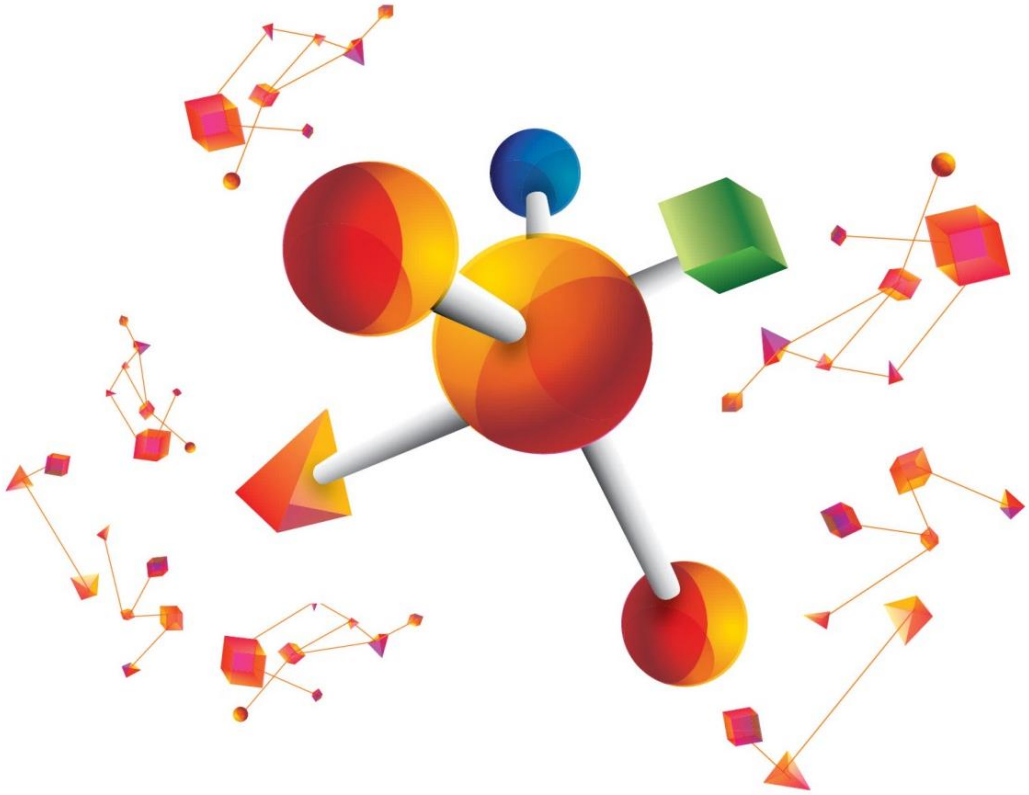
LCB Corporate Presentation

"A dream you dream alone is only a dream.
A dream you dream together is reality!"



3Q2019

Disclaimer

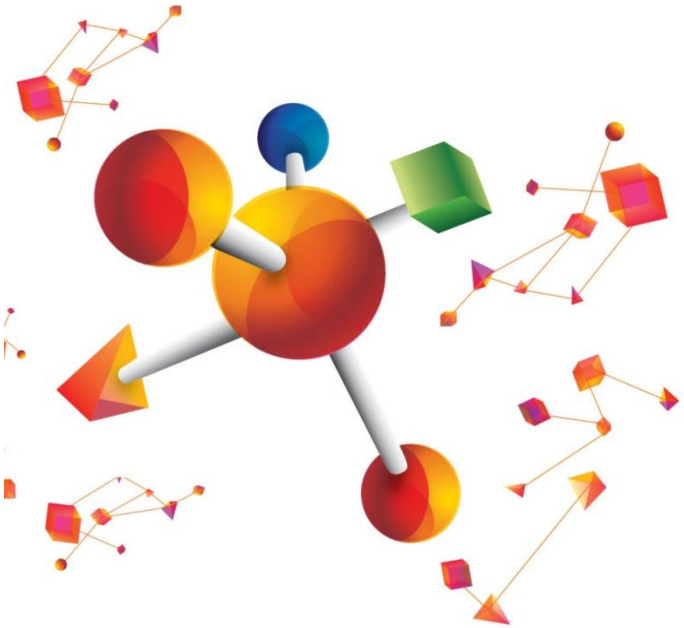
All information in this book including business performance and financial report is written by Korean-International Financial Reporting Standards(K-IFRS) .

This book includes a "forecast" about future. It is not about the past, but the future business plan including expected management status and financial performance, and sometimes there can be word such as 'anticipation', 'forecast', 'plan', 'expectation', and '(E)'.

A "forecast" can mean uncertain factors which can affect the company either positively or vice versa, and those can include:

- Domestic or international financial market trends including fluctuation of foreign exchange rate or interest rate.
- Company's very important strategic decision such as M&A
- Unexpected business environment change in the main industry
- Other internal and external change that can affect the company's management and finance.

Because of those uncertain risks, company's actual business performance can be different from the "forecast" in this booklet. Also the information we provide is written as of the day we deliver the presentation, so it can be changed due to unexpected external status of industry or internal company's revision of strategies without any prior notice in the future.



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01. Overview

A biopharmaceutical company focusing on R&D of novel therapeutics!

Summary(Mar 2019)

Company	LegoChem Biosciense. Inc.
Founded /IPO	May 2006 / May 2013
Main R&D	- ADCs (Antibody-Drug Conjugates) - Small molecules
Located	Daejeon, Korea (Headquarter)
Employees	94(R&D 66)

CEO Profile

CEO Yong-Zu Kim

- KAIST, Ph.D. in medicinal chemistry
- LG life&Sciense, Director of New Drug Research.
- Experiences
  - led the development of 1st US FDA-approved new drug “Factive" in Korea
  - Multiple global licensing-out experiences : Antibiotics, anti-coagulants, and HCV, etc.

Who we are?

- Capability & intensive experience in
  - Discovery to US FDA approval
  - Global out-licensing experiences

How we do?

- Open Innovation
  - Licensing (In / Out)
  - Co-development
  - Joint Venture
  - Research Collaboration

What is core competence?

- LegoChemistry™
  - Proprietary Medicinal Chemistry platform
- ConjuAll™
  - Next-generation ADC platform

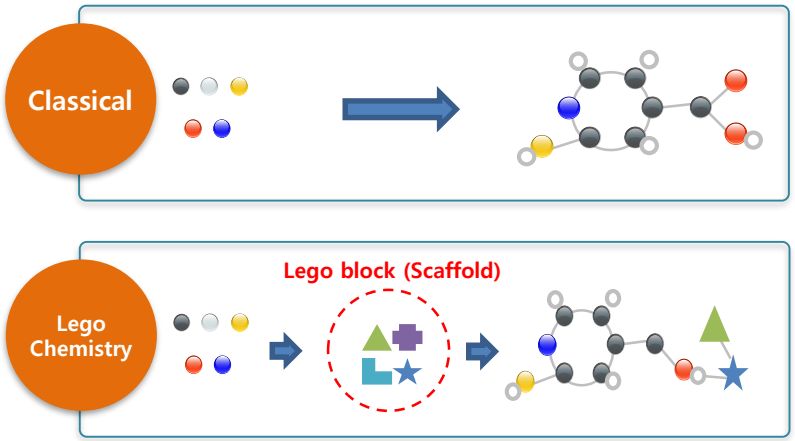
What we have?

- Development:
  - Phase 2: 1 project
  - Phase 1: 4 projects
  - Preclinical : 1 projects
- Out-licensed: 7 projects
- More than 10 Research collaborations / Research licensing

02. Core Technology

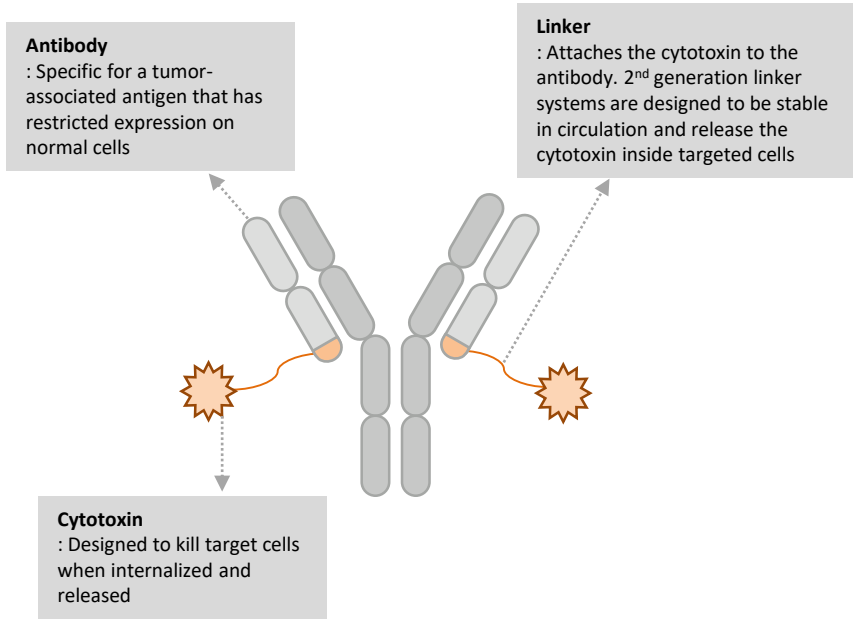
LegoChemistry

1. Drug discovery utilizing 20 proprietary scaffolds with drug-likeness
2. Successfully applied to antibiotics & anti-coagulant programs
3. Expedited drug discovery processes (avg. 5 → 3 yrs.)
4. Extended to other programs including ADCs



ConjuALL

1. Site-specific conjugation enabling production of homogeneous ADC
2. Plasma stable linker enabling cancer specific toxin release
3. Excellent PK profile through proprietary conjugation and linker chemistry
4. Proprietary PBD prodrug toxin technology



03. Pipeline: ADC(Antibody-Drug Conjugate)

Platform

Product/Target	Indication	Discovery	preclinical	Phase 1	Phase 2	Partner	BD status	Remarks
LCB69	Solid/ Hematologic cancer					Takeda	L/O (ww)	Immuno Oncology
LCB85	Solid/ Hematologic cancer					Company "S" (US)	MTA* (Linker & PBD)	Worldwide
LCB91	Solid/ Hematologic cancer					Company "J" (US)	MTA (Linker & PBD)	Worldwide
LCB91	Solid/ Hematologic cancer					Company "I" (EU)	MTA (Linker & PBD)	Worldwide

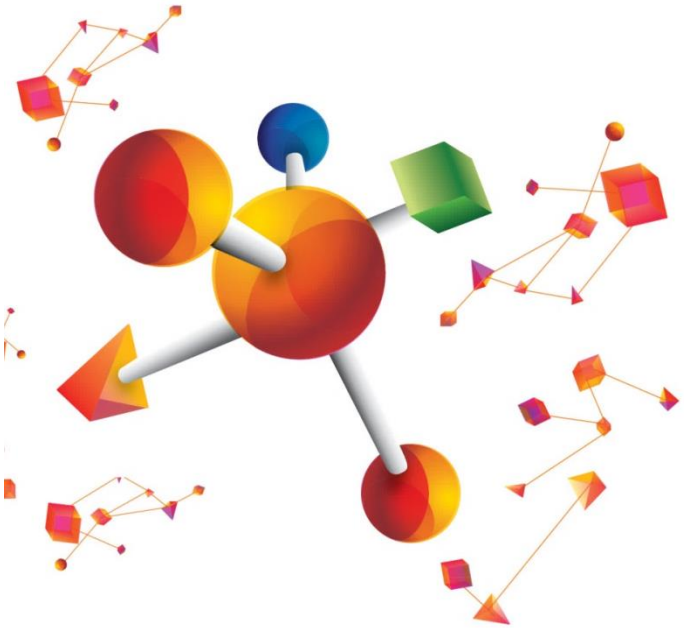
ADC products

LCB14	HER2					FOSUNPHARMA 复星医药	L/O	Out-licensed for China
LCB71	ROR1					ablbio	-	Co-development
LCB73	CD19					NovImmune	-	Co-development
LCB67	DLK1					Y BIOLOGICS	-	Worldwide
LCB76	EGFRvIII					SAMSUNG MEDICAL CENTER	-	Worldwide
LCB84	Solid/ Hematologic cancer					DIATHEVA	-	Co-development
LCB87	Solid cancer					Company "O"	-	Co-development
LCB88	Solid/ Hematologic cancer					Company "J"	-	Co-development

***MTA(Material Transfer Agreement)**

03. Pipeline: Small molecules

Product	Indication	Discovery	preclinical	Phase 1	Phase 2a	Phase 2b	Partner	Remarks
Antibiotics								
Delpazolid	Gram-positive (MRSA, VRE, S. pneumoniae, MDR-TB)		Preclinicial(US) / Ph1, 2a(Korea)			Global		- Orphan Drug/QIDP /Fast track in the US
			China				海和生物 HaiHe Biopharma	- Out-licensed (China) (Dec 2016)
Anti-coagulant								
LCB02-0133 (Nokxaban, FXa Inhibitor)	THA (incl. HF)*						GC 녹십자	- Partnered (Jun. 2009)
							LEE'S PHARM. 李氏大藥廠	- Out-licensed (China) (Jan 2018)
Anti-fibrotic								
LCB17-0877 (ATX Inhibitor)	Anti-fibrosis / inflammation			US			bridgebio therapeutics	- Out-licensed (May 2017) - Orphan Drug (Jan 2019) - Sub-licensed out to Boehringer ingelheim (Jul 2019)
Anti-cancer								
Small molecule Oncology	Immuno Oncology						-	-



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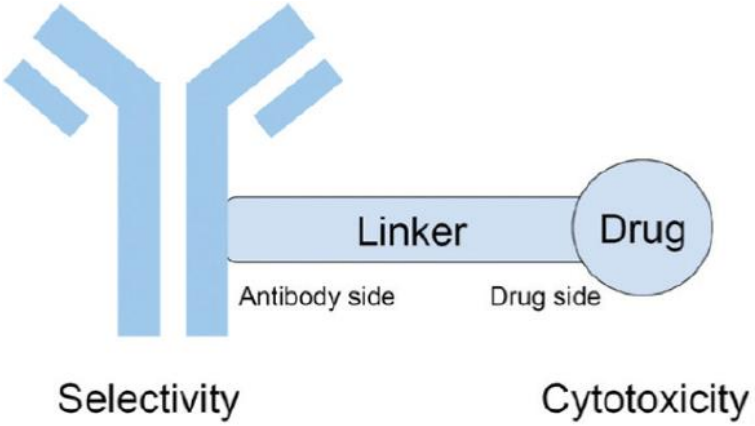
01. ADC : Linking Chemical payload to an Antibody

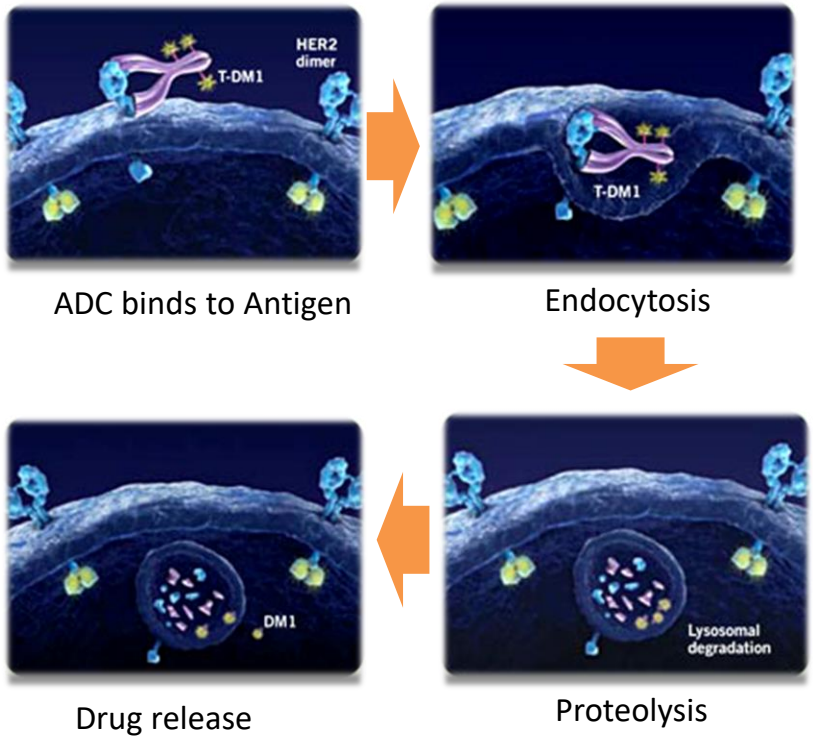
Background of ADC

- Antibody's **selectivity** + Small-molecule's **efficacy**
- Mainly applied to oncology antibodies
- Future expansion to other indications beyond oncology



Source: Chen S, Cao Y. Assembly of Antibody-Drug Conjugates as Potent Immunotherapy. JSM Cell Dev Biol. 2014; 2(1): 1006-1010

Mechanism of ADC



ADC binds to Antigen

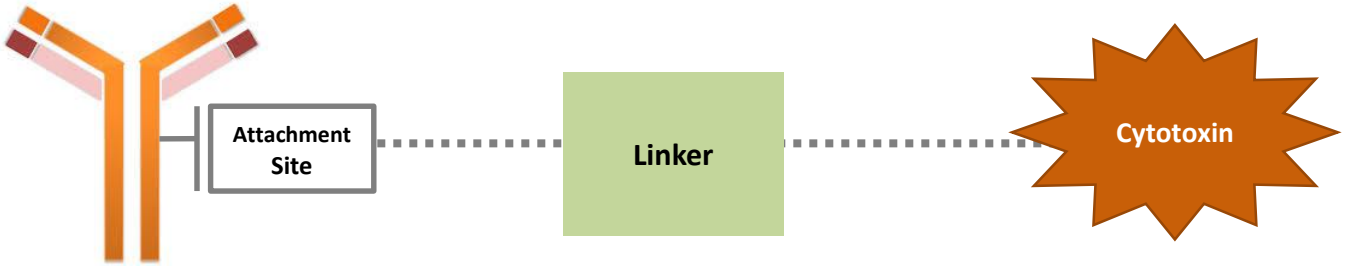
Endocytosis

Proteolysis

Drug release

02. ADC : Unmet Needs

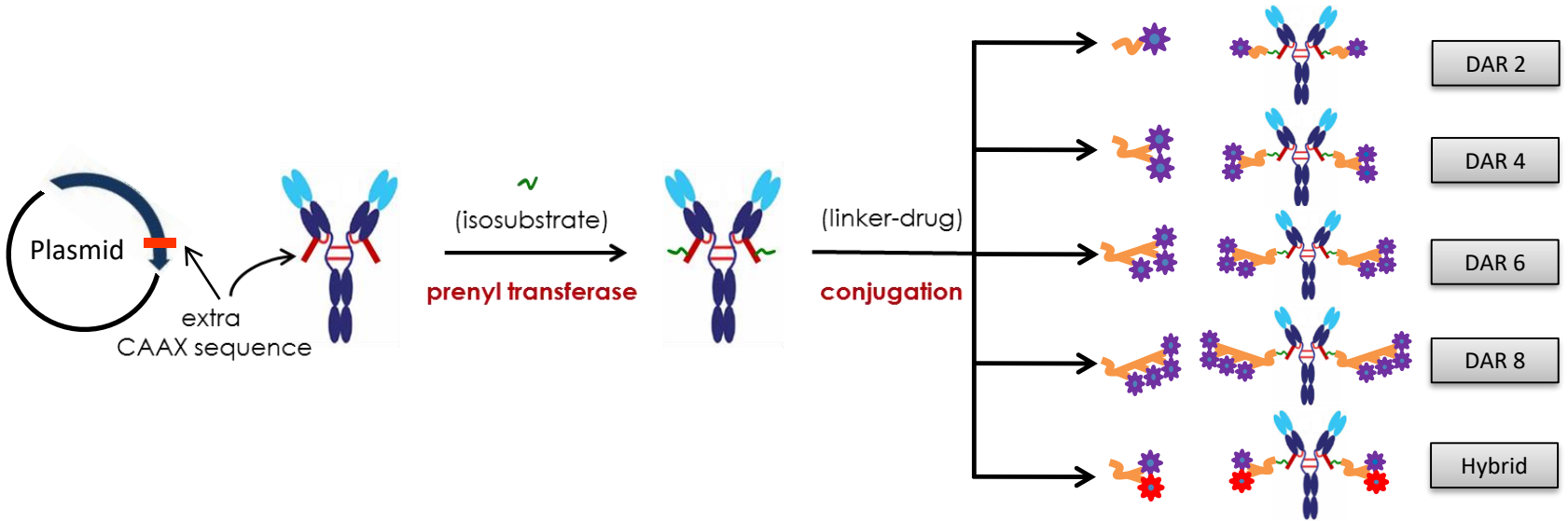
Limit's of first generation ADCs: Plasma stability and heterogeneity



	Antibody	Conjugation	Linker	Toxin
Limitation of conventional ADCs	• Change of parental antibody's properties (Aggregation ↑, toxicity ↑, stability ↓, $T_{1/2}$ ↓)	• Random conjugation (heterogeneous mixture)	• Unstable linker • Premature toxin release in circulation	• Conventional MOA • Less-potent for different targets
Unmet needs	✓ Preservation of parental antibody's properties (Aggregation ↓, toxicity ↓, stability ↑, $T_{1/2}$ ↑)	✓ Site-Specific Conjugation (homogenous final ADC product)	✓ Plasma stable linker ✓ Efficient toxin release only within cancer cells	✓ Tailored Toxin for each ADC ✓ Differentiated Toxin with novel release MOA

03. LCB's ADC : Platform Overview

Creating site-specific ADCs using a proprietary linker with superior plasma stability

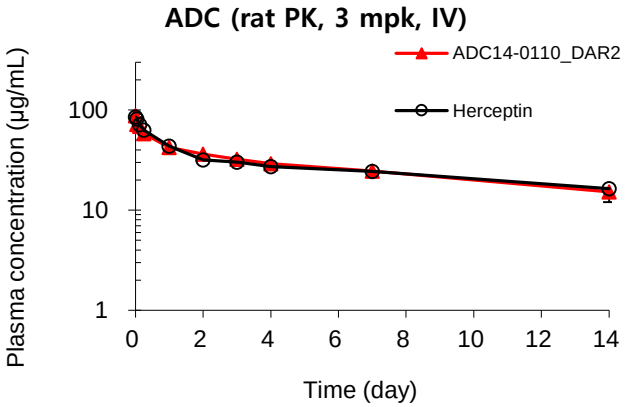


Site-Specific Conjugation	Linker Stability	Efficient Toxin Release	Universality (Ab carrier, Toxins)	Tailored DAR & hybrid toxins
✓ Defined DAR ✓ PK of ADC = mAb PK ✓ Simple 2-step process (Efficient production) ✓ Large scale manufacturing competency ✓ Proprietary conjugation patent granted in the US	✓ Superior plasma stability ✓ Proprietary linker patent granted	✓ Efficient toxin release only within cancer cells ✓ Using beta-glucuronide trigger recognized by cancer-specific lysosomal glucuronidase	✓ Antibodies: Various antibodies including Herceptin, ROR1, DLK1, CD19 ✓ Toxins: Diverse toxins incl. MMAE, MMAF, PBD, etc. ✓ Extended applicability to Protein-Drug Conjugates (PDCs)	✓ Tailored DAR, defined distribution (DAR = 2, 4, 6, 8…) ✓ Allowing the use of dual payloads of 2 diff. MOA across different indications ✓ Proprietary prodrug toxin technology

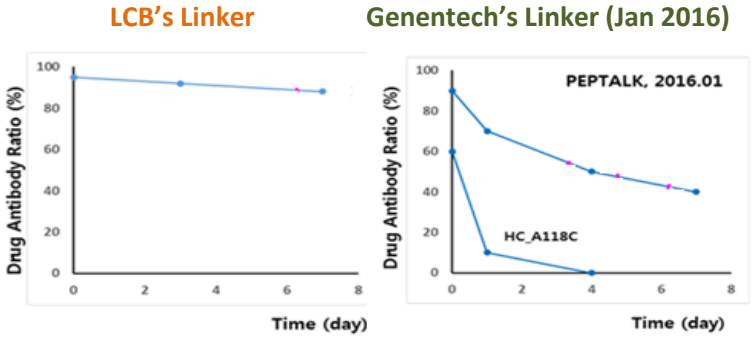
03. LCB's ADC : Platform summary(1)_Linker platform

Site-Specific Conjugation

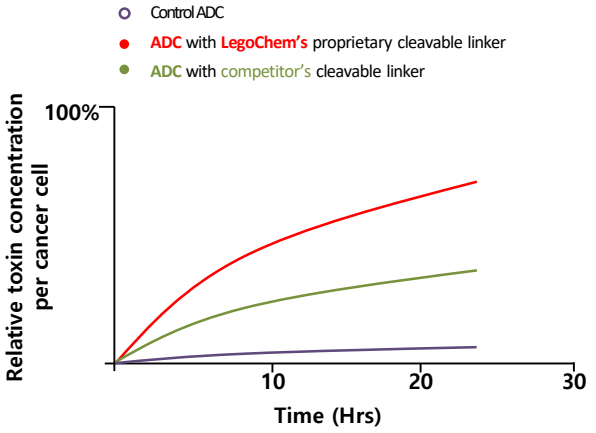
PK of ADC = mAb PK



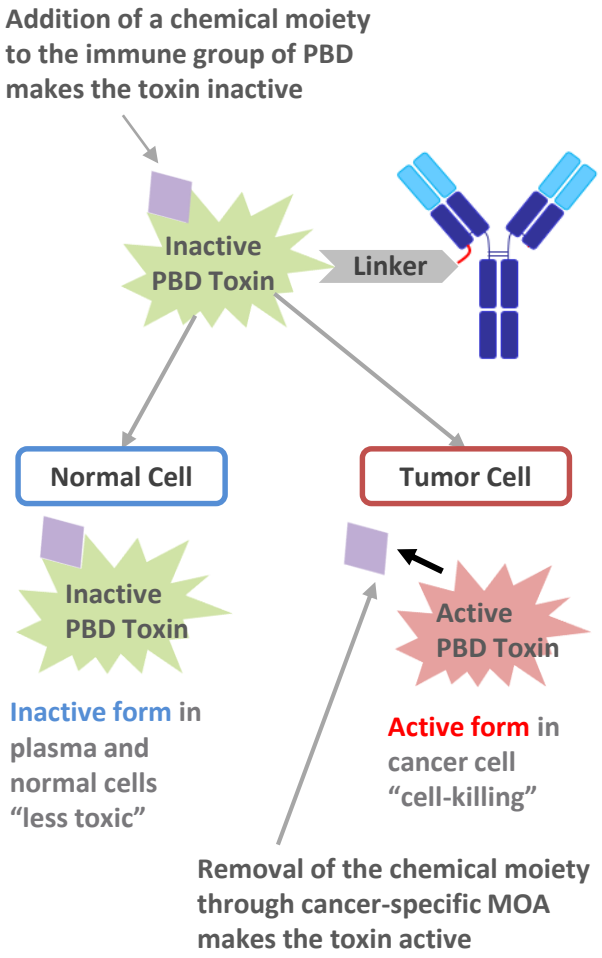
Linker Stability



Efficient Cancer-specific Toxin Release



03. LCB's ADC : Platform summary(2)_Toxin platform



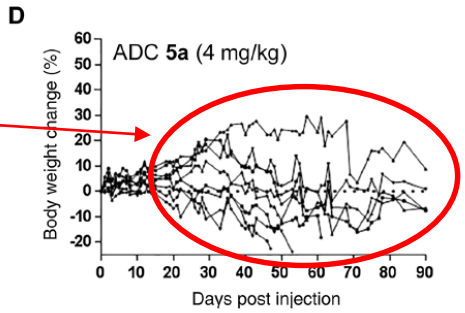
	Conventional PBD-ADC	LCB's proprietary PBD prodrug - ADC
PBD Characteristics	• DNA damaging agent • Labile imine group included (highly electrophilic)	• DNA damaging agent • Protection of the reactive imine functionality of conventional PBD • Hydrophilic property of the added chemical moiety → **Improved solubility** • → **better antibody linker-toxin conjugation reaction efficiency** • → **improved PK of final ADC, which is similar to that of the parental antibody**
ADC Production	• Heterogeneous ADC (e.g. imine attacked by nucleophiles) • Very broad peaks on HIC chromatogram	• **Homogeneous final ADC** • A homogeneous single peak on HIC chromatogram
Antibody Conjugation Method	• Mostly Cys-maleimide coupling (Thiomab approach)	• No Cys-maleimide coupling (Oxime or Click ligation)
Toxicity	• Highly toxic by released free dPBD • Narrow therapeutic index	• With prodrug approach, potentially **reduces systemic toxicity** due to inactive PBD prodrug (when de-conjugated from the linker) in circulation • Potentially superior therapeutic index

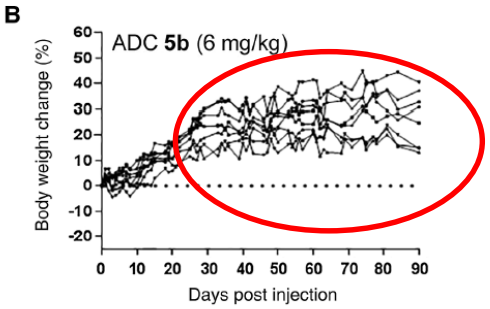
03. LCB's ADC : Platform summary(2)_Toxin platform 2

Traditional crosslinkers show delayed toxicity limiting clinical utility and necessitating change to mono-alkylation approaches

Cross-linking payload

Mono-alkylator payload



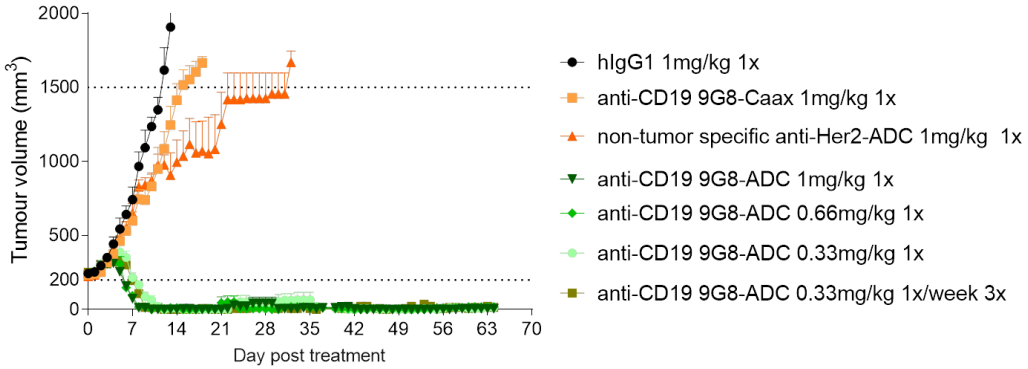


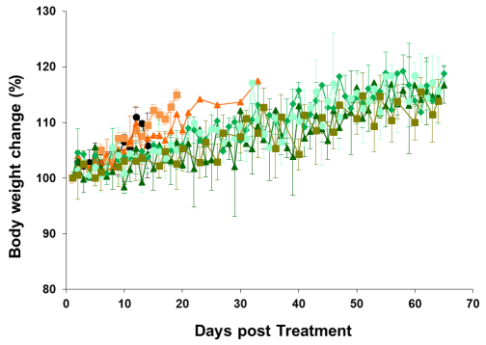
Delayed toxicity

MOA change needed to avoid toxicity

Miller AACR Journal 2018

LCB's PBD prodrug avoids delayed toxicity while maintaining ultrapotent DNA-crosslinking mechanism of action

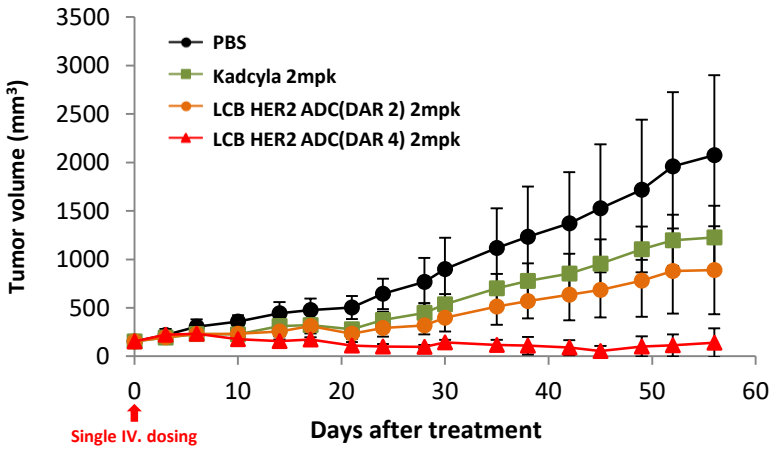




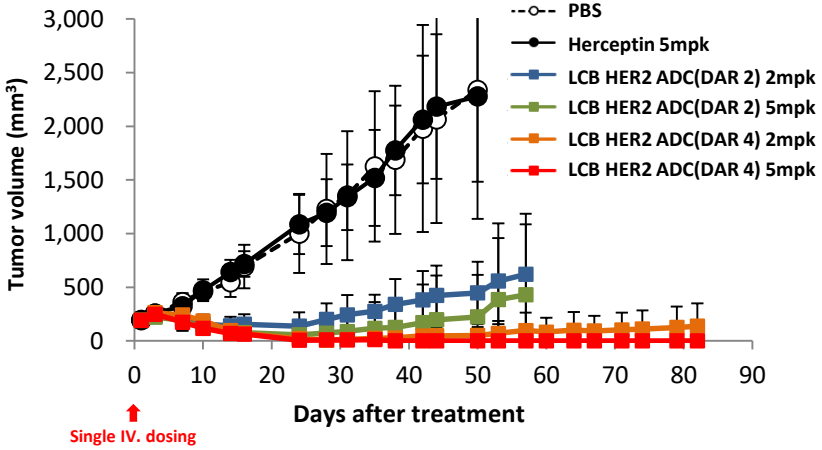
- No body weight loss observed at doses much higher than needed to achieve complete regressions
- Similar results observed for other LCB PBD prodrug ADCs

03. LCB's ADC : Platform summary(3)_ Superior in vivo efficacy

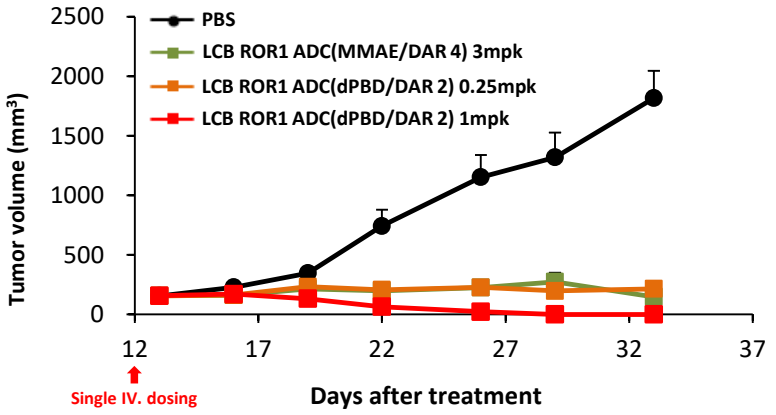
HER2 ADC (Gastric Cancer_NCI-N87)



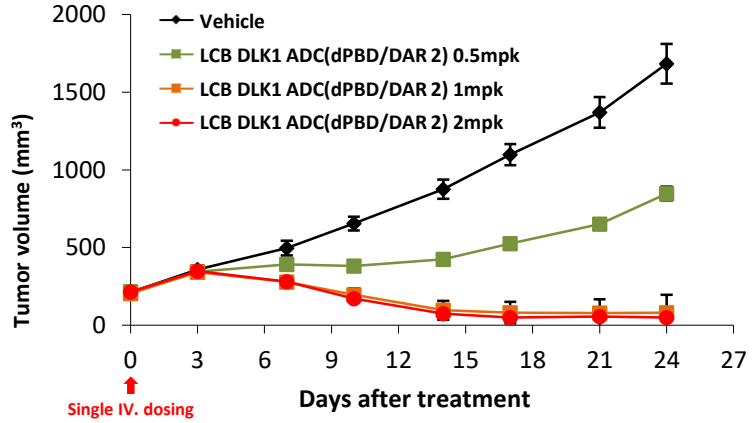
HER2 ADC (Breast Cancer_IHC 2+)



ROR1 ADC (JEKO-1)

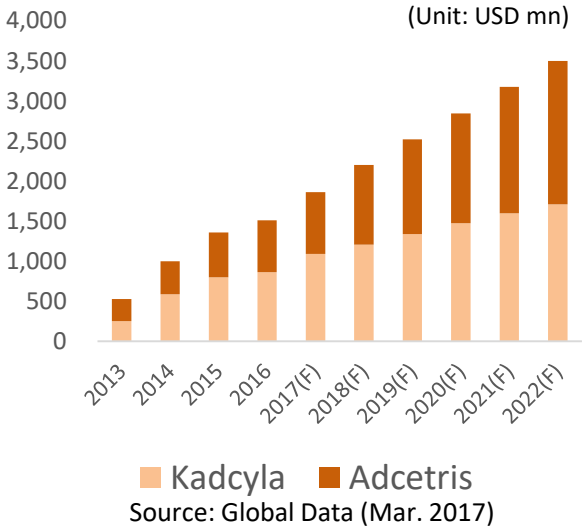


DLK1 ADC (NCI-H69)



04. ADC : Market forecast & Deal trends

ADC Market Forecast



Source: Global Data (Mar. 2017)

Number of Clinical Trials Started Per Year

Year	No. of Trials
2018	99
2017	72
2016	60
2015	65
2014	55
2013	53
2012	36
2011	29
2010	22

05. ADC Competition : Comparison of Therapeutic Index

	T-DM1	DS-8201a	XMT-1522	LCB14-0110
Company	Roche	Daiichi Sankyo	Mersana /Takeda	LCB/Fosun
Payload(DAR)	DM1(~3.4)	DX-8951(~7.7)	Auristatin D(15)	MMAF(2)
MED (JIMT-1)	**>20mpk**	**>10mpk**	**1mpk**	**1mpk**
HNSTD	**30 mpk^{S}**	**30 mpk^{R}**	**2.5 mpk**	**12 mpk**
TI	**<6**	**<12**	**10**	**48**
Phase	FDA approved	Phase III	Phase I	GLP (Fosun) Phase I

$$TI = \frac{Highest\ non-severely\ toxic\ dose\ in\ NHP\ (mg/m^2)}{Lowest\ dose\ inducing\ regression\ in\ mouse\ xenograft\ (mg/m^2)}$$

a : body surface area

- **TI of LCB14-0110 is superior to that of competitors.**

05. LCB's ADC : Major Partners

Takeda

- License Agreement (Mar. 2019)
- Target: ADC platform (3 Antibodies, not Disclosed)
- Expertise & Experience in the global commercialization of ADCs
  - Successful commercialization of Adcetirs
  - ADC partnership with SGEN, Mersana, Immunogen

FOSUNPHARMA 复星医药

- Out-licensed for Greater China (Aug. 2015)
  - LCB owns WW rights except China
- Target: Her2
- Preparing for Phase I in China, 3Q, 2018

Company "S"
Company "J"
Company "I"

- Evaluation in progress under MTA
- Target : Multiple undisclosed antibodies
- Potential licensing opportunities upon completion of successful evaluation

06. LCB's ADC : Summary

Partnership

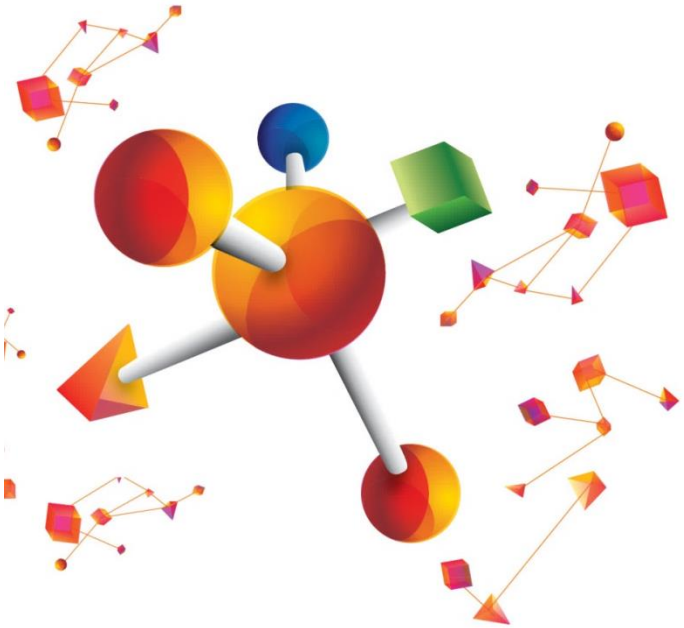
Takeda
FOSUNPHARMA 复星医药
NovImmune TURNING SCIENCE INTO MEDICINE
Y-BIOLOGICS
ablbio medicine for a better life
SAMSUNG SAMSUNG MEDICAL CENTER

Core Competency

- Antibody: Secured various target antibodies through successful partnership
- Conjugation: Site-specific conjugation enabling production of homogenous ADC
- Linker: Superb stability / Enalblement cancer specific toxin release
- Toxin: Proprietary PBD prodrug technology

IP Status

- CaaX-mediated site-specific ADC method and materials: Patent granted in US, Japan, China, and Russia and pending in major countries including Europe.
- Proprietary cleavable linker technology: Patent granted in US and Korea and pending in major countries including Europe, Japan and China.
- Proprietary PBD prodrug toxin: Pending in major countries.



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01. Antibiotics : Market Analysis

Overview

Market (2018)
- ~ USD 41bn

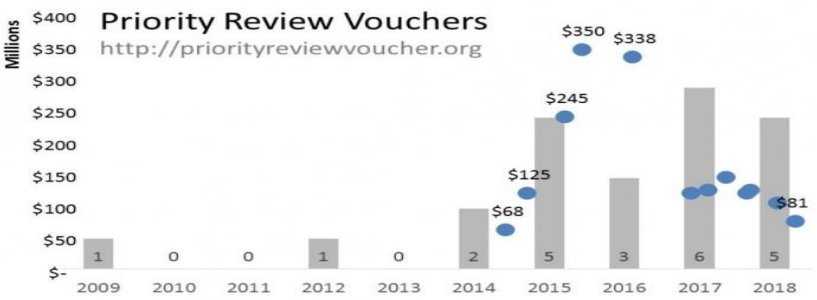
Major Unmet Needs
- Constant increase of AMR resistance
- Dwindling antibiotic development

Recent Incentive policies for antibiotic R&D

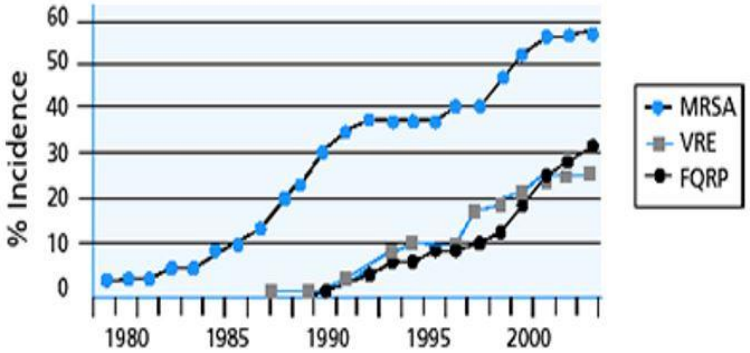
1) REVAMP (Re-Valuing Anti-Microbial Products)
: Incentive Program for developing antibiotics (US FDA,2018)
- Additional 1 year exclusive right for the selected "Priority antimicrobial product"
- "Conveyance Award" provided, transferable to other companies, granting additional 1 year market exclusivity with Fast track designation

2) Priority Review Voucher (RRV)
: Motivating development of drugs for neglected and rare diseases.
- Early market entry with quick review process (within 6 months)
- Effect of extension of patent right through quick review

: PRV Value Status

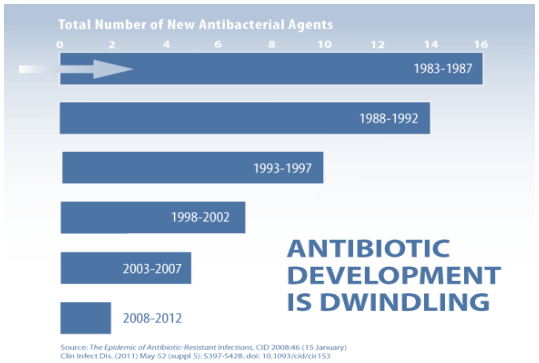


Increasing of Super bacteria



*Source: Centers for Disease Control and Prevention

Antibiotic R&D Status



*Source: The Epidemic of Antibiotic Resistant infection

02. LCB's Antibiotics : Delpazolid (Gram Positive) _ Differentiation & Positioning

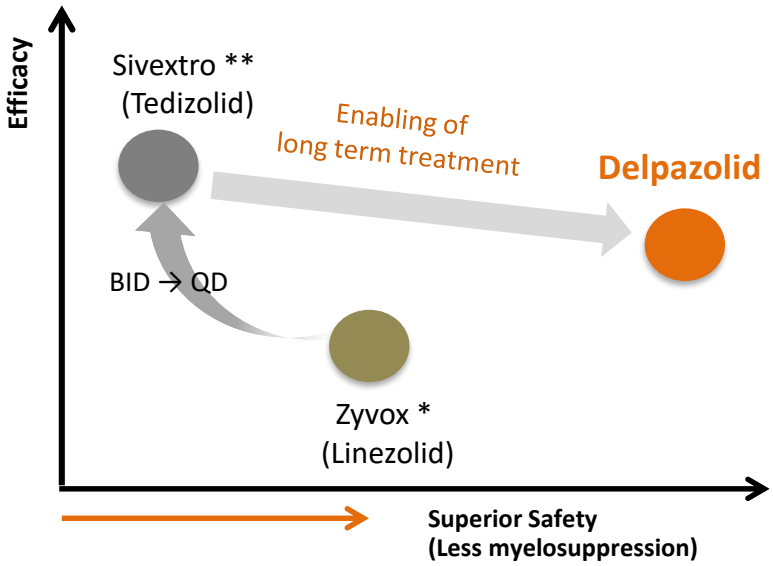
Targets

Gram-Positive bacteria
- M. Tuberculosis, (MRSA, VRE, NTM, S. pneumonia)

Points of Differentiation

- ✓ Superior safety especially with regard to myelosuppression
- ✓ Twice a day oral dosing and
- ✓ Switchability IV/Oral
- ✓ Orphan Drug/QIDP/Fast track designation by US FDA
- ✓ Chinese market rights out-licensed to Haihe Biopharma (USD 20.5mn / Dec. 2016)

Market Positioning



▶ * Zyvox (Linezolid): 600 mg BID for 10~14 days
** Sivextro (Tedizolid): 200 mg QD for 5 days

02. LCB's Antibiotics : Delpazolid (Gram Positive) _ Development Strategy

Delpazolid (PO): MDR-TB (+MRSA, VRE, NTM)
- Development Status: Phase 2a (Korea)
- Global development: Planning for FDA Phase 2b IND

Delpazolid (IV): MRSA, VRE
- Development Status: Phase 1 completed (Korea)

Development Timeline

Project	2011 ~2016	2017	2018	2019	2020	~
Delpazolid(Korea)	Preclinical ~ Phase I	Phase IIa			Phase IIb(Global)	
Delpazolid(China)		Preclinical		Phase I	Phase II	

03. LCB's Anti-fibrotic : ATX Inhibitor (BBT-877 / LCB17-0877) _ Market analysis

Overview

*** Fibrosis: significant unmet medical need with multiple indications**

- Potential indications
  : Significant market opportunities (multi billion $ markets)
  1) NASH / Liver Fibrosis 2) Pulmonary fibrosis (IPF)
  4) Kidney fibrosis 5) Cardiac fibrosis 3) Solid cancers

Market forecast :
NASH: $25B-$30B by 2026 (source: Globaldata 2017)
IPF: $3.2B-$4.6B in 2025 (source: Globaldata 2016)

-> Collectively fibrosis represents a large unmet clinical need

Recent Transactions

- NASH(Non-alcoholic steatohepatitis)

Company (Drug)	Acquirer	Deal type	Stage	Upfront /Milestone	Date
Tobira (dual inhibitor /antagonist of CCR2/CCR5)	Allergan	Acquisition	P2	n/d /$1.7B	Sep-16
Nimbus (ACC inhibitor)	Gilead	Acquisition	P1	$400M /$800M	Apr-16

- NASH-inflammation

Pharmaxis (SSAO/VAP-1 Inhibitor)	Boehringer	Asset Acquisition	P1	$40M /$750M+	May-15

- IPF(Idiopathic Pulmonary Fibrosis)

Intermune (Esbriet/ Pirfenidone)	Roche	Acquisition	Laun / lead	n/d /$8.3B	Aug-14
Stromedix (integrin αvβ6 mAb)	Biogen	Acquisition	P1	$75M /$487.5M	Mar-12
Galecto (Galectin-3 Inhibitor)	BMS	License	P1	n/d /$444M	Nov-14

- IPF + myelofibrosis

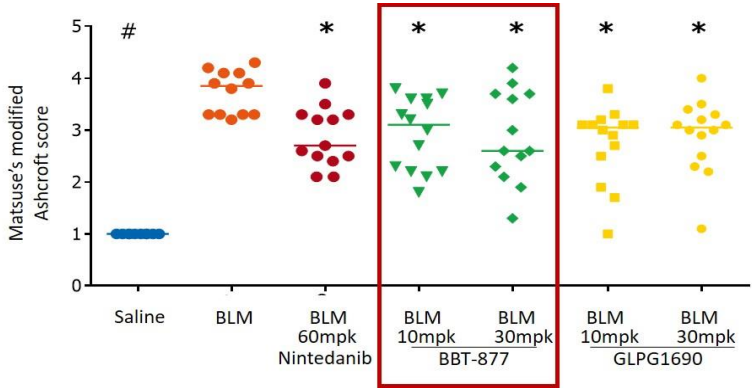
Promedior (recombinant human pentraxin-2)	BMS	Acquisition	P2	$150M /$1.25B	Aug-15

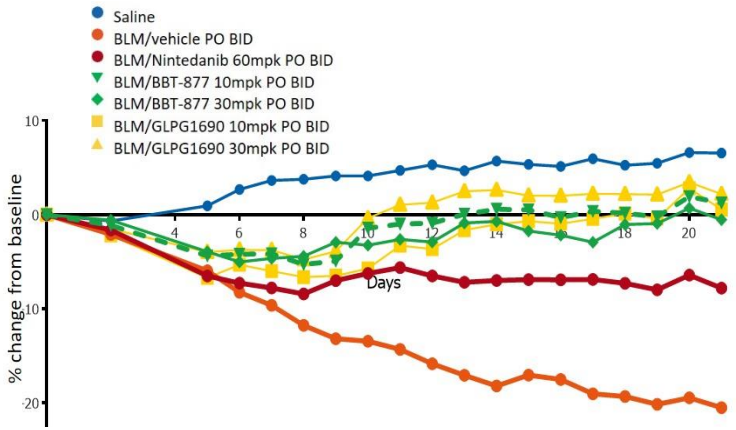
03. LCB's Anti-fibrotic : ATX Inhibitor (BBT-877 / LCB17-0877) _ Differentiation

in vivo efficacy for IPF

"BBT-877" is more potent than competitor's drugs

Comparison of efficacy in BLM-induced IPF mouse model





Note) Ashcroft score: Quantitative scoring of the severity of histological lung fibrosis

Points of Differentiation

- BBT-877 is potent and safe compound compared to competitor's drugs
- Potential to expand indications to autoimmune diseases (including asthma) and anti-inflammation

Business Development Strategy

- Phase I in US(1Q19)
- Out-licensed to Bridge Bio Technology (BBT) for WW market (2017)
- Profit-sharing between BBT and Legochem when sub licensed to 3rd party after post-phase I stage
- Development timeline

2019	2020	2021
Phase I	Phase II	

04. LCB's Anti-coagulant : Nokxaban (GCC-4401C / LCB02-0133)

Targets

✓ Novel, oral, direct Factor Xa (FXa) inhibitor

✓ Indication: Stroke, Angina pectoris, Myocardial infarction, Deep vein thrombosis, Pulmonary embolism

Points of Differentiation

✓ Efficacy: non-inferior to marketed FXa products

✓ Superior safety especially with regard to bleeding risk

✓ Once a day oral dosing & IV/Oral switchability

✓ Out-licensing status
: Initially out-licensed to Green Cross for Korea and Asian market (Jun. 2009) - Preclinical & Phase I completed in US by Green Cross

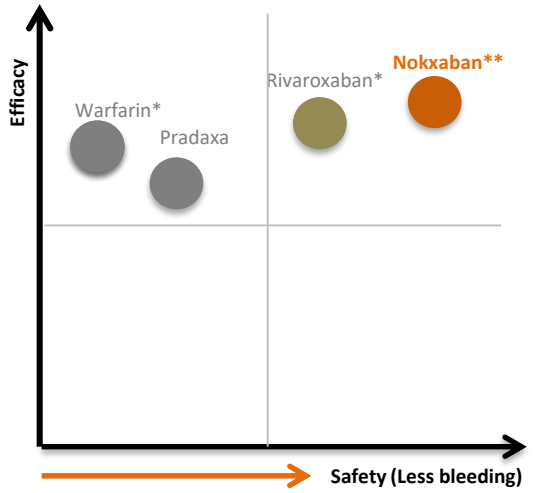
: Secondary out-licensing plans: Profit Sharing
- Chinese market: phase I (Lee's Pharma)
- Global market: phase II

Unmet Needs

Current Novel Oral Anti-coagulants
- High risk of gastrointestinal bleeding
- Limited solubility and bioavailability

☞ **Alarms for bleeding risk**
- Boehringer Ingelheim paid USD 650mn to settle Pradaxa lawsuits (2014-2018)

Market Positioning



*Approved products : Apixaban (Eliquis), Rivaroxaban (Xarelto)

** LCB02-0133 or GCC4401C (Nokxaban)

05. Small molecules Programs: Summary

Delpazolid (Gram +)

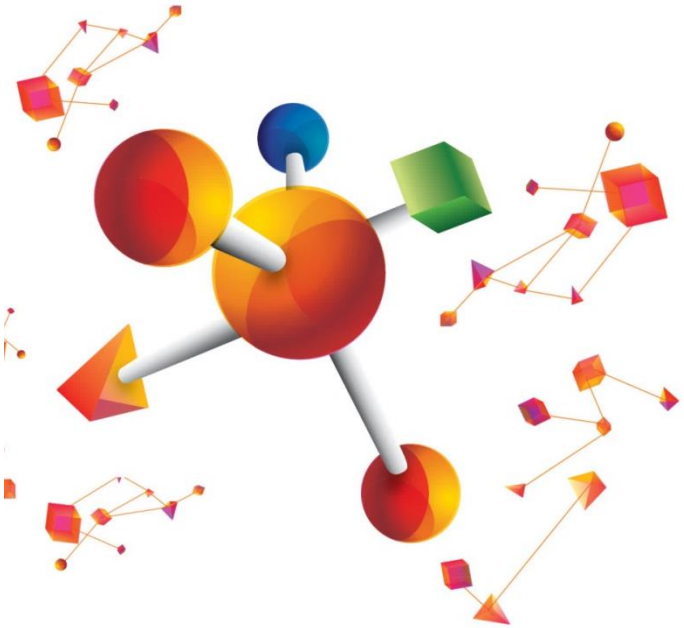
- Partner: Haihe Biopharma
- Differentiation Points
  - Superior safety especially with regards to myelosuppression, enabling long-term treatment
  - Out-licensed to Haihe Biopharma (for China market only), Incorporation of clinical trials in China for global phase IIb pivotal trials
- Development Status
  - PO: Phase II (MDR-TB) / IV : Phase I (MRSA, VRE)

LCB17-0877 (Anti-fibrotic)

- Partner: Bridge Bio
- Differentiation Point
  - Novel ATX inhibitor (Excellent Efficacy)
- Development Staus
  - Phase I trial(US) in progress

Nokxaban (Anti-coagulant)

- Partner: Green Cross
- Differentiated Points
  - Novel direct factor Xa (FXa) inhibitor
  - Superior safety especially with regards to bleeding risk
- Development Status
  - Phase I in US completed, out-licensed to Lee's Pharma for Chinese market



Investor Relations 2018

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Highlights

Investment Highlight

- Strong management team and world-class researchers with experiences from novel drug discovery to US NDA approval
- Differentiated ADC platform and ADC products will drive significant future revenue growth
- Expanding the application of ADC technology to Immuno Oncology therapies
- Orphan Drug, QIDP and Fast Track designations by US FDA for Delpazolid will allow accelerated approval after Phase 2b and 12years of market exclusivity, with potential for FDA Priority Review Voucher granted
- Existing partnerships and licensing agreements will generate stream of cash flows from milestone payments and royalties

Financial Statement(unit : Million KRW)

Balance Sheet (consolidated)

	2019.1Q	2018
Assets		
Current assets	95,860	93,379
Non-current assets	28,804	28,307
Total assets	124,664	121,686
Liabilities		
Current liabilities	11,978	9,946
Non-current liabilities	8,014	6,446
Total liabilities	19,992	16,392
Equity		
Issued capital	6,004	5,999
Capital surplus	185,161	184,479
Other capital	851	1,013
Accumulated other comprehensive income	468	468
Retained earnings	(90,902)	(90,294)
Non-controling interests	3,089	3,630
Total equity	104,672	105,295
Total equity and liabilities	124,664	121,686

Balance Sheet (separated)

	2019.1Q	2018
Assets		
Current assets	92,383	89,365
Non-current assets	32,648	32,337
Total assets	125,031	121,703
Liabilities		
Current liabilities	11,589	9,805
Non-current liabilities	7,751	6,237
Total liabilities	19,341	16,042
Equity		
Issued capital	6,004	5,999
Capital surplus	182,639	182,292
Other capital	851	1,013
Accumulated other comprehensive income	468	468
Retained earnings	(84,272)	(84,111)
Total equity	105,690	105,661
Total equity and liabilities	125,031	121,703

Income statement (consolidated)

	2019.1Q	2018.1Q
Sales revenue	9,833	6,622
Sales expense	10,142	9,000
COGS	5,484	4,549
R&D	2,800	2,773
SG&A	1,857	1,679
Operating income	(308)	(2,378)
Net income before income tax	91	(2,387)
Income tax	0	0
Net income	91	(2,387)
EPS(unit : KRW)	9	(230)

Income statement (separated)

	2019.1Q	2018.1Q
Sales revenue	9,342	6,353
Sales expense	8,984	8,134
COGS	4,439	3,782
R&D	2,800	2,773
SG&A	1,744	1,579
Operating income	359	(1,781)
Net income before income tax	716	(1,778)
Income tax		
Net income	716	(1,778)
EPS(unit : KRW)	68	(171)

"A dream you dream alone is only a dream.
A dream you dream together is reality!"

Thank You!

Contact Info.

Mr. Daeyoung Jeong

Senior Manager / IR

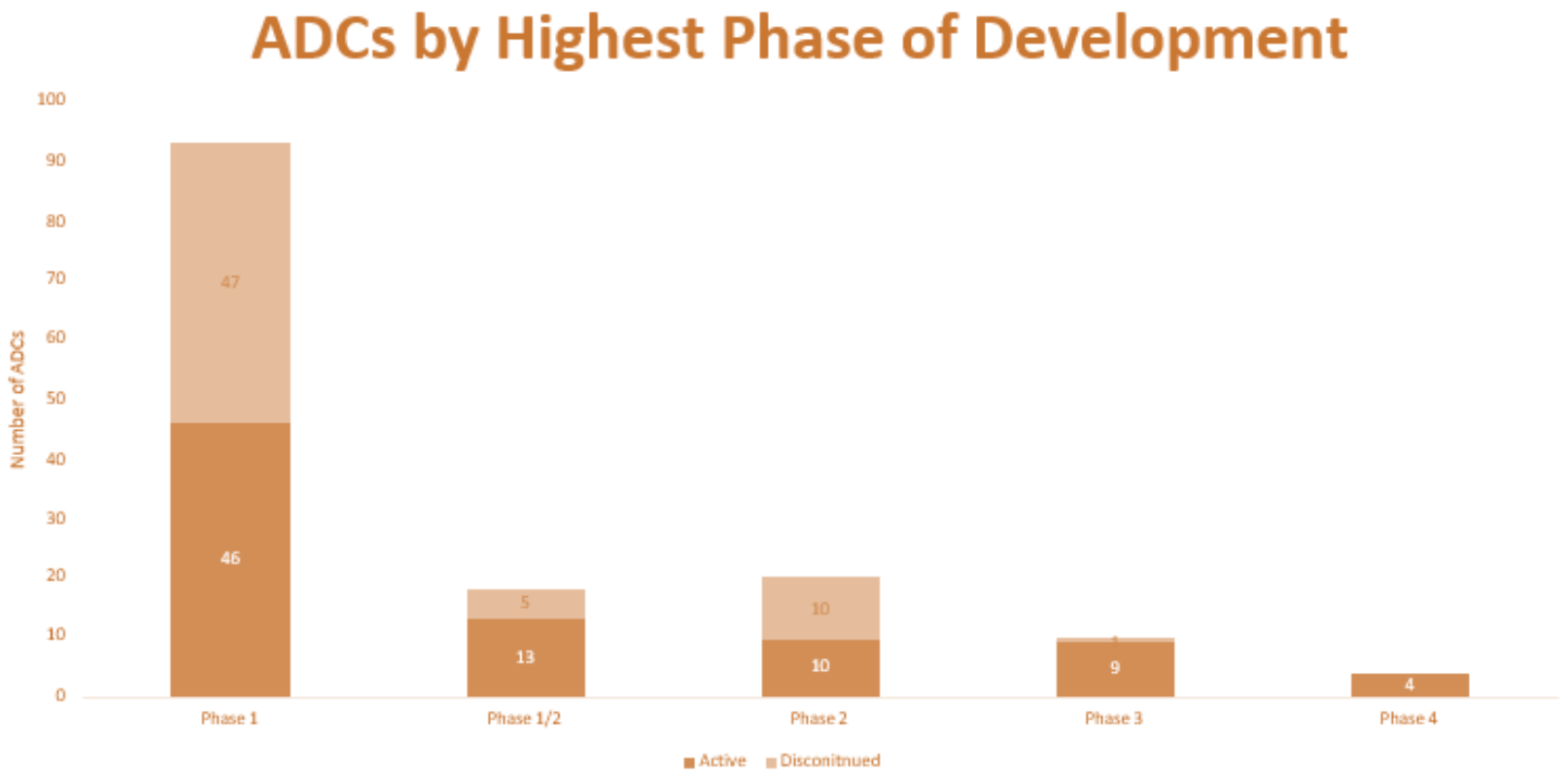
Phone +82 (0)42 861 0688
Fax +82 (0)42 861 0689
Email jdy@legochembio.com

Global ADC R&D Status

Approved Drug Conjugates

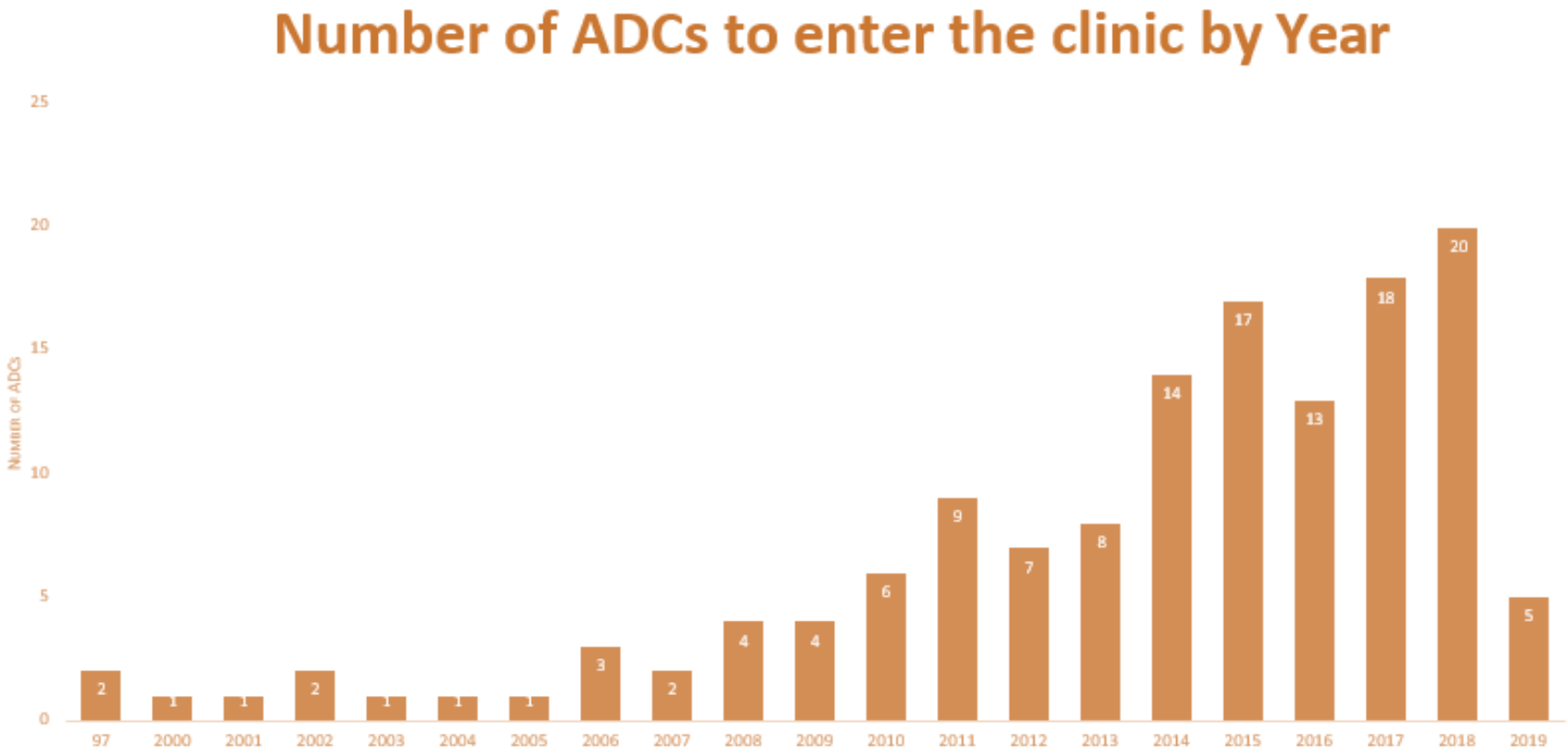
ADC	Approval /Indication	Accelerated/Full Approval	Target	Payload
Brentuximab vedotin (Adcetris)	• **August 2011**: Approval for R/R Hodgkins Lymphoma and systemicAnaplastic large cell lymphoma (ALCL) • **November 2017**: Approval for primary cutaneous ALCL and **CD30 Mycosis Fungoides** • **March 2018:** Approved as first line treatment with chemotherapyfor stage III/IV HL • **November 2018:** Approved in combination with chemotherapy for adultswith previously untreated systemic anaplastic large cell lymphoma or other CD30-expressing peripheral T-cell lymphomas.	• 2011: Accelerated approval • 2015: Full approval	CD30	MMAE
Ado-Trastuzumab emtansine (kadcyla)	• **February 2013**: Approved for late stage breast cancer • **June 2017**: Kadcyla becomes available for routine use on NHS England • **February 2019**: sBLA submitted to FDA for adjuvant treatment for HER-2+ve early breast cancer	• 2010: FDA turns down accelerated approval request • 2013: Full approval accepted by FDA	HER-2	DM1
Inotuzumab ozogamicin (Besponsa)	• **August 2017:** Approved for R/R Acute Lymphoblastic Leukemia (ALL)	• 2017: Full approval	CD22	Calichaemicin
Gemtuzumab ozogamicin (Mylotarg)	• **September 2017**: Approved for Acute Myeloid Leukemia (AML)	• 2000: Received accelerated approval • 2010: Withdrawn • 2017: Full approval	CD33	Calichaemicin
Moxetumomab pasudotox (Lumoxiti)	• **September 2018:** Approved for certain patients with R/R hairy cell leukaemia	• 2018: Approved	CD22	Pseudomonas Aeruginosa exotoxin (PE38) (Toxin)
SL-401 (Elzonris)	• **December 2018:** Approved for the treatment of blasticplasmacytoid dendritic cell neoplasm (BPDCN) in adults and in pediatric patients, two years of age and older.	• 2018:Approved	IL-3	DT388 (Diptheria Toxin)

Global ADC R&D Status



- A total of **145 ADCs** have progressed into the clinic. **82 are active and 63 have been discontinued**.
- The above graph captures all the clinically active ADCs vs the clinically discontinued ADCs, showing their highest phase of development.

Global ADC R&D Status



- 2018 saw the highest number of ADCs enter the clinic at 20 new ADCs.
- 5 new ADCs have entered the clinic for 2019 so far.

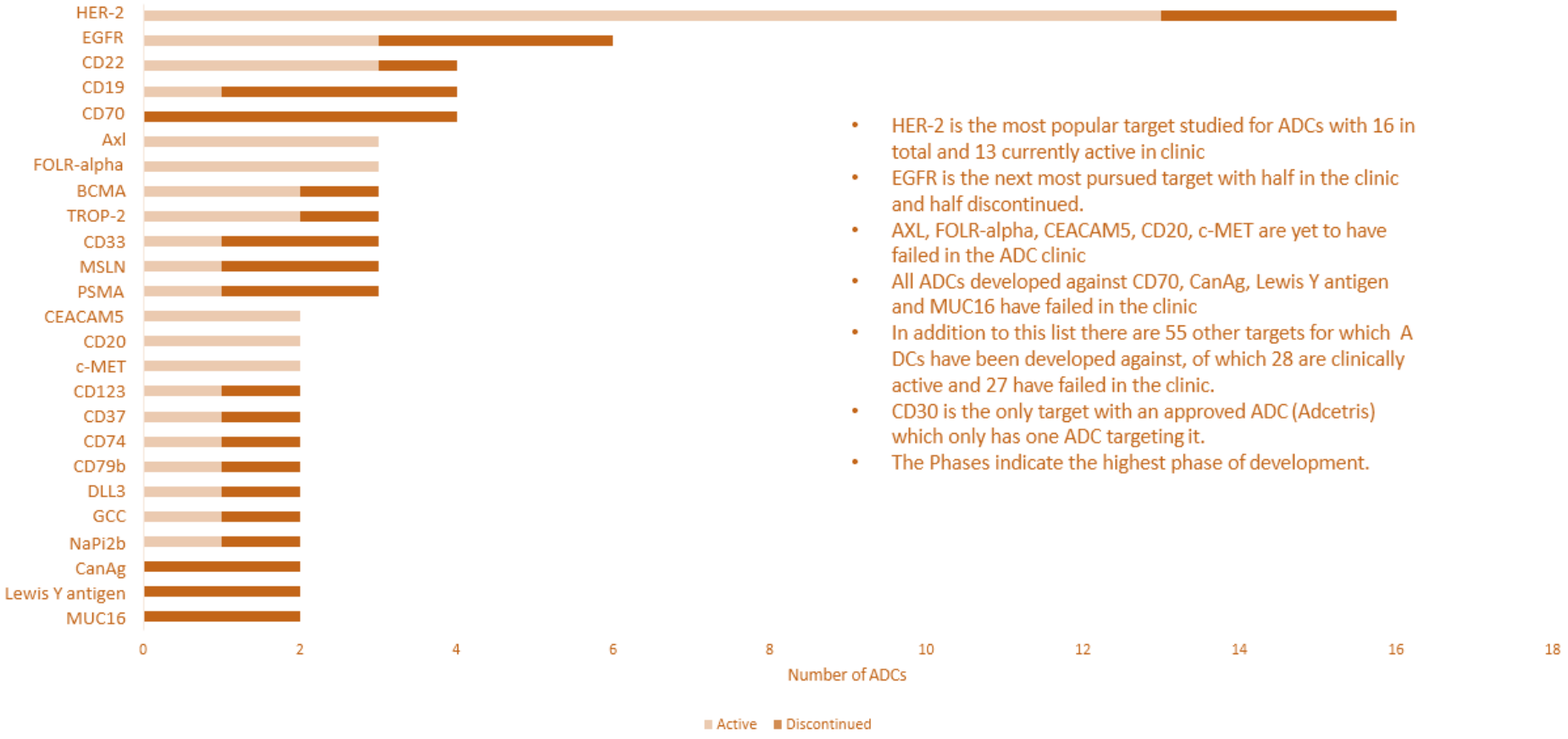
Global ADC R&D Status

Summary of New ADCs to Enter the Clinic in 2018

DEVELOPER	DRUG NAMES	TARGET	PAYLOAD	Site Specific?
Abbvie/Stemcentrx	SC-005	TAA	Unknown	No
Abbvie	ABBV-155	Unknown	Unknown	unknown
ADC Therapeutics	ADCT-601	AXL	PL1601 (PBD)	Yes
ADC Therapeutics	ADCT-602	CD22	SG-3249 (PBD)	Yes
BioAtla	BA3021/ CAB-ROR2-ADC	ROR2	Unknown	No
BioAtla	BA3011/ CAB-AXL-ADDC	AXL	Unknown	Yes
Bio-Thera Solutions	BAT8001	HER-2	Maytansine	unknown
CytomX	CX-2029	CD71	MMAE (Auristatin)	No
Daichii Sankyo	DS-1062a	TROP-2	DXd/DX8951	Yes
Fortis Therapeutics	FOR46	CD46	MMAF (Auristatin)	No
Genentech	DHES0815A/RG6148	HER-2	PBD	No
ImmunoGen	IMGN632	CD123	DGN529 (indolinobenzodiazpine)	Yes
Klus Pharma	A166	HER-2	Unknown	No
MacroGenics	MGCO18	B7-H3	DUocarmycin-hydroxyBenzamide Azaindole (DUBA)	unknown
MedImmune	MEDI2228	BCMA	PBD	Yes
Seattle Genetics	SGN-CD48A	CD48A	MMAE (Auristatin)	Yes
Sutro	STRO-001	CD74	Maytansine	Yes
Takeda	TAK-164	GCC	DGN549 (indolinobenzodiazepine)	No
Teruisi Pharmaceuticals	TRS005	CD20	MMAE (Auristatin)	unknown
Triphase	TRPH-222	CD22	Maytansine	Yes

Global ADC R&D Status

Top 25 Targets with ≥2 ADCs



- HER-2 is the most popular target studied for ADCs with 16 in total and 13 currently active in clinic
- EGFR is the next most pursued target with half in the clinic and half discontinued.
- AXL, FOLR-alpha, CEACAM5, CD20, c-MET are yet to have failed in the ADC clinic
- All ADCs developed against CD70, CanAg, Lewis Y antigen and MUC16 have failed in the clinic
- In addition to this list there are 55 other targets for which A DCs have been developed against, of which 28 are clinically active and 27 have failed in the clinic.
- CD30 is the only target with an approved ADC (Adcetris) which only has one ADC targeting it.
- The Phases indicate the highest phase of development.

ADCs in combination with checkpoint modulators

There are 23 ADCs in total being studied in 45 combination trials with 10 different immune checkpoint modulators. A total of 12 studies have started in 2018.

Nivolumab (BMS)	Pembrolizumab (Merck)	Atezolizumab (Roche)	ABBV-181	Avelumab (Merck/Pfizer)	Triple combination
Trastuzumab emtansine	Trastuzumab emtansine	Trastuzumab emtansine	SC-004	Trastuzumab emtansine	Brentuximab vedotin+ nivolumab + pembrolizumab
Brentuximab vedotin	Brentuximab vedotin	Polatuzumab vedotin	SC-003	Polatuzumab vedotin	Rova T + nivolumab+ ipilimumab
BMS986148	Anetumab ravtansine	Anetumab ravtansine	SC-006	Ladiratuzumab vedotin	Brentuximab vedotin + nivolumab + ipilimumab
BMS-986183	Mirvetuximab soravtansine	Ladiratuzumab vedotin	Rova-T	Anetumab ravtansine	Gemtuzumab ozogamicin + avelumab +utomilumab +PF-04518600
DS-8201a	Ladiratuzumab vedotin				Atezolizumab + Pembrolizumab + Enfortumab vedotin
Telisotuzumab vedotn					