mg/kg) (n=3)	cohort6 (4.8mg/kg) (n=5)	cohort7 (4.2mg/kg) (n=3)	cohort8 (4.5mg/kg) (n=3)
Age, years (median, SD)	53.23(±14.08)	60.3(±4.62)	49.3(±8.08)	44.3(±12.58)	57.3(±14.19)	63.4(±10.16)	45.0(±2.65)	45.3(±7.64)
〈65years (n)	4	3	3	3	2	3	3	3
≥65years (n)	0	0	0	0	1	2	0	0
Her2 Expression								
IHC2+/FISH+ (n, %)	2(50%)	1(33%)	1(33%)	2(67%)	0	1(20%)	0	1(33%)
IHC3+ (n, %)	2(50%)	2(67%)	2(67%)	1(33%)	3(100%)	4(80%)	3(100%)	2(67%)
ER/PR Expression								
+/+			1	1	1	1	2	2
+/−	1			1	1	1		
−/+			1			1		
−/−	3	3	1	1	1	2	1	1
Previous anti-HER2 therapy								
Trastuzumab (n, %)	4(100%)	3(100%)	3(100%)	3(100%)	3(100%)	5(100%)	3(100%)	3(100%)
T-DM1 (n, %)	4(100%)	3(100%)	3(100%)	2(67%)	3(100%)	5(100%)	3(100%)	2(67%)
Pertuzumab (n, %)	2(50%)	1(33%)	2(67%)	1(33%)	3(100%)	1(20%)	1(50%)	3(100%)
Lapatinib (n, %)	4(100%)	1(33%)	2(67%)	1(33%)	2(67%)	3(60%)	3(100%)	1(33%)
Margetuximab (n, %)	0	0	1(33%)	0	0	0	1(50%)	0
Poziotinib (n, %)	0	1(33%)	0	0	0	1(20%)	1(50%)	0
DS-8201 (n, %)	0	0	0	0	0	0	0	1(33%)

MTD and RP2D of ALT-P7 was determined to be 4.5 mg/kg in HER2+ metastatic breast cancer

- The most common grade 3/4 TRAE was neutropenia (n=4)
  ⇒ Other TRAEs were myalgia, fatigue, sensory neuropathy, and rash.
- The subject who has been receiving ALT-P7 for the longest time has been maintained without cancer progression for more than 630 days.

Summary

- ALT-P7 was well tolerated up to a dose of 4.5mg/kg, in heavily pre-treated HER2-positive advanced breast cancer patients.
- ALT-P7 was very safe and the mild adverse reactions were shown in most of the patients
- Pharmacokinetic analysis showed ALT-P7-dose dependent parameters.
- There was no immunogenicity issue from 0.3 mg/kg to 4.8 mg/kg of ALT-P7

Future Plan of ALT-P7

Market situation

- ✓ Kadcyla®, the first Her2 targeted ADC, sales is more than US$ 1B
- ✓ ALT-P7 is expected to be the third line Her2 targeted ADC

Key for Success in the market

- ✓ Achieving the unmet medical need :Efficacy and Safety
- ✓ Step wise approach: Moving to 2nd line Her2 targeted ADC

Combination Therapy of ALT-P7

- ✓ Combined with Immune check point Inhibitor or anti-cancer drug to pioneer new market

ALTEOGEN's Business Domains

Platform Provider for Biobetter Drugs

Long-acting Biobetter

Antibody-Drug Conjugate (ADC)

Hyaluronidase

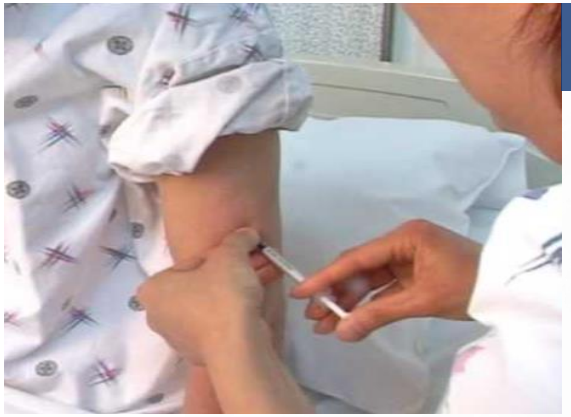
- Novel human hyaluronidase for Mab SC use
  ⇒ Herceptin® SC biosimilar development
- Hyaluronidase for Dermal and Ophthalmology

Biosimilars

Routes of administration of biologics

iv infusion

- Discomforts for patients, side-effect
- Time/cost efficiency is low

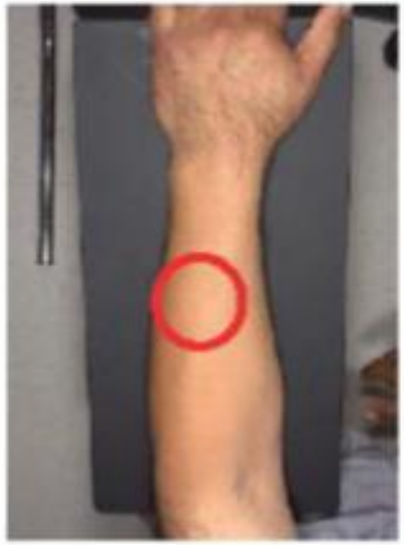
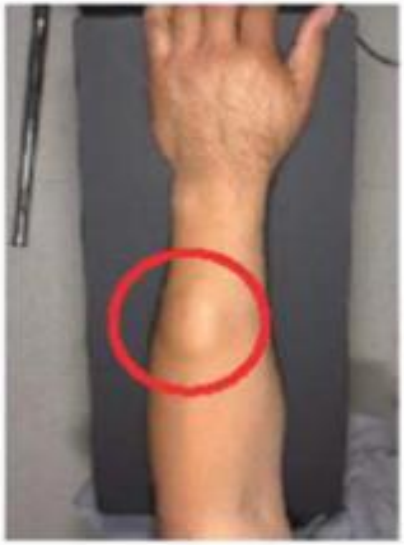
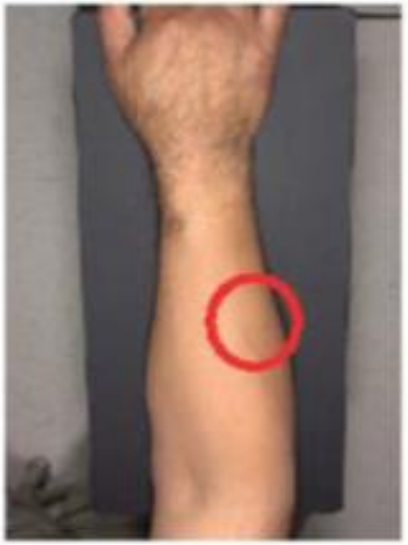
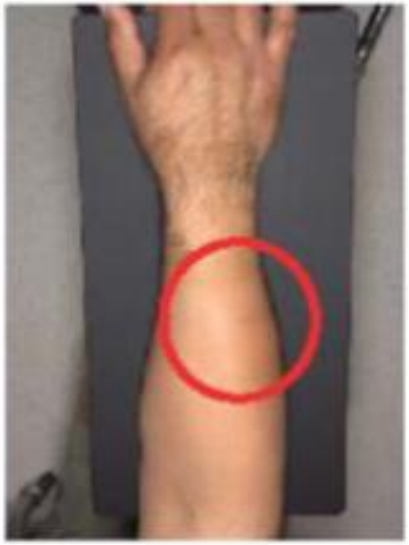


sc injection

- Short injection time
- Allows self-injection

- Current trend of switching to SC formulation
- Need Hyaluronidase when the large volume is to be injected subcutaneously

Subcutaneous injection of antibody using Human Hyaluronidase

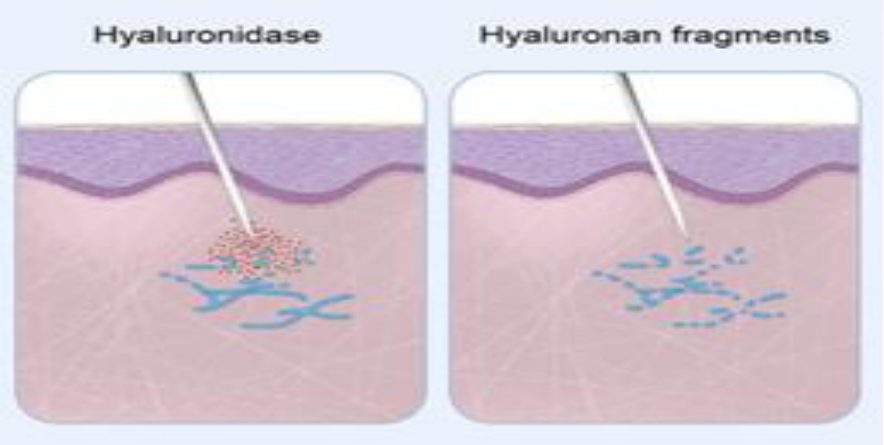
without Hyaluronidase		with Hyaluronidase	
			
Before infusion	Immediately Post infusion	Before infusion	Immediately Post infusion

(Source: British Journal of Cancer(2013) 109, 1556–1561)

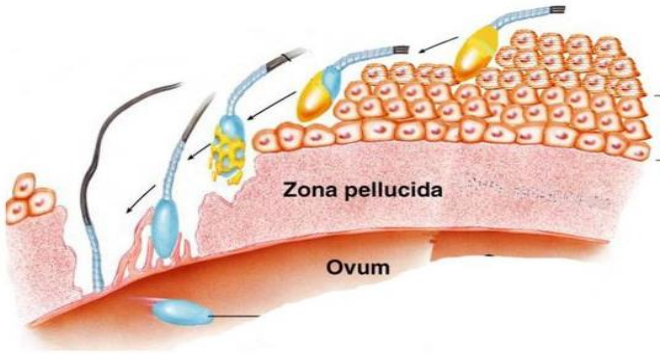
- Need Hyaluronidase when the large volume is to be injected subcutaneously

Hyaluronidase

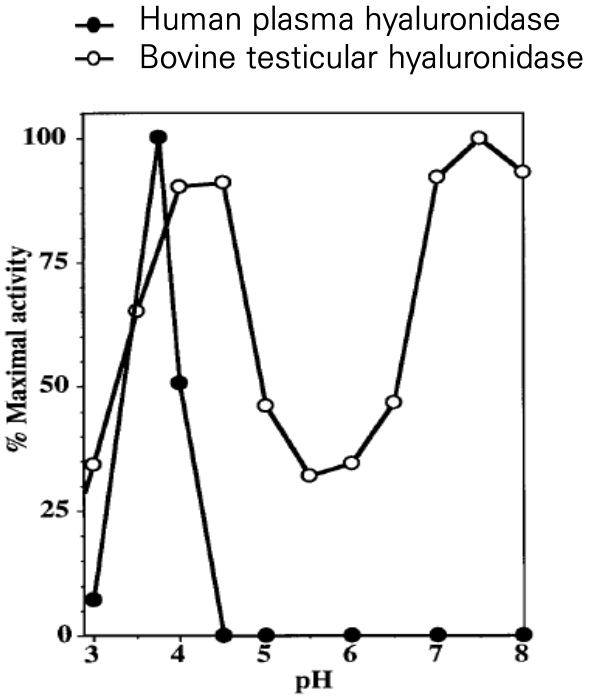
Enzyme hydrolyzing hyaluronan in the extracellular matrix



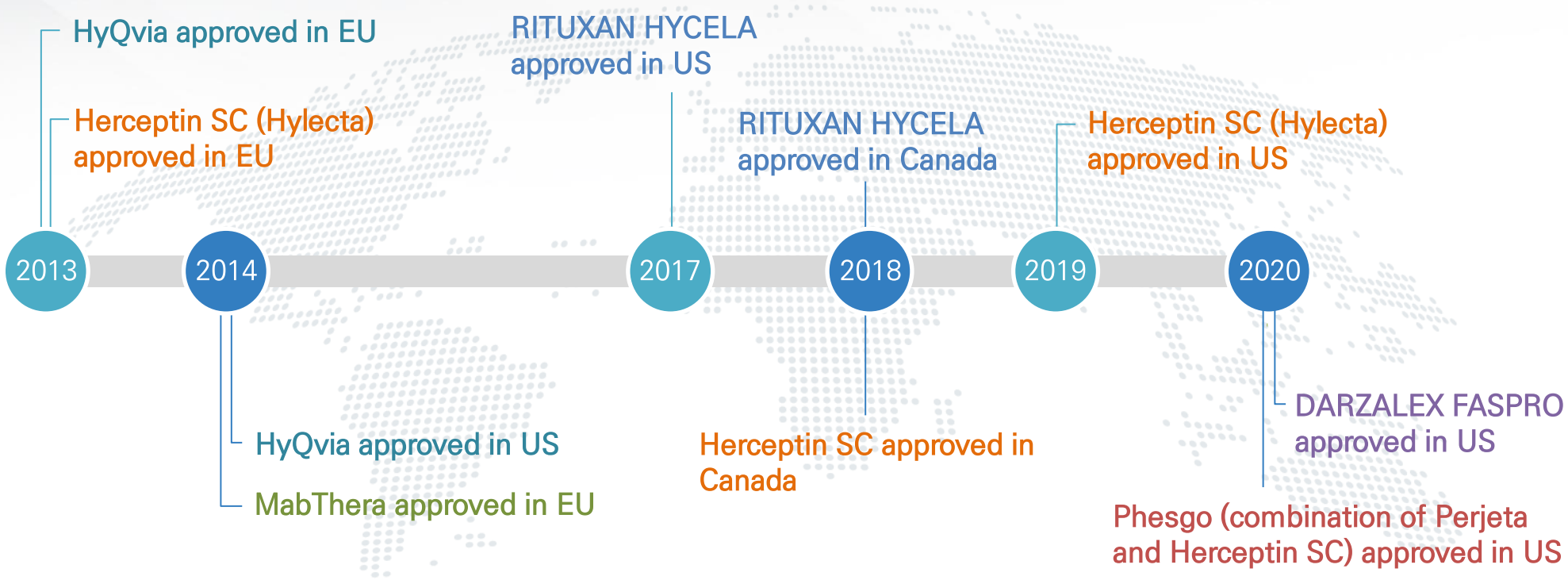
- Five Human Hyaluronidases
  - Hyal1, Hyal2, Hyal3, and Hyal4: Optimum at pH 3
  - PH20: Also active at pH 7~8



PH20 aids in penetrating the layer of cumulus cells



Development of SC formulation with Hyaluronidase



* At present clinical trials of Mab sc products are actively conducted by global Pharma/Biotech companies

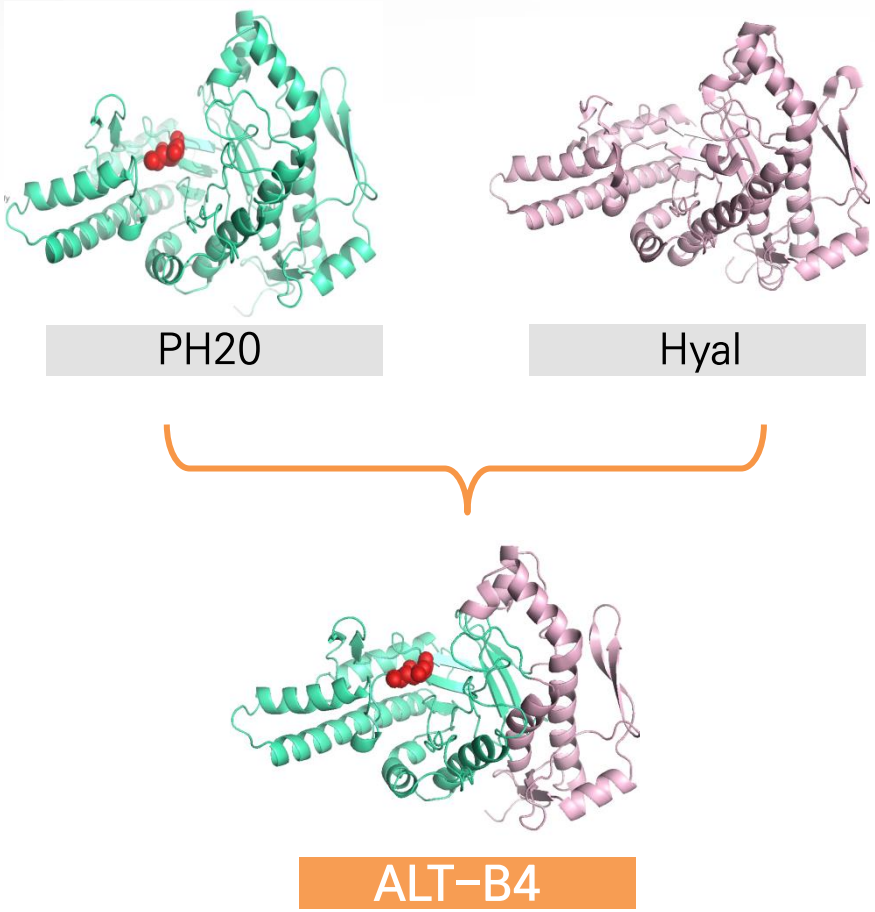
ALT-B4 : Novel Hyaluronidase Hybrozyme™ Technology

Novel Human Hyaluronidase

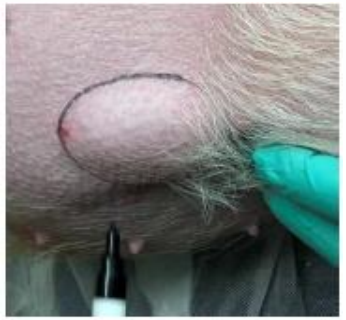
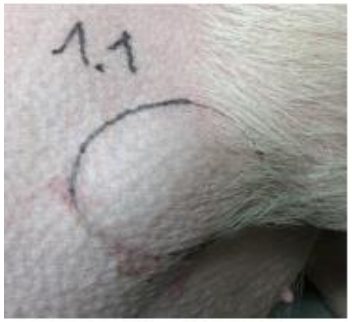
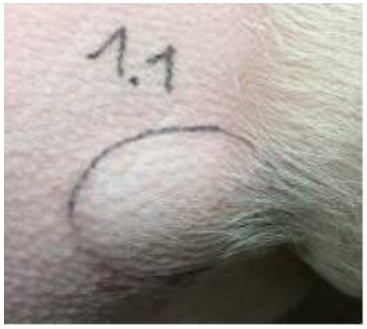
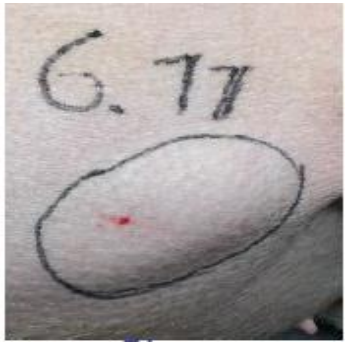
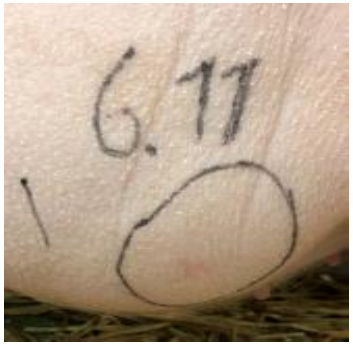
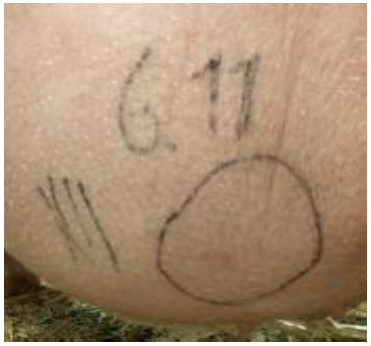
- Allows conversion of IV formulation of biologics to SC formulation
- Same mode of action (MoA), but enhanced enzymatic activity and thermal stability (aggregation temperature)

[Improved technology compared to competitor's]

- Enhanced thermal stability and protein stability
- High Productivity
- Lower immunogenicity compared to wildtype PH20 determined by *in vitro analysis*
- Completed PCT filing



ALT-B4 : *In vivo* Study – Bleb Size measurement with mini pig

ALT-B4 (2ml/min)	0h	1h	2h	24h
0 U Buffer only				
2000 U				

* Experiments were performed by our partner company with six, 1-yr old male mini pigs

ALT-B4 : Business Model

Licensing-Out to global company for SC formulations

2019.12.02	Entered Non-exclusive License Agreement with a Top 10 Global Pharmaceutical Company (Total $1.373B)
2020.06.24	Entered Non-exclusive License Agreement with a Top 10 Global Pharmaceutical Company (Total $3.865B)
Current	In discussion with multiple global Pharmaceutical companies

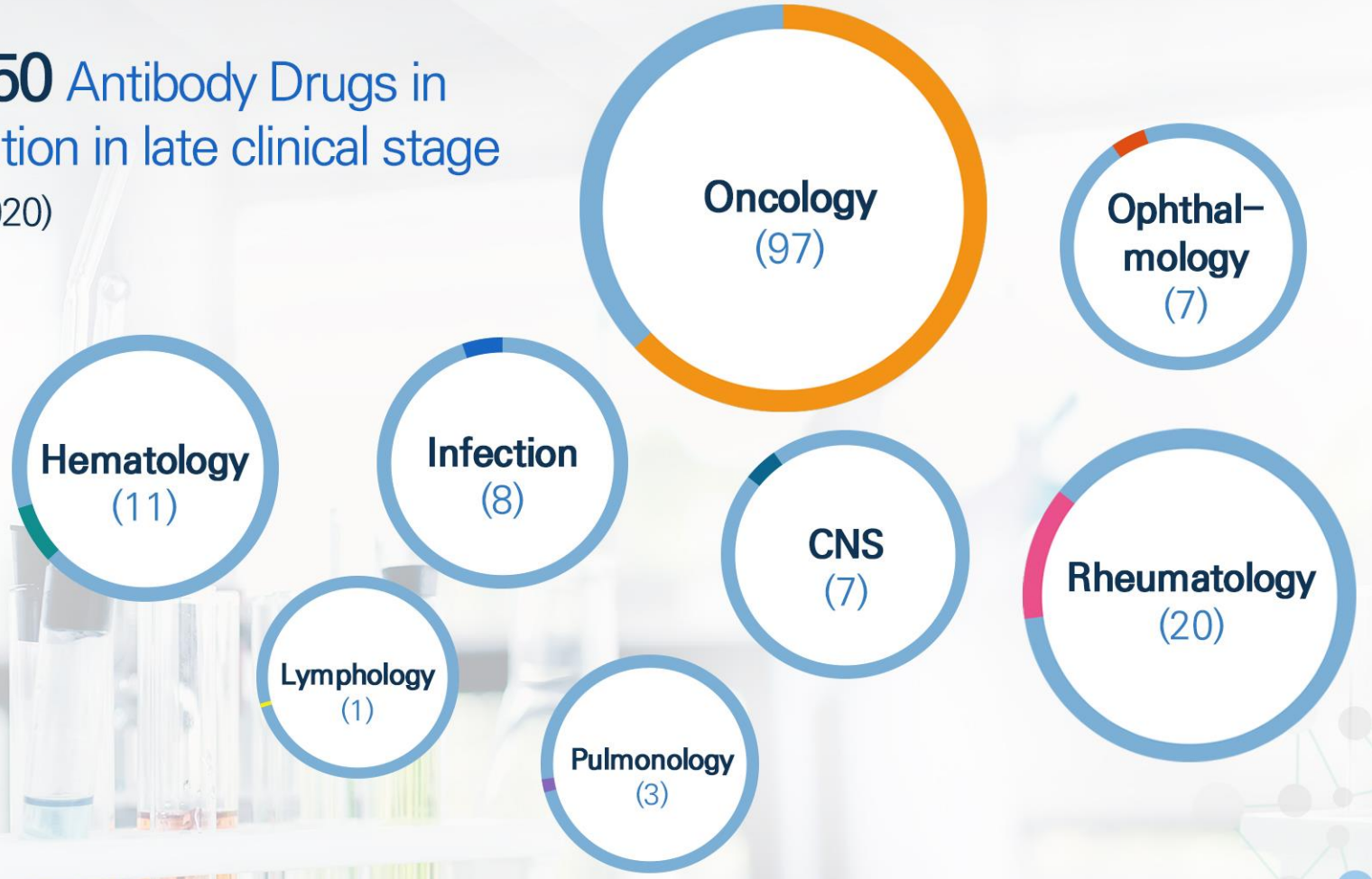
* Alteogen will provide ALT-B4 Drug Substance globally

Novel and Biosimilar mAb: 2024 ~$329B

Conversion from IV to SC : $$$$ Potential Market

About 150 Antibody Drugs in IV formulation in late clinical stage

(As of July 2020)



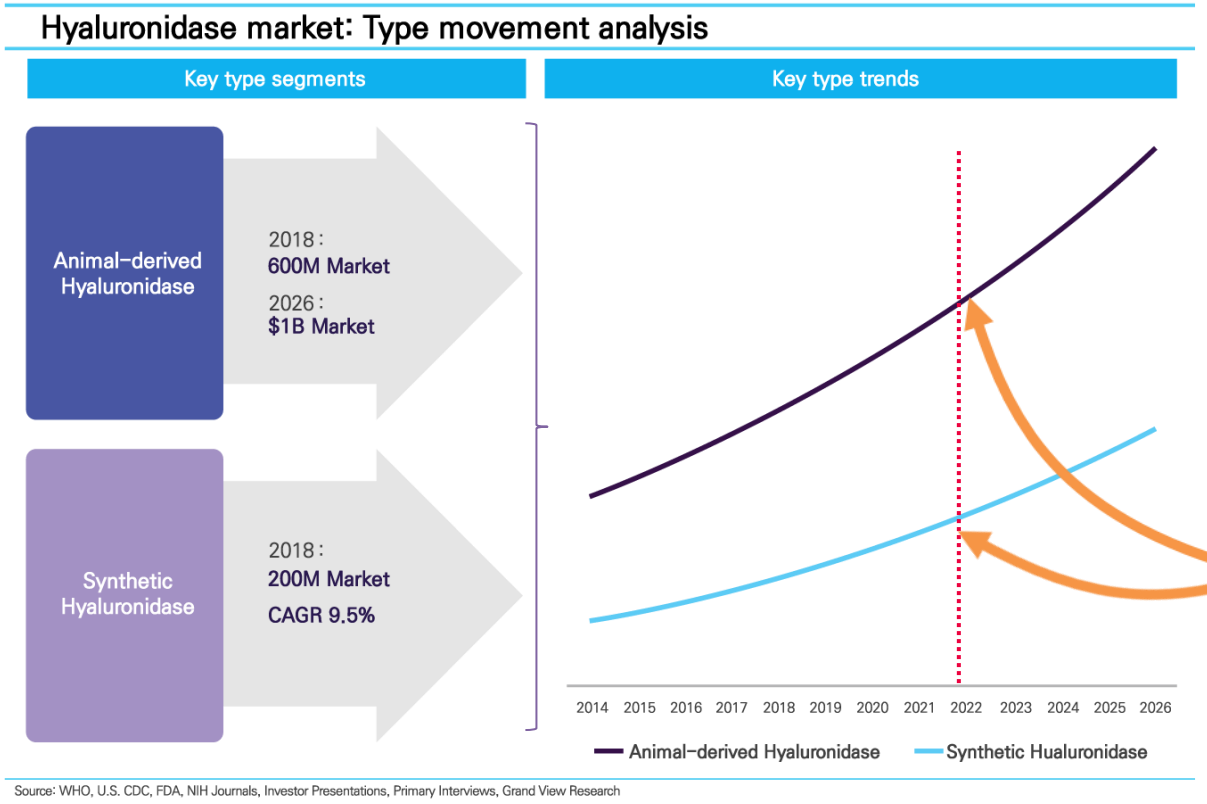
About 610 novel antibody drugs in early to late clinical stages

ALT-B4 : Business Model (Standalone)

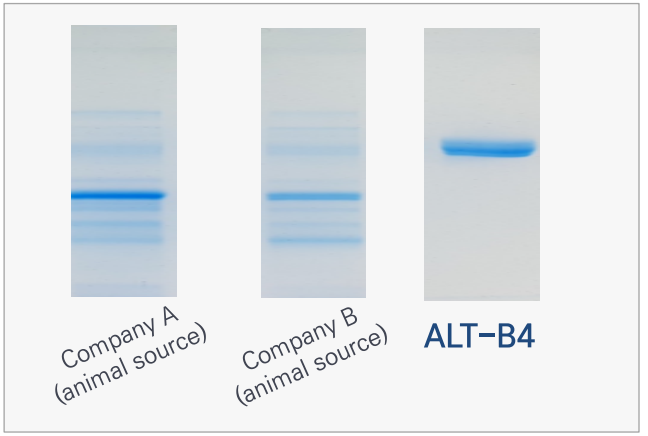
ALT-B4 : Approval of standalone product for global market

- ✓ Replacing animal-derived Hyaluronidase
- ✓ Starting with Korea-launch in 2021, it will be exported globally

Indications • Dermatology • Ophthalmology • Plastic Surgery • Reduce Pain



Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research



- 2022 $1B Market
- 2026 $2B Market
  (Ceres F&D Export)

✓ Aim Market Share 〉30%

ALTEOGEN's Business Domains

Platform Provider for Biobetter Drugs

Long-acting Biobetter

Antibody-Drug Conjugate (ADC)

Hyaluronidase

Biosimilars

- Eylea® biosimilar development

Biosimilar Market Analysis and Strategy

Business Environment

Switched to Red Ocean from Blue Ocean

Herceptin iv Biosimilar : 6 Products approved in EU as of September 2020

Less hurdle for biosimilar development technology:
Rapid rise of Chinese and Indian companies

Original companies' patent extension strategies: differentiated with biobetter products

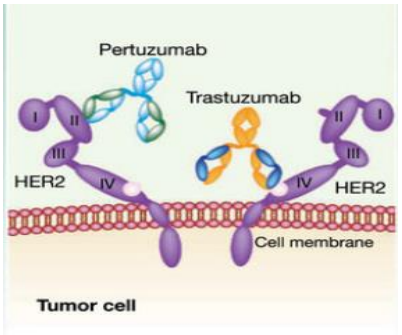
An attractive field, given the cost and probability of success in new drug development

Need differentiated Biosimilar Strategy

Development of differentiated biosimilar using ALT-B4 (1)

Roche's HER2 targeted anti-cancer drug development strategy

Herceptin iv



- 2019 Herceptin sales: ~ US$ 7B
- 2019 Perjeta sales: ~ US$ 3B

Herceptin HYLECTA™
trastuzumab and hyaluronidase-oysk
INJECTION FOR SUBCUTANEOUS USE | 600 mg/10,000 units

Herceptin sc

PERJETA™
pertuzumab

Perjeta iv

PHESGO™
pertuzumab/trastuzumab/hyaluronidase-zzxf
SUBCUTANEOUS INJECTION / 1,200 mg/600 mg/30,000 units 600 mg/600 mg/20,000 units

(Herceptin + Perjeta) sc

Alteogen is the only company to develop Herceptin sc and Perjeta sc using ALT-B4

Development of differentiated biosimilar using ALT-B4 (2)

- Alteogen can develop Blockbuster sc Biosimilar using ALT-B4
  → establish differentiated biosimilar strategy

Rituxan® sc Biosimilar (US$ 7.0 B)

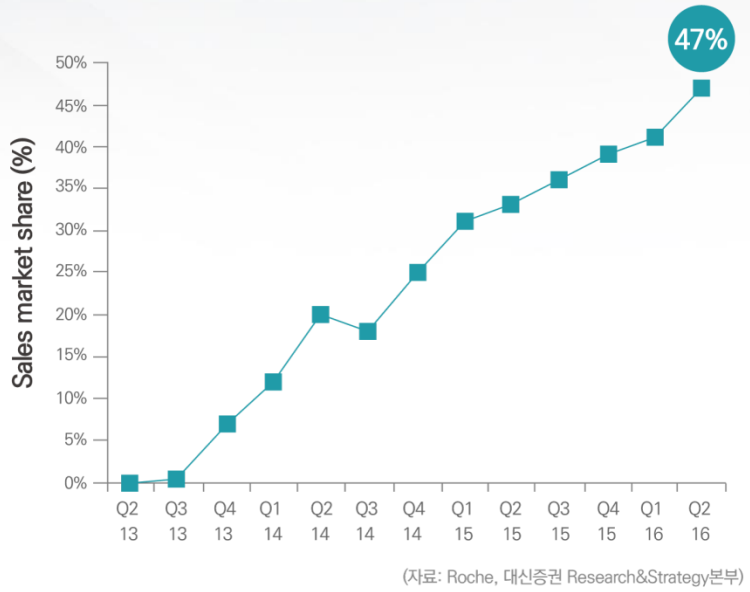
Opdivo® sc Biosimilar (US$ 7.9 B)

Remicade® sc New drug (US$ 4.5B)

Darzalex® sc Biosimilar (US$ 〉 3B)

ALT-LS2 : Herceptin SC biosimilar

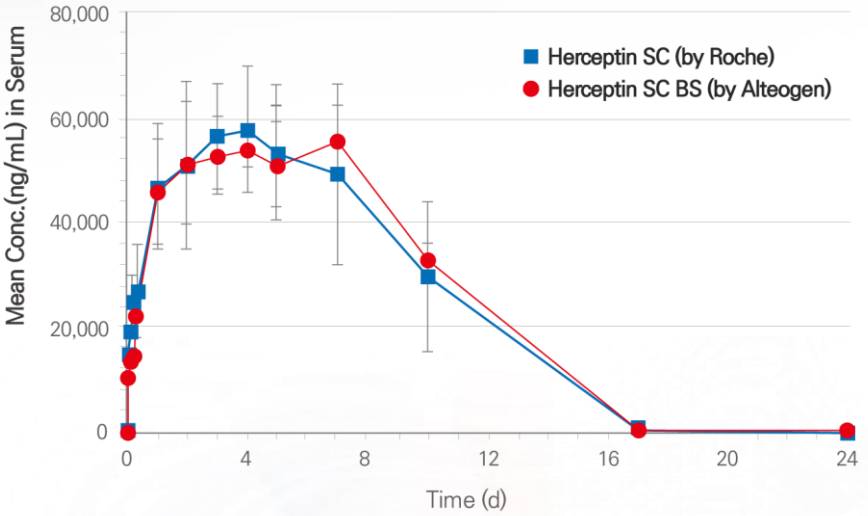
Herceptin SC in Europe



(자료: Roche, 대신증권 Research&Strategy본부)

- **Rapid rise of Herceptin sc in Market**
  - Future Market Share over 50%
  - US FDA approval in 2019
- **Convenient for patients**
  - Total cost is less than iv injection
- **Competitive Market for Herceptin iv Biosimilar**
  - Limitation on iv biosimilar products

PK Profiles



- ✓ Roche's Formulation Patent Expires in 2030
- ✓ Formulation Patent Filed (2019)

The first and only
Herceptin SC biosimilar in the world
Aim 〉 US$ 1B annual sales revenue

ALT-L9 : Eylea® Biosimilar

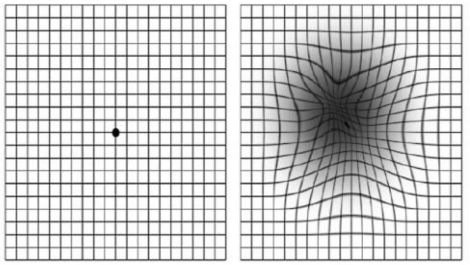
Ingredient	Aflibercept
Developer	Regeneron, Bayer
Indications	• Wet Age-related Macular Degeneration (wAMD) • Diabetic Macular Edema (DME) • Macular Edema Following Retinal Vein Occlusion (RVO) • Myopic CNV
Patents Expiration	• Substance Patent: 2024~2025 • Formulation Patent: 2027~2030
Molecule Structure	Fc fused VEGF Receptors

▸ 2019 : US$ 8B
▸ 2025 : 〉US$ 10B Expected

Drusen (deposits) causing macula degeneration (dry AMD) | 8.7% of World population (WHO)

Abnormal new blood vessels cause rapid and severe loss of central vision (wet AMD) | ~ 10-15% develop wAMD

Progression to reduced vision and blindness



Normal Vision

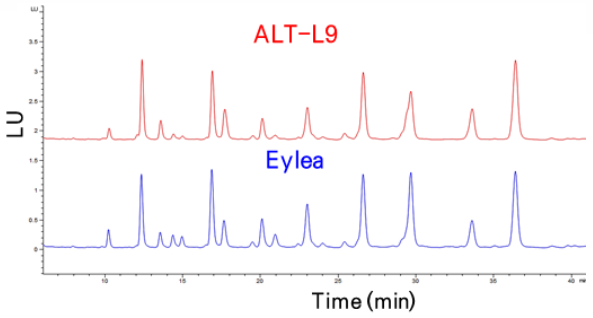
wAMD Vision

Leading cause of blindness in patients over 60 years old

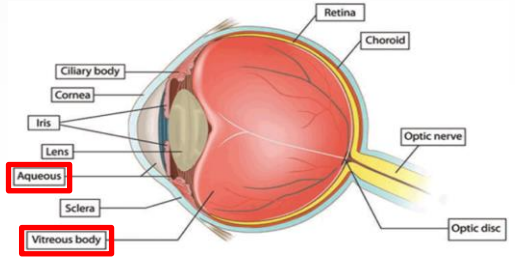
ALT-L9 : Competitive Edge

01 Alteogen uses the same Cell Line which has been used by originator

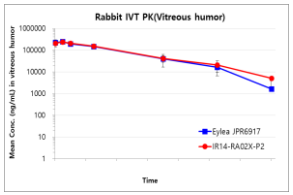
- ✓ Cell line may affect the carbohydrate pattern and similarity in biosimilar products
- ✓ ALT-L9 has an excellent similarity in Glycan Profile comparing to Eylea®



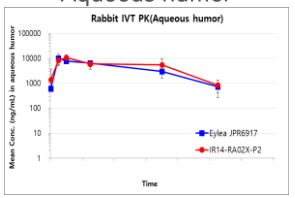
02 High level of similarity in PK profile in animal studies



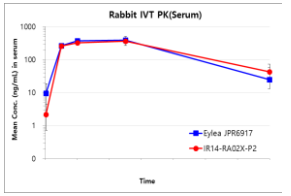
Vitreous humor



Aqueous humor



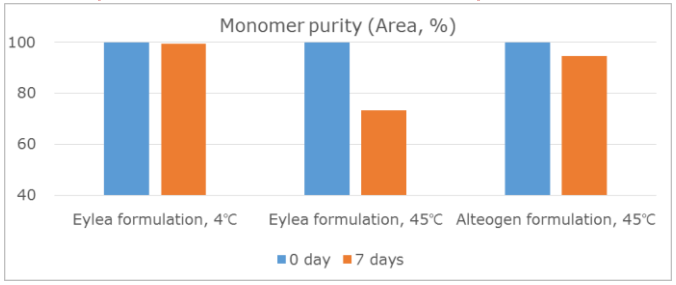
Serum



Eylea® ALT-L9

03 Alteogen developed a unique formulation

► Improved thermal Stability



- ✓ The formulation patent of the originator expires in 2027-2030
- ✓ Patent is registered in Korea, US, Russia, and Japan and filed in
- ✓ 8 additional countries including EU

04 Alteogen obtained Process Patent

► Fermentation of Aflibercept fusion protein

- Other Eylea® biosimilar developing companies who produce Aflibercept under fed-batch fermentation mode may infringe Alteogen's fermentation patent.

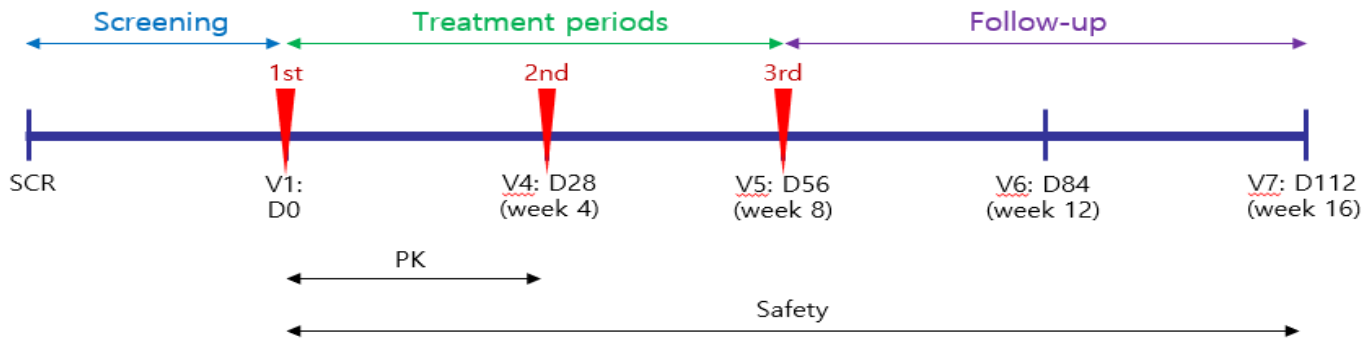
- ✓ Alteogen is in position to block other companies' attempt to develop Eylea® biosimilar
- ✓ Registered in Korea, Japan, Australia and Russia

Phase 1 trial of ALT-L9

- **Clinical Trial Protocol**

Title	A randomized, double-masked, active-controlled, parallel-group, Phase 1 Study to evaluate safety, efficacy and pharmacokinetics of ALT-L9 in patients with neovascular (wet) age-related macular degeneration
Clinical Products	Test Drug: ALT-L9 (2.0 mg/eye), Reference: Eylea (EU) (2.0 mg/eye)
Patients	Neovascular (wet) age-related macular degeneration
Injection interval	Three injections, every 4 weeks
Patient Numbers	30 patients (15 / per each arm)

[Study Flow]



➢ Conclusion: *No IP related adverse reactions observed*

ALT-L9 : Business Model

Completed Phase 1 Study in 4 sites in Korea

safety, efficacy, PK

Global Phase 3 planned

efficacy, similarity, immunogenicity

First to be launched when the substance patent expires

2024	2025	2028
Korea/ Japan/ ROW	EU	US

After launching in 2025 (Total Market US$10B Expected),
Market Share Target: 〉30% in Eylea biosimilar Market

ALT-L9 Annual Sales of $500M ~ $800M Expected

Alteogen's Strategy as Platform Provider

ALTEOGEN

ALT-B4 (Hyaluronidase) for sc injection
- ▸ Collaboration with Global Partners

ALT-B4 for stand alone
- ▸ Global marketing

ALT-L9 (Eylea Biosimilar)
- ▸ Entering Global Market

ALT-P7 (Cancer) / ALT-P1 (GHD) / ALT-F2 (NASH)
- ▸ Novel drugs based on ADC/ long-acting technologies

[Establishing own manufacturing facility]

Thank you for your attention!

ALTEOGEN

www.alteogen.com