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Company Report

China Merchants Securities (HK) Co., Ltd.
Hong Kong Equity Research

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I-Mab (IMAB US)

2022 R&D day takeaway

- **I-Mab hosted 2022 R&D day on July 20th to provide an update on its pipeline strategy and outline the upcoming catalysts**
- **Co. highlighted key catalyst in 2H22 is lemzoparlimab's ph2 data readout at ESMO 2022 in Sept and ph3 China study initiation**
- **We think Co.'s MoA-differentiated pipeline will offer some alpha opportunities. Maintain BUY with TP revised down to USD66**

Key pipeline assets on track to ignite value creation

Co. announced lemzoparlimab's (lemzo) abstract has been selected for oral presentation (#3823) at ESMO22 during Sep 9-13. This clincial data is from a ph2 study of lemzo in combination with azacitidine for pts with higher risk myelodysplastic syndrome (HR-MDS). Co. observed comparable efficacy data in unselected MDS pts (TP53m accounted for ~10% pts) comparing to magrolimab, with well-tolerated profile. Based on the positive data, Co. plans to initiate the first registrational study in China in 2H22E. Meanwhile, Co. outlined its clear pipeline roadmap to 2025E, aiming to achieve 3 potential BLAs/approvals (felzartamab for 2/3L MM, eftansomatropin, lemzo for 1L MDS) and 2 registrational trials (ulilediimab for NSCLC; lemzo for AML).

Next wave of innovation is on the way

I-Mab's existing innovative pipelines are on track to be validated (e.g. lemzo's licencing deal w/ Abbvie). Meanwhile, Co. continued to focus on adding the next wave of innovation to enrich its portfolio, including novel BsAb platform (e.g. 4-1BB BsAb platform which enables conditional 4-1BB agonist to minimize systemic toxicity) and tech-enabled "super antibody" (e.g. cell-penetrating antibody, AI protein drug design). Co. believes these platform technologies should support its next wave of innovation and maximize its long term value creation.

Major catalysts in 2H22-23E

1) **lemzo (CD47)**: a) Ph2 data readout for 1L HR-MDS pts at ESMO 2022 in Sep; b) Ph1 data update for nHL in 2H22E; c) preliminary data readout from combo study w/ αPD-1 in the U.S. for solid tumor in 2H22E; d) initiation of 1-2 registrational trials in China in 22E.; 2) **ulilediimab (CD73)**: a) more ph2 data on cohort #3 by YE22E; b) initiation of ph2 combo study w/ αPD-1 in the U.S for non-NSCLC solid tumors in 22E, and ph3 trial for NSCLC in China in 23E.

Maintain BUY, SOTP-based and SOTP TP cut to USD66

We cut SOTP-based TP to USD66 from USD72 to reflect that Abbvie recently terminated lemzo ph2 US study for MM (~12% lemzo's value in our model) and RMB/USD depreciation. We retain a 20% equity premium to reflect its greater BD potential. **Investment risks**: clinical delay/failure, lower-than-expected sales, regulatory risk, Chinese ADR delisting risk.

RMB mn	2019	2020	2021E	2022E	2023E
Revenue	30	1,543	520	650	1,075
yoy growth	-44%	5042%	-66%	25%	65%
Adjusted net profit	(1,085)	964	(577)	(690)	(570)
yoy growth	n.a.	n.a.	n.a.	n.a.	n.a.

Sources: Company data, CMS (HK) estimates

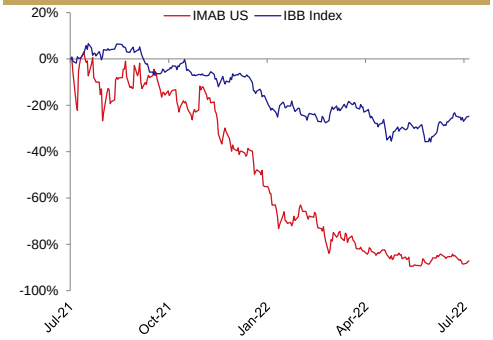
WHAT'S NEW

Company updates; TP revision

BUY

Previous	BUY
Price (Jul 20, 2022)	USD10.1
12-month Target Price (Potential up/downside)	USD66 (+554%)
Previous	USD72

Price Performance



Source: Bloomberg

%	1m	6m	12m
IMAB US	(15.9)	(70.5)	(87.1)
IBB	3.2	(5.9)	(24.8)

Sources: Bloomberg

Pharmaceutical & Healthcare	
NASDAQ (Jul 20, 2022)	11,898
IBB (Jul 20, 2022)	123.9
Key Data	
52-week range (USD)	8.1-81.1
Market cap (USD mn)	833
Avg. daily traded value (USD mn)	12.2
BVPADS (USD)	3.6
Shareholding Structure	
Management	22.1%
C-Bridge entities	15.5%
Hillhouse	8.7%
T. Rowe Price	6.6%
GIC	5.7%
Tasly	5.3%
Genexine	4.5%
Free float	31.6%

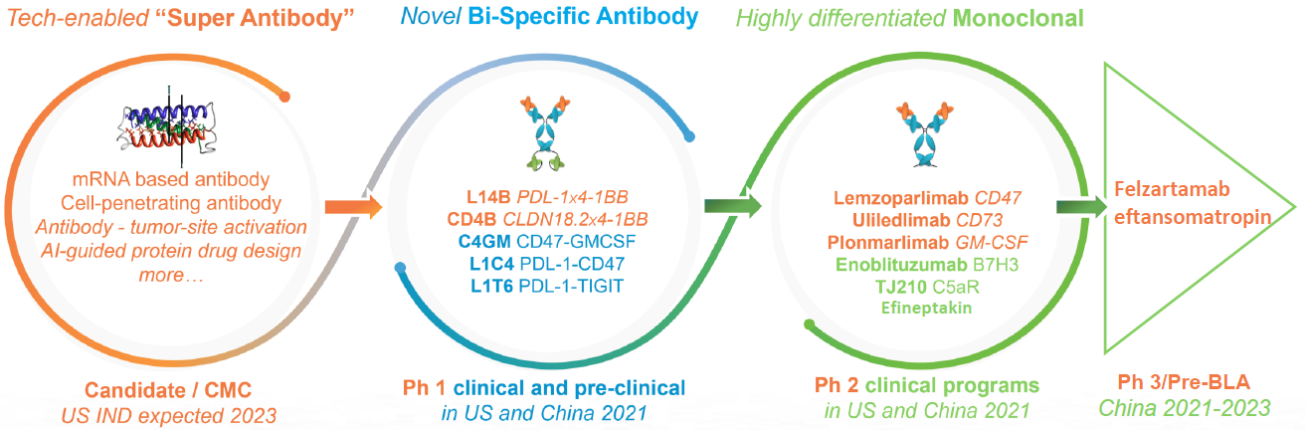
Sources: Company data, Bloomberg

Related Research

1. I-Mab (IMAB US) – Mixed CD73 data in ASCO, more data to reveal by YE22E (BUY) (May 30, 2022)
2. I-Mab (IMAB US) – A safety concern on CD47 drug class may be easing (BUY) (April 19, 2022)
3. I-Mab (IMAB US) – R&D pipeline progress remains on track (BUY) (February 22, 2022)

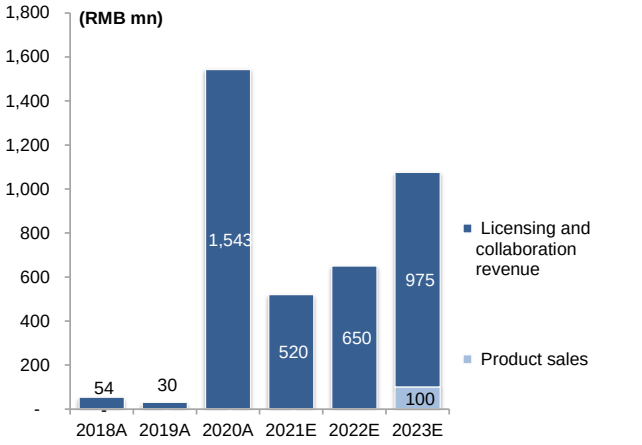
Focus charts

Figure 1: I-Mab's innovation and pipeline development in three waves



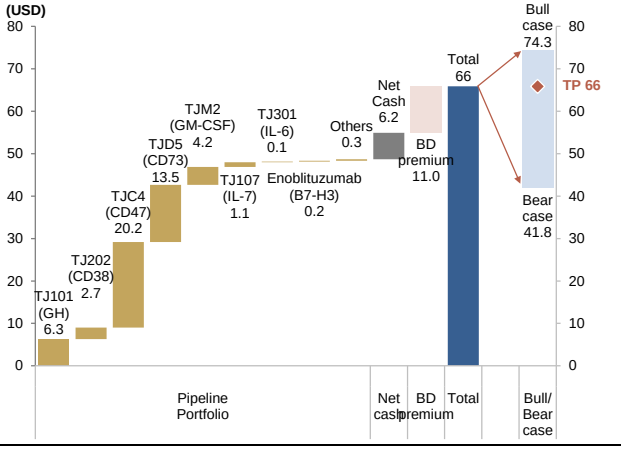
Source: Company data

Figure 2: Revenue forecast and breakdown



Sources: Company data, CMS (HK) estimates

Figure 3: rNAV per share breakdown



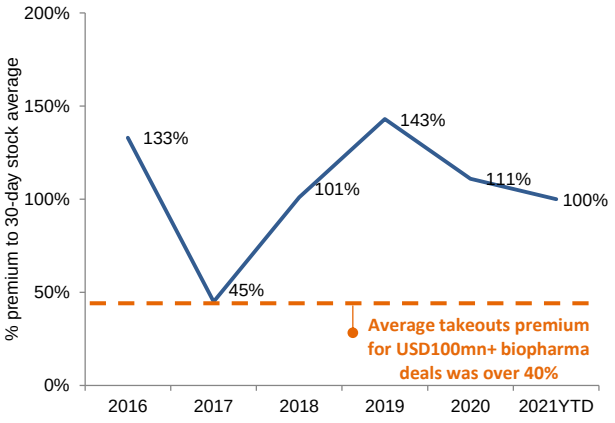
Sources: Company data, CMS (HK) estimates

Figure 4: Catalyst calendar

Candidates	Target	Indication	22-24E Milestone / Event		Timeline	Achieved
Lemzoparlimab (TJC4)	CD47	NHL (+rituximab)	Topline data readout	Data	2022E	
		Solid tumor (+pembro)	Preliminary data readout	Data	2022E	
		AML	Topline data readout	Data	2022E	
		MDS	Ph2 data readout	Data	3Q22E	
Uliledlimab (TJD5)	CD73	Solid tumor (+toripali)	More data on ph2 cohort #3	Data	YE22E	
		Solid tumor (+pembro)	Ph2 study initiation (US)	Study	2022E	
		Solid tumor (+PDX)	Ph3 study initiation (China)	Study	2023E	
Felzartamab (TJ202)	CD38	3L MM	Topline data readout	Data	2022E	
		3L MM	BLA filing	Reg.	2022E	
		2L MM (+lenalidomide)	BLA filing	Reg.	2023E	
Eftansomatropin (TJ101)	rhGH	PGHD	BLA filing	Reg.	2023/24E	

Sources: Company data, CMS (HK) estimates

Figure 5: The mean percentage premium to 30-day average of USD100mn+ biopharma buyouts



Source: Evaluate Pharma

Valuation Summary

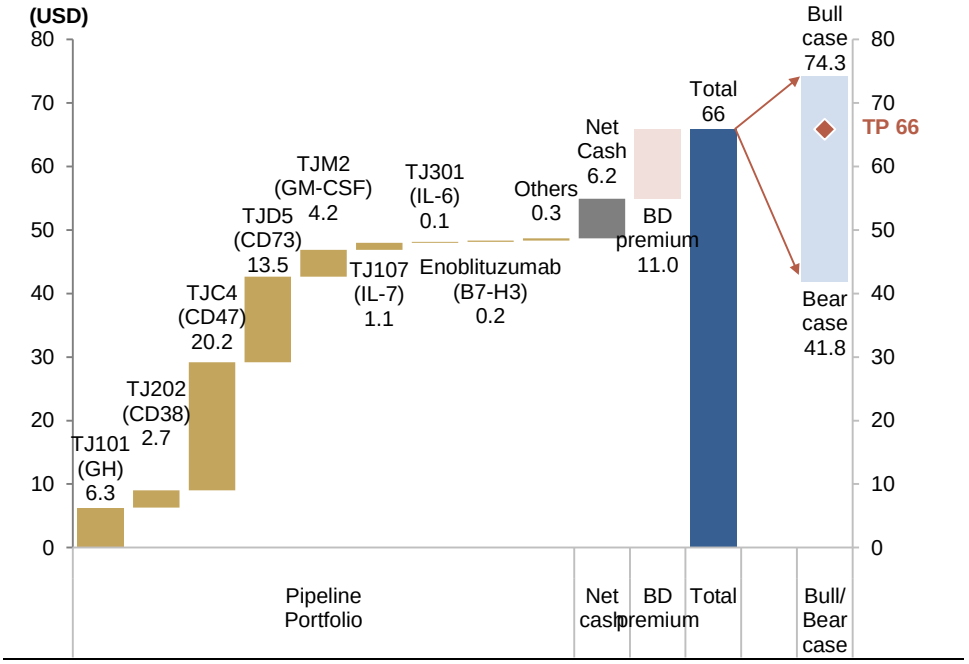
We arrived at our SOTP-based TP using a risk adjusted NPV (rNPV) approach w/ WACC at 12.3%, with sensitivities on the peak sales and the probability of success (PoS) of various molecules. We detail below our assumption and valuation results.

Figure 6: rNPV-based SOTP valuation and main assumptions

(RMB mn)	Target	R&D Status*	Partner	Major Indication	Launch date	Adj. Peak sales	PoS**	Rights	rNPV (Previous)	rNPV (Revised)	Δ (% chg)
Pipeline valuation (rNPV)									**20,211**	**19,021**	**-6%**
Lemzoparlimab (TJC4)	CD47	P2 (CH), P2 (U.S.)	AbbVie/(MorphoSys)	AML/MDS/nHL/Solid tumors	2027	5,880	60%(CH), 60%(U.S.)	CH(100%) / WW(R***)	8,959	7,891	-12%
Ulilediimab (TJD5)	CD73	P2 (CH), P2 (U.S.)	(Roche)/(Junshi)	Solid tumors (w/ PD-1/L1 combo)	2026	2,339	15%(CH), 15%(U.S.)	WW (100%)	5,144	5,265	2%
Eftansomatropin Alfa (TJ101)	Long-acting rhGH	Registrational	Genexine	PGHD	2024	1,453	90%	CH(100%)	2,458	2,458	0%
Felzartamab (TJ202) +/- CD47(TJC4)	CD-38 mAb	Registrational	MorphoSys	Multiple myeloma (3L, 2L and 1L)	2023	652	90%	CH(100%)	1,061	1,061	0%
Plonmarlimab (TJM2)	GM-CSF mAb	P2		CRS (severe COVID-19, CAR-T)	2023	631	20%	WW(100%)	1,894	1,650	-13%
Efineptakin Alfa (TJ107)	IL-7 Long-acting	P2	Genexine	Lymphopenia/CPI booster	2025	315	40%	CH(100%)	430	430	0%
Olamkicept (TJ301)	IL-6 inhibitor	P2	Ferring	Ulcerative Colitis (UC)	2026	37	20%	CH(100%)	51	51	0%
Enoblituzumab	B7-H3 mAb	P2	MacroGenics	Solid tumors	2026	83	10%	CH(100%)	88	88	0%
Others (C5aR mAb, BsAbs, etc.)									127	127	0%
Net cash									2,438	2,438	0%
Valuation (RMB mn)									**22,649**	**21,459**	**-5%**
No of shares (mn)									134	134	0%
Valuation per share (RMB)									169	160	-5%
Valuation per ADR share (USD) (10ADS:23common shares; 6.7RMB/USD)				x					60	55	-8%
BD premium									20%	20%	0%
TP (USD)									**72**	**66**	**-8%**

Sources: Company data, CMS (HK) estimates, Notes: represents trial location, **represents the highest PoS of indication of the molecule, ***"R" represents "royalties"*

Figure 7: SOTP and sensitivity analysis



Source: Company data, CMS (HK) estimates

Figure 8: WACC assumption

Cost of equity (%)	
Risk free rate (%)	3.0
Beta	1.1
Equity risk premium (%)	8.8
CAPM unleveraged discount rate	**12.7**
Cost of debt (%)	
Average spread over risk-free rate (%)	8.0
Pre-tax cost of debt (%)	11.0
Average corporate tax rate for company (%)	15.0
Post-tax cost of debt (%)	**9.4**
Estimated target gearing (net debt/EV) (%)	10.0
WACC (%)	**12.3**

Source: CMS (HK) estimates

Competitive Landscape of CD47/SIRPα pathway

Catalysts of Co.'s Lemzo: Co. expects: a) data readout from Ph2 combo study with AZA for newly diagnosed higher risk MDS pts at ESMO 2022 in Sep 13, 2022 (Abstract No.: 3823); b) data update from the ongoing ph1 combo study w/ αCD20 for nHL in 22E; c) preliminary data readout from combo study w/ αPD-1 in the U.S for solid tumor in 22E; d) initiation of 1-2 registrational trials in China in 22E.

The table below shows the global CD47/SIRPα pathway pipeline:

Figure 9: Global CD47/SIRPα pathway pipeline summary

Projects	Company	MoA	Indications	# of active trials	Most advanced stage
Magrolimab	Forty Seven/ Gilead	αCD47 mAb	AML/MDS, solid tumor	18	Ph3
Evorpacept	ALX Oncology	CD47/SIRPα fusion protein	Gastric cancer, HNSCC	9	Ph2/3
Lemzoparlimab	I-MAB/ AbbVie	αCD47 mAb	AML/MDS, solid tumor	5	Ph2
AO-176	Arch Oncology	αCD47 mAb	Solid tumor (ST), r/r AML	2	Ph1/2
DSP107	KAHR Medical	SIRPαx4-1BBL fusion protein	Solid tumor	2	Ph1/2
IBI188	Innovent	αCD47 mAb	AML/MDS, Solid tumor	3	Ph1/2
TTI-621	Trillium/Pfizer	CD47/SIRPα fusion protein	Hematological tumor	3	Ph1/2
AK117	Akeso Bio	αCD47 mAb	AML/MDS, lymphoma	9	Ph1/2
IBI322	Innovent	αCD47xPD-L1 BsAb	Solid and hema tumor	7	Ph1
TTI-622	Trillium/Pfizer	CD47/SIRPα fusion protein	Hematological tumor	3	Ph1
TG-1801	TGTX	αCD47xCD19 BsAb	NHL	2	Ph1
IMC-002	ImmuneOncia	αCD47 mAb	ST, lymphoma	2	Ph1
STI-6643	Sorrento	αCD47 mAb	Solid tumor	1	Ph1
GS-0189	Forty Seven/ Gilead	αSIRPα mAb	NHL	0	Ph1
SL-172154	Shattuck Labs	αCD47xCD40 BsAb	Ovarian cancer	2	Ph1
OSE-172	OSE/BI	SIRPα antagonist	Solid tumor	1	Ph1
ZL-1201	Zai-Lab	αCD47 mAb	Solid tumor	1	Ph1
PF-07257876	Pfizer	αCD47xPD-L1 BsAb	Solid tumor	1	Ph1
IMM-0306	ImmuneOnco	αCD47xCD20 BsAb	Lymphoma	1	Ph1
IMM-01	ImmuneOnco	αCD47 mAb	Hematological tumor	2	Ph1
SHR-1603	Hengrui	αCD47 mAb	Solid tumor	2	Ph1
SRF231	Surface Oncology	αCD47 mAb	ST, lymphoma	0	Ph1
CC-95251	BMS (Celgene)	αSIRPα mAb	ST, lymphoma	2	Ph1

Sources: Evaluate, CMS (HK)

Figure 10: Global CD47 pathway trials data comparison in hematological tumors

Company	Forty Seven/Gilead	ALX Oncology	I-Mab/AbbVie	Trillium/Pfizer	Trillium/Pfizer	Forty Seven/Gilead				
Drug name	**Magrolimab**	**Evorpacept**	**Lemzoparlimab**	**TTI-622**	**TTI-621**	**Magrolimab**				
MoA	αCD47 mAb	SIRPα fusion w/ inactive Fc	αCD47 mAb	Wt. SIRPα-IgG4 Fc fusion	Wt. SIRPα-IgG1 Fc fusion	αCD47 mAb	αCD47 mAb	αCD47 mAb	αCD47 mAb	αCD47 mAb
Indication	**2L nHL**	**≥2L nHL (DLBCL)**	**≥2L nHL**	**Lymphoma**	**nHL**	**1L MDS (TP53m/wt)**	**≥2L AML (TP53m)**	**1L AML**	**r/r AML (vene naive)**	**r/r AML (vene failed)**
Study phase	Ph 1b/2	Ph 1b	Ph 1	Ph 1	Ph 1	Ph 1b	Ph 1b	Ph 1b/2	Ph 1b/2	Ph 1b/2
Allocation	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized
Study Arms (n=evaluable/total pts)	Magro+rituxi (n=97)	ALX148+rituxi (n=3/6)	Lemzo (n=7/8)	TTI-622 (n=27/42)	TTI-621 (n=32/164)	Magro+azaciti (n=95)	Magro+azaciti (n=72)	Magro+azaciti+vene (n=16/38)	Magro+azaciti+vene (n=8/38)	Magro+azaciti+vene (n=11/38)
Dose/Dose esca. (freq.)	45mg/kg	15mg/kg*	30mg/kg	18mg/kg	0.3mg/kg	30mg/kg	30mg/kg	30mg/kg	30mg/kg	30mg/kg
Priming dose	1mg/kg	No priming dose	No priming dose	n.a.	n.a.	1mg/kg	1mg/kg	1mg/kg	1mg/kg	1mg/kg
Efficacy data										
ORR % (n)	45 (44)	50 (3)	57 (4)	33 (9)	25 (8)	75 (71)	49 (35)	100 (16)	75 (6)	27 (3)
CR % (n)	19 (18)	n.a.	43 (3)	7 (2)	n.a.	33 (31)	33 (24)	94 (15)	63 (5)	27 (3)
PR % (n)	27 (26)	n.a.	14 (1)	26 (7)	n.a.	42 (40)	16 (11)	n.a.	n.a.	n.a.
SD % (n)	17 (16)	n.a.	43 (3)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
DCR % (n)	63 (60)	n.a.	100 (7)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
mDOR (month)	n.a.	n.a.	n.a.	n.a.	n.a.	9.8	8.7	n.a.	n.a.	n.a.
mPFS (month)	n.a.	n.a.	n.a.	n.a.	n.a.	11.6	n.a.	n.a.	n.a.	n.a.
mOS (month)	n.a.	n.a.	n.a.	n.a.	n.a.	NR	10.8	n.a.	NR	3.1
12 mon OS rate %	n.a.	n.a.	n.a.	n.a.	n.a.	75	n.a.	n.a.	n.a.	n.a.
Safety profile										
AEs (%)	AEs Mostly G1/2	≥G3 Neutropenia (6.1)	≥G3 n.a.	≥G3 Thrombocyt (5) Neutropenia (9)	AEs No New Sig. Obers.	AEs Treat disc. (6.3)	AEs Treat disc. (4.2)	AEs Treat disc. (0) 8 wk morta % (0)	AEs Treat disc. (0) 8 wk morta % (13)	AEs Treat disc. (0) 8 wk morta % (27)
≥G3 anemia (%)	n.a.		No observed	2	n.a.	47	29	n.a.	n.a.	n.a.
DLT	n.a. Rare DLT	No DLT	No DLT	One G4 DLT	One G3 DLT	No G5 n.a.	No G5 n.a.	n.a. n.a.	n.a. n.a.	n.a. n.a.
Hemoglobin level. (%)	n.a.	n.a.	-10 (non-dose depedent)	n.a.	n.a.	Mild drop on the 1st dose	Mild drop on the 1st dose	n.a.	n.a.	n.a.
Administrative info										
NCT number	NCT02953509	NCT03013218	NCT03934814	NCT03530683	NCT02663518	NCT03248479	NCT03248479	NCT04435691	NCT04435691	NCT04435691
Study ID	5F9003 (AML)	ASPEN-01 (DLBCL)	TJ011133EDI101	TTI-622-01	TTI-621-01	5F9005 (MDS)	5F9005 (AML)	2020-0027	2020-0027	2020-0027
Data source	Company	ESMO-WCGC20	ASH21, SITC20	ASH21	AACR21	ASCO22	EHA22	ASH21	ASH21	ASH21

Sources: ASCO, ESMO, AACR, SITC, Company data, Evaluate, CMS(HK)

Figure 11: Global CD47 pathway trials data comparison in solid tumors

Company	Forty Seven/Gilead			I-Mab/AbbVie	ALX Oncology				Trillium
Drug name	**Magrolimab**			**Lemzoparlimab**	**Evorpacept**				**TTI-621**
MoA	αCD47 mAb	αCD47 mAb	αCD47 mAb	αCD47 mAb	SIRPα fusion w/ inactive Fc	SIRPα fusion w/ inactive Fc	SIRPα fusion w/ inactive Fc	SIRPα fusion w/ inactive Fc	Wt. SIRPα-IgG1 Fc fusion
Indication	**ST & CRC**	**NSCLC/UC/SCLC**	**OC**	**ST & Lymphoma**	**≥2L HER2+ GC**	**≥2L HER2+ GC**	**≥2L HNSCC**	**1L HNSCC**	**1/2L LSM**
Study phase	Ph 2	Ph 2	Ph 1	Ph 1	Ph 1b	Ph 1b	Ph 2	Ph 2	Ph 1/2
Allocation	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized
Study arms (n=evaluable/total pts)	Magro+cetuxi (n=40/78)	Magro+chemo (n=116)	Magro+avelu (n=18/34)	Lemzo (n=20/88)	ALX148+trastu +ramu+chemo (n=18)	ALX148+trastu (n=19)	ALX148+pembro (n=10/52)	ALX148+pembro+ chemo (5FU&plat) (n=13)	TTI-621+chemo (n=80)
Dose/Dose esca. (freq.)		15mg/kg	45mg/kg	30mg/kg	10mg or 15mg/kg		10mg/kg (QW)	10mg or 15mg/kg	0.2-2.0mg/kg
Priming dose	1mg/kg	1mg/kg	1mg/kg	No priming dose	No priming dose	No priming dose	No priming dose	No priming dose	n.a.
Efficacy data									
ORR % (n)	n.a.	n.a.	56 (1)	n.a.	72 (13)	21 (4)	40 (4)	39 (5)	n.a.
CR % (n)	n.a.	n.a.	n.a.	n.a.	6 (1)	n.a.	0 (0)	8 (1)	n.a.
PR % (n)	n.a.	n.a.	n.a.	n.a.	66 (12)	n.a.	40 (4)	31 (4)	n.a.
SD % (n)	n.a.	n.a.	56 (12)	n.a.	17 (3)	n.a.	10 (1)	46 (6)	n.a.
DCR % (n)	n.a.	n.a.	56 (12)	n.a.	89 (16)	n.a.	50 (5)	85 (11)	n.a.
mDOR (month)	n.a.	n.a.	n.a.	n.a.	14.8	8.7	4.3	n.a.	n.a.
mPFS (month)	1.9	1.9	n.a.	n.a.	17.1	2.2	4.6	5.6	n.a.
mOS (month)	10.4	10.4	n.a.	n.a.	17.1	8.1	24.5	NR	n.a.
12 mon OS rate %	n.a.	n.a.	n.a.	n.a.	79	38.2	80	88	n.a.
Safety profile									
AEs (%)	Disc. due to AEs 3		≥G4 0	≥G3 Lipase incr (5.0) No any G4/5 AE	≥G3 n.a.	≥G3 Plat. decr (6.7) Neutropenia (6.7)	≥G3 Plat. decr (3.8) ALT incr (1.9) Neutropenia (1.9)	≥G3 n.a.	AEs n.a.
≥G3 anemia (%)	n.a.		n.a.	Not observed	Not observed	Not observed	1.9	Not observed	n.a.
DLT			n.a.	No					
Hemoglobin level. (%)	n.a.		n.a.	-10 (non-dose depedent)	n.a.	n.a.	n.a.	n.a.	n.a.
Administrative info									
NCT number	NCT02953782	NCT04827576	NCT03558139	NCT03934814	NCT03013218	NCT03013218	NCT04675294	NCT04675333	NCT04996004
Study ID	5F9004	GS-US-548-5918	5F9006 (Part 1+2)	TJ011133EDI101	ASPEN-01 (GC)	ASPEN-01 (GC)	ASPEN-03	ASPEN-04	TTI-621-03
Data source	ASCO20	SITC21	ASCO20	SITC20	ESMO-WCGC21	ESMO-WCGC21	Company	Company	Company

Sources: ASCO, ESMO, AACR, Company data, Evaluate, CMS(HK)

Competitive Landscape of CD73 pathway

Oleclumab from AstraZeneca (AZ) is the most advanced CD73 mAb for cancer therapy, which is in ph3 clinical trials. **Ulileclimab from I-Mab** is the 2nd most advanced CD73 mAb globally. Catalysts of ulileclimab: a) more ph2 data on cohort #3 by YE22E; b) initiation of ph2 combo study w/ αPD-1 in the U.S. for non-NSCLC solid tumors in 22E, and ph3 trial for NSCLC in China in 23E.

Below is the competitive landscape of the CD73/CD39/A_{2A}R cascade:

Figure 12: Global CD73/CD39/A_{2A}R cascade candidate pipelines

Target	Projects	Company	MoA	Stage	Lead indications	Other indication
αCD73	**Oleclumab**	AstraZeneca (AZ)	αCD73 mAb	Ph3	EGFR-m NSCLC/ CRC/PDAC/	NSCLC*/TNBC/OC/ UC
	Ulileclimab	I-Mab	αCD73 mAb	Ph1/2	STs	
	BMS-986179	BMS	αCD73 mAb	Ph1/2	STs	
	Mupadolimab	Corvus	αCD73 mAb	Ph1/2	HNSCC	Viral-associated cancers
	NZV930	Novartis/Surface	αCD73 mAb	Ph1	STs	
	AK119	Akeso Bio	αCD73 mAb	Ph1	STs	
	Quemliclustat	Arcus Bio	CD73 inhibitor (small molecule)	Ph2	Pancreatic cancer	
αCD39	**IPH5201**	AZ/Innate Pharma	αCD39 mAb	Ph1/2	STs	
	TTX-030	AbbVie/Tizona	αCD39 mAb	Ph1	STs	Lymphoma
	SRF617	Surface	αCD39 mAb	Ph1	STs	
αA$_{2A}$R	**Imaradenant**	AstraZeneca	αA$_{2A}$R antagonist	Ph1/2	Pancreatic cancer	NSCLC*/STs
	Etrumadenant	Arcus Bio	αA$_{2A}$R/αA$_{2B}$R antagonist	Ph1/2	PC/CRC	NSCLC
	Ciforadenant	Roche/Corvus	αA$_{2A}$R antagonist	Ph1/2	RCC	
	PBF-509	Novartis	αA$_{2A}$R antagonist	Ph1/2	NSCLC	
	CS3005	CStone	αA$_{2A}$R antagonist	Ph1	STs	

Sources: Clinicaltrials.gov, Evaluate Pharma, Company data; Notes: CRC: colorectal cancer; PDAC: pancreatic ductal adenocarcinoma; EGFR-m NSCLC: EGFR mutation non small cell lung cancer; TNBC: triple negative breast cancer; STs: solid tumors; BC: breast cancer; OC: ovarian cancer; UC: urothelial carcinoma

Figure 13: Global CD73 pathway trials data comparison

Company	AstraZeneca				I-Mab		Novartis/Surface	Corvus
Drug name	Oleclumab				Uliledlimab (TJD5)		NZV930	CPI-006
MoA	αCD73 mAb	αCD73 mAb	αCD73 mAb	αCD73 mAb	αCD73 mAb	αCD73 mAb	αCD73 mAb	αCD73 mAb
Indication	Unresectable Stage III NSCLC	Resectable Early-stage NSCLC	EGFRm T790M-NSCLC	1L mTNBC	STs	STs	STs	STs
Study phase	Phase 2	Phase 2	Phase 1b/2	Phase 1/2	Phase 1	Phase 1/2	Phase 1/1b	Phase 1
Allocation	Randomized	Randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized	Non-randomized
Intervention model	Factorial		Single	n.a.	Single	Single	Single	Single
Study arms (vs. Placebo/SoC)	Ole+Durva/ Durva+Monali (vs. Durva)	Ole+Durva/ (vs. Durva)	Ole+Osimer	Ole+Durva+Chemo	Ulile+Atezo	Ulile+Toripali	NZV930+/- PD-1+/-A2AR	CPI-006+Pembro /+Cifo (A2AR)
(n=evaluable pts/sample size)	(n=186/189)	(n=47/83)	(n=21)	(n=33)	(n=13/20)	(n=19/177)	(n=334)	(n=20/378)
Dose	3,000mg Q4W (Ole)	3,000mg Q2W (Ole)	3,000mg Q2W (Ole)	3,000mg Q4W (Ole)	15mg/kg QW or 20mg/kg Q3W	10mg/kg QW 30mg/kg Q3W	n.a.	24mg/kg Q3W
Efficacy data								
ORR (%)	38.3/37.3 (vs 25.4)	CR: 9.5 (vs 3.7)	4 (19.0)	45.5 (15)	23	26 (5)	n.a.	n.a.
mDOR (month)	PFS: NR/15.1 (vs 6.3)	n.a.	PFS: 11; OS: NR	n.a.	n.a.	n.a.	n.a.	n.a.
Hook effect	Yes	Yes	Yes	Yes	No	No	n.a.	n.a.
Safety profile								
AEs (%)	≥G3 40.7/27.9 (vs 39.4)	≥G3 4.8 (vs 0.0)	G3/4 23.8	n.a. n.a.	G1/2: 65	n.a. n.a.	n.a. n.a.	G3/4 8.3 (mono)/0 (combo)
DLT	n.a.	n.a.	n.a.	No DLT	No DLT	No DLT	n.a.	n.a.
Administrative info								
NCT number	NCT03822351	NCT03794544	NCT03381274	NCT03742102	NCT03835949	NCT04322006	NCT03549000	NCT03454451
Study ID	COAST	NeoCOAST	D6070C00004	BEGONIA (Arm 5)	4309ST101	STM102 (Part B Cohort 3)	CNZV930X2101	CPI-006-001
Data source	ESMO21	AACR22	AACR21	ASCO21	ASCO21	ASCO22	Company	ASCO19

Sources: ASCO, ESMO, AACR, Company data, Evaluate, CMS(HK)

Competitive Landscape of CD38 mAb

Currently development of CD38 drug class in oncology space is focused on multiple myeloma (MM) patients. **Darzalex® (daratumumab)** is the global FIC CD38 mAb approved by FDA in Nov 2015. Over the years, daratumumab has advanced its initial label from 4L MM (mono therapy) to ASCT eligible 1L MM patients (daratumumab + VTd). JNJ reported USD6.0bn WW sales of Darzalex in FY21, representing a ~50% CAGR over 2017-2021. Evaluate Pharma forecasted Darzalex FY26E sales to reach USD8bn.

Current MM treatment guideline in China (updated in 2022, with daratumumab first included) recommends daratumumab + VMP triplet, daratumumab + Rd duplet and others as 1L regimen for ASCT ineligible patients. For ASCT eligible patients, Vd duplet (Velcade (bortezomib) and dexamethasone), RD triplets (Revlimid (lenalidomide) and dexamethasone) and others as recommended as 1L regimen. We expect the continued expansion of national VBPs on injection (chemo products) should improve the affordability of MM treatment and increase the penetration rate CD38 mAb.

Daratumumab has received a conditional approval from the NMPA in July 2019 and was included in NRDL in 2021 with current annual treatment cost around RMB17,500/mo (vs prev. RMB40,000/mo). Competitive late-stage CD38 mAb candidates in China include **Sanofi's isatuximab**, and **I-Mab's felzartamab**. We summarize data and ongoing clinical development for CD38 drug class below:

Figure 14: China CD38-targeted antibodies

Projects	Company	MoA	China status	China label approval (ongoing planning)	China treatment guidelines
Daratumumab (IV)	JNJ	αCD38 mAb	Marketed	3L MM	1L MM
Isatuximab (IV)	Sanofi	αCD38 mAb	Ph 3	n.a. (1L MM)	n.a.
Felzartamab (IV)	I-Mab/MorphoSys	αCD38 mAb	Ph 3	n.a. (3L MM/2L MM/1L MM)	n.a.

Sources: Clinicaltrials.gov, Company, CMS(HK); Notes: MM: multiple myeloma

Figure 15: αCD38 mAb clinical data comparisons

Company	**I-MAB/MOR**			**JNJ**					**Sanofi**
Drug name	**Felzartamab**			**Daratumumab**					**Isatuximab**
MoA	αCD38 mAb			αCD38 mAb					αCD38 mAb
Indication	≥3L MM	≥2L MM	≥3L MM	≥3L MM	≥2L MM	≥2L MM	1L MM	1L MM	≥3L MM
Study Phase	Phase 1/2	Phase 1/2	Phase 1/2	Phase 1	Phase 3	Phase 3	Phase 3	Phase 3	Phase 3
Allocation	Non-random.	Non-random.	Non-random.	Non-random.	Randomized	Randomized	Randomized	Randomized	Randomized
Study Arms (n=treatment/comparator group)	Felza+DEX	Felza+ LEN/DEX	Felza+ POM/DEX	Daratu +POM/DEX	Daratu +LEN/DEX (vs LEN/DEX)	Daratu +V/DEX (vs BOR/DEX)	Daratu +LEN/DEX (vs LEN/DEX)	Daratu +V/M/P (vs V/M/P)	Isatu +POM/D (vs POM/D)
	18	17	21	103	281/276	251/247	368/369	350/356	154/153
Median prior treatment lines	3	2	3	4	≥1	≥1	0	0	≥3
Media age	57	65	66	64	n.a.	64	73	71	~75
Infusion time (hour)	0.5-2	0.5-2	0.5-2	3-7	3-7	3-7	3-7	3-7	~3
Efficacy data									
ORR (%)	28	65	48	60	93 (vs 76)	85 (vs 63)	93 (vs 82)	91	56 (vs 25)
DCR (%)	78	76	76	87	n.a.	n.a.	n.a.	n.a.	90 (vs 77)
mDoR (month)	16.7	n.a.	16.6	NR	34.3 (vs 16.0)	13.4 (vs 5.2)	n.a.	NR (vs 21.3)	n.a.
mPFS (month)	8.4	NR	17.5	8.8	44.5 (vs 17.5)	16.7 (vs 7.1)	NR	NR	11.5 (vs 6.5)
mOS (month)	NR	NR	NR	17.5	NR	NR (vs 47.6)	NR	NR	NR (vs 11.6)
Safety profile									
≥G3 AEs (%)	Neutropenia (52) Lymphopenia (48) Leukopenia (39)			Neutrop (78) Anemia (28) Leukope (24)	Neu (56 vs 42) Ane (18 vs 21) Thr (15 vs 16)	Thr (46 vs 33) Ane (16 vs 16) Neu (14 vs 5)	Neu (50 vs 35) Ane (12 vs 20) Leu (11 vs 5)	Neu (40 vs 39) Thr (34 vs 38) Leu (16 vs 20)	(87 vs 71)
≥G3 IRR (%)	**0**	**0**	**0**	12	n.a.	n.a.	n.a.	n.a.	2 (vs 0)
Administrative Info									
NCT Number	NCT01421186			NCT01998971	NCT02076009	NCT02136134	NCT02252172	NCT02195479	NCT02990338
Study ID	MOR202C101			EQUULEUS	POLLUX	CASTOR	MAIA	ALCYONE	ICARIA
Data Source	Company data, ASH18, Lancet Haematol 2020			ASCO20	Nature	Journal CLML	ASCO21	Lancet	Lancet

Sources: Company data, ASH; Note: DEX: dexamethasone, LEX: lenalidomide, POM: pomalidomide

Investment risks

Clinical failure of core clinical assets

Company may encounter clinical development setbacks of its in-house developed or in-licensed drug candidates. Potential clinical failure may adversely affect company's business and financial prospects.

Worse-than-expected commercial launches

The actual market penetration and market share of Company's drug candidates might be smaller than expected. These may be due to lower-than-expected acceptance from physicians, patients or payers. Potential setbacks in commercialization process may adversely affect Company's business and financial prospects.

Pricing uncertainty in future China NRDL negotiations

Company may encounter pricing risks in the future China NRDL negotiations. China commercial healthcare insurance industry is still in its infancy while the government payers play a dominant role in setting reimbursement policies. A lower-than-expected pricing or less favorable reimbursement policy may adversely affect Company's business and financial prospects.

Geopolitical uncertainty

Company may encounter geopolitical risks when conducting international trades, collaborations or other commercial activities. Setbacks in these activities may adversely affect Company's business and financial prospects.

Financial Summary

Balance Sheet

RMB mn	2019	2020	2021E	2022E	2023E
Non-current assets	**376**	**990**	**982**	**974**	**965**
PP&E	30	25	28	30	31
Intangible assets	149	120	119	117	116
Prepaid lease payments	16	15	6	(3)	(12)
Goodwill	163	163	163	163	163
Interests in JV/Asso	-	665	665	665	665
Others	18	2	2	2	2
Current assets	**1,361**	**5,344**	**4,274**	**2,892**	**1,435**
Inventories	-	-	-	-	2
Loan and account receivables	-	130	-	-	23
Prepayments and other receivables	136	423	423	423	423
Others	32	32	32	32	32
Short-term investments	56	-	-	-	-
Bank balances and cash	1,137	4,759	3,820	2,438	955
Total assets	**1,738**	**6,334**	**5,256**	**3,866**	**2,399**
Current liabilities	**588**	**576**	**576**	**576**	**579**
Trade and bills payables	-	-	-	-	3
Other payables	7	8	8	8	8
Due to a related party	274	561	561	561	561
ST bank debt	50	-	-	-	-
Others	258	8	8	8	8
Non-current liabilities	**80**	**131**	**131**	**131**	**131**
Long-term payables	68	-	-	-	-
Contract liabilities	-	-	-	-	-
LT bank loans	-	-	-	-	-
Others	11	131	131	131	131
Shareholders' funds	**1,069**	**5,627**	**4,550**	**3,160**	**1,690**
Minorities	**-**	**-**	**-**	**-**	**-**
Total liability and equity	**1,738**	**6,334**	**5,256**	**3,866**	**2,399**

Cashflow Statement

RMB mn	2019	2020	2021E	2022E	2023E
Operating cash flow	**(868)**	**434**	**(1,024)**	**(1,448)**	**(1,522)**
Pretax profit	(1,441)	471	(1,077)	(1,390)	(1,470)
Operating profit before WC chg	(1,067)	674	(1,155)	(1,448)	(1,500)
Net working capital change	199	(241)	130	-	(22)
Income tax paid	-	-	-	-	-
Interest paid	-	-	-	-	-
Investing cash flow	**212**	**(202)**	**85**	**66**	**39**
Purchase of PPE	(12)	(8)	(10)	(10)	(10)
Purchase/disposal of subsidiaries	-	-	-	-	-
Purchase/disposal of JV&Asso.	-	-	-	-	-
Interest received	-	-	95	76	49
Others	225	(194)	-	-	-
Financing cash flow	**153**	**3,440**	**-**	**-**	**-**
Proceeds from IPO net of fees	184	3,481	-	-	-
Issurance of equity shares	-	-	-	-	-
Bank borrowings, net	(31)	(50)	-	-	-
Others	-	-	-	-	-
Beginning cash	**1,681**	**1,193**	**4,759**	**3,820**	**2,438**
Forex	*15*	*(107)*	-	-	-
End cash	**1,193**	**4,759**	**3,820**	**2,438**	**955**

Profit & Loss

RMB mn	2019	2020	2021E	2022E	2023E
Consolidated revenue	**30**	**1,543**	**520**	**650**	**1,075**
Cost of goods sold	-	-	-	-	(20)
Gross profit	**30**	**1,543**	**520**	**650**	**1,055**
(–) Total SG&A expense	**(655)**	**(402)**	**(412)**	**(453)**	**(494)**
Administrative expenses	(655)	(402)	(402)	(423)	(444)
Selling and distribution costs	-	-	(10)	(30)	(50)
(–) R&D expense	**(840)**	**(985)**	**(1,280)**	**(1,664)**	**(2,080)**
(+/–) Other income/expense	**-**	**-**	**-**	**-**	**-**
(+/–) Profit from JV&Asso.	**-**	**-**	**-**	**-**	**-**
Adj. EBITDA	**(1,082)**	**672**	**(655)**	**(748)**	**(600)**
Stock-Based Compensation	(367)	(493)	(500)	(700)	(900)
Total Depreciation and amortisation	(16)	(23)	(18)	(18)	(19)
Adj. EBIT	**(1,098)**	**649**	**(673)**	**(767)**	**(619)**
(+/–) Finance expense - net	28	23	95	76	49
(+/–) Others, net	(4)	304	-	-	-
Profit before tax	**(1,441)**	**483**	**(1,077)**	**(1,390)**	**(1,470)**
(–) Tax	-	(12)	-	-	-
Net Profit	(1,441)	471	(1,077)	(1,390)	(1,470)
(+/–) Minority interest	-	-	-	-	-
Attributable net profit	**(1,441)**	**471**	**(1,077)**	**(1,390)**	**(1,470)**
Adjusted net profit	**(1,085)**	**964**	**(577)**	**(690)**	**(570)**
EPS Fully diluted (USD)	**(47.8)**	**2.3**	**(1.4)**	**(1.8)**	**(1.5)**

Financial Ratios

	2019	2020	2021E	2022E	2023E
Growth					
Consolidated revenue	(44%)	5,042%	(66%)	25%	65%
Gross profit	n.a.	5,042%	(66%)	25%	62%
Adjusted net profit	n.a.	n.a.	n.a.	n.a.	n.a.
Profitability					
Gross margin	100%	100%	100%	100%	98%
Adj. net profit margin	n.a.	n.a.	n.a.	n.a.	n.a.
ROE	n.a.	n.a.	n.a.	n.a.	n.a.
ROA	n.a.	n.a.	n.a.	n.a.	n.a.
Efficiency					
Inventory days	n.a.	n.a.	n.a.	n.a.	n.a.
Accounts receivable days	n.a.	n.a.	n.a.	n.a.	n.a.
Accounts payable days	n.a.	n.a.	n.a.	n.a.	n.a.
Cash cycle days	n.a.	n.a.	n.a.	n.a.	n.a.
Liquidity					
FCF (RMB mn)	(880)	426	(1,034)	(1,458)	(1,532)
Net gearing (%)	(107)	(85)	(84)	(77)	(57)

Sources: Company data, CMS (HK) estimates

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Industry Rating	Definition
OVERWEIGHT	Expect sector to outperform the market over the next 12 months
NEUTRAL	Expect sector to perform in-line with the market over the next 12 months
UNDERWEIGHT	Expect sector to underperform the market over the next 12 months

Company Rating	Definition
BUY	Expect stock to generate 10%+ return over the next 12 months
NEUTRAL	Expect stock to generate +10% to -10% over the next 12 months
SELL	Expect stock to generate loss of 10%+ over the next 12 months

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