R&D Strategy in RedBio:

2015 Bio-Future Forum
December 01, 2015

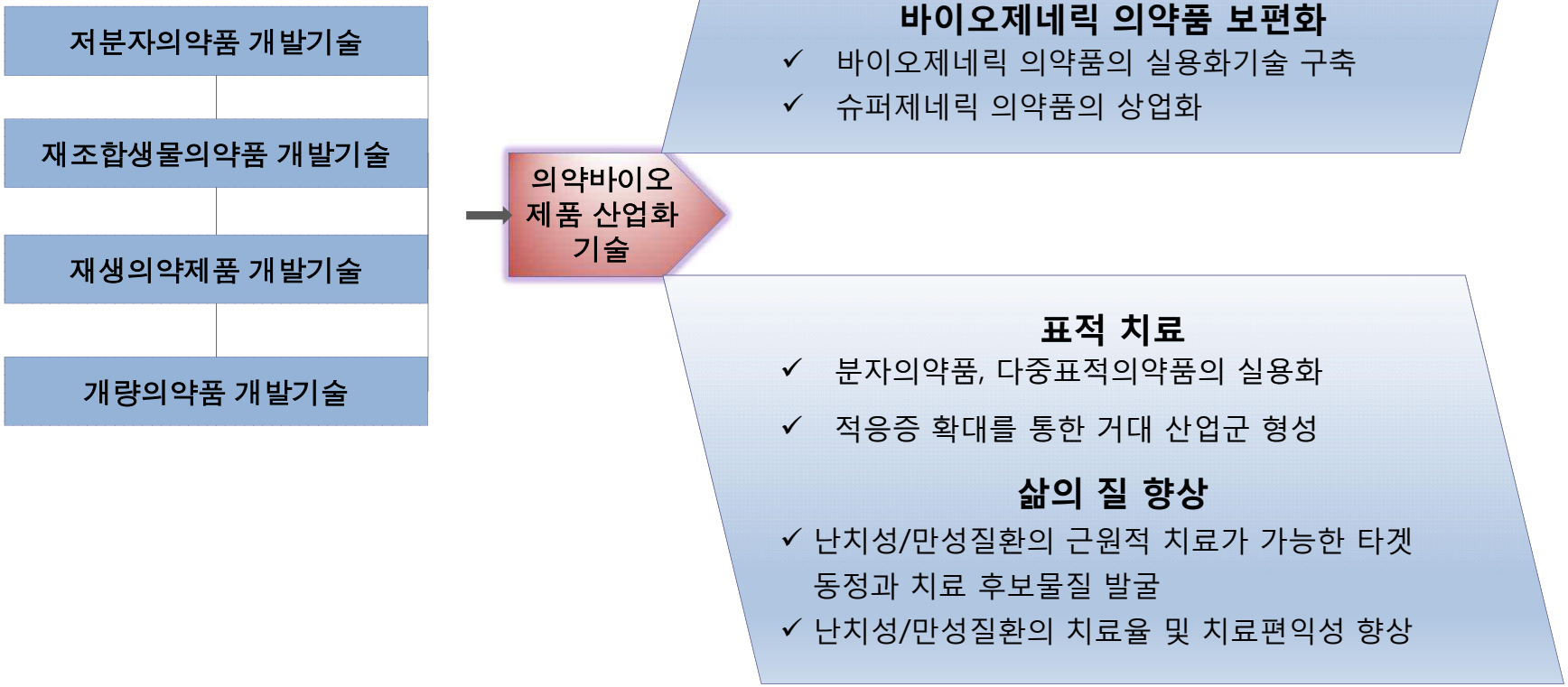
GREEN CROSS

Forward-Looking Statement

The forward-looking statements contained in this document involve risks and uncertainties that may affect the Company's operations, markets, products, services, prices and other factors. These risks and uncertainties include, but are not limited to, economic, competitive, legal, governmental and technological factors. Accordingly, there is no assurance that the Company's expectations will be realized. The Company assumes no obligation to provide revisions to any forward-looking statements should circumstances change, except as otherwise required by securities and other applicable laws.

Classifications in RedBio

Megatrends in RedBio



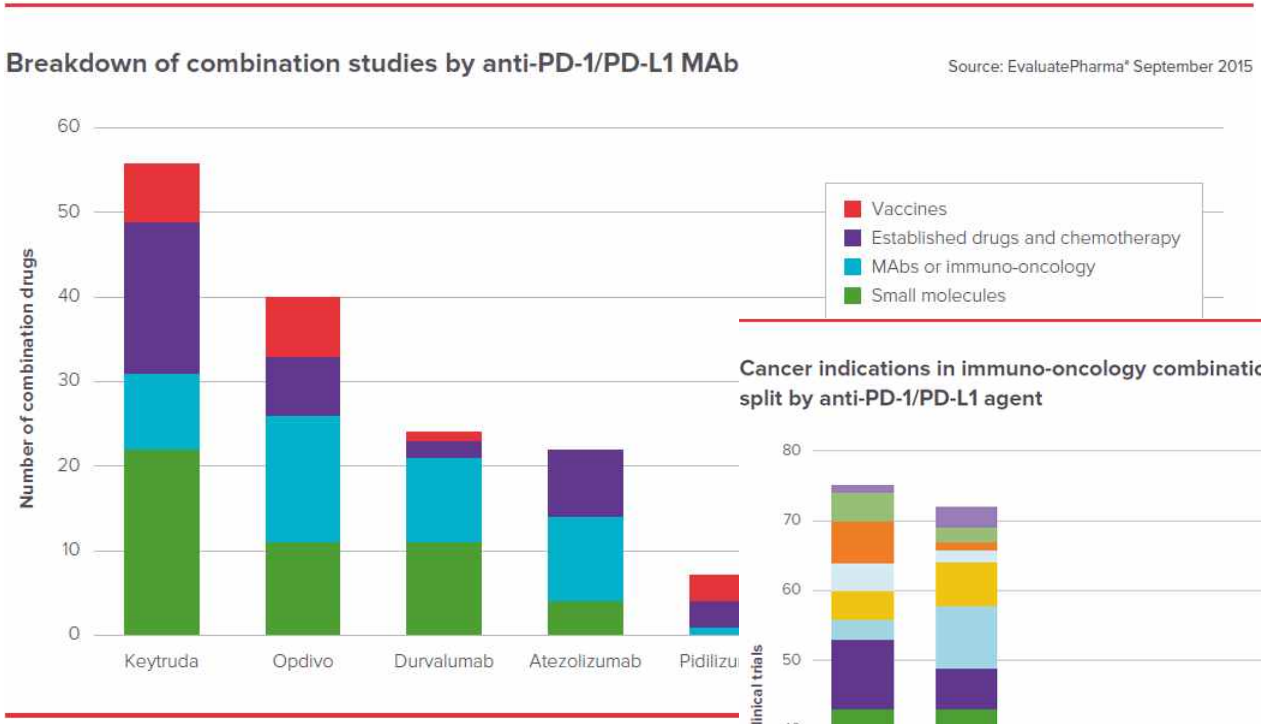
Frame-shift in RedBio

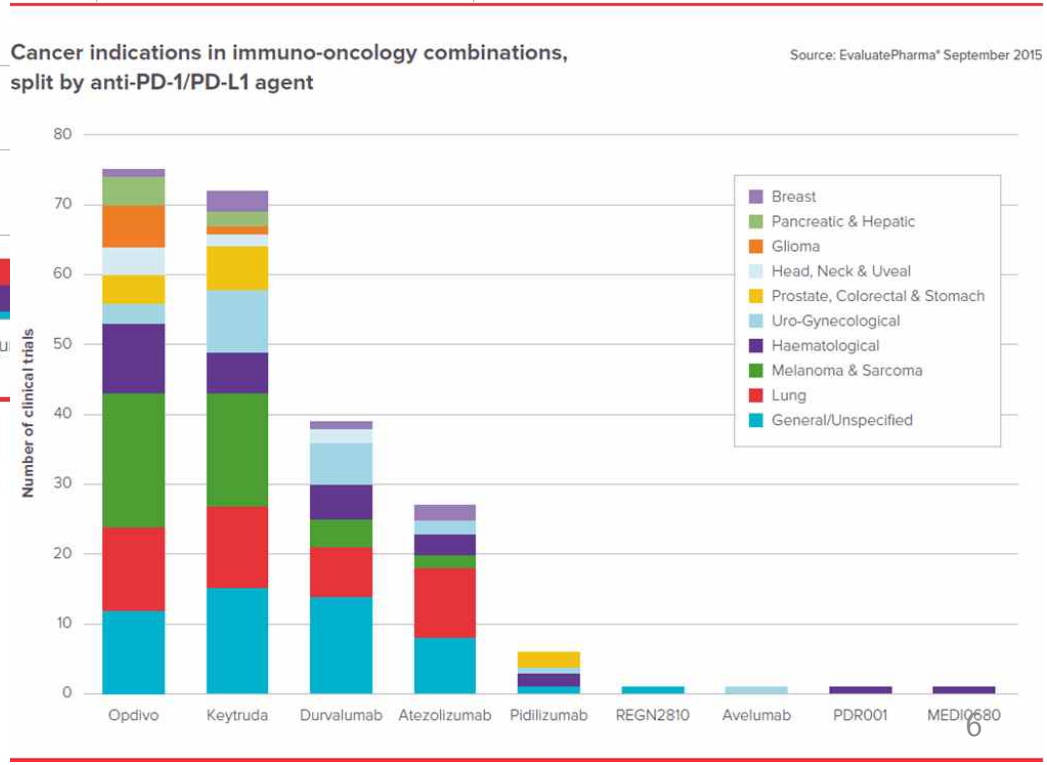
Top 10 forecast worldwide sellers in 2020

Product	Company	Therapy area (pharma class)	Annual Sales WW ($bn) 2015	2020	Launch	2015 rank
Humira	AbbVie	Anti-rheumatic (anti-TNF Mab)	14.1	13.5	2003	1
Sovaldi + Harvoni	Gilead Sciences	Hepatitis C (NS5B & NS5A polymerase inhibitors)	15.3	12.5	2013	2
Revlimid	Celgene	Blood cancers (immunomodulator)	5.7	8.0	2006	9
Opdivo	Bristol-Myers Squibb	Cancer antibody (anti-PD-1 Mab)	0.6	6.5	2015	249
Tecfidera	Biogen Idec	Multiple sclerosis (Nrf2 pathway activator)	3.9	6.5	2013	21
Avastin	Roche	Cancer antibody (anti-VEGF Mab)	7.2	6.3	2004	5
Remicade	Johnson & Johnson	Anti-rheumatic (anti-TNF Mab)	6.0	5.9	1998	8
Soliris	Alexion Pharmaceuticals	Haematological conditions (anti-C5 Mab)	2.7	5.8	2007	32
Lantus	Sanofi	Diabetes (insulin analogue)	8.0	5.7	2000	3
Xtandi	Astellas Pharma	Cancer (androgen receptor antagonist)	1.8	5.5	2012	63

Source: EvaluatePharma® December 2014

Frame-shift in RedBio

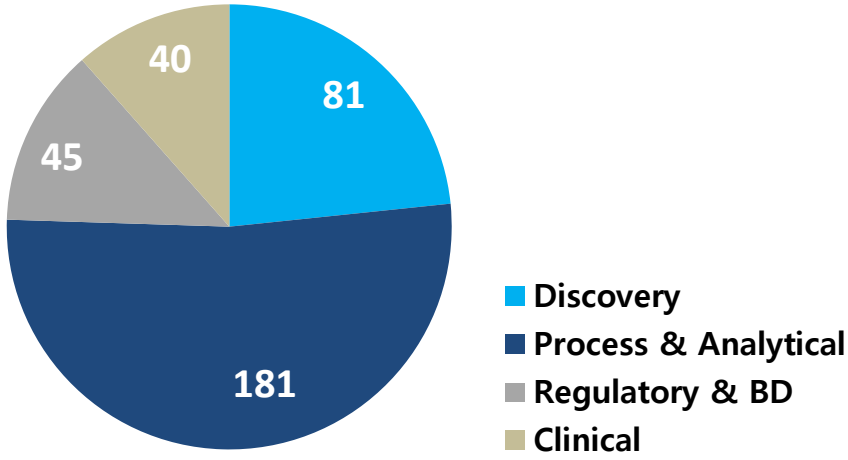




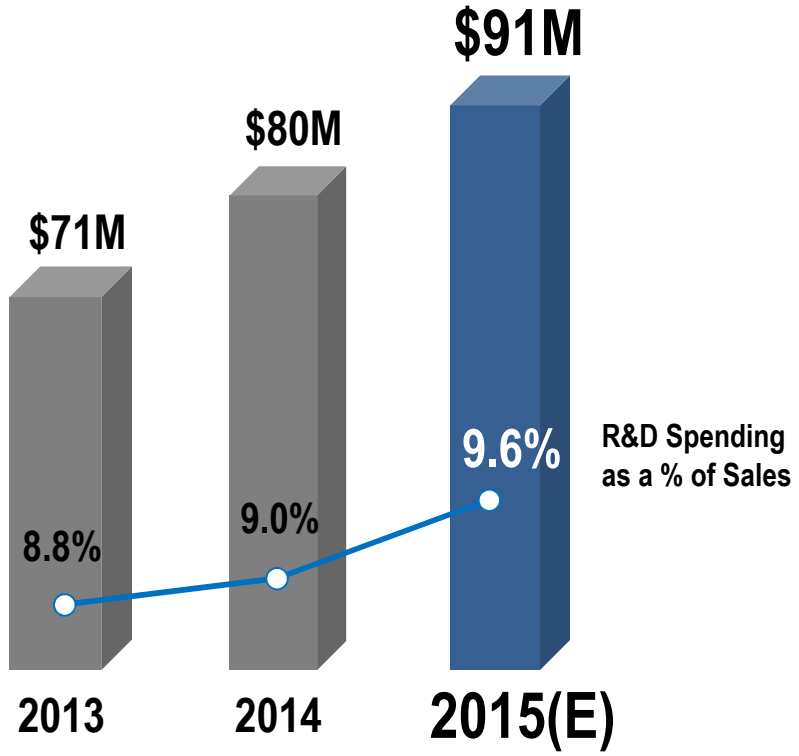
R&D Investment of Green Cross

Personnel

347 Researchers



R&D Spending



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R&D Strategy

- ✓ Maintain commitment to extracting **maximum value from existing assets and globalizing current products**

  (IVIG, Hunterase, GreenGene-F, QIV, VZV II, etc.)

- ✓ Develop **innovative therapies** focusing on products **that align with our technical and commercial capabilities**

  (EGFR mAb, HBIG-gene etc.)

R&D Pipeline

Discovery - PC	Phase 1/2	Phase3	Marketed
GC3114A Seasonal influenza QIV for >65y High Dose	**GC3111A (P1 IND)** D, T, aP prophylaxis	**GC3110A (BLA)** **Seasonal influenza QIV** Egg-based Influenza	**GC FLU™** Seasonal Influenza Trivalent Inactivation Influenza
Fibrinogen **Acquired deficiency**	**MG1111** Varicella prophylaxis Live attenuated	**GC3106A (P3 IND)** **Seasonal influenza QIV** Cell culture Influenza	**GREENFLU™** H1N1 Influenza Monovalent Inactivation Influenza
pdFVIII Hemophilia A	**GC1109 (P2)** **Anthrax** Recombinant PA	**MG1109 (BLA)** H5N1 Inactivated- whole monovalent	**Greenplast Q** Fibrin Sealant Fibrinogen/Thrombin/FXIII
	GC1118 **Solid tumor** Monoclonal antibody	**GC1107 (BLA)** T, D prophylaxis for adult Adsorbed T, D	**IVIG-SN 5%** Immune Deficiency Immunoglobulin
	Hunterase® (P2 IND) Hunter Syndrome Idursulfase beta **US**	**IVIG-SN 5% (BLA)** **Immune Deficiency** Immunoglobulin **US**	**Hunterase®** Hunter Syndrome Idursulfase beta
	MG4101 (P2 IND) **Cancer** Allogeneic NK cell	**IVIG-SN 10% (P3 IND)** **Immune Deficiency** Immunoglobulin **US/CA**	**Neulapeg®** Neutropenia Pegylated GCSF
	GC1102 (P2) For liver transplantation Hepatitis B immunoglobulin	**IVIG-SN 10%** **ITP** Immunoglobulin	**Immuncell-LC®** HCC, Glioblastoma Immune Cell therapy
	GC1102 (P1) Chronic Hepatitis B Hepatitis B immunoglobulin	**GreenGene®F (P3)** Hemophilia A rhFactor-VIII **US** **China**	**GreenGene® F** Hemophilia A rhFactor-VIII
	GC6101A (P2) **Gastritis** Natural herbal drug		**Shinbaro®** **Osteoarthritis** Natural herbal drug

Vaccine

Plasma Derivatives

Recombinant & Others

Pipelines

1 Plasma Derivatives

2 Vaccines

3 Recombinants

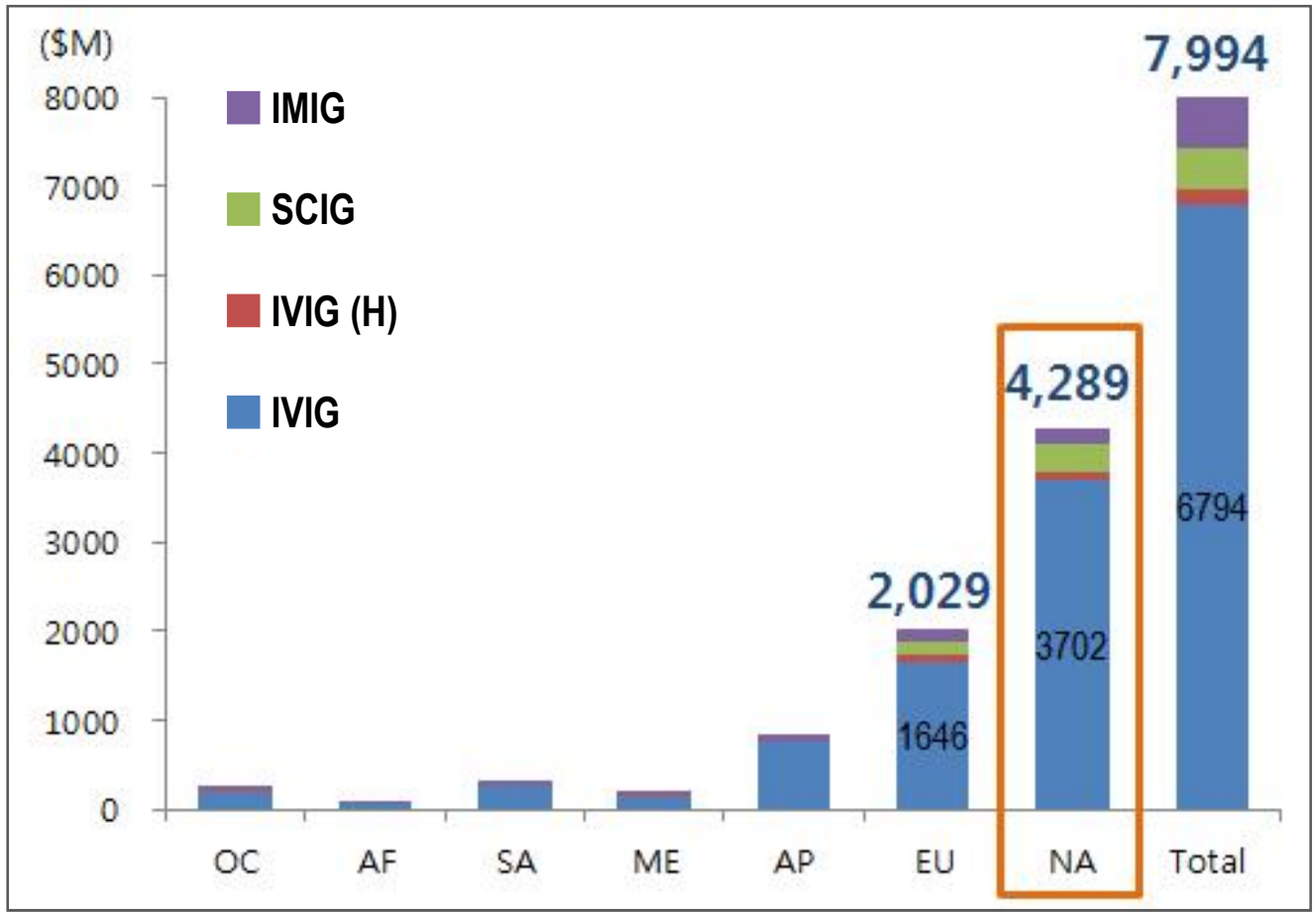
4 Cell Therapy

R&D Direction

- Maximizing Plasma Economy
- Enhancing Current Portfolio
  - Patient convenience
    - Device
    - Route of administration
    - Dosing flexibility
  - Yield

Plasma Derivatives

Worldwide Market (2012)



Ref. GBI Research Report, 2013

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Plasma Derivatives

IVIG-SN™

Indication	· Severe Infection · Primary Immune Deficiency
Ingredient	· Human Immunoglobulin G
Status	· Phase III Completed in US, CANADA
Plan	· BLA in US (2015)

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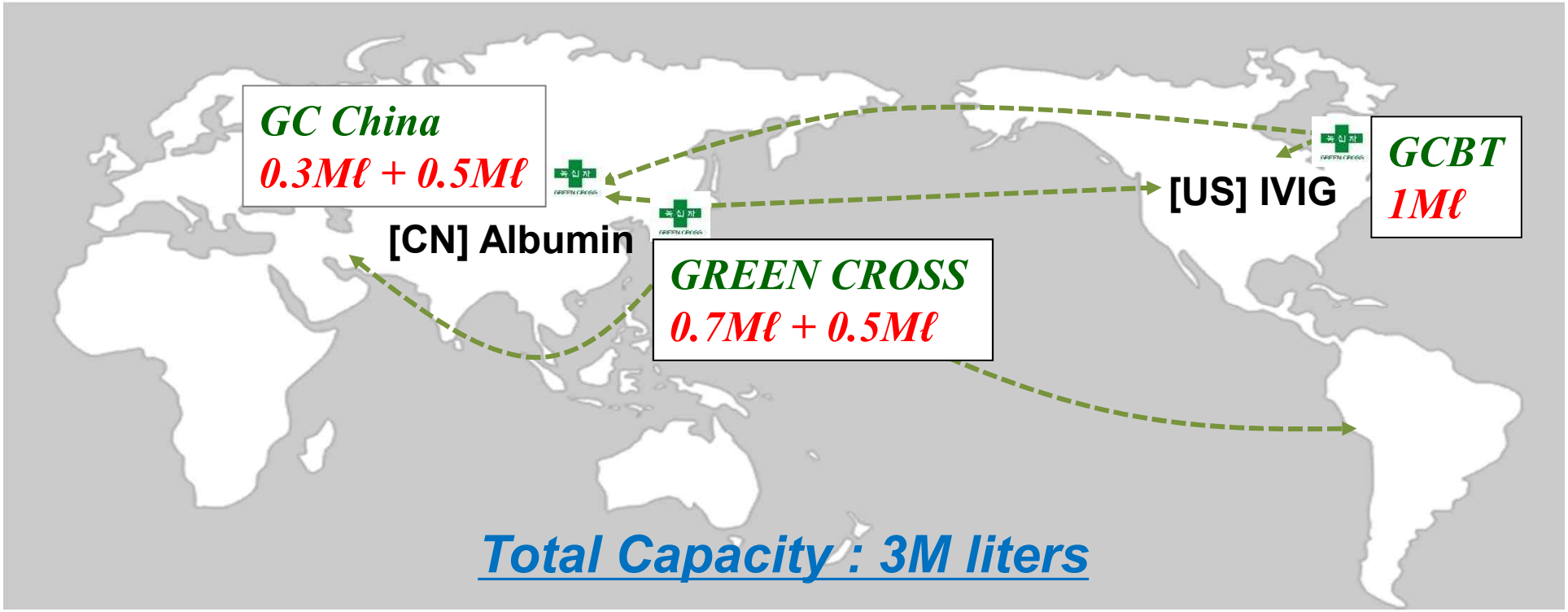
Plasma Derivatives

Plasma Collection Centers in US & China

Affiliate	GCAM	GC China
Established	2009. 11. 18	1995. 10. 26
Status	8 Centers	7 Centers
Plan	30 Centers ('19)	9 Centers ('17)

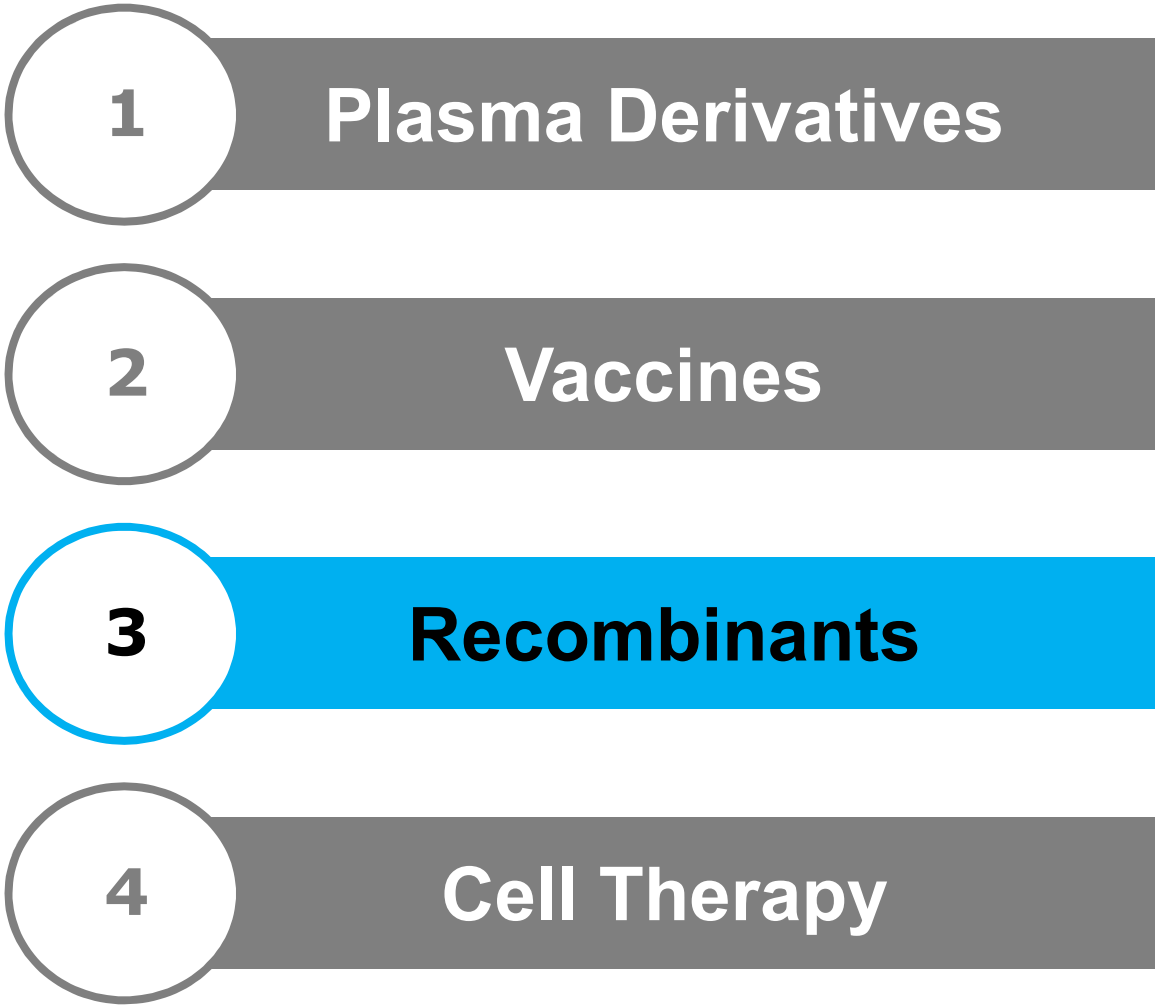
Plasma Derivatives



Global Competitors Capacity

Baxter	GRIFOLS	CSL	octapharma plasma	GREEN CROSS
10M liters	9.5M liters	6.2M liters	4.25M liters	3M liters (plan)

Pipelines

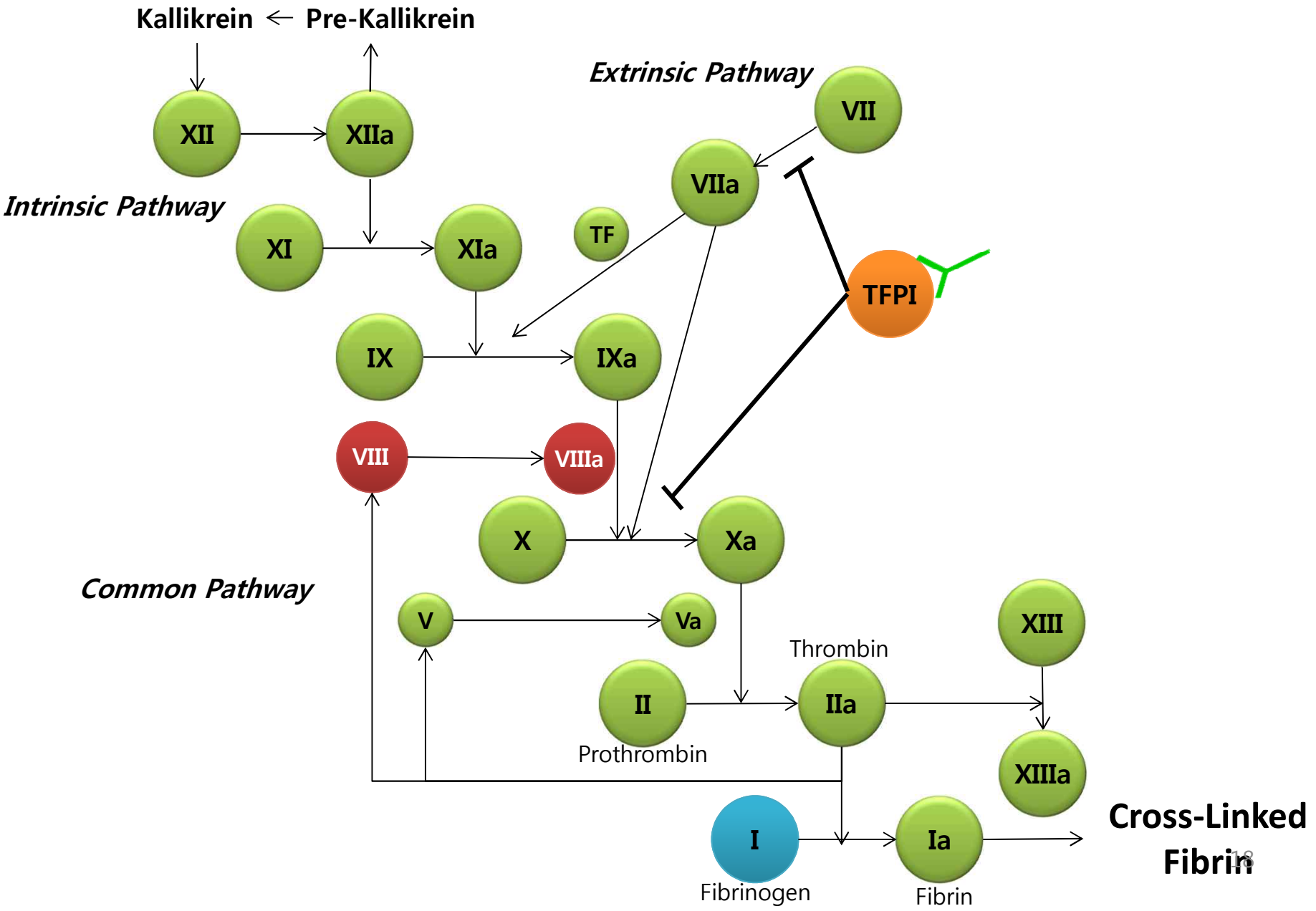

1
Plasma Derivatives
2
Vaccines
3
Recombinants
4
Cell Therapy

Recombinants

- **Hemophilia Treatments**
  - 3rd Generation Factor VIII
  - Long-acting Factor VIII
  - Next Generation Hemophilia treatments
- **Rare Disease Treatments**
  - ERT for LSD
- **Anticancer Treatments**
  - Monoclonal Antibodies
  - Cancer Immunotherapeutics

Recombinants

Blood Coagulation Cascade



Ochang Plant_Main Products

PLASMA DERIVATIVES

17 products

Albumin injection
Immunoglobulin inj. for intravenous administration
Immunoglobulin inj. for intramuscular administration
Coagulation Factors injection

RECOMBINANT

3 products

Recombinant Factor VIII
Recombinant Idursulfase-beta
Pegylated recombinant G-CSF

Recombinants

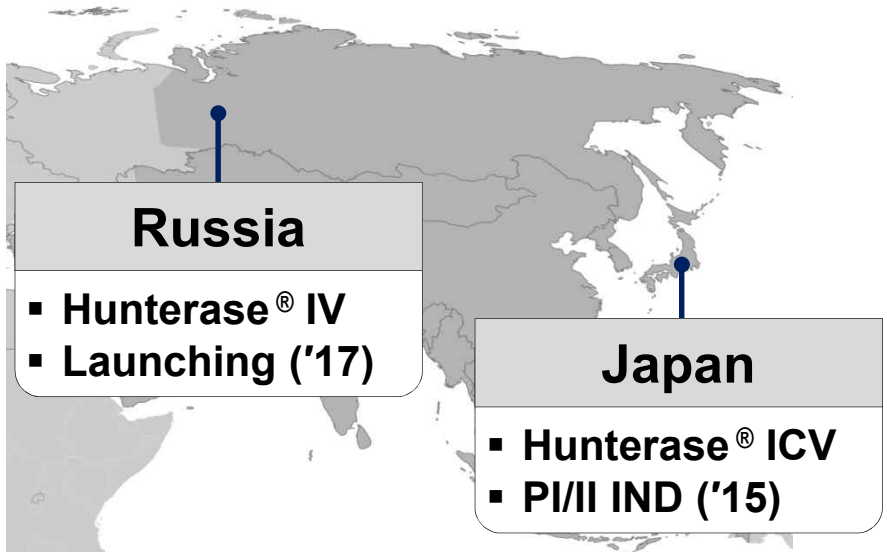
Hunterase®

Indication	· Hunter Syndrome (MPS II)
Ingredient	· Idursulfase-beta
Remarks	· Orphan Drug Designation by US FDA (2013)
Status	· Approved in Korea (2012) in Oman, Algeria, Malaysia
Plan	· PII IND in US (2015) · PI/II IND in JP (2015, ICV*)

* ICV : Intracerebroventricular

Hunterase®

Globalization plan for Hunterase®



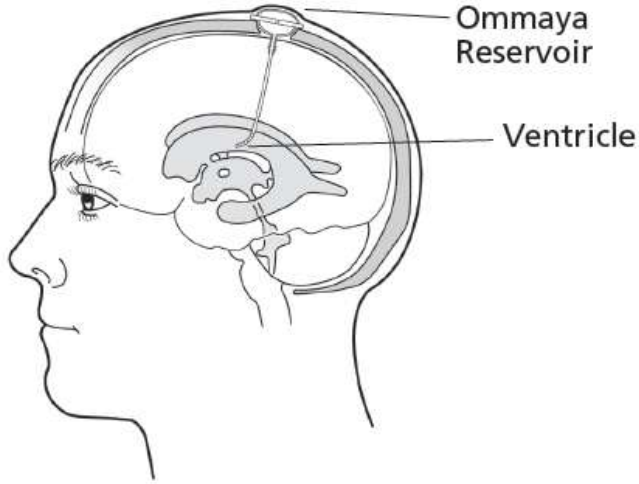
Russia

- Hunterase® IV
- Launching ('17)

Japan

- Hunterase® ICV
- PI/II IND ('15)

To cure neuropathic symptoms of MPS II via ICV administration



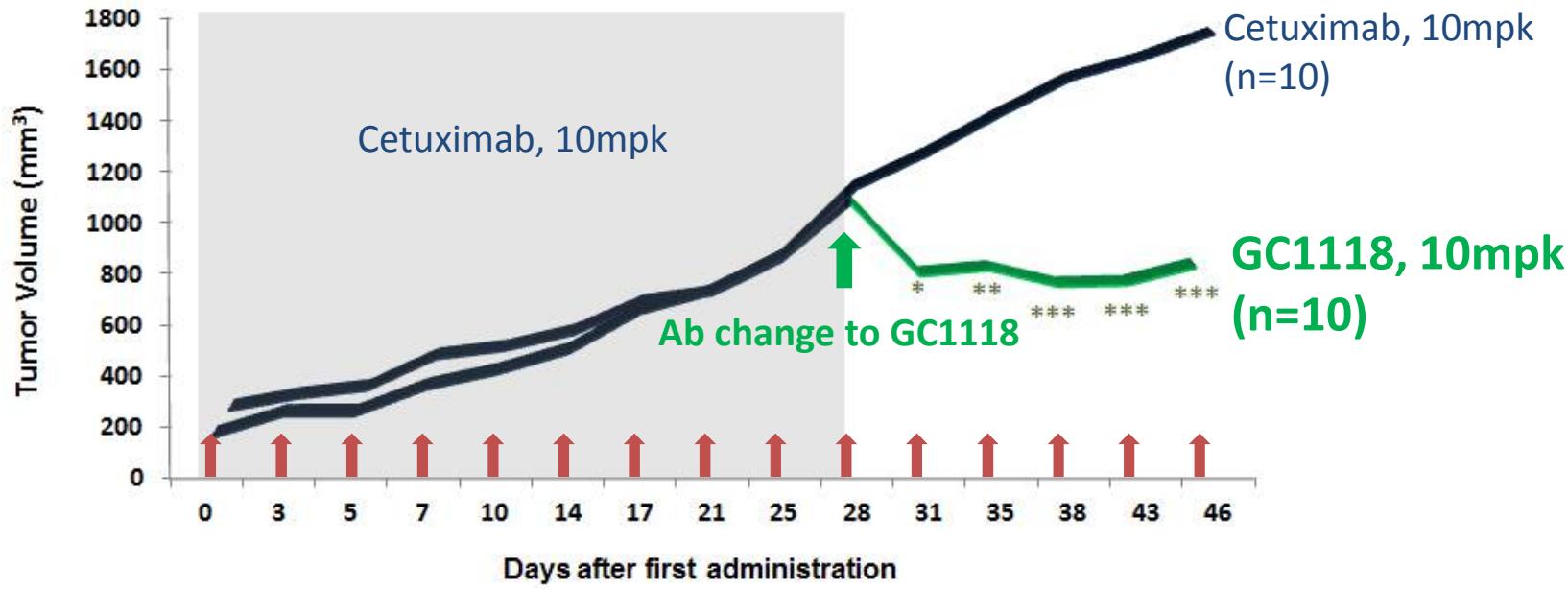
Recombinants

Anti-cancer: Anti-EGFR mAb

anti-EGFR mAb(GC1118)

Indication	· Colorectal Cancer
Ingredient	· Fully Human mAb targeting EGFR
Status	· Phase I in Korea

Cetuximab-Refractory Model (Human CRC xenograft model)



*, P<0.05; **, P<0.01; ***, P<0.001, 2-way ANOVA (Cetuximab vs. Cetuximab to GC1118)

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Hepabig-Gene

Indication	· Chronic Hepatitis B · Prevention of HBV recurrence following Liver Transplantation
Ingredient	· Recombinant Hepatitis B Immunoglobulin
Remarks	· Orphan Drug Designation by US FDA and EMA (2013)
Status	· Phase II in Korea

Recombinants

Hepabig-Gene

	Hepabig-Gene	HepaGam B
Origin	CHO cell	Immune-boosted blood
Type	Human IgG_1 **(Monoclonal)**	Plasma-derived Hepatitis B Immunoglobulin (Polyclonal)
Activity	**3,000 unit/mg**	11 unit/mg
Administration Volume	**5ml**	34ml
Recognition of G145R Mutant	**Binding and Neutralizing**	No

We have devoted ourselves to the field of special medicines, an area that was difficult to build but is essential to patients.

Newspaper Advertising(1977)

THANK YOU