Viralytics

Developers of Oncolytic Immunotherapies

Oncolytic Immunotherapies

for Difficult-to-Treat Cancers

Annual General Meeting

November 22, 2017

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Investment highlights

- **Lead drug CAVATAK®** harnesses the common cold virus to infect and kill cancer cells
- **Market-leading body of clinical evidence** across multiple cancer indications
- **Global opportunity being unlocked** via combination with leading in-market immunotherapies (KEYTRUDA® and YERVOY®) creating a clear path to market in area of high unmet need
- **Excellent preliminary results from three ongoing clinical trials:** CAPRA, MITCI and KEYNOTE-200
- **Globally recognised by** healthcare investors, big-pharma and scientific bodies
- **Value inflection potential from near-term milestones** in gold-standard trials for melanoma, lung and bladder cancers

Viralytics has multiple pathways to commercialisation of CAVATAK® across a range of target areas

Viralytics has demonstrated potential of CAVATAK®	Significant global opportunity, across high value target areas	Multiple high-potential value creation opportunities
✓ 2 studies completed	✓ Melanoma	✓ Licensing
✓ 3 studies in progress	✓ Bladder cancer	✓ Partnering
✓ 4 studies in planning	✓ Lung cancer	✓ Sale of business
	✓ Colorectal cancer	
	✓ Head & neck cancer	

Broad set of value-creation options

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Strong Financial Foundation

Extensive support from leading institutional healthcare investors

Key Statistics	
Ticker Code	ASX: VLA OTCQX: VRACY
Share Price (as at 21-Nov-17)	A$0.72
Market Capitalisation (as at 21-Nov-17)	A$173M
Trading Range (12-month)	A$0.72 – 1.34
Institutional investors	57%
Cash position (as at 30-Sep-17)[1]	A$27.7M
Net operating cash burn (2016/2017)	A$11.4M

Company	Location	Comments
BVF PARTNERS L.P.		Private investment firm specialising in public biotechnology investments
Cormorant Asset Management		Employee-owned hedge fund sponsor which invests in healthcare companies
CAPITAL GROUP®		Financial services company with over $1.5tn in assets under management
OrbiMed Healthcare Fund Management		Healthcare-dedicated investment firm which manages over $14bn
ABINGWORTH		Independent, trans-atlantic bio-science investment firm
QUEST		Australian equities investment manager
jcp INVESTMENT PARTNERS combining the art and science of investing		Australian equities investment manager

1. In addition $6.4M in cash forecast to be received from the Federal Government in Q4 2107

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Cancer Immunotherapy: Emerging, High-Value Therapeutic Approach

- **Rapidly advancing field**, transforming cancer therapy
- **Big pharma racing to find complementary agents**: Merck, BMS, Roche, AstraZeneca, Pfizer all active
- **Multiple recent transactions and collaborations**
- Value of oncolytic viruses highlighted by Amgen acquisition of Biovex (TVec™) – US
  - $425 million cash upfront; US $575 million future milestone payments
- Immuno-oncology **market size forecast at US $42 billion per annum**[1]

*"There's a growing sense in the oncology community that immune manipulation may turn out to be an **even more important intervention than chemotherapy** was — maybe the **most important ever**"*

Roger Perlmutter, President, Research – Merck[2]

1. Credit Suisse November 2015
2. Financial Times 29 May 2015

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CAVATAK®
Lead Product - Many Indications Under Study

Viralytics is using the common cold virus to KILL CANCER CELLS

- **Proprietary formulation of the cold virus** Coxsackievirus A 21; targets ICAM-1 receptor overexpressed on cancer cells
- **Kills local and metastatic cells** by both **oncolytic *and* immunotherapeutic activity**

Broad application across COMMON CANCER types

- **Potential application across a range of cancer types, including:**

LUNG	COLORECTAL	BLADDER	MELANOMA
2nd most common cancer	*4th most common cancer*	*5th most common cancer*	*6th most common cancer*

Can be used STANDALONE or in COMBINATION

- **When used standalone,** CAVATAK has exceeded expectations, with a strong response rate in a phase II trial
- Demonstrated potential in clinical trials to **enhance activity of leading cancer immunotherapies**, potentially **unlocking a global opportunity**

Source: USA National Cancer Institute, 2016

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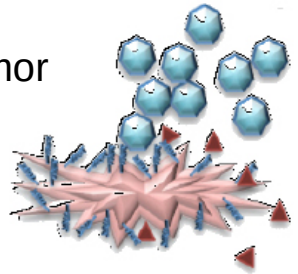
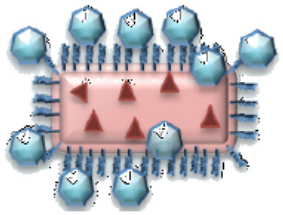
CAVATAK®
Local and Systemic Activity

Administration
- *Intravenous*
- *Intratumoral*
- *Intravesical*

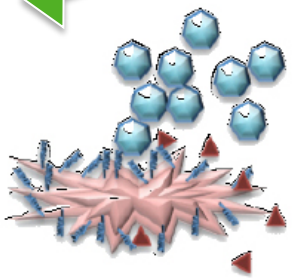
CAVATAK®
released from tumor
(repeats)

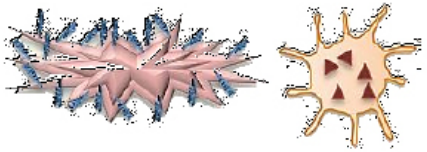


activates host
anti-tumor
immune response

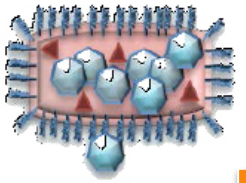


1. **Oncolytic lysis** and death of cancer cell





CAVATAK ®
binds externally to tumor
cells



infects

2. Viral induced tumor **inflammation**

replicates and
destroys

3. Stimulation of **host-immune** response against cancer cells

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CAVATAK® may enhance leading oncolytic immunotherapy drugs, unlocking a global opportunity

- Merck and Bristol-Myers Squibb (BMS) are the **global leaders** in the immuno-oncology market
- CAVATAK® is engaged in **clinical studies with KEYTRUDA® and YERVOY®**
- Opportunity to generate massive sales alongside existing, **multi-billion dollar benchmark treatments**
- **Merck has partnered with Viralytics** and is collaborating on the KEYNOTE-200 clinical trial

Company	Product in market
MERCK	KEYTRUDA® (pembrolizumab) Injection 100 mg
▪ Global pharmaceutical company ▪ Market cap of ~US$150bn	▪ Leading global oncolytic immunotherapy drug ▪ **US$1.4bn** in sales in 2016
Bristol-Myers Squibb	YERVOY® (ipilimumab)
▪ Global pharmaceutical company ▪ Market cap of ~US$100bn	▪ YERVOY® approved for treatment of Melanoma ▪ **US$1.1bn** in sales in 2016

Other potential partners with approved PD1s include:

Genentech — A Member of the Roche Group; Pfizer; AstraZeneca; MERCK SERONO

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Overview of CATAVAK® clinical programs – Targeting Major Indications

CAVATAK standalone
Studies completed

- **Two studies completed:**
  - CALM (Phase II)
  - CANON (Phase I)
- **Target areas include:**
  - Melanoma
  - Bladder cancer
- **Encouraging signs of efficacy & shrinkage of uninjected tumours** from CALM, strong signal from CANON

Excellent response rate demonstrated in CALM study

CAVATAK in combination
Studies underway

- **Three studies underway:**
  - CAPRA (Phase Ib)
  - MITCI (Phase Ib)
  - KEYNOTE-200(Phase Ib)
- **Target areas include:**
  - Melanoma
  - Lung cancer
  - Bladder cancer
- **Excellent preliminary efficacy results**

Potential to enhance in-market therapies

Prime focus

CAVATAK in combination
Studies planned

- **Four phase Ib studies planned:**
  - ITCAHN
  - CLEVER
  - PaCKMAN
  - Colorectal study
- **Target areas include:**
  - Head and neck cancer
  - Melanoma
  - Colorectal cancer

Continually pursuing new target areas

Pre-clinical pipeline

- **Preclinical study completed** using a triple combination of CAVATAK, Anti-PD-1 and IDO Inhibitor
- **Potential in broad range of tumour types**
- **Demonstrated significant reduction in overall mouse tumour burden**

Growing body of scientific evidence

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Trial update: CAPRA Phase 1b

TRIAL OVERVIEW

- CAVATAK (Intralesional) and KEYTRUDA® combination
- Plan to enrol 50 late stage melanoma patients
- Lead investigator: Dr Ann Silk MD, Rutgers Cancer Institute of New Jersey

PROGRESS AND PRELIMINARY RESULTS

- 26 of 50 patients enrolled
- Best Overall Response Rate of 61% (14/23 pts) and DCR of 78% (18/23 pts)
- Tumour responses are ongoing at 12 months in 6 patients
- 4 patients have demonstrated complete responses in the target lesions
- BORR of 64% (7/11 pts) in patients with late stage IV M1c disease
- Reductions in a number of injected and non-injected visceral/non-visceral lesions
- Only two Grade 3 pembrolizumab-related adverse events in 26 enrolled patients
- Preliminary but encouraging response rates compared to KEYTRUDA alone (33%*) or other KEYTRUDA combination studies

*Robert et al., N Engl J Med 2015; 372:2521-2532

Note: Summary information only – see Viralytics website for further details

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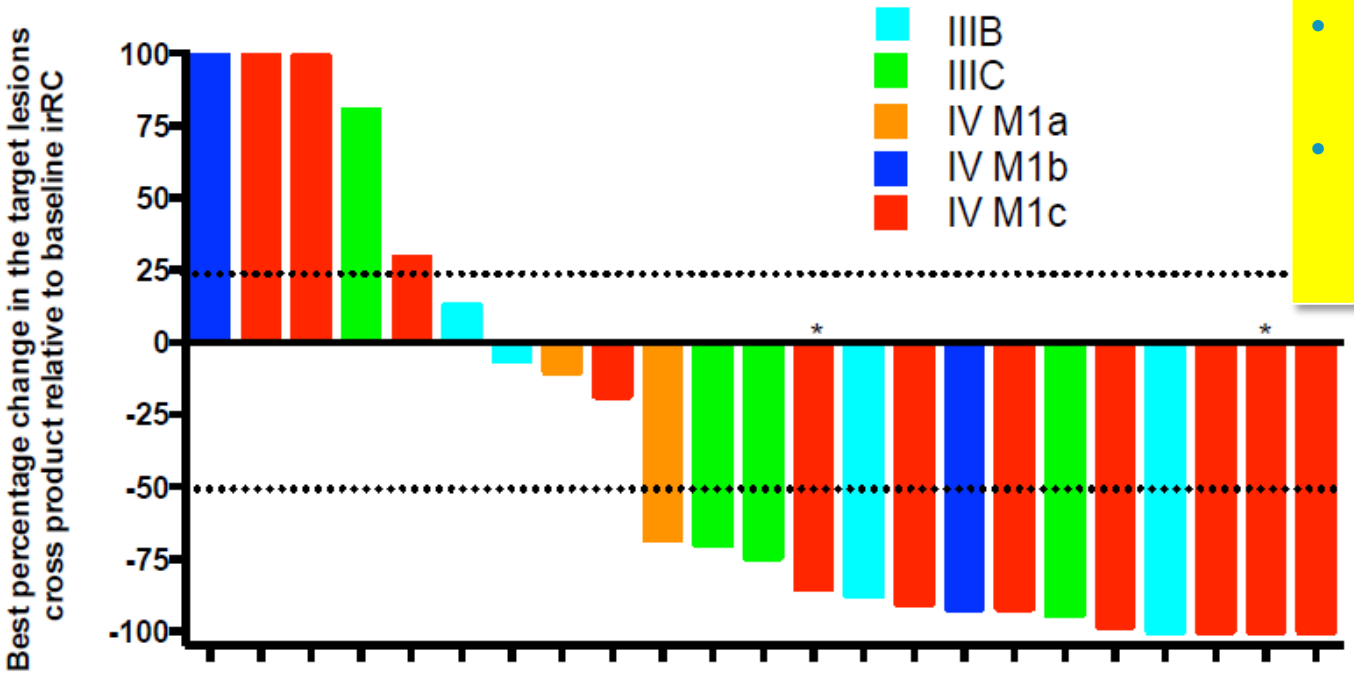
Trial update: CAPRA Phase 1b
Best Overall Response

Impressive Activity in Patients with Advanced Melanoma

Best percentage change in target lesions irRC criteria
(Preliminary data, investigator assessed)



* Prior ipilimumab treatment

- Overall Response Rate of 61%
- Preliminary but encouraging response rates, versus KEYTRUDA® alone (33%±)

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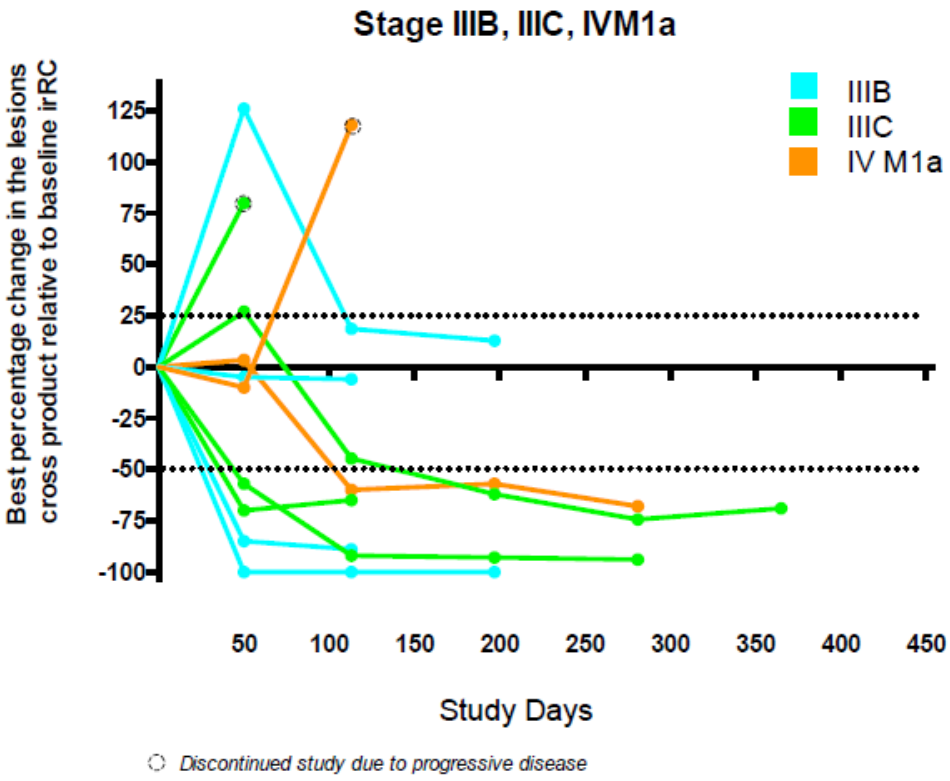
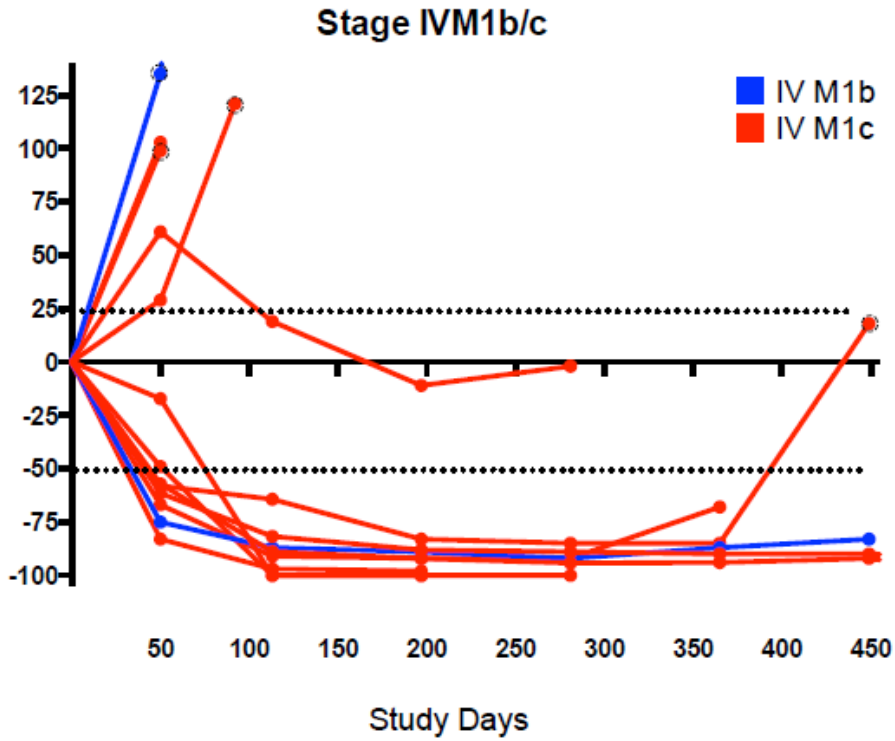
Trial update: CAPRA Phase 1b
Changes in Tumour Burden by Disease Stage

Promising durability in responding patients





○ *Discontinued study due to progressive disease*

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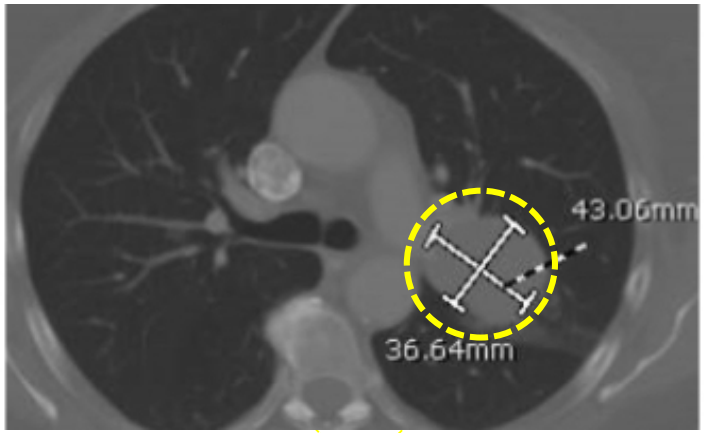
Trial update: CAPRA Phase 1b

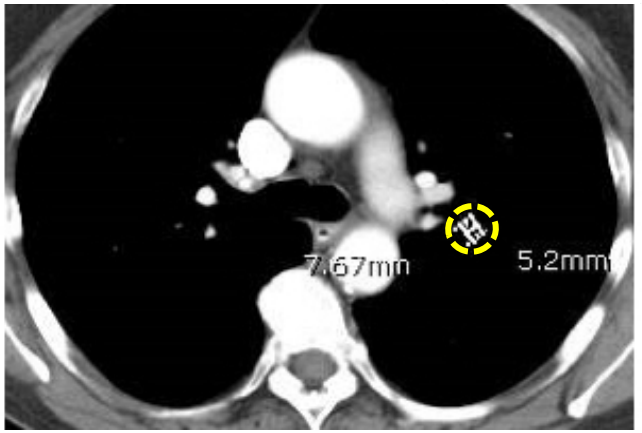
Pt1105003
Stage IVM1c
Partial response

Non-injected lung lesion upper left lobe

Baseline



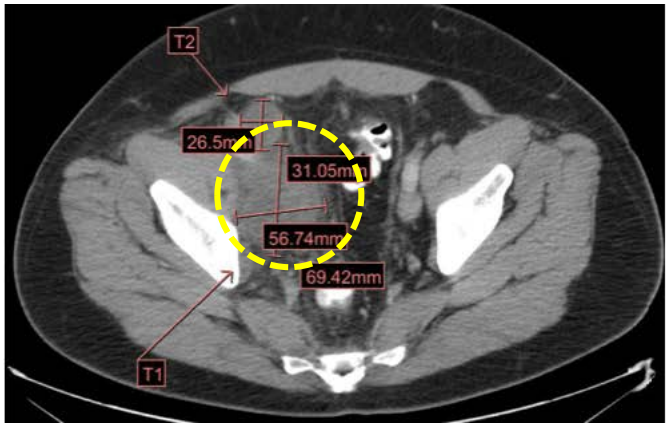
Day 197



Pt1106023
Stage IIIC
Partial response

Non-injected lymph node lesion Right internal Obturator region

Baseline



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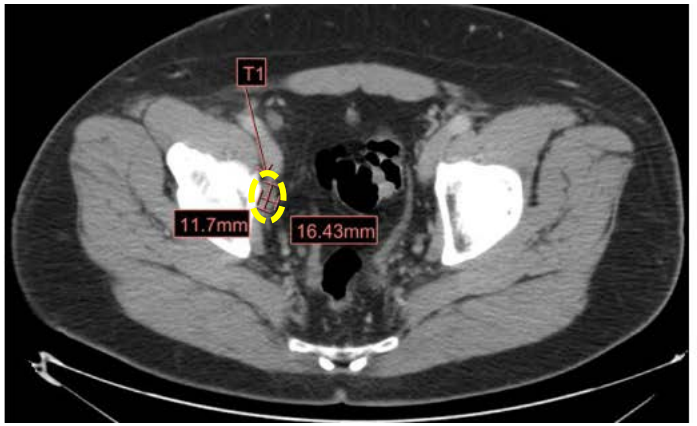

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Trial update: MITCI Phase 1b

TRIAL OVERVIEW

- CAVATAK (Intralesional) and YERVOY® combination
- Focus on an unmet need in patients who have failed prior anti-PD1 therapy
- Plan to enrol 60 melanoma patients
- Lead investigator: Dr Brendan Curti MD, Providence Cancer Center, Portland

PROGRESS AND PRELIMINARY RESULTS

- 38 of 60 patients enrolled
- Safety:
  - No dose-limiting toxicities reported
  - Six Grade 3+ adverse events in 4 patients (all YERVOY-related: fatigue, elevated liver enzymes [2], pruritis, dehydration, hyperglycaemia) with an overall study Gr 3+ treatment-related AE rate of 11% (4/38 pts)
- Efficacy:
  - 57% (8/14) Best overall response rate in patients naïve to checkpoint therapy
  - 29% (2/7) Best overall response rate in patients administered prior single line anti-PD1 therapy
  - Preliminary but encouraging response rates, versus YERVOY alone (11%*) or other YERVOY combination studies

Potential to lead to a pivotal study

*YERVOY® FDA approved label

Note: Summary information only – see Viralytics website for further details

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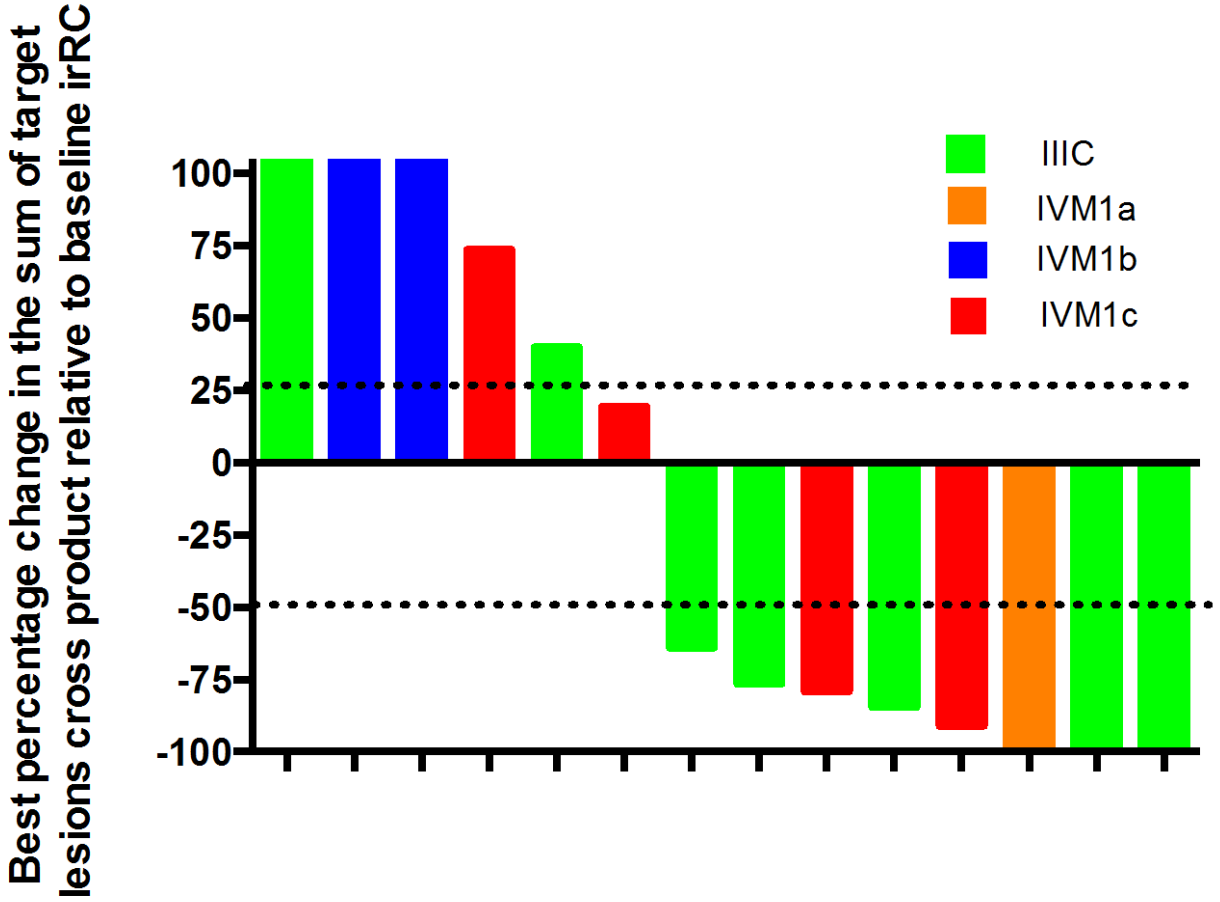
Trial update: MITCI Phase 1b
Best Percentage Change in Target Lesions

Checkpoint therapy naïve (n=14)



- Overall Response Rate of 57%
- Preliminary but encouraging response rates, versus YERVOY® alone (11%±)

* irRC criteria: Preliminary data, investigator assessed
+ First response assessment at Day 106
± YERVOY® FDA approved label

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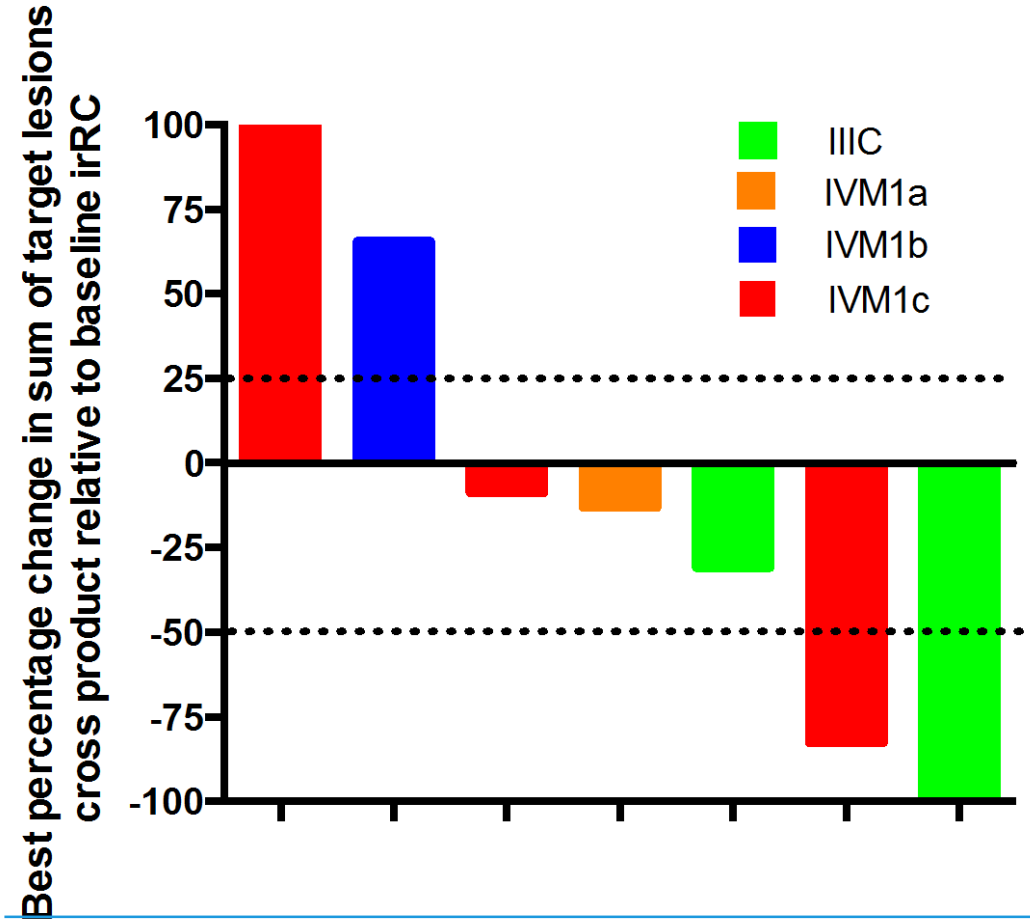
Trial update: MITCI Phase 1b
Best Percentage Change in Target Lesions

Prior single line anti-PD-1 therapy (n=7)



- Promising initial data in a heavily pretreated population
- Overall Response Rate of 29%
- Preliminary but encouraging response rates, versus YERVOY® alone in this setting (10-13%)

*, irRC criteria: Preliminary data, investigator assessed
+, First response assessment at Day 106

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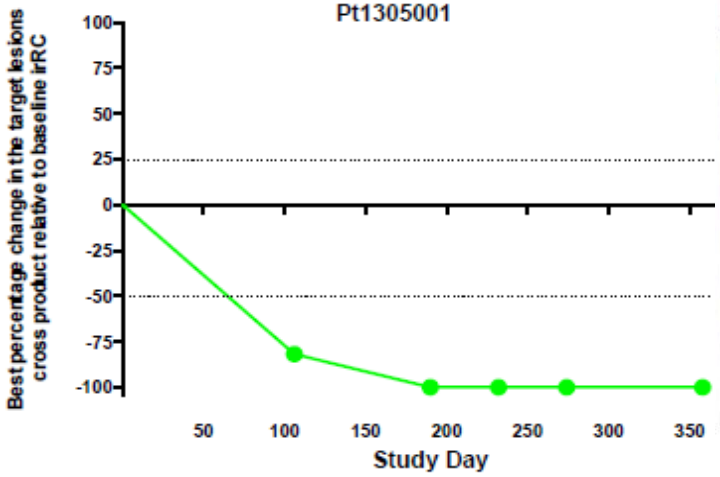
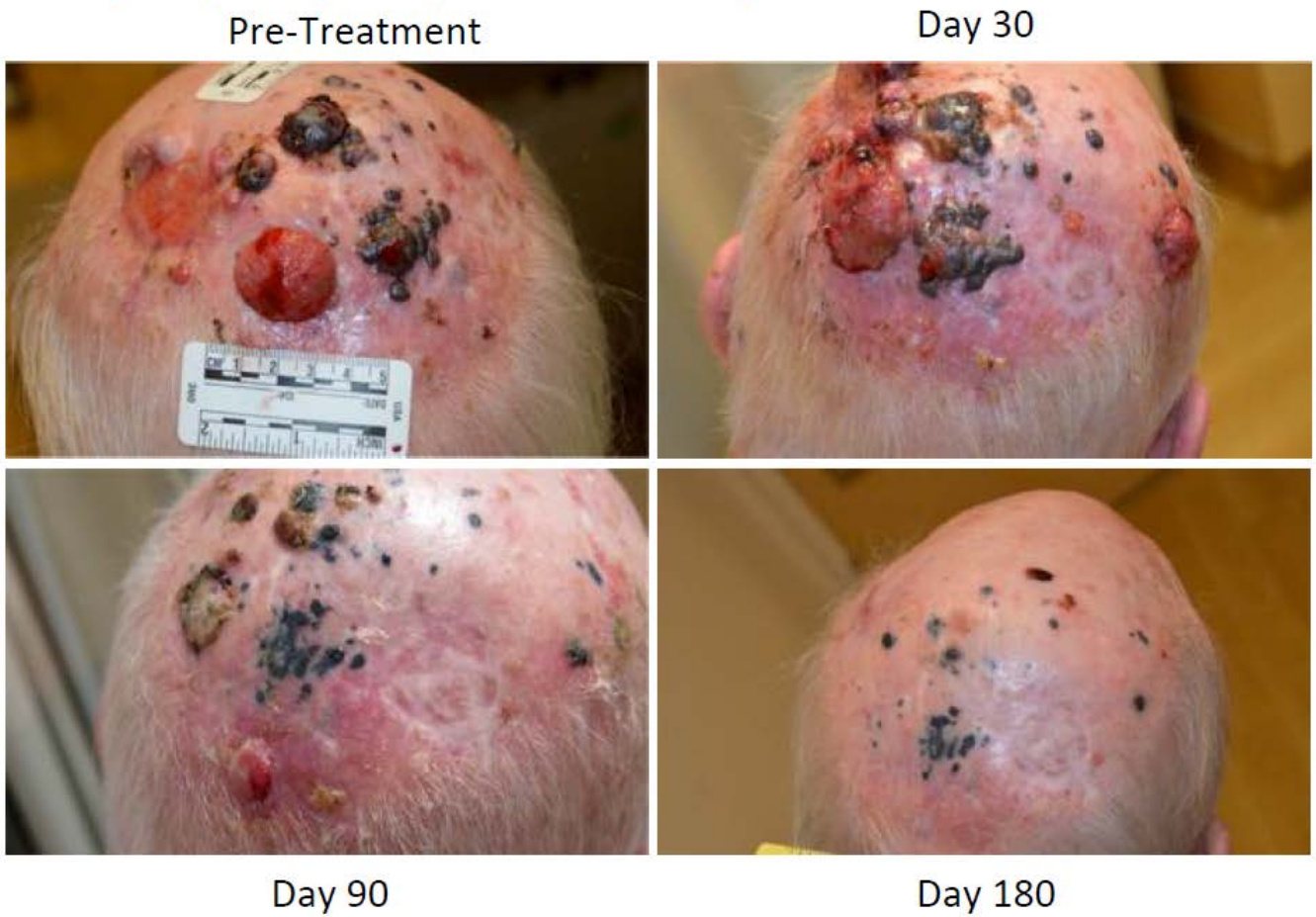
Trial update: MITCI Phase 1b
Complete Response Stage IIIc patient

Prior cancer treatments

1. BCG (PD)
2. Nivolumab (PD)





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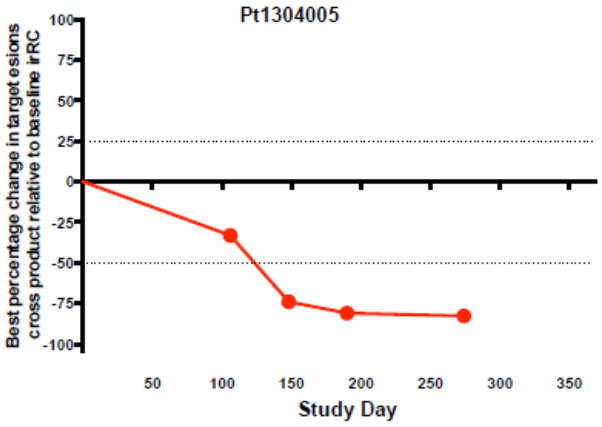
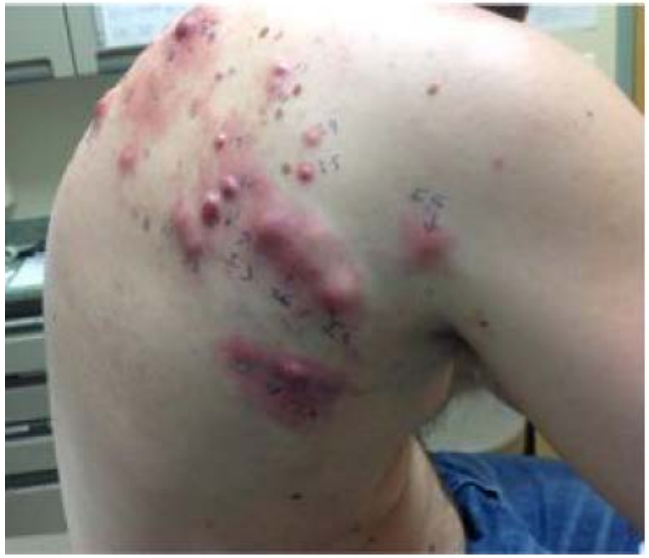
Trial update: MITCI Phase 1b
Partial Response Stage IVM1c patient

Prior cancer treatments

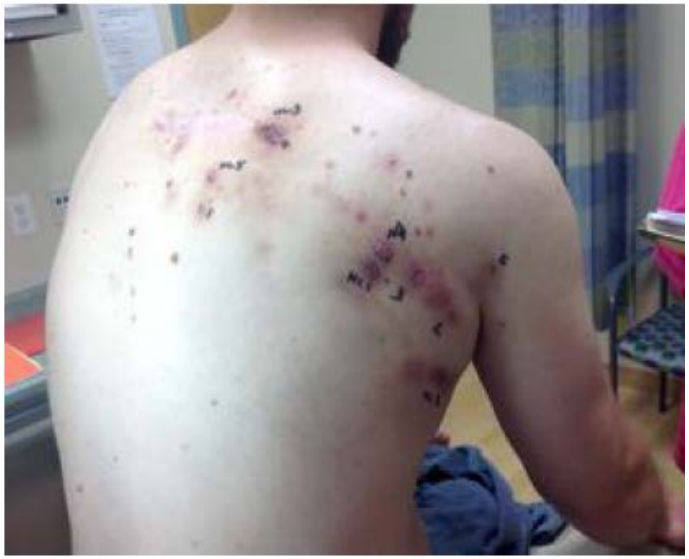
1. Ipilimumab/Nivolumab (PR)
2. Nivolumab (PD)
3. Surgery (NE)



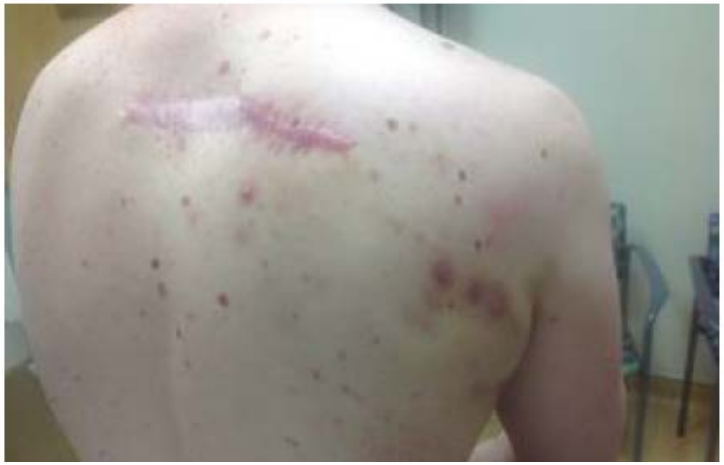
Pre-treatment



Day 127



Day 310



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Trial update: KEYNOTE-200 Phase 1b

TRIAL OVERVIEW

- Trial conducted in collaboration with Merck (MSD)
- Combination of intravenous CAVATAK / KEYTRUDA in late-stage cancer patients
- 17 sites in the US, Australia and UK
- Major tumour indications:
  - Non-small cell lung cancer
  - Metastatic bladder cancer
- Primary objective: Safety and tolerability
- Secondary objective: Efficacy

PROGRESS AND PRELIMINARY RESULTS

- Currently 64 subjects enrolled at the top CAVATAK dose level used in the expansion phase, total of ~90 patients targeted
- Dose escalation complete with no dose limiting toxicity for the combination of CAVATAK and KEYTRUDA in heavily pre-treated patient population

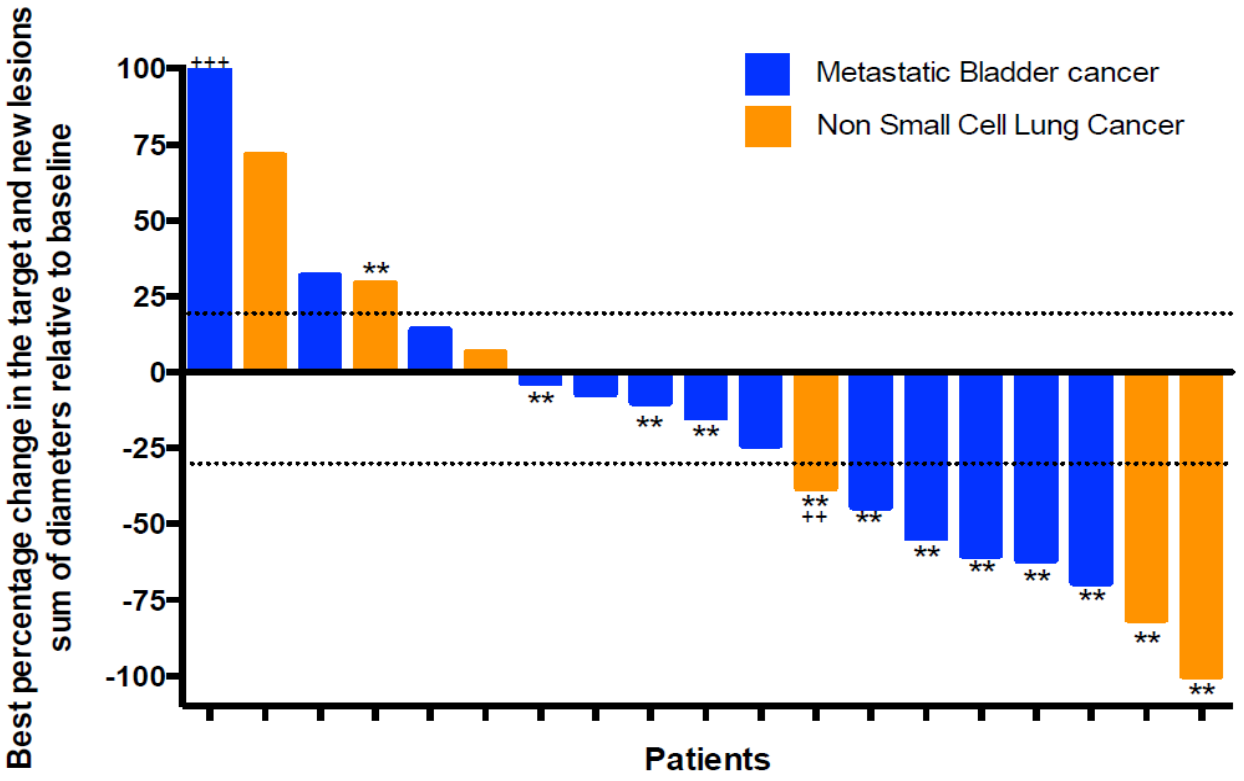
Clinical Updates in Q2 2018

Note: Summary information only – see Viralytics website for further details

Trial update: KEYNOTE-200 Phase 1b

Preliminary First Investigator Assessment in Checkpoint Naïve Patients

Best percentage change in target lesions of checkpoint naïve patients + *



+, *Preliminary first investigator assessment of best percentage change in target and new lesions within the first 92 days of combination treatment in checkpoint naive patients, Data cutoff 8 November 2017;*
*, *Not evaluable due to early disease progression prior to first response assessment, 4 NSCLC pts + 5 Bladder cancer pts;*
**, *Patient currently on study;*
++, *Day 176 response assessment;*
+++, *Day 43 response assessment.*

Encouraging early data in lung and bladder cancer patients

Well tolerated with 11% (7 of 64) patients have displayed treatment related >grade 3 adverse events

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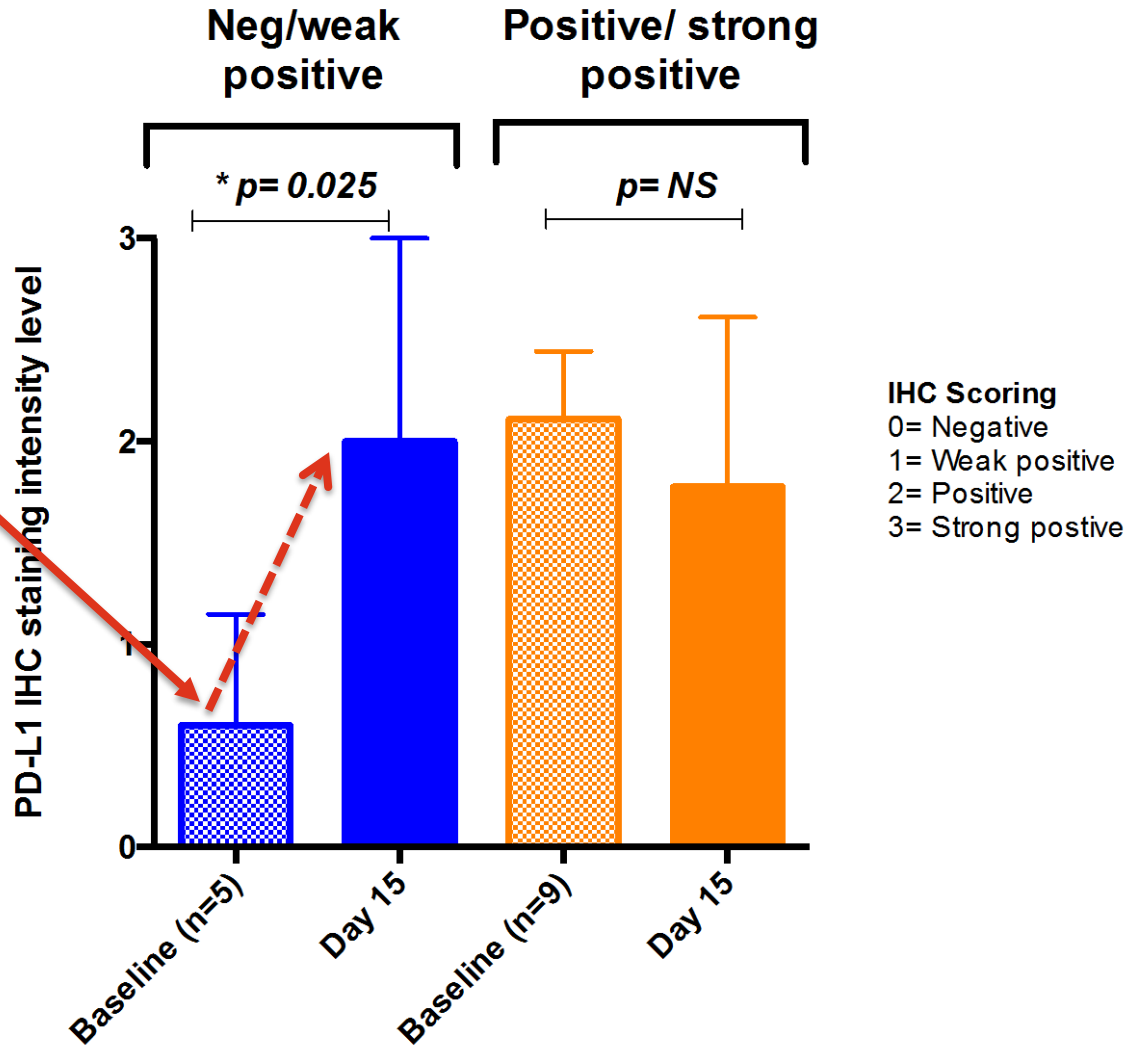
Trial update: KEYNOTE-200 Phase 1b

Preliminary PD-L1 Expression Levels on Paired Tumour Biopsies

Upregulation of PD-L1 in lung and bladder cancer patients with pre-existing low levels



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Recognition received with podium positions at pre-eminent American Cancer Conferences

The world's oldest and largest professional association related to cancer research

AACR
American Association for Cancer Research

Leading cancer research meeting, attended by oncology experts from around the world

ASCO®
American Society of Clinical Oncology

World's leading member driven organisation specifically dedicated to cancer immunotherapy

sitc
Society for Immunotherapy of Cancer

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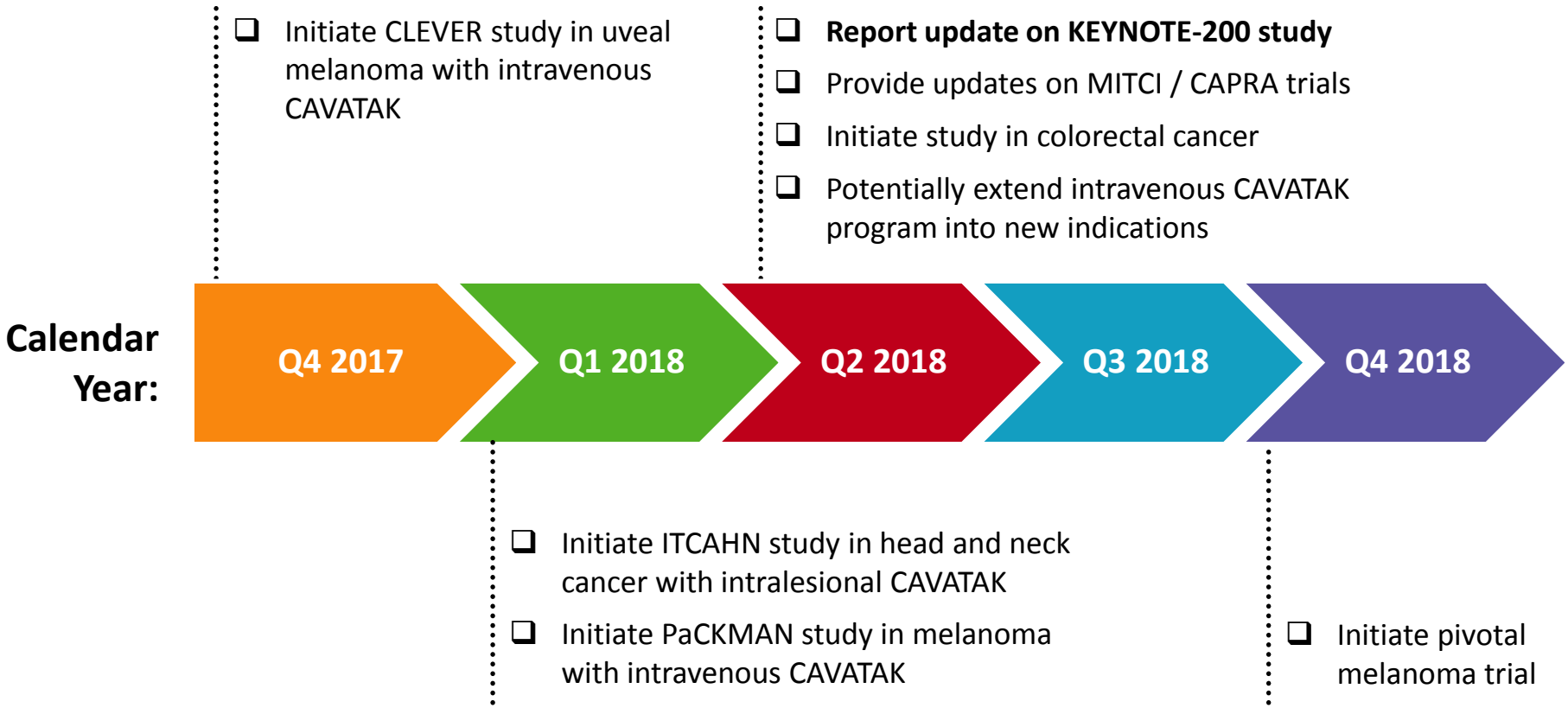
Demonstrated ability to manage and progress a comprehensive schedule of clinical trials

- ✓ Reported positive interim results CAPRA study
- ✓ Reported positive interim results MITCI study
- ✓ Identified potential path to market in melanoma in setting of high unmet need
- ✓ Sites initiated in US, Australia and UK with strong enrolment in KEYNOTE-200 study
- ✓ Pre-clinical work to identify further target indications
- ✓ Developed CAVATAK manufacture program
- ✓ Well advanced in preparations for clinical studies in new indications

Multiple near-term and medium-term value inflection milestones



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CATAVAK® trials overviews Completed / In Progress

	Program		Target	Phase	Progress	Highlights
CAVATAK standalone: Studies completed	**CALM**	Intratumoral CAVATAK in late stage melanoma	Melanoma	II	Complete	Efficacy exceeded expectations with overall response rate of 28%
	CANON	Intravesicular CAVATAK in non muscle invasive bladder cancer	Bladder cancer	I	Complete	CAVATAK was well tolerated with promising results underpinning strong potential in combination with checkpoints
CAVATAK in combination therapy: Studies underway	**CAPRA**	Intralesional CAVATAK and Pembrolizumab (KEYTRUDA®)	Melanoma	Ib	26 of 50 patients enrolled	**Well tolerated with encouraging initial efficacy data: 61% best overall response rate vs 33% KEYTRUDA alone**
	MITCI	Intra-tumoral CAVATAK and Ipilimumab (Yervoy®)	Melanoma	Ib	38 of 60 patients enrolled	**Well tolerated with encouraging initial efficacy data: 57% best overall response rate vs 11% YERVOY alone**
	KEY NOTE-200	CAVATAK and KEYTRUDA®	Lung and bladder cancer	Ib	64 of 90 patients enrolled	Part A (CAVATAK alone) completed successfully, Part B underway in collaboration with Merck; encouraging initial positive signals of activity

CATAVAK® trials overviews
In Planning

	Program		Target	Phase	Progress	Overview
CAVATAK in combination therapy: Studies planned	**ITCAHN**	Intralesional CAVATAK and KEYTRUDA®	Head and neck cancer	Ib	Planning	24 patient study targeting commencement in Q1 CY18
	CLEVER	Intravenous CAVATAK and YERVOY® for uveal melanoma	Melanoma	Ib	Planning	6-10 patient study targeting commencement in Q4 CY17
	PaCKMAN	Intravenous CAVATAK and Pembrolizumab (KEYTRUDA®)	Melanoma	Ib	Planning	15 patient study targeting commencement in Q1 CY18
	Colorectal Study	Intralesional CATAVAK and checkpoint inhibitor	Colorectal cancer	Ib	Planning	18-30 patient study targeting commencement in Q2 CY18
Pre-clinical pipeline	**Triple combination**	Triple combination of CAVATAK, Anti-PD-1 and IDO Inhibitor	Melanoma	Pre-clinical	Complete	Demonstrated significant reduction in overall mouse tumour burden

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CAVATAK ®
A Compelling Commercial Opportunity

CAVATAK® is highly active in key cancer types	▪ Used in combination therapy to enhance effect of leading in-market existing drugs ▪ Multiple target areas including melanoma, lung, metastatic bladder, non-muscle invasive bladder cancer, colorectal and head and neck cancer
Encouraging results from clinical trials to date	▪ KEYNOTE-200 – CAVATAK / KEYTRUDA combination in NSCLC and metastatic bladder recruiting strongly with early positive signal ▪ Preliminary results from MITCI (CAVATAK / YERVOY) and CAPRA (CAVATAK / KEYTRUDA) trials very encouraging and point to potential path to market in area of high unmet need ▪ CANON - Promising results in non-muscle invasive bladder cancer
Board and management focused on driving shareholder value	▪ Aggressive expansion of clinical program planned, with goal of driving partnering discussions and shareholder value ▪ Recent high value transactions in growing field of cancer immunotherapy indicate relevant interest from leading global pharma companies

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Developers of Oncolytic Immunotherapies

Thank You

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Managing Director

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