

I-Mab BioPharma (IMAB US)

Promising Phase 1 data of anti-CD47 antibody at the 2020 SITC Annual Meeting

■ **Phase 1 results demonstrate differentiated safety and PK profile and efficacy signal of lempzoparlimab (TJC4).** Lemzoparlimab is a highly differentiated CD47 antibody designed to minimize inherent binding to normal red blood cells while preserving its strong anti-tumor activity. I-Mab released in a poster at the 2020 SITC Annual Meeting, demonstrating the initial results of its US phase 1 clinical trial (NCT03934814) evaluating lempzoparlimab for the treatment of relapsed or refractory solid tumors and lymphoma. Lemzoparlimab is well tolerated as a single agent at a dose range of up to 30 mg/kg without introducing any priming dosing strategy. In all DLT-evaluable patients, no dose-limiting toxicities or severe hematologic adverse events were observed. Lemzoparlimab PK appears to be linear at mid to high dose levels following a single dose with no significant "sink effect". One confirmed partial response (PR) was observed in a melanoma patient in the 30 mg/kg monotherapy cohort (N=3), who had failed prior treatments with checkpoint inhibitors.

■ **Multiple ongoing trials in the US and China.** The above mentioned US phase I study (NCT03934814) includes in two parts. The first part is comprised of a single agent dose escalation followed by two separate combination regimens in an escalating dose range (Part 1b with pembrolizumab; Part 1c with rituximab). The second part is a dose expansion study in the combination therapies. The data released at SITC 2020 is the single agent dose escalation in first part. Recruitment of patients for the dose escalation study of lempzoparlimab in combination with pembrolizumab or rituximab is ongoing. In China, I-Mab is conducting a phase I trial of lempzoparlimab for hematologic tumors which has finished 20mg/kg in dose escalation and was expected to be finished by 1Q21.

■ **Significant synergies from the global strategic partnership with AbbVie.** I-Mab reached a broad, global collaboration agreement with AbbVie for the development and commercialization of lempzoparlimab. I-Mab retains all rights to develop and to commercialize lempzoparlimab in mainland China, Macau and Hong Kong. Going forward, I-Mab will work closely with AbbVie to facilitate clinical development of lempzoparlimab both globally and in China. We expect the two partners to expand the collaboration to additional transformative therapies. We see potential significant clinical synergies between I-Mab's lempzoparlimab and AbbVie's Venclexta (Venetoclax, a Bcl-2 inhibitor) in treating AML and MDS.

■ **Maintain BUY.** We maintain our DCF-based TP unchanged at US\$52.57 (WACC: 10.6%, terminal growth rate: 3.0%).

Earnings Summary

(YE 31 Dec)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue (RMB mn)	54	30	1,400	1,533	806
YoY growth (%)	365	(44)	4,567	N/A	(47)
Net loss (RMB mn)	(403)	(1,452)	204	(674)	(1,157)
EPS (RMB per ADS)	N/A	N/A	2.89	(9.56)	(16.41)
R&D expenses (RMB mn)	(426)	(840)	(900)	(1,000)	(1,050)
Capex (RMB mn)	(14)	(12)	(100)	(100)	(100)

Source: Company data, CMBIS estimates

BUY (Maintain)

Target Price **US\$52.57**
 (Previous TP **US\$52.57**)
 Up/Downside **+59.59%**
 Current Price **US\$32.94**

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Mkt. Cap. (US\$ mn)	2,322
Avg. 3mths t/o (US\$ mn)	9.13
52W High/Low (US\$)	47.46/9.30
Total Issued Shares (mn)	70

Source: Bloomberg

Shareholding Structure

Founders	3%
Pre-IPO investors	68%
Other public shareholders	29%

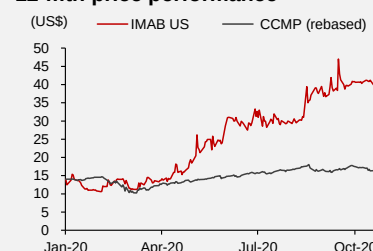
Source: Bloomberg

Share performance

	Absolute	Relative
1-mth	-16.8%	-17.8%
3-mth	9.5%	2.9%
6-mth	101.5%	56.9%

Source: Bloomberg

12-mth price performance



Source: Bloomberg

Auditor: PWC
Web-site: www.i-mabbiopharma.com

Related report:

Global strategic partnership with AbbVie – 7 Sep 2020
 Innovation for biologics – 26 Aug 2020

Competition landscape in CD47 therapies

Worldwide, more than 15 drug candidates targeting CD47 are under clinical tests, including mAbs, fusion proteins and BsAbs. The most leading asset is Hu5F9-G4 (Magrolimab) developed by Forty Seven, a subsidiary of Gilead. Gilead is initiating a registrational Phase 3 trial to test magrolimab in MDS patients. Other anti-CD47 biological candidates are all in early phase of development. In China, six anti-CD47 biological candidates are in early clinical phase while another three candidates may start clinical studies soon.

However, almost all clinical trials with CD47 antibodies so far have shown significant hematologic adverse effects, likely due to inherent RBC-binding properties of generic CD47 antibodies. So far, the development of some CD47 targeting drug candidates were terminated, such as SRF231 by Surface Oncology, CC-90002 by Celgene.

Figure 1: Competition landscape in CD47 biological therapies

Product	Molecule	Company	US status	China status
Hu5F9-G4 (Magrolimab)	CD47 mAb	Forty Seven / Gilead	Phase 3 in 1L higher-risk MDS (+ Azacitidine); Phase 1b in AML (+ Azacitidine); Phase 1/2 in DLBCL (+ Rituximab); Phase 1/2 in Colorectal cancer (+ Cetuximab); Phase 1 in Ovarian cancer (+ Avelumab)	N/A
TTI-621	CD47 WT SIRPα fusion protein	Trillium Therapeutics	Phase 1	N/A
TTI-662	CD47 WT SIRPα fusion protein	Trillium Therapeutics	Phase 1	N/A
ALX148	CD47 high affinity SIRPα fusion protein	ALX Oncology	Phase 1/2 in higher risk MDS (+ Azacitidine)	N/A
AO-176	CD47 mAb	Arch Oncology	Phase 1/2 in r/r MM	N/A
TG-1801 (NI-1701)	CD47/CD19 BsAb	TG Therapeutics / Novimmune	Phase 1	N/A
IBI188	CD47 mAb	Innovent	Phase 1	Phase 1b/3 in 1L MDS; Phase 1b/2 in r/r AML
SHR1603	CD47 mAb	Hengrui Medicine	N/A	Phase 1
IMM01	CD47 mAb-Trap fusion protein	Immune Onco	N/A	Phase 1
TJC4 (TJ011133)	CD47 mAb	I-Mab	Phase 1	Phase 1/2a in r/r AML
HX009	PD-1/CD47 BsAb	HanX Biopharma	N/A	Phase 1
IMM0306	CD47/CD20 BsAb	Immune Onco	N/A	Phase 1
IBI322	CD47/PD-L1 BsAb	Innovent	N/A	IND approval
ZL-1201	CD47 mAb	ZaiLab	Phase 1	IND approval
AK117	CD47 mAb	Akeso Biopharma	N/A	IND filing

Source: Insight, Clinicaltrials.gov, CMBIS

Figure 2: Summary of clinical data of leading CD47-SIRPα targeting therapies

	Drug	Magrolimab (Hu-5FG)	Magrolimab (Hu-5FG)	Magrolimab (Hu-5FG)	Magrolimab (Hu-5FG)	Magrolimab (Hu-5FG)	TTI-621	TTI-621	TTI-621	TTI-621	ALX-148	ALX-148	ALX-148
	Target	CD47	CD47	CD47	CD47	CD47	SIRPα	SIRPα	SIRPα	SIRPα	SIRPα	SIRPα	SIRPα
	Company	Forty Seven	Forty Seven	Forty Seven	Forty Seven	Forty Seven	Trillium Therapeutics	Trillium Therapeutics	Trillium Therapeutics	Trillium Therapeutics	ALX Oncology	ALX Oncology	ALX Oncology
	Trial ID	NCT03248479	NCT03248479	NCT02953509	NCT02953509	NCT03248479	NCT02663518	NCT02663518	NCT02663518	NCT02663518	NCT03013218	NCT03013218	NCT03013218
	Phase	1b	1b	1b/2	1b/2	1b	1	1	1	1	1b	1b	1b
	Treatment	+Azacitidine	+Azacitidine	+Rituximab	+Rituximab	mono	mono	mono	mono	+Rituximab	+Rituximab	+Keytruda	+Herceptin
	Indication	1L MDS	1L AML	3L+ DLBCL	2L+ FL or MZL	r/r-AML/MDS	r/r-CTCL	r/r-PTCL	r/r-DLBCL	r/r-DLBCL	3L+ ALL	2L SCCHN	r/r-Her2+Gastric/GE J
	No. of patients	33	25	59	38 (35+3)	10	42	22	7	25	33	20	19
	ORR (%)	91%	64% (75% (9/12) for TP53m)	36%	61%	10%	19%	18%	29%	24%	45% (15/33)	20% (4/20)	21.1% (4/19)
	CR	42%	40% (42% (5/12) for TP53m)	15%	24%	0%	2%	9%	14%	4%			
	CRi		16% (33% (4/12) for TP53m)										
	PR	3%	4%	20%	37%	10%	17%	9%	14%	20%			
	marrow CR / MLFS	24% (4/8 with HI)	4%										
	Heamatologic Improvement (HI)	21%											
	SD	9%	32%	12%	24%	70%							
	PD	0%	4%	17%	16%	10%							
	Anemia	38%		29%		20%		13% (≥G3=8%)			6.1% (≥G3=3.0%)	9.6% (≥G3=1.9%)	6.7% (≥G3=0%)
	Fatigue	21%						15% (≥G3=0%)			9.1% (≥G3=0%)	11.5% (≥G3=0%)	30.0% (≥G3=0%)
	Neutropenia	19%		19%		0%		8% (≥G3=7%)			6.1% (≥G3=6.1%)	3.8% (≥G3=1.9%)	6.7% (≥G3=6.7%)
	Thrombocytopenia	18%		14%		0%		28% (≥G3=21%)					
	Infusion reaction	16%						41% (≥G3=2%)			0%	7.7% (≥G3=0%)	0%

Source: ASH 2019, EHA 2019, ASCO2019, ALXOncology prospectus, company data, CMBIS

DCF-based TP of US\$52.57

Given the recent progresses such as the release of differentiated safety and PK profile and preliminary efficacy of TJC4 (lemzoparlimab), global partnership with AbbVie on lemzoparlimab and the completion of private placement, we derive our TP of US\$52.57 based on 15-year risk-adjusted DCF model (WACC: 10.6%, terminal growth rate: 3.0%).

Figure 3: Risk-adjusted DCF valuation

DCF Valuation (in Rmb mn)	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E
EBIT	(674)	(1,157)	(1,386)	2,641	1,202	1,605	2,445	2,893	3,201	3,588	3,966	4,357	4,771	5,145	5,609
Tax rate	0%	0%	0%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
EBIT*(1-tax rate)	(674)	(1,157)	(1,386)	2,245	1,022	1,364	2,078	2,459	2,721	3,050	3,371	3,703	4,056	4,374	4,768
+ D&A	35	46	55	62	69	74	78	82	85	87	89	91	93	94	95
- Change in working capital	(579)	205	72	(352)	(307)	(302)	(204)	(165)	(59)	(106)	(107)	(101)	(102)	(103)	(105)
- Capex	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
FCFF	(1,318)	(1,006)	(1,360)	1,855	683	1,036	1,852	2,276	2,646	2,932	3,254	3,593	3,946	4,264	4,658
Terminal value															63,145
FCF + Terminal value	(1,318)	(1,006)	(1,360)	1,855	683	1,036	1,852	2,276	2,646	2,932	3,254	3,593	3,946	4,264	67,803
Present value of enterprise (RMB mn)	22,489														
Net debt (RMB mn)	(3,453)														
Equity value (RMB mn)	25,942														
Equity value (US\$ mn)	3,706														
No. of ADS	70,495,716														
DCF per share (US\$)	52.57														
Terminal growth rate	3.0%														
WACC	10.60%														
Cost of Equity	13.5%														
Cost of Debt	4.5%														
Equity Beta	1.0														
Risk Free Rate	3.0%														
Market Risk Premium	10.5%														
Target Debt to Asset ratio	30.0%														
Effective Corporate Tax Rate	15.0%														

Source: CMBIS estimates

Figure 4: Sensitivity analysis (US\$)

		WACC				
		9.60%	10.10%	10.60%	11.10%	11.60%
Terminal growth rate	2.0%	58.47	53.43	49.04	45.19	41.80
	2.5%	60.90	55.43	50.70	46.58	42.96
	3.0%	63.69	57.70	52.57	48.13	44.26
	3.5%	66.94	60.32	54.71	49.89	45.72
	4.0%	70.78	63.38	57.17	51.89	47.37

Source: Company data, CMBIS estimates

Financial Statements

Income statement

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Revenue	54	30	1,400	1,533	806
Cost of sales	0	0	0	(307)	(153)
Gross profit	54	30	1,400	1,226	653
Administrative expenses	(66)	(655)	(300)	(345)	(397)
R&D expenses	(426)	(840)	(900)	(1,000)	(1,050)
Selling expenses	0	0	0	(613)	(403)
Fair value change of warrants	61	6	0	0	0
Operating profit	(377)	(1,459)	200	(732)	(1,197)
Finance costs, net	(7)	28	40	58	40
Other income (expenses), net	(17)	(20)	0	0	0
Pre-tax profit	(401)	(1,452)	240	(674)	(1,157)
Income tax	(2)	0	(36)	0	0
Minority interests	0	0	0	0	0
Net profit (Net loss)	(403)	(1,452)	204	(674)	(1,157)

Cash flow summary

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Profit before tax	(401)	(1,452)	240	(674)	(1,157)
D&A, etc.	7	16	22	35	46
Change in working capital	148	185	(74)	(579)	205
Tax paid	(2)	0	(36)	0	0
Others	(33)	384	0	0	0
Net cash from operating activities	(281)	(868)	152	(1,218)	(906)
Capex	(14)	(12)	(100)	(100)	(100)
Net proceeds from disposal of short-term investments	0	(32)	0	0	0
Other investing activities	24	257	0	0	0
Net cash from investing activities	10	212	(100)	(100)	(100)
Net proceeds from shares issued	1,307	184	3,652	0	0
Net bank borrowing	(19)	(30)	0	0	0
Proceeds from issuance of convertible promissory notes	60	0	0	0	0
Other financing activities	132	(1)	0	0	0
Net cash from financing activities	1,480	153	3,652	0	0
FX changes	60	15	0	0	0
Net change in cash	1,208	(503)	3,704	(1,318)	(1,006)
Cash at the beginning of the year	413	1,681	1,193	4,897	3,579
Cash at the end of the year	1,681	1,193	4,897	3,579	2,573

Balance sheet

YE 31 Dec (RMB mn)	FY18A	FY19A	FY20E	FY21E	FY22E
Non-current assets	339	376	455	520	574
PP&E	28	30	108	174	228
Operating lease right of use assets	0	16	16	16	16
Intangible assets	149	149	149	149	149
Goodwill	163	163	163	163	163
Other non-current assets	0	18	18	18	18
Current assets	2,037	1,361	5,065	4,226	2,990
Inventories	0	0	0	101	50
Trade and bills receivables	0	0	0	378	199
Prepayments, other receivables	89	136	136	136	136
Other financial assets	256	0	0	0	0
Cash and bank balances	1,588	1,137	4,841	3,523	2,517
Current liabilities	346	588	515	415	390
Short-term borrowings	80	50	50	50	50
Advance from customers	14	0	0	0	0
Other payables and accruals	68	274	200	100	76
Operating lease liabilities, current	0	7	7	7	7
Other current liabilities	184	258	258	258	258
Non-current liabilities	70	80	80	80	80
Convertible promissory notes	67	68	68	68	68
Onshore convertible loans	0	7	7	7	7
Deferred subsidy income	3	4	4	4	4
Total net assets	1,960	1,069	4,925	4,251	3,094
Minority interest	0	0	0	0	0
Shareholders' equity	1,960	1,069	4,925	4,251	3,094

Key ratios

YE 31 Dec	FY18A	FY19A	FY20E	FY21E	FY22E
Profit & loss ratios (%)					
Gross margin	100	100	100	80	81
EBITDA margin	N/A	N/A	N/A	(45.47)	(142.83)
Net margin	N/A	N/A	N/A	(43.98)	(143.51)
Effective tax rate (%)	N/A	N/A	N/A	N/A	N/A
Balance sheet ratios					
Current ratio (x)	6	2	10	10	8
Trade receivables turnover	N/A	N/A	N/A	90	90
Trade payables turnover	N/A	N/A	N/A	180	180
Total debt to asset ratio (%)	17	38	11	10	13
Returns (%)					
ROE	(21)	(136)	4	(16)	(37)
ROA	(17)	(84)	4	(14)	(32)
Per share data					
EPS (RMB)	N/A	N/A	2.9	(9.6)	(16.4)
DPS (RMB)	0.0	0.0	0.0	0.0	0.0
BVPS (RMB)	N/A	N/A	69.9	60.3	43.9

Source: Company data, CMBIS estimates

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