CORPORATE OVERVIEW

NASDAQ: VSTM

July 17, 2017

FORWARD-LOOKING STATEMENTS

This presentation and other matters discussed today, or answers that may be given today, include forward-looking statements about Verastem's strategy, future plans and prospects, including statements regarding the development and activity of Verastem's investigational product candidates, including duvelisib and defactinib, and Verastem's PI3K and FAK programs generally, the structure of our planned and pending clinical trials and the timeline and indications for clinical development, including reporting top-line data, and regulatory submissions, our rights to develop or commercialize our product candidates and our ability to finance contemplated development activities and fund operations for a specified period. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Each forward-looking statement is subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statement. Applicable risks and uncertainties include the risks that the preclinical testing of Verastem's product candidates and preliminary or interim data from clinical trials may not be predictive of the results or success of ongoing or later clinical trials; that data may not be available when we expect it to be, including for the Phase 3 DUO™ study; that enrollment of clinical trials may take longer than expected; that our product candidates will cause unexpected safety events or result in an unmanageable safety profile as compared to their level of efficacy; that duvelisib will be ineffective at treating patients with lymphoid malignancies; that Verastem will be unable to successfully initiate or complete the clinical development of its product candidates; that the development of Verastem's product candidates will take longer or cost more than planned; that Verastem may not have sufficient cash to fund its contemplated operations; that Verastem or Infinity Pharmaceuticals, Inc. (Infinity) will fail to fully perform under the duvelisib license agreement; that the transition of the duvelisib program from Infinity will not be completed; that Verastem will not pursue or submit regulatory filings for its product candidates, including for duvelisib in patients with CLL or iNHL; and that Verastem's product candidates will not receive regulatory approval, become commercially successful products, or result in new treatment options being offered to patients. Other risks and uncertainties include those identified under the heading "Risk Factors" in Verastem's Annual Report on Form 10-K for the year ended December 31, 2016, and in any subsequent filings with the U.S. Securities and Exchange Commission. The forward-looking statements contained in this presentation reflect Verastem's views as of the date of this presentation, and Verastem does not undertake and specifically disclaims any obligation to update any forward-looking statements.

VERASTEM AT A GLANCE

SCIENTIFIC FOUNDATION

Novel drugs targeting malignant cells both directly and through modulation of the tumor microenvironment

Whitehead Institute | Broad Institute

VALUE DRIVERS

Pivotal duvelisib study read out mid 2017

Follow up data from DYNAMO iNHL mid 2017

Clinical POC of FAK/I-0 combinations in 2018

Verastem

NASDAQ: VSTM

$72.6M in cash & investments at 3/31/17

DUVELISIB

PI3K-δ,γ inhibitor

Positive Phase 2 data in iNHL

Phase 3 readout in CLL expected mid 2017

Potential applicability in other lymphoid malignancies

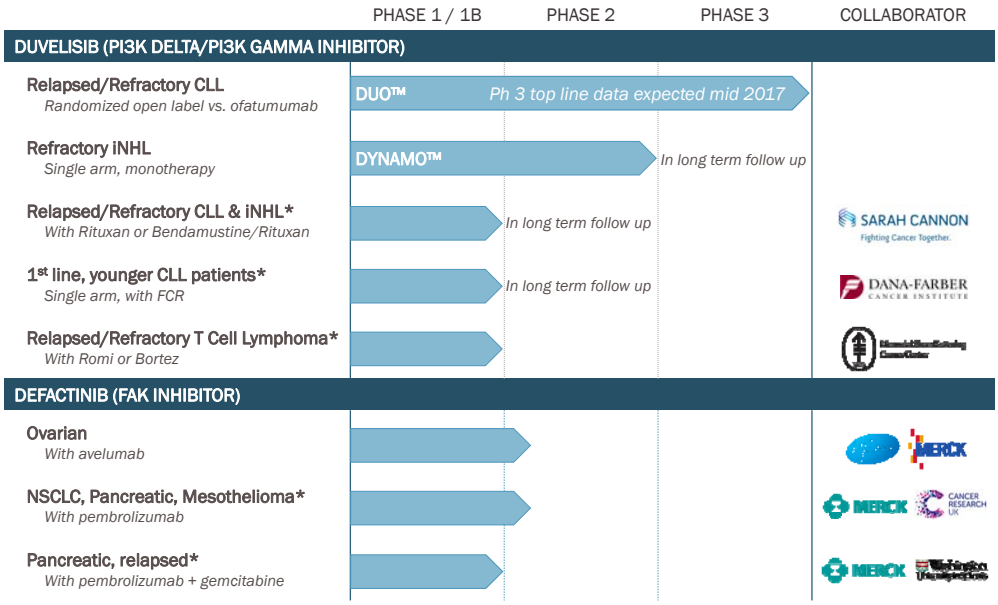
DEFACTINIB

FAK inhibitor

Key collaborations exploring combination with leading immuno-oncology agents

Merck | Merck | Cancer Research UK

ADVANCING PORTFOLIO OF CANCER PROGRAMS



* - Investigator Sponsored Trial (IST)

Duvelisib and defactinib are investigational agents available for clinical trial use only. Safety and efficacy have not been established.

DUVELISIB

AN INVESTIGATIONAL NEW TREATMENT OPTION WITH BROAD POTENTIAL ACROSS B CELL & T CELL MALIGNANCIES

UNIQUE	First-in-class dual PI3K-δ,γ inhibitor
SIMPLE	Oral monotherapy with low pill burden and no food effect
CONVENIENT	Administration without hospitalization or infusion center
TOLERABLE	Manageable safety profile, well-characterized in >500 patients
ACTIVE	Clinical activity across B cell and T cell malignancies

IP: COM 2030 before extensions; **Orphan Designation:** CLL, FL, and SLL in the US and EU
FDA Fast Track Designation: Patients with CLL who have received at least 1 prior therapy; Patients with FL who have received at least 2 prior therapies

DYNAMO™ IS A ROBUST PHASE 2 STUDY OF DUVELISIB MONOTHERAPY IN DOUBLE REFRACTORY iNHL POPULATIONS

PHASE 2 STUDY, FULLY ENROLLED WITH FINAL ANALYSIS COMPLETED

DYNAMO™

Double refractory* iNHL patients
(*N = 129*)

→ Duvelisib 25 mg BID →

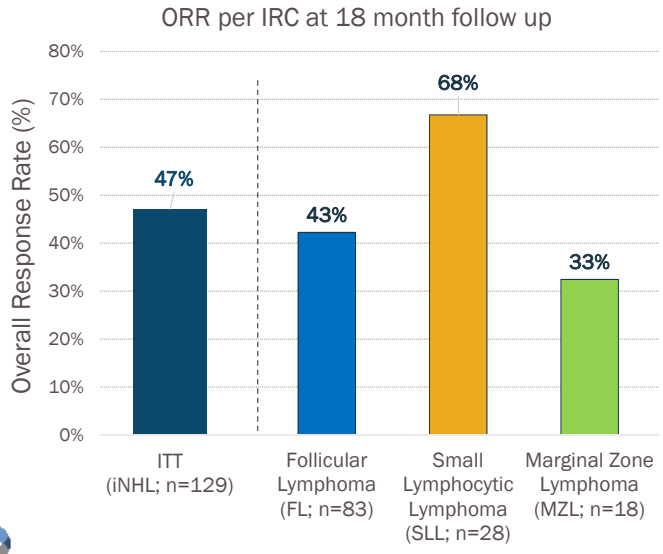
Study end points
- **Primary:** Overall response rate (ORR) by Independent Review Committee (IRC)
- **Key secondary:**
  - Safety
  - Duration of response (DOR)
  - Progression-free survival (PFS)
  - Overall survival (OS)

*** Heavily pretreated patient population:**
- Median number of prior treatments = 3
- Inclusion criteria: Refractory to both rituximab (R) and a chemotherapy regimen or radioimmunotherapy (RIT)

- Primary analysis (6 month follow up) presented at ASH 2016
- Long-term analysis (18 month follow up) presented at ICML 2017

DYNAMO™ MET ITS PRIMARY ENDPOINT OF ORR BY IRC IN DOUBLE REFRACTORY iNHL PATIENTS AT PRIMARY ANALYSIS

Response rates remain durable on long term follow up

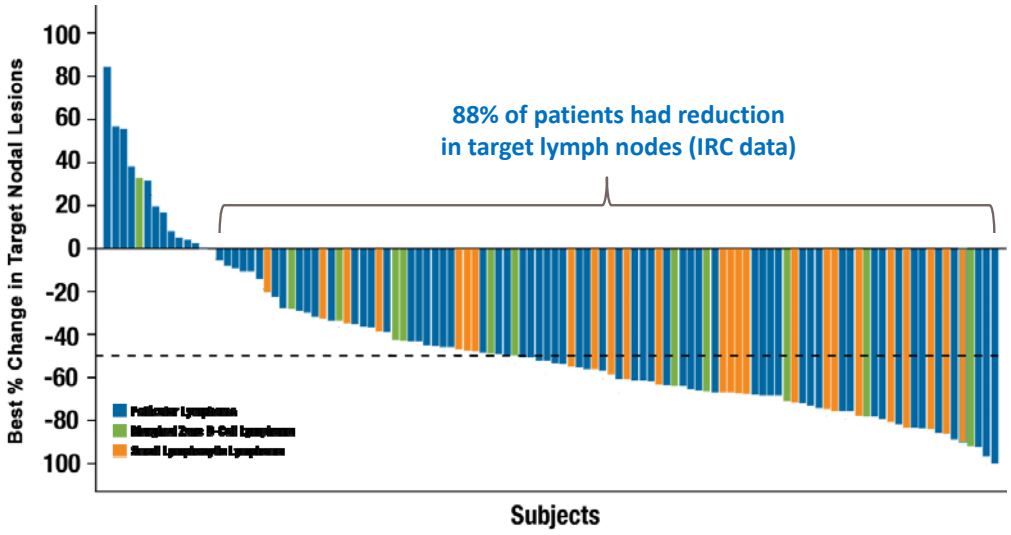


- Primary endpoint at per-protocol primary analysis: **(p=0.0001)**
- 18 month follow-up (per IRC):
  - Median PFS on duvelisib: **9.0 months**
  - Median DOR: **10 months**

DYNAMO™ Zinzani et al., ICML 2017

88% OF PATIENTS ON DYNAMO™ HAD REDUCTION IN TARGET LYMPH NODES

IRC data on 18 month follow up

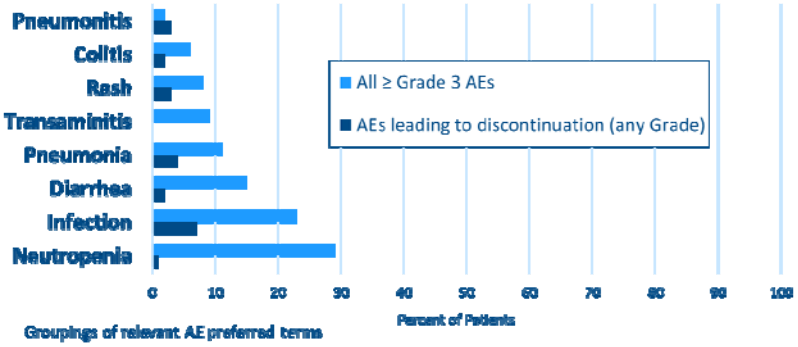


DYNAMO™ Zinzani et al., ICML 2017

GENERALLY WELL TOLERATED, WITH A MANAGEABLE SAFETY PROFILE WITH APPROPRIATE RISK MITIGATION

IRC data on 18 month follow up

ADVERSE EVENTS OF INTEREST



- **Few discontinuations due to severe AEs of interest**
- **Serious opportunistic infections < 4%**: PCP *(unconfirmed)* (n=1); CMV (n=2); fungal pneumonia (n=2)
- **Deaths attributed to treatment (n=6)***

*colitis (n=1); toxic epidermal necrolysis/sepsis syndrome (n=1); drug reaction/eosinophilia/systemic symptoms (n=1); pneumonitis/pneumonia (n=1); viral infection (n=1); septic shock (n=1)

DYNAMO™ Zinzani et al., ICML 2017

DYNAMO™ SUPPORTS THE FURTHER INVESTIGATION OF DUVELISIB BROADLY ACROSS B CELL MALIGNANCIES

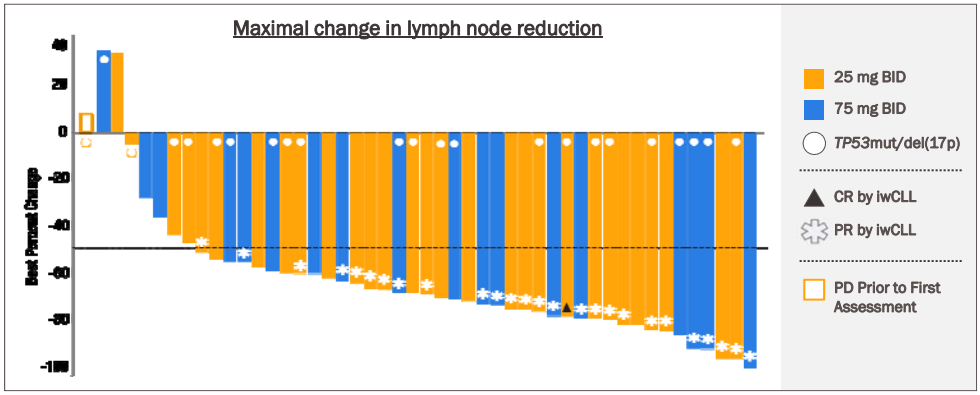
- Duvelisib monotherapy is clinically active in double refractory iNHL
  - ORR of 47% per IRC; ORR of 60% per investigator
  - 88% of patients had tumor reduction
  - Median PFS of 9.0 months per IRC
  - Responses were durable (median 10 months)
- Duvelisib has a manageable safety profile
- In long-term follow-up (median 18 months), duvelisib remains well tolerated
- Duvelisib showed favorable risk-benefit in double-refractory iNHL, and may represent an important treatment option for these patients

DYNAMO™ Zinzani et al., ICML 2017

PHASE 1 DUVELISIB MONOTHERAPY ACTIVITY SUPPORTS LEAD INDICATION IN RELAPSED/REFRACTORY CLL

For relapsed/refractory CLL patients at 25 mg BID with baseline CT scan (n = 30):

- **83%** (25/30) had a nodal response (reduction ≥50%)
- ORR by iwCLL was **57%** (17/30), including 1 CR
  - ORR for the *TP53*mt/del(17p) population was **48%** (7/15), including the 1 CR
- Adverse events were mostly Grade 1 or 2, reversible and clinically manageable



Source: O'Brien et al., ASH 2014

DUO™: A PHASE 3 STUDY OF DUVELISIB IN RELAPSED/ REFRACTORY CHRONIC LYMPHOCYTIC LEUKEMIA (CLL)

ONGOING PHASE 3 STUDY, ENROLLMENT COMPLETE IN NOV 2015

DUO™

Relapsed or Refractory CLL patients
(N = 300)
(Randomized 1:1)

Treatment arm 1
Duvelisib 25 mg BID

Treatment arm 2
Ofatumumab
Dosage and administration consistent with approved prescribing information*

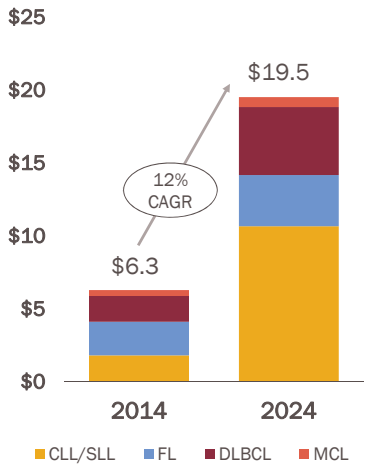
Study end points
- **Primary:**
  - Progression-free survival (PFS)
- **Key secondary:**
  - Overall response rate (ORR)
  - Overall survival (OS)
  - Duration of response (DOR)
  - Safety

Top line data expected mid 2017

* 8 weekly infusions, starting with an initial IV dose of 300 mg ofatumumab on Day 1 followed by 7 weekly doses of 2,000 mg. Thereafter, 2,000 mg ofatumumab monthly for 4 months.

DUO™ MAY OPEN AN INITIAL COMMERCIAL OPPORTUNITY FOR DUVELISIB IN A GROWING LYMPHOID MALIGNANCY MARKET

MAJOR MARKET TOTAL SALES ($B)



CLL MARKET OPPORTUNITY

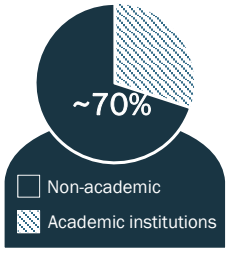
- CLL is the fastest growing subtype of NHL (18% CAGR), as multiple new kinase inhibitors transform treatment away from chemotherapy[1]
- Average lines of therapy per patient may be increasing, as emerging real world studies suggest patient benefit from sequencing of kinase inhibitors or other targeted therapies[2]

1. Decision Resources; Major Markets: US, EU5, and Japan
2. Mato AR et al. **Outcomes of CLL patients treated with sequential therapy: a real world experience**. Blood 2016

UNMET NEED REMAINS FOR PATIENTS WITH CLL, THE MAJORITY OF WHICH PROGRESS FOLLOWING 1° THERAPY

Average CLL patient

72 y.o. male treated outside of academic institutions, often with multiple comorbidities[1,2]



1st Line
16,200
treated patients in 2016[3]

2nd Line
9,150
treated patients in 2016[3]

3rd Line
4,374
treated patients in 2016[3]

>50% of patients require additional therapy options[3]

Front line therapies:[4]
- Chemo + anti-CD20
- anti-CD20
- BTK inhibitor

Additional Relapsed/Refractory therapies:[4]
- BTK inhibitor
- PI3K delta inhibitor + anti-CD20
- BCL-2 inhibitor
- Clinical trials

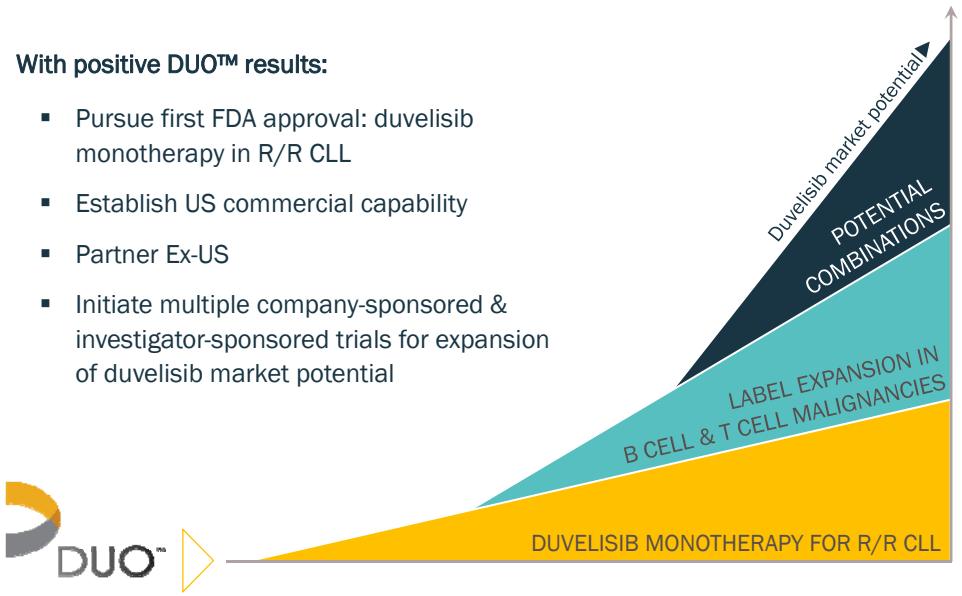
Duvelisib is a **simple, oral monotherapy** with an **expected & manageable safety profile** that may allow maintenance of relapsed CLL patient care in the community setting

1. NIH SEER Stat Fact Sheets: Chronic Lymphocytic Leukemia (CLL), accessed January 2017; 2. IMS, 2016; 3. Decision Resources, 2016 – US Annual Incident Drug Treated CLL by Line of Therapy; 4. NCCN Guidelines: CLL, v. 1.2017

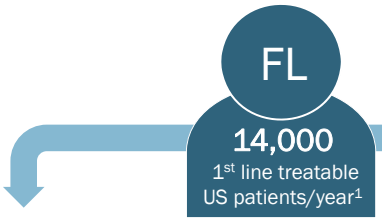
POSITIVE RESULTS FROM THE PHASE 3 DUO™ STUDY ESTABLISH FOUNDATION FOR A HEMATOLOGICAL FRANCHISE

With positive DUO™ results:

- Pursue first FDA approval: duvelisib monotherapy in R/R CLL
- Establish US commercial capability
- Partner Ex-US
- Initiate multiple company-sponsored & investigator-sponsored trials for expansion of duvelisib market potential



ADDITIONAL CHEMO-FREE TREATMENT OPTIONS ARE NEEDED FOR PATIENTS WITH FOLLICULAR LYMPHOMA (FL)



~20-40%
of front line treated patients[3]

Insensitive to front line chemotherapy:
Relapse < 24 months

~10%
of treated patients[2]

Elderly, frail or otherwise inappropriate for chemotherapy

Duvelisib may provide an additional targeted therapy option for FL patients insensitive to or inappropriate for chemotherapy

1. Decision Resources, 2016 – US Annual Incident Drug Treated FL by Line of Therapy; 2. ZS ATU studies; 3. Rummel et al., Lancet 2013; IPSOS market research

STANDARD OF CARE REMAINS TO BE ESTABLISHED FOR PATIENTS WITH RELAPSED/REFRACTORY PTCL

RELAPSED/REFRACTORY PTCL (mOS < 6 months[1])

- Recently approved 2nd+ line treatment options have low response rates with limited durability
- NCCN guidelines still recommend clinical trials for relapsed patients[4]
- KOLs are unsatisfied with the available treatment options

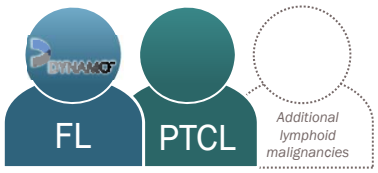
Drug / Trial[2,3]	ORR	CR	FDA decision
Folotyn (pralatrexate IV) Single arm, n = 109	27%	8%	AA 2009
Istodax (romidepsin IV) Single arm, n = 130	25.4%	14.6%	AA 2011
Beleodaq (belinostat IV) Single arm, n = 120	25.8%	10.8%	AA 2014
duvelisib (oral s.m.) Phase 1, n = 15	**53%**	**13%**	-

Duvelisib is a promising therapy for further clinical investigation as an **additional targeted therapy** option for relapsed PTCL patients

1 Mak et al., Blood 2011 – mOS for relapsed patients ineligible for HDC/SCT; 2. Package inserts; 3. Horwitz et al., ASH 2014 Phase 1 data; 4. NCCN Guidelines, T-cell Lymphoma Version 2.2017

DUVELISIB: Value proposition

TARGETED FIRST APPROVAL



BROAD EXPANSION POTENTIAL

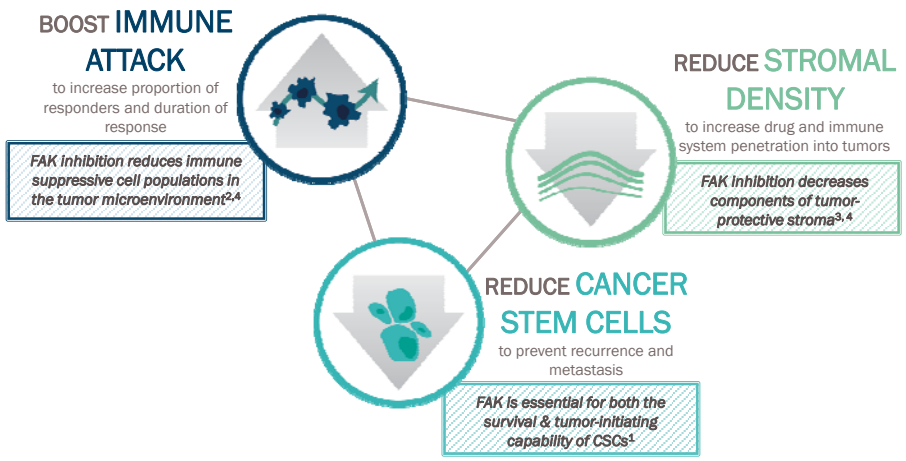
- Despite recent advances, additional treatment options are needed for CLL patients past first line therapy
- For the relapsed/refractory CLL patient, duvelisib may offer a simple oral option to maintain their treatment in the community
- Duvelisib's long patent life and broad activity support continued investment to expand market potential
- A positive result from the Phase 3 DUO™ study reading out in mid 2017 supports a near term NDA filing opportunity in R/R CLL

DEFACTINIB

Clinical stage FAK inhibitor

COMBINATION AGENT FOR ENHANCED CHECKPOINT INHIBITOR EFFICACY

IP: COM 2028 before extensions; **Orphan Designation:** Ovarian & mesothelioma in the US & EU



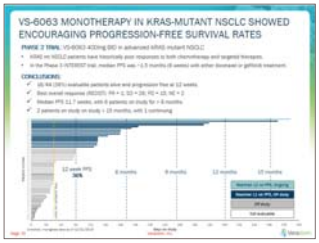
1. Kolev VN et al. **FAK inhibition targets cancer stem cells.** EORTC 2015
2. Serrels et al. **Nuclear FAK controls chemokine transcription, Tregs, and evasion of anti-tumor immunity**. Cell. 2015
3. Stokes JB et al. **Inhibition of Focal adhesion Kinase by PF-562,271 inhibits the growth and metastasis of pancreatic cancer concomitant with altering the tumor microenvironment.** Mol Cancer Ther. 2011
4. Jiang et al. **Targeting focal adhesion kinase renders pancreatic cancers responsive to checkpoint immunotherapy.** Nature Medicine. 2016

CLINICAL EXPERIENCE TO DATE HAS ESTABLISHED SINGLE AGENT ACTIVITY AND COMBINABILITY OF DEFACTINIB

Total exposure to date: 300+ patients

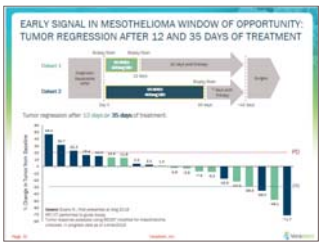
Safety: Well tolerated and combinable; primary toxicities GI

Target coverage: pFAK inhibition and decrease in cancer stem cell (CSC) markers replicated in 2 independent studies and tumor types



Comparable single agent activity to docetaxel and targeted therapies in KRas mt NSCLC: 16/44 (36%) evaluable patients progression free at 12 weeks

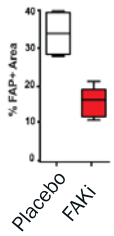
Combinable with paclitaxel with demonstrated combo activity in ovarian cancer:
41% (9/22) disease control
(2 CR; 3 PR; 4 SD ≥ 6 months)



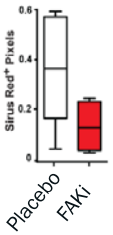
Mesothelioma: Tumor regression after 12 and 35 days of single agent treatment

FAK INHIBITION REDUCES STROMAL DENSITY & BOOSTS T CELL ENTRY INTO TUMORS, LEADING TO LONGER SURVIVAL IN PRECLINICAL MODELS

Fibroblasts

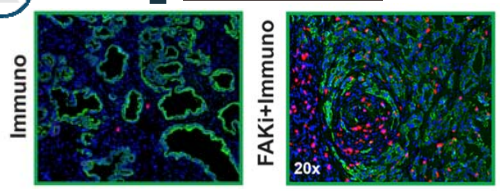


Extracellular Matrix



FAP+ Fibroblasts, Fibroblast proliferation: PDAC transgenic pancreatic model

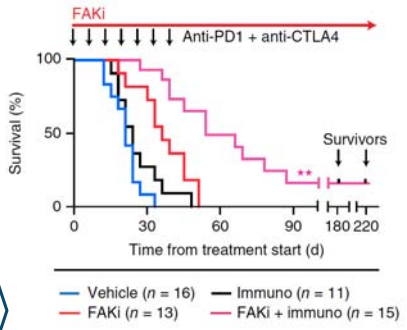
CD8+ T cell infiltration



CD8+ T cells: Kras/p53 pancreatic tumors
"Immuno" = Gem +/- anti-PD-1 +/- anti-CTLA-4

Survival

Improved long term survival corresponds with increased entry of CD8+ cytotoxic T cells into tumor:



Jiang et al. Targeting focal adhesion kinase renders pancreatic cancers responsive to checkpoint immunotherapy. Nature Medicine. 2016

"Immuno" = Gem +/- anti-PD-1 +/- anti-CTLA-4

PRECLINICAL INSIGHTS HAVE TRANSLATED DIRECTLY INTO MULTIPLE CLINICAL I-O COMBINATION TRIALS

FAK inhibition **boosts immune attack**, supporting combination with immunotherapies

Serrels et al. (2015) Cell 163: 160-173

FAK inhibition **reduces stromal density**, enabling therapies & immune cells to penetrate tumors

Jiang et al. (2016) Nature Medicine 163: 851-860

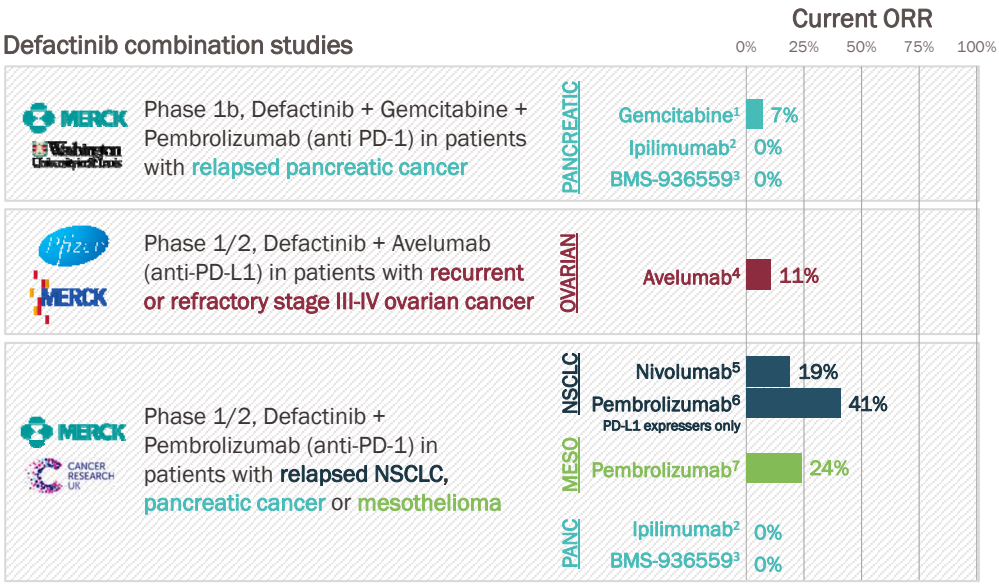
Pfizer / MERCK — Ongoing combination trial with avelumab (Ovarian)

MERCK — 2 combination trials with pembrolizumab (NSCLC, pancreatic, mesothelioma)

CANCER RESEARCH UK — First cross-company deal as part of Experimental Cancer Medicine Centre (ECMC) Combinations Alliance

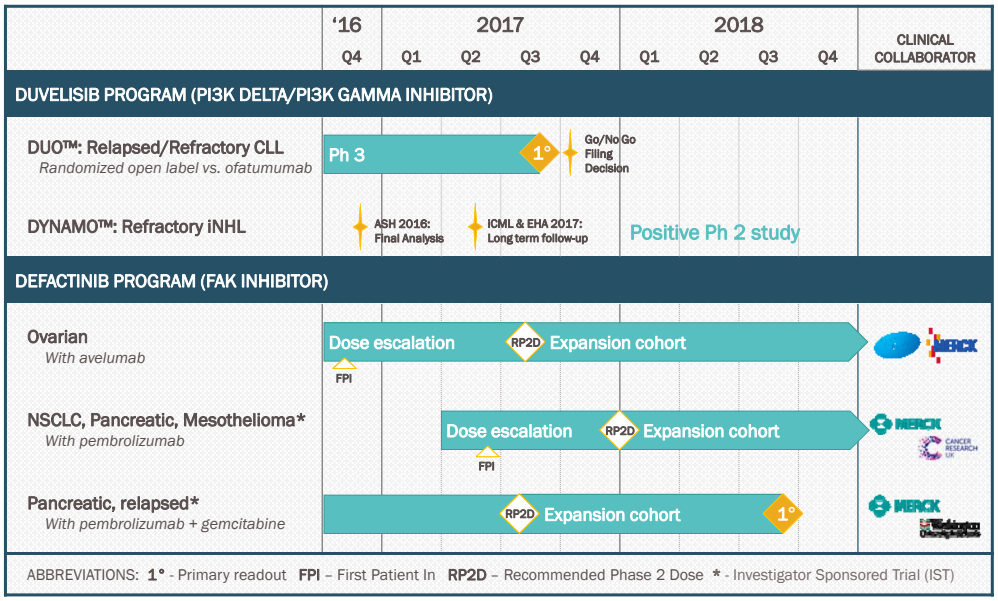
Washington University in St Louis — Active pre-clinical to clinical translation of I-O combinations

NEED REMAINS FOR IMPROVEMENT OF PATIENT OUTCOMES WITH MONOTHERAPY I-O TREATMENT



1. Celgene, Abraxane Package Insert; **2.** Royal RE et al. Phase 2 trial of single agent ipilimumab (anti-CTLA-4) for locally advanced or metastatic pancreatic adenocarcinoma. J Immunother. 2010; **3.** Brahmer JR et al. Safety and Activity of Anti–PD-L1 Antibody in Patients with Advanced Cancer. NEJM 2012; **4.** M. Disis et al., ESMO 2015; **5.** BMS, Opdivo Package Insert; **6.** Merck & Co., Keytruda package insert; **7.** Alley EW et al. AACR 2015, Abstract CT103 - KEYNOTE-028

CLINICAL MILESTONES FOR KEY ONGOING STUDIES



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CEO/CFO - CombinatoRx, COLY
MeesPierson, Barclays, UBS

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CEO - The DNA Repair Co. (now On-Q-ity)
PharMetrics (now IMS), Axion

Julie Feder
Chief Financial Officer
CFO, Clinton Health Access Initiative
VP, Finance, Genzyme

Jonathan Pachter, Ph.D.
Chief Scientific Officer
Head of Cancer Biology - OSI (now Astellas)
Schering-Plough (now Merck)

Steven Bloom
Senior Vice President, Corporate Development
SVP Commercial Strategy and Business Development - Ziopharm
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Principal - HR Collaborative
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Sprycel®, Taxotere® and Erbitux®

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VERASTEM AT A GLANCE

SCIENTIFIC FOUNDATION

Novel drugs targeting malignant cells both directly and through modulation of the tumor microenvironment

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Pivotal duvelisib study read out mid 2017

Follow up data from DYNAMO iNHL mid 2017

Clinical POC of FAK/I-O combinations in 2018

Verastem

NASDAQ: VSTM

$72.6M in cash & investments at 3/31/17

DUVELISIB

PI3K-δ,γ inhibitor

Positive Phase 2 data in iNHL

Phase 3 readout in CLL expected mid 2017

Potential applicability in other lymphoid malignancies

DEFACTINIB

FAK inhibitor

Key collaborations exploring combination with leading immuno-oncology agents

APPENDIX

Verastem