# LAG-3 IMMUNOTHERAPY

## SITC 2021 Results: Management Update

**GLOBAL WEBCAST** 

Date & Time: 8.00 am AEDT (Sydney) Wednesday 17 November 2021 4.00 pm EST (New York) Tuesday 16 November 2021 10.00 pm CET (Berlin) Tuesday 16 November 2021

Register:

https://fnn.webex.com/fnn/onstage/g.php?MTID=ef12af93633b5d17a2e4e176fcac2f070

A replay of the webcast will also be available at www.immutep.com

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### **Overview**







## LAG-3 Overview & Product Candidates

## **LAG-3** Therapeutic Landscape Overview



		Company	Program	Preclinical	Phase I	Phase II	Phase III	Total Trials	Patients
	Agonist		Eftilagimod Alpha <sup>(5)</sup>		10	4		14	967
		BMS	Relatlimab <sup>(6)</sup>		7	32	2	41	9,775
		Merck & Co. Inc.	Favezelimab		1	5		6	1066
		<b>U</b> NOVARTIS	leramilimab		1	4	March 19, 2022	5	952
		Macrogenics	Tebotelimab		3	3		6	1422
٨F		H-L Roche	RO7247669		1	2		3	538
	st	B.I.	BI754111		4	1		5	649
ر	Antagonis	Regeneron <sup>(1)</sup>	Fianlimab		1	1		2	836
		Innovent	IBI110		1			2	328
		Tesaro <sup>(3)</sup>	TSR-033		1	1		2	139
		Incyte	INCAGN02385		1			2	74
		Symphogen <sup>(2)</sup>	SYM022		3			3	169
		F-star	FS-118		2			2	102
		Xencor	XmAb-22841		1			1	242
Autoimmune	Agonist		IMP761						
	Depleting AB	gsk (4)	GSK2831781 (IMP731)		2	1		3	207

Sources: GlobalData, Company websites, clinicaltrials.gov, and sec.gov, as of 25th October 2021. The green bars above represent programs conducted by Immutep &/or its partners. Total trials includes all active, completed &/or inactive trials. Patient totals are based on estimated total enrolled &/or to be enrolled. Not a complete list of currently existing LAG-3 products.

- (https://www.sec.gov/Archives/edgar/data/872589/000110465919000977/a19-1325\_18k.htm)
- 2) On 3 Apr. 2020 Les Laboratoires Servier acquired Symphogen
   3) Tesaro was acquired by and is now part of GSK (www.gsk.com/en-gb/media/press-releases/gsk-completes-acquisition-oftesaro-an-oncology-focused-biopharmaceutical-company/)
- 5) Including IITs, one planned trials (MBC trial by EOC)

RELATIVITY-047 (https://investors.bms.com/iframes/press-release/press-release-details/2021/Bristol-Myers-Squibb-Announces-RELATIVITY-047-a-Trial-Evaluating-Anti-LAG-3-Antibody-Relatilmab-and-Opdivo-nivolumab-in-Patients-with-Previously-Untreated-Metastatic-or-Unresectable-Melanoma-Meets-Primary-Endpoint-of-Progression-Free-Survival/default.aspx)



## **Eftilagimod Alpha** Bringing APC Activation into Oncology

Eftilagimod alpha ~ Efti ~ IMP321



- Efti is a soluble LAG-3 protein targeting a subset of MHC class II on APC
- Potentially synergistic with other therapeutic agents, e.g. Immuno-Oncology (I-O) agents or chemotherapies



#### "RELEASING THE BRAKE ON THE T CELL"

#### Efti is an MHC II agonist: **APC** activator

- boost and sustain the CD8<sup>+</sup> T cell responses
- activate multiple immune cell subsets •

LAG-3 antagonist, or blocking, antibodies: Immune checkpoint inhibitor

increase cytotoxicity of the pre-existing CD8 • T cell response

efti

"LAG-3lg"

## **Clinical Development**

Efti: Main Trials\*



	Program	Preclinical	Phase I	Phase II	Late Stage <sup>(5)</sup>	Commercial Rights
		Metastatic Breast Cancer ( AIPAC-003	Chemo – IO) <sup>(1)</sup>			
		Metastatic Breast Cancer (Chemo – IO) AIPAC				
		Head and Neck Squamous TACTI-003	s Cell Carcinoma (IO – IO) <sup>(2)</sup>			
		Head and Neck Squamous Cell Carcinoma (IO – IO) <sup>(2)</sup> TACTI-002				
>	Eftilagimod Alpha (Efti or IMP321) APC activating soluble LAG-3 Protein	<b>Non-Small-Cell Lung Carcinoma (IO – IO)</b> <sup>(2)</sup> TACTI-002				
Oncology		Solid Tumors (IO – IO – C INSIGHT-003	hemo) <sup>(3)</sup>		6	Global Rights
		<b>Solid Tumors (IO – IO)</b> <sup>(3), (4</sup> INSIGHT-004	4a)	Merck KGaA, Darmstadt, Germany		
		<b>Solid Tumors (IO – IO)</b> <sup>(1), (3</sup> INSIGHT-005	3), (4b)	Merck KGaA, Darmstadt, Germany		
		<b>Melanoma (IO – IO)</b> <sup>(2)</sup> TACTI-mel		,		
		Solid Tumors (Cancer Vac YNP01 / YCP02 / CRESCE	cine) <sup>(5a)</sup> INT 1	CYTLIMIC Cytotoxic T Lymphocyte Immunotherapy in Canter		
		Metastatic Breast Cancer (	Chemo – IO) <sup>(5b)</sup>		SEDC	Chinese Rights
<u>Notes:</u> * li (1) F	nformation in pipeline chart current Planned trial	as at November 2021. AIPAC-003 and INSIGH	IT-005 trial initiation are subject to further appro	vals. (4) a) In combination with BAVE (5) a) Conducted by CYTLIMIC i	NCIO® (avelumab); b) in combination with untrafusp n Japan; b) Conducted by EOC in China. Immutep ha	alfa is no control over either of these tri

ead investigator and therefore Immutep has no control over this clinical trial

## **Clinical Development**

**Operational Update** 



#### **TACTI-002**

- Recruitment into Part A (1st line NSCLC) is expected to be completed ahead of time, due to great interest from sites.
- $\checkmark$  70+ of 74 patients for part A extension already enrolled.

#### **TACTI-003**

- ✓ Full CTA approvals received in 5 of 8 countries → no roadblocks or any major comments received from authorities.
- ✓ Recruitment initiated, first patients randomized.

#### **INSIGHT**

- INSIGHT-003 (efti+SoC (e.g. doublet chemo + PD-1) in e.g. 1st line NSCLC) has enrolled already 5 patients.
- Preparation for INSIGHT-005 collaboration with Merck KGaA are ongoing, but under review due to bintrafusp alfa performance.

#### AIPAC-003

- ✓ Positive feedback from EMA received.
- $\checkmark$  FDA discussion ongoing as planned.



## Efti + Chemo Combination AIPAC trial

Final OS results presented at SITC, 10-14 November 2021

## **Goal:** Improving OS while maintaining QoL in HR<sup>+</sup>/HER2<sup>-</sup> MBC patients



#### **Epidemiology:**

- Breast cancer (BC) is the most frequently diagnosed cancer. More than 2 million breast cancer (thereof ~70% HR<sup>+</sup>/HER2<sup>--</sup>) diagnoses per annum worldwide.
- Up to 550,000 patients in total and app. 350,000 patients younger than 65 develop metastatic disease and are eligible to receive chemotherapy<sup>(1) (2)</sup>



(1) Source: WHO Global Cancer Observatory 2020 and Informa Intelligence October 2020
 (2) Wang et al. BMC Cancer (2019) 19:1091
 MBC – metastatic breast cancer: BC – Breast Cancer



### Efti: AIPAC (Phase IIb) design

#### AIPAC: Active Immunotherapy PAC litaxel in HER2<sup>-/</sup> HR<sup>+</sup> metastatic breast cancer (MBC)



#### Hypothesis-Generating Study

Primary endpoint<sup>(\*)</sup> (presented Mar. 2020) included:

• Assessment of Progression-Free Survival (PFS)

Secondary endpoints<sup>(\*)</sup> (presented Dec. 2020) included:

- Overall Survival (OS)
- Safety and tolerability
- Overall Response Rate (ORR) and other efficacy parameters
- Biomarker and Immune Monitoring



#### Fact sheet

- $\checkmark$  Conducted in 7 EU countries
- $\checkmark$  Local and blinded independent central read
- $\checkmark$  Last Patient In enrolled Jun. 2019
- ✓ Primary analysis PFS (immature OS) Mar. 2020
- ✓ Follow-up 1 analysis OS Sep. 2020 (SABCS Dec. 2020) – ~60% OS events
- $\checkmark$  Final OS analysis at SITC 2021

#### Notes:

2 \* No hypothesis testing

ORR – overall response rate, DCR – disease control rate, PFS – progression free survival, OS – overall survival, QoL – Quality of life

## **AIPAC Phase IIb Clinical Results**



#### Well balanced treatment groups.

- Difficult to treat patient population:
  - Very late stage disease: 92% with visceral disease and 69% with elevated LDH
  - Heavily pre-treated subjects: 84% endocrine resistant; 44% received prior CDK 4/6; median of 2 prior systemic anticancer regimens.
  - HR+/HER2<sup>-</sup> tumor is traditionally <u>not</u> considered immunogenic.
- 227 patients were randomized to efti (N=114) or to placebo (N=113) between January 2017-July 2019. All except one patient received at least 1 dose of study medication and were included in the full analysis and safety populations.

	Efti + Paclitaxel N=114	Placebo + Paclitaxel N=112	Overall N=226
Baseline characteristics, n (%)			
Age, median (range), years <65 years	58 (24-87) 76 (66.7)	61 (35-79) 71 (63.4)	60 (24-87) 147 (65.1)
Body mass index, median (range)	24.7 (18.1-48.1)	24.9 (15.4-44.5)	24.7 (15.4-48.1)
ECOG 0	69 (60.5)	70 (62.5)	139 (61.5)
Visceral disease	103 (90.4)	104 (92.9)	207 (91.6)
Luminal A / B / Other¶, %	34.1/48.8/17.1	36.7 / 49.4 / 13.8	35.5/49.1/15.4
Monocytes < 0.25/nl	25 (21.9)	22 (19.8)	47 (20.9)
Elevated (>250 U/L) LDH	74 (65.5)	81 (73.0)	155 (69.2)
Prior therapy, n (%)			
Prior surgery Prior radiotherapy Prior systemic therapy Prior adjuvant therapy Prior therapy for metastatic disease	92 (80.7) 87 (76.3) 106 (93.0) 85 (74.6) 78 (68.4)	94 (83.9) 84 (77.7) 108 (96.4) 81 (72.3) 80 (71.4)	186 (82.3) 174 (77.0) 214 (94.7) 166 (73.5) 158 (69.9)
Prior taxanes (adjuvant) Prior CDK4/6 Prior endocrine therapy <i>Endocrine resistant</i> <sup>A</sup>	51 (44.7) 50 (44.6) 103 (90.4) <i>85 (82.5)</i>	43 (38.4) 50 (43.9) 104 (92.9) <i>89 (85.6)</i>	94 (41.6) 100 (44.2) 207 (91.6) <i>174 (84.1)</i>

Central assessment performed on available and evaluable primary or metastatic tissues (n=169). Classified using PgR and Ki67 index

according to St Gallen International Expert Consensus guidelines

<sup>a</sup> Defined according to ESMO Internal Consensus Guidelines (Advanced Breast Cancer 4)<sup>2</sup>. 1 Goldhirsch A Winer EP Coates AS et al. 2013;24(9):2206–2223. doi:10.1093/annonc/mdt30

## **AIPAC Phase IIb Clinical Results**



### **Outstanding Safety Profile**



Summary of treatment-emergent adverse events (TEAEs) ¶	Efti + Paclitaxel N=114, n (%)	Placebo + Paclitaxel N=112, n (%)
≥1 TEAE	113 (99.1)	112 (100)
≥1 TEAE leading to death	2 (1.8)	3 (2.7)
≥1 TEAE leading to efti/placebo discontinuation	6 (5.3)	7 (6.3)
≥1 Grade ≥3 TEAE	78 (68.4)	73 (65.2)

- No fatal TEAE related to efti
- 3 pts discontinued due to hypersenstivity reactions developing after efti injections and 4 pts due to paclitaxel-induced hypersensitivity, respectively
- Most common efti related adverse event was any kind of local injection site reaction up to grade 3 reported in 75 (65.8%) pts in the efti arm

### **Overall Unselected Population\***

Improving OS with better QoL



- Increase in OS: +2.9 months from median of 17.5 (95% CI: 12.9-21.9) in placebo to 20.4 (95% CI: 14.3 -25.1) in the efti group.
- Post-study treatment similar: 86 % (efti) vs. 90 %(placebo); majority received chemotherapy 70.2% (efti) vs. 76.8% (placebo)



Global Health Status / QoL QLQC30-B23



- Preserving QoL in the efti arm, while significant deterioration of QoL (QLQ-C30-B23) observed in the placebo group at 6 months.
- Note: Paclitaxel treatment intensity was similar between groups

## **AIPAC Phase IIb Clinical Results**

Immune Monitoring on Fresh Blood (up to 70 patients)





## **Prespecified Subgroups\***

**Exploratory Analysis** 



Exploratory multivariate analyses → Prior CDK 4/6 treatment is an independent poor prognostic factor with a 37% increase in risk for death.

- Prior CDK 4/6 has a negative impact on OS in placebo group (median reduced from 20.4 to 14.9 months), but <u>not</u> in the efti group (median OS 21.9 vs. 20.2 months).
- CDK4/6 treatment are now standard, and most patients will have received it  $\rightarrow$  favorable for efti.



- Prespecified (prior to unblinding) exploratory univariate analysis showed that younger patients (<65 years), those with low baseline monocytes (<0.25/nL) or breast cancer subtype luminal B had significant and clinical meaningful improvement in median OS compared to placebo.</li>
- In a post-hoc multivariate analysis "no prior taxanes" were found to be an additional predictive marker

## **Prespecified Subgroup <65 years\***

Clinically meaningful improvement for OS, PFS and ORR





- Prespecified subgroup showed significant (p=0.017, one-sided) improvement in OS with a HR of 0.66 (95% CI: 0.45-0.97).
- ESMO scale of magnitude<sup>\*\*</sup> = level 4/5 (would be very supportive for reimbursement).

mOS		mPFS	ORR	
Benefit	+7.5 months	+2.0 months	+8%	
	HR 0.66 (p=0.02)	HR 0.77 (p=0.07)	(46% vs. 38%)	



- HR point estimates for different age groups.
- Age had an almost **linear effect** on HR for OS.

#### Notes:

- \* These results were presented at SITC 2021. Database cut-off date was May 14, 2021
- \*\* Company assessment. ESMO-MCBS used for reimbursement in Europe: https://www.esmo.org/guidelines/esmo-mcbs/scale-evaluation-forms-v1.0-v1.1

## **Prespecified Subgroup Low Monocytes\***

Clinically meaningful improvement for all efficacy parameters



#### **+19.6 months median OS** (HR 0.44; p=0.008)



	Efti + Paclitaxel	Placebo + Paclitaxel	Benefit
mOS	32.5 months	12.9 months	+19.6 months
			HR 0.44 (p=0.008)
mPES	75 months	5.2 months	+2.3 months
	7.0 11011113	5.2 months	HR 0.40 (p=0.006)
ORR	44%	32%	+12%

Clinically meaningful, absolute and relative improvement for all efficacy parameters.

- Statistical significance for PFS and OS.
- ESMO scale of magnitude<sup>\*\*</sup> = level 4/5 (would be very supportive for reimbursement).

Notes:

\* Database cut-off date was May 14, 2021

\*\* Company assessment. ESMO-MCBS used for reimbursement in Europe: https://www.esmo.org/guidelines/esmo-mcbs/scale-evaluation-forms-v1.0-v1.1

## **Prespecified Subgroup Luminal B\***

### **Overall Survival**



#### **+4.2 months median OS** (HR 0.67, p=0.049)



	Efti + Paclitaxel	Placebo + Paclitaxel	Benefit
mOS	16.8 months	12.6 months	+4.2 months
	10.0 months	12.6 months	HR 0.67 (p=0.049)
mDES	7.2 months	5.6 months	+1.6 months
IIIFF3	7.2 11011115	5.6 months	HR 0.69 (p=0.158)
ORR	43%	33%	+10%

- Clinically meaningful improvement.
- Statistical significance for OS.
- ESMO scale of magnitude<sup>\*\*</sup> = = level 3/5 (would be supportive for reimbursement).

\* Database cut-off date was May 14, 2021

\*\* Company assessment. ESMO-MCBS used for reimbursement in Europe: https://www.esmo.org/guidelines/esmo-mcbs/scale-evaluation-forms-v1.0-v1.1

## **Prespecified Subgroup No Prior Taxane\***

### **Overall Survival**



#### **+4.8 months median OS** (HR 0.74, p=0.076)



	Efti + Paclitaxel	Placebo + Paclitaxel	Benefit
mOS	22.3 months	17.5 months	<b>+4.8 months</b> HR 0.74 (p=0.08)
mPFS	7.4 months	7.2 months	<b>+0.2 months</b> HR 0.87 (p=0.229)

- Clinically meaningful improvement.
- Important in multivariate predictive model
- ESMO scale of magnitude<sup>\*\*</sup> = = level 3/5 (would be supportive for reimbursement).

## AIPAC-003: Phase III in MBC

General Concept (subject to further regulatory interactions)

## immutep

#### 1) Primary Endpoint: Overall Survival

- Preferred endpoint for Phase III and approval by regulatory agencies in such a patient population.
- Seems to be a better fit for active immunotherapies such as efti.

#### 2) Treatment

• Paclitaxel will be allowed to be continued beyond 6 cycles to accommodate for EU & US standards and as a lesson from AIPAC.

#### 3) Patient Population on Target

• Immutep will define the patient population and statistical read-out in a way to increase likelihood of success.

#### 4) Statistical Design

• Will be robust and pre-agreed with regulatory agencies to ensure success later during MAA/BLA procedures.



## Efti + anti-PD-1 Combination TACTI-002 trial

Update from SITC, 10-14 November 2021

## TACTI-002 (Phase II)

**Design & Status** 



#### TACTI-002: Two ACTive Immunotherapeutics in NSCLC and HNSCC



## TACTI-002 Results<sup>(1)</sup>

2<sup>nd</sup> line HNSCC (Part C)



Best overall response, iRECIST	Investigator assessment N (%)		CPS score	All comer (N=37)	≥1 (N=27)	≥20 (n=14)
Complete Response	5 (13.5)		ORR (iRECIST)			
Partial Response 6 (16.2)			ORR, %	29.7	40.7	64.3
Stable Disease	3 (8.1)		Overall survival			
Progression	17 (45.9)		No. of events	23	17	7
Not evaluable <sup>¶</sup>	6 (16.2)	• ORR (IRECIST) IN	6-month OS, %	54.7	55.5	71.4
Disease Control Rate	14 (37.8)	ITT of 29.7% and	12-month OS, %	48.4	48.2	64.3
Overall Response Rate	11 (29.7)	35.5% evaluable pts	Progression-free survival			
[95% CI]	[15.9 – 47.0]		No. of events	30	17	8
Overall Response Rate – Evaluable pts*	11 (35.5)	Responses are deep	3-month PFS, %	37.8	48.2	64.3
[95% CI]	[19.2 – 54.6]	with $5(12.5\%)$ CPc	6-month PFS, %	32.4	40.7	57.1
100 80 40 40 40 40 40 40 40 4	72 84 96 108 <i>multiple still under th</i>	<ul> <li>and long lasting</li> <li>ORR of 64.3% (40.7) in pts with CPS ≥ 20 (≥1)</li> <li>OS rates at 12 months for all PD-L1 groups in the range of 50% or above</li> </ul>	100 75- 50- 25- 25- 25- 25- 25- 25- 25- 25- 25- 25	28 M 0 0 14 M 0 0 0 0 0 000 M 0 000000000000000000	15 84 11 10 2 2 70 70	Best response : iUPD/iCPD iSD iPR iCR 3 8 2 8 9 9 7 7 PD-L CPS

<sup>(1)</sup> Database cut-off date was August 4, 2021 (efficacy)

25 Graphs represent all patients with at least one post baseline assessment. One patient has no official RECIST assessment as this was done < 6 weeks and this does not qualify according to RECIST. Per local investigator assessment.</p>

## TACTI-002 Results<sup>(1)</sup>

### 2<sup>nd</sup> line HNSCC (Part C), DoR and Benchmarking



35.5%#

Not reached with

min. 9+ months at

cut-off

**Benchmarking against Pembro Duration of Response (DoR)** for confirmed responders (N=10) Pembro mono Pembro + Efti 64,3% 100 • ORR clearly higher (≥ factor 2) in all PD-L1 subgroups <sup>D</sup>robability of Survival and overall 40.7% 50 PFS and OS rates at 6 and 12 29,7% months respectively are 21,9% higher in all PD-L1 17,3% 14,6% subgroups and overall with efti combination 0 20 30 0 10 Overall  $CPS \ge 1$ CPS ≥ 20 Time (months) PD-L1 (CPS) Pembro alone\*\* **TACTI-002** Median duration of response ≥ 20 21.9% 64.3%\* ORR not yet reached 17.3% (2% CR) 40.7%\* (20.8% CR\*)  $\geq 1$ (%)

**mDoR** 

(mths)

Overall pop.

Overall pop.

14.6%

18.4

all ongoing responses lasting 9+ months

KN040 (EEW Cohen et al., The Lancet 2018)

## 1<sup>st</sup> line HNSCC







#### Notes:

(1) B Burtness et al.: Pembrolizumab alone or with chemotherapy versus cetuximab with chemotherapy for recurrent or metastatic squamous cell carcinoma of the head and neck (KEYNOTE-048): a randomised, open-label, phase 3 study. *The Lancet* 2019, https://doi.org/10.1016/S0140-6736(19)32591-7

## TACTI-003 Trial in 1<sup>st</sup> line HNSCC



Current Design + Status





## **Summary and Outlook**

## **Near-Term Milestones**

Advancing Registration Relevant Trials





Validation of LAG-3/MHC-II interaction by RELATIVITY-047 results

0 N.B. The actual timing of future data readouts may differ from expected timing shown above. These dates are provided on a calendar year basis. A tick denotes that the item has been completed.



Global leadership position in LAG-3 with 4 LAG-3 related product candidates in immuno-oncology and autoimmune disease Multiple active clinical trials (including partnered candidates), with further significant data read-outs in 2022

Compelling clinical data from efti & strong rationale to combine with multiple FDA approved treatments Established collaborations with e.g. Merck (MSD), Pfizer, Merck KGaA, Novartis and GSK

## Thank you!