BIOTECHNOLOGY EQUITY RESEARCH

Verastem, Inc. (VSTM, Neutral)

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Bolstering the Pipeline – An Intriguing Licensing Leads to a Defactinib Combo Emerging for KRAS-Mutant Solid Tumors, With Data in 1H20

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WHAT YOU SHOULD KNOW: Verastem announced a global license to develop Defactinib, its focal adhesion kinase (FAK) inhibitor, with Chugai's (RHHBY, Not Rated) RAF/MEK inhibitor, CH5126766, for KRAS-mutant solid tumors, with very nice deal terms. The combination strategy is based on single agent activity for both compounds in KRAS-mutant tumors, along with preclinical data suggesting FAK signaling acts as an escape mechanism to MEK blockade, and synergistic activity seen with the molecules. Verastem's efforts to bolster its pipeline—with Copiktra in PTCL and in combination with Venclexta, and now with Defactinib--are encouraging, and data is on the way.

Next Steps – 1H20 Data and Regulatory Strategy Discussions. Verastem plans to both present clinical data for the combo (likely at AACR) and meet with regulatory agencies to define a regulatory pathway in 1H20. The ongoing expansion phase (n=56) is enrolling 20 KRAS-mutant NSCLC, 6 RAS-enriched solid tumor, 20 low-grade serious ovarian, and 10 CRC patients. Verastem noted the 1H20 update should include >10 patients from each of the tumor cohorts. In terms of expectations, a KOL on its call noted an ORR >50% would be exciting and represent a broader market than the G12C inhibitors are targeting. Verastem is exploring partnerships to develop the combo.

Defactinib in KRAS-Mutant NSCLC. In data recently published in *Lung Cancer* (2020), a single-arm open-label Phase 2 study enrolled 55 patients with KRAS-mutant NSCLC with a median of 4 prior therapies to 400mg oral Defactinib monotherapy, with a primary endpoint of 12-week PFS. Patients were enrolled to 1 of 4 cohorts based on genetic co-alterations (TP53, CDKN2A) and included patients with KRAS mutations beyond G12C. Results showed 28% met the 12-week PFS endpoint, which was similar among cohorts (though numbers were small). mPFS was 47 days for cohorts B-D and 41 days for cohort A (WT CDKN2A and TP53). For KRAS, only codon 12 mutations achieved 12-week PFS—the rate was similar among G12C, G12V, and G12D. 1 patient achieved PR (2%) and 8 achieved SD (33%). For safety, 27% had ≥G3 Defactinib-related AEs and 9% discontinued for tox. Additionally, 13% had drug-related SAEs and of the 11 patients with fatal AEs, 1 event of respiratory failure was deemed drug related.

CH5126766 in KRAS-Mutant Tumors. The primary point of differentiation for the RAF/MEK inhibitor appears to be the prevention of MEK "reactivation" via upstream RAF. At ASCO 2017 (Abstract 2506) twice-weekly 4mg CH5126766 achieved a 30% PR (3/10) in KRAS-mutant NSCLC with 2 PRs maintained >1 year. For gynecologic cancers, 60% (3/5) responded including KRAS-mutant ovarian and endometrial cancer (1 each). No CRC or melanoma patients responded (0/4; NRAS or BRAF mutant). The toxicity profile appears non-overlapping with FAK inhibition, per the KOL.

- **Deal Terms.** Verastem paid Chugai $3mm upfront and potential royalties to gain worldwide rights to develop CH5126766. Verastem is responsible for development and commercialization. Chugai has an option to commercialize in EU and Japan.
- **Copiktra in PTCL – More Potential 2020 Upside Optionality.** There could be an expedited pathway to Copiktra revenue in PTCL through a compendium listing (NCCN). There is also potential for Breakthrough Designation in r/r PTCL. Earlier than expected PTCL sales could represent a meaningful catalyst for VSTM shares.
- **Valuation:** We rate VSTM shares at Neutral. BTIG does not assign Price Targets on Neutral Rated stocks.

COMPANY DATA	
Closing Price:	$1.72
Price Target:	-
Market Cap ($M):	127.52
Shares Out (M):	74.1
Avg Daily Vol - 3 Months (M):	1.44
Dividend/Yield:	$0.00/0.0%

REVISIONS	Previous	Current
Rating	Neutral	Neutral
Price Target	-	-
FY19E EPS	$(1.94)	$(1.94)
FY20E EPS	$(1.13)	$(1.13)
FY19E Rev. (M)	$19.00	$19.00

Diluted EPS (GAAP)			
FY Dec	2018A	2019E	2020E
Q1	(0.41)	(0.52)	-
Q2	(0.30)	(0.57)	-
Q3	(0.29)	(0.41)	-
Q4	(0.15)	(0.45)	-
Calendar EPS	**(1.12)**	**(1.94)**	**(1.13)**
Calendar P/E	-	-	-

REVENUE ($M)			
FY Dec	2018A	2019E	2020E
Q1	0.00	1.67	-
Q2	10.00	3.14	-
Q3	15.51	9.03	-
Q4	1.21	5.16	-
FY	**26.72**	**19.00**	**45.10**

Source: IDC, BTIG Estimates and Company Documents
($ in millions, except per share amount)

Investment Thesis

We believe Copiktra monotherapy offers an all oral option for the treatment of 3rd line CLL/SLL and FL. Additionally, early clinical and preclinical work suggests Copiktra combination therapy may be applicable in early lines of disease or new diseases which expand Copiktra's target market.

Upcoming Catalysts

- Quarterly reports of Copiktra sales.
- 1H20 – Present Defactinib+CH5126766 data and discuss regulatory pathway.
- 2020 – Potential compendia listings for Copiktra in PTCL
- 2020 – Licensing/regulatory validation for Copiktra in PTCL
- 2020 – Potential filing of Copiktra in PTCL
- 2020+ – Additional partnerships

Base Case Assumptions

- We believe Copiktra can achieve peak sales in R/R CLL/SLL approaching $300 million in the US over time, with FL and potentially other indications adding.
- We expect Copiktra's initial adoption ramp to be measured.

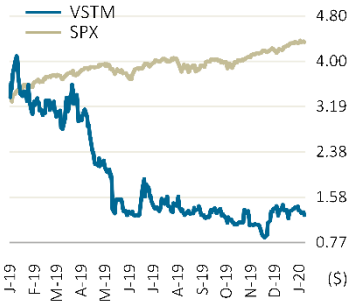
Upside Scenario

- Copiktra sales ramp is faster-than-expected.
- Clinical data is stronger-than-expected.
- Competitors falter.
- Pipeline expansion progress.
- Business development.

Downside Scenario

- Copiktra sales ramp is slower-than-expected.
- Clinical data is weaker-than-expected.
- Competitors perform better than expectations.
- Pipeline fails to mature.

Price Performance



Source: IDC

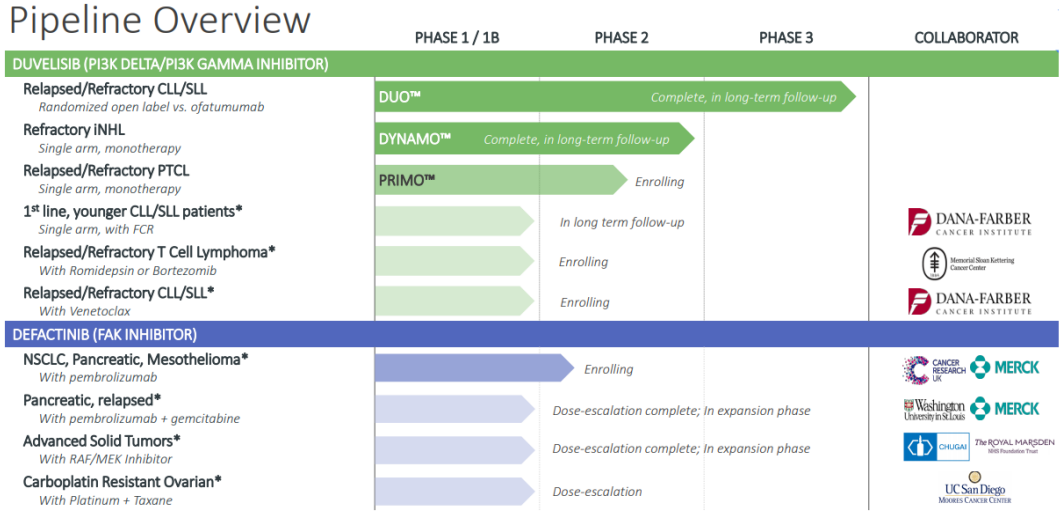
Company Description

Verastem is a biopharmaceutical company developing novel small molecule therapies that inhibit essential signaling pathways in cancer. Its lead asset is Copiktra, a first-in-class molecule with novel dual inhibition of PI3K delta and gamma isoforms of phosphoinositide 3-kinase (PI3K),

Verastem Oncology – Executive Summary

Verastem is a biopharmaceutical company headquartered in Needham, Mass. that is focused on the development of cancer therapeutics. Its most advanced programs, Copiktra (Duvelisib) and Defactinib, are progressing in clinical studies in multiple indications (Exhibit 1). Copiktra, Verastem's most material asset, is a first-in-class molecule that targets the phosphoinositide 3-kinase (PI3K), a central signaling pathway in cancer proliferation and survival. Through Copiktra's novel dual inhibition of PI3K delta and gamma isoforms of PI3K, Copiktra both directly attacks both malignant B-cells and T-cells, and is believed to materially disrupt the tumor microenvironment. Copiktra was approved in Sep. 2018 for 3rd line CLL/SLL and 3rd line FL.

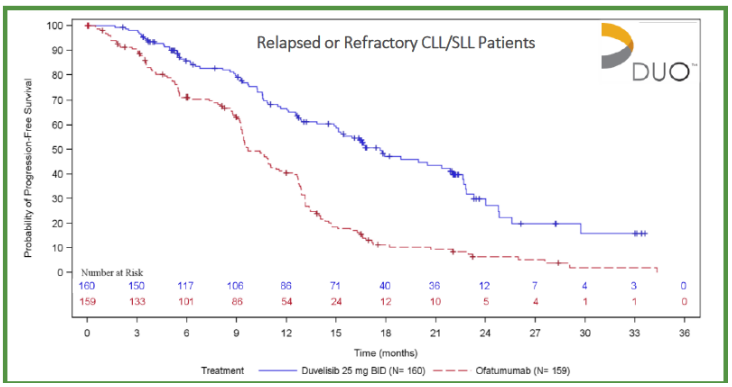
Exhibit 1: Verastem's Pipeline – Copiktra (Duvelisib) and Defactinib Focused



Source: Verastem Corporate Presentation, January 2019.

Copiktra is Highly Active in Relapsed/Refractory CLL/SLL and Follicular Lymphoma, Yielding FDA Priority Review. With its dual PI3K delta and gamma inhibition activity, Copiktra has demonstrated solid activity in a number of settings, producing encouraging results in several trials, including DUO, a Phase 3 study in patients with relapsed or refractory chronic lymphocytic leukemia (CLL)/small lymphocytic lymphoma (SLL), and DYNAMO, Phase 2 monotherapy study in patients with refractory indolent non-Hodgkin lymphoma (iNHL). Copiktra has been able to demonstrate rapid, statistically significant, and clinically meaningful activity in CLL/SLL in DUO with a PFS of 13.3 mo. vs 9.9 mo. for the comparator (HR 0.52, P<0.0001 - Exhibit 2 below) in the overall study population, as well as a robust response in the challenging 17p deletion subpopulation who had a PFS of 12.7 mo. on Copiktra vs 9.0 mo. for the comparator (HR 0.41, P<0.0011), impressive results in these patients who generally have more limited response to other older therapeutics.

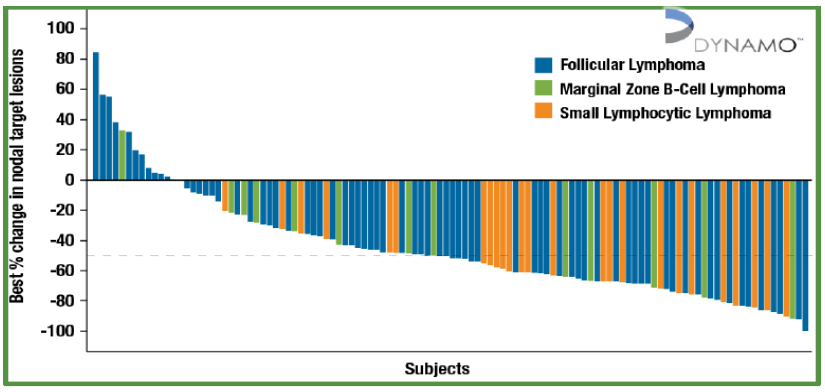
Exhibit 2: Copiktra's Positive PFS Performance in the Phase 3 DUO Study in Relapsed/Refractory CLL/SLL Patients (Investigator Assessment)



Source: Verastem Corporate Overview, April 2018.

Copiktra Attains 43% ORR in Follicular Lymphoma (FL) Patients, Leading to Accelerated Approval in 2018. At the final analysis of the 83-patient FL cohort of DYNAMO, Copiktra's overall response rate (ORR) was 43% with 1 CR as measured by the IRC (Exhibit 3 – blue bar). FL patients in the study had a rapid, 2-month time to response, and a median 7.9 months duration of response. Median progression-free survival (PFS) was 8.3 months, and overall survival (OS) was 27.8 months, which appear to be meaningful results in these patients who were refractory to both rituximab and chemo/RIT, for whom ibrutinib does not appear to be effective. Given the unmet need in refractory follicular lymphoma, and Copiktra's efficacy, the molecule received Accelerated Approval from FDA in that setting in September 2018, and we believe FL patients could be early adopters of Copiktra therapy, as treatment options are limited in the relapsed/refractory FL setting.

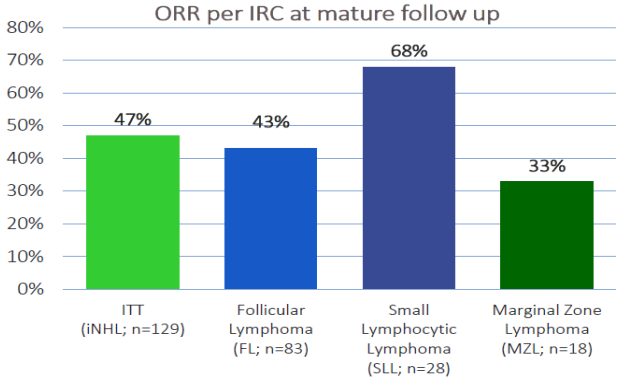
Exhibit 3: Copiktra's Positive Performance in DYNAMO – Waterfall Plot



Source: Verastem Corporate Overview, April 2018.

Copiktra Is Close to Transforming Verastem: Priority Review Underscores Its Potential. Data from DUO and DYNAMO supported Copiktra's US licensure in September, ahead of its October 5, 2018 PDUFA date. In February 2018, Verastem submitted an NDA for Copiktra seeking full approval of the molecule for relapsed/refractory CLL/SLL, and Accelerated Approval for relapsed/ refractory follicular lymphoma (FL). Copiktra's NDA was accepted with a Priority Review, establishing the October 5 PDUFA. Then in June '18, duvelisib was licensed to Yakult Honsha (2267, Not Rated) for development and commercialization in the Japanese markets and in September '18 it was licensed to CSPC for China; licensing in other geographies is possible. Copiktra is being evaluated in earlier lines of therapy in the CLL and FL indications in combination with multiple other agents; we have begun to see initial positive data emerge and expect more work in this area. Beyond CLL and FL, Copiktra is also being developed for peripheral T-cell lymphomas (PTCL), another setting of material unmet need where the molecule has shown promising activity in early clinical work. With US licensure, we expect interest in duvelisib to materially increase, as publications and presentations of its active profile continue to emerge.

Exhibit 4: Copiktra's Positive Performance in DYNAMO: Solid Results in Refractory iNHL/Follicular Lymphoma Patients



Source: Zinzani et al. ICML 2017, Verastem Corporate Presentation, June 2018.

Copiktra's Novel Dual PI3K δ/γ Inhibition. Copiktra selectively targets the delta (δ) and gamma (γ) isoforms of phosphoinositide 3-kinase (PI3K), key elements of a central signaling pathway that is involved in cancer proliferation and survival. Through its dual inhibition of PI3K δ/γ, Copiktra is believed to directly attack both malignant B-cells and T-cells, and also disrupt the tumor micro-environment. More specifically, PI3K- δ is nearly exclusively expressed in hematopoietic cells and is hyperactive in B-cell malignancies in the promotion of B-cell proliferation, growth, survival, adhesion, and homing. PI3K-γ inhibition has demonstrated activity in various B-cell leukemias and lymphomas, and intriguingly also reduces immuno-suppressive Tregs. PI3K-γ is highly expressed on myeloid cells, and PI3K-γ activation appears to be associated with increased stability in the tumor microenvironment. PI3K-γ inhibition appears to be able to reshape the tumor immune microenvironment, promoting tumor regression without targeting cancer cells directly. As a result, development work is under consideration for Copiktra in combination with checkpoint inhibitors.

Separately, because of more severe toxicities seen with other more selective PI3K inhibitors, management of AEs with Copiktra will clearly be a focus for Verastem; with good compliance with prophylaxis regimens to manage infection risk, and the recent intense focus on AE management that has evolved with the broader adoption of IO therapeutics, we believe this can be effectively addressed by Verastem. In addition, a CLL KOL believes that Copiktra's PI3K-γ inhibition may materially decrease some of the severe unpredictable immune mediated toxicities (colitis, etc.) that have appeared with the more selective PI3K inhibitors.

Market Dynamics in CLL and FL Provide Material Room for Copiktra. Importantly, market dynamics in CLL appear to be favorable toward the acceptance of Copiktra in later lines of therapy: Imbruvica (ibrutinib) is moving toward front-line consideration, and as a material number of patients are then experiencing resistance to that molecule or are having tolerability issues with it, those elements are creating room in the relapsed/refractory settings for Copiktra. In addition, Venclexta, which is also approved in the refractory setting, also has significant challenges with tolerability, as it suffers from AEs and convenience issues (hospitalization as dosing ramps up over weeks). In FL, the relative lack of efficacy with those agents in later lines should provide material room for Copiktra. In these initial indications, relapsed/refractory CLL/SLL and FL, Copiktra's potential as a simple, oral monotherapy in typically elderly cancer patients, we believe can result in material consideration, and along with PTCL and possibly other uses, and in various combinations with CLL/FL therapies, and even with IO therapeutics.

FAK Inhibitor Defactinib is Progressing as Well. Verastem has multiple studies ongoing to evaluate Defactinib, a focal adhesion kinase (FAK) inhibitor, in combination with approved anti-PD-(L)1 and other therapeutics. FAK activity in various tumors has been shown to drive exhaustion of CD8+ cells and recruitment of Tregs in the tumor microenvironment, among other effects, permitting and enhancing growth of FAK-expressing tumors. FAK inhibition therefore has the potential to create a more favorable tumor microenvironment for anti-cancer therapies such as checkpoint inhibitors. Verastem is conducting a Phase 1/2 trial with the anti-PD-L1 antibody Bavencio (avelumab) in ovarian cancer, while Washington University School of Medicine and Cancer Research UK are conducting early phase trials with the anti-PD-1 antibody Keytruda (pembrolizumab) in NSCLC, pancreatic cancer, and mesothelioma. At ASCO 2018, Washington University presented encouraging Phase 1 data of Defactinib, Keytruda, and Gemcitabine in advanced cancer patients, showing 1 PR (13%) and 3 stable disease (38%) in pancreatic ductal carcinoma (PDAC) patients. The ~50% disease control rate in PDAC supported moving the triple combination into a PDAC expansion cohort at the recommended Phase 2 dose. Though early in the clinic in this setting, if Defactinib can demonstrate meaningful proof-of-concept, the program could establish material potential and offer substantial upside to VSTM shares.

Verastem - Corporate Strategy, Capabilities. Verastem cannily acquired the rights to Copiktra from Infinity Pharmaceuticals for attractive economics as the latter company was in a bit of a corporate pickle, so the positive data readouts have been quite beneficial to Verastem. As Verastem progresses the Copiktra commercial launch, it is committed to marketing the molecule in the US, and partnerships outside the US; it recently inked a deal with Yakult for Japan, and we expect additional agreements for the EU and other Asian countries as well. It was approved in the US in September 2018, and is being commercialized through Verastem's US commercial infrastructure.

Verastem – Important Recent/Upcoming Events

Feb 2018 – Copiktra NDA Submitted. Verastem filed the Copiktra NDA for full approval of Copiktra for the treatment of relapsed or refractory CLL/SLL and accelerated approval for the treatment of relapsed/refractory FL.

Feb 2018 – Copiktra's 210-Patient Phase I Program in Advanced Hematological Malignancies Published in Blood. The open-label, dose-escalating Phase 1 trial by Flinn et al. evaluated the maximum tolerated dose (MTD) pharmacodynamic response, efficacy and safety of Copiktra in 210 patients with advanced hematologic malignancies, including 31 patients in dose-escalation, who received 8mg-100mg twice daily, and 179 patients in the expansion phase, with Copiktra dosed 25mg or 75mg bid continuously. The study identified a MTD of 75mg twice daily. Copiktra was rapidly absorbed and showed dose-dependent pharmacokinetic profile. Safety data informed the Phase 3 DUO protocol including mandatory Pneumocystis prophylaxis. The publication underscores Copiktra's potential in CLL/SLL and provides solid evidence supporting the ongoing NDA, and the 35-patient TCL subset published by Horowitz et al supports the additional Phase 2 PRIMO study in PTCL.

1Q18 – Initiation of Copiktra's Phase 2 BRIO Study in CLL/SLL Patients with Prior BTK Inhibitor Exposure. The multi-center, open-label Phase 2 BRIO study is evaluating Copiktra in ~50 patients with CLL/SLL and who have relapsed, were refractory, or intolerant to prior BTK therapy (i.e., ibrutinib). The primary endpoint is ORR, and secondary endpoints include safety, duration of response, PFS and disease control rate. The primary analysis is expected in June 2020, according to clinicaltrials.gov. If positive, we expect these data to support increased adoption in patients following BTK therapy.

1Q18 – Initiation of Copiktra's Phase 2 PRIMO Study in Peripheral T-cell Lymphoma (PTCL). The multi-center, parallel-cohort, open-label Phase 2 PRIMO study is evaluating Copiktra 25, 50, and 75mg twice daily to determine the optimized dose in relapsed/refractory peripheral T-cell lymphoma (PTCL) patients. PTCL is a diverse group of aggressive Non-Hodgkin's Lymphomas. Once a dose is selected, 100 patients will be enrolled onto the expansion phase. The primary endpoint is ORR. Secondary endpoints include safety, duration of response, PFS, disease control rate, and OS. The primary analysis is expected around November 2021, according to clinicaltrials.gov. Positive data could support an expanded Copiktra label.

1Q18 – Initiation of Phase 1/2 ROCKIF Study of Defactinib in Carboplatin-Resistant Ovarian Cancer. The University of San Diego Phase 1/2 ROCKIF trial will evaluate Defactinib to re-sensitize carboplatin-resistant ovarian cancer to carboplatin and paclitaxel. The single-arm trial will enroll ~90 patients to assess safety and ORR of the combination. Estimated primary completion is September 2022 and full study completion is anticipated in October 2023, according to clinicaltrials.gov. We view the continued investigator interest in Defactinib combination trials as supportive of the proposed underlying biology.

April 2018 – Copiktra's NDA Accepted by FDA for Priority Review. Verastem announced FDA acceptance of Verastem's Copiktra NDA on April 9 and established an October 5 PDUFA action date. FDA's acceptance of the Copiktra NDA allows Verastem to begin to materially ramp up pre-commercialization efforts.

June 2018 – Verastem Presents 5 Abstracts at ASCO for Copiktra and Defactinib. At the American Society of Clinical Oncology (ASCO) meeting in June, Verastem presented five posters focusing on Copiktra and Defactinib. The data highlighted the beneficial effects of Copiktra's dual PI3K-δ/γ inhibition in the tumor microenvironment, and suggest early signs of activity with the Defactinib/pembrolizumab/gemcitabine combination in pancreatic cancer (PDAC).

June 2018 – Duvelisib Partners with Yakult Honsha Co., Ltd. For Japan. The exclusive license agreement gives Yakult rights to duvelisib for oncology indications in Japan. Verastem received $10 million upfront and is eligible for up to $90 million in development and commercial milestones and a double-digit royalty. Yakult will also fund certain global development costs for duvelisib on a pro-rata basis. The partnership adds a level of industry validation to the previously described data sets presented at ASH, and the Priority Review.

June 2018 – Verastem Raises $43 Million. Verastem closed a registered sale of ~7.2 million shares of common stock at $6.00 per share with Consonance Capital. Net proceeds from the offering of approximately $42.8 million will help fund pre-commercialization for Copiktra.

June 2018 – Copiktra Shows Activity in a Front Line CLL Combo at the European Hematology Association Meeting. Dr. Mathew Davids of the Dana-Farber Cancer Institute presented data from an investigator-sponsored trial evaluating the

potential for the addition of Copiktra to increase the cure rate of FCR (fludarabine, cyclophosphamide, and rituximab) in the frontline setting, in younger CLL patients. High rates of bone marrow MRD (minimum residual disease) negative were achieved, that were better than historical FCR cohorts and comparable to Ibrutinib/FCR data, according to the investigators. High rates of bone marrow MRD negative were achieved in patients with unmutated IGHV (associated with poor prognosis with FCR). Additionally, responses deepened with Copiktra maintenance following completion of the FCR combination. Toxicities appear material but manageable, with events comparable to either agent alone, according to Davids et al. and included infectious and immune-mediated events, as well as secondary malignancies. The conclusion is that DFCR is an effective regimen for younger fit patients, who may desire a chance at long term remission.

September 2018 – Copiktra Receives FDA Approval for CLL/SLL and FL. The FDA approved Copiktra ahead of its October 5 PDUFA date, triggering a $22 million milestone payment to Infinity, payable in either cash or stock. The drug is indicated for the twice-daily treatment of relapsed/refractory CLL/SLL in patients who have failed two prior lines of therapy and in relapsed/refractory FL patients who failed at least two prior lines of therapy. Verastem launched Copiktra with a presence of 50 sales reps, 8 district managers, 5 market access professionals, and 10 medical science liaisons. We view Copiktra as a convenient, highly-active, twice-daily oral therapy for relapsed/refractory CLL/SLL, FL, with potential in other indications.

Exhibit 5: Verastem – Recent and Important Upcoming Events

Date	Event	Comment	Significance
Sep '18	Copiktra (Duvelisib) Approved by FDA	Verastem is positioned to rapidly launch w/ approval	❖❖❖❖❖
Sep '18	Duvelisib partnered in China	$15mm upfront, $160mm milestones, double-digit royalties	❖❖❖❖
2018+	Additional Duvelisib OUS Partnership	Additional regional efforts; modest upfronts	❖❖❖❖
2018+	Defactinib clinical proof-of-concept	Positive data to support expansion efforts, investment	❖❖❖❖
2019	Duvelisib MAA	Should accelerate partnership discussions	❖❖❖
2019	Duvelisib EU Partnership	Potential for material upfronts	❖❖❖❖

(Significance: ❖ least important, ❖❖❖❖❖ most important.)

Source: BTIG BioPharmaceuticals Research.

September 2018 – Copiktra Partners with CSPC Pharmaceutical Group Limited For China. The exclusive license agreement gives CSPC rights to Copiktra for oncology indications in China, Hong Kong, Macau, and Taiwan. Verastem will receive $15 million upfront by November 2018 and is eligible for up to $160 million in development and commercial milestones and a double-digit royalty. Up to $30 million in milestones will be related to development. CSPC will also fund certain global development costs for Copiktra on a pro-rata basis. The partnership adds a level of industry validation as it was announced 1 day after FDA approval.

4Q18 – Oral PTCL Presentation Points Toward Copiktra Expansion. Full Phase 1 data in 51 patients with relapsed/refractory PTCL and 29 patients with CTCL treated with duvelisib combinations was very encouraging. Unmet need is material in R/R PTCL, with ORRs currently ranging from 25-41% and CRs from 11%-24%. ORR in PTCL for duvelisib + romidepsin in P1 was 59% (16/27) including 9 CRs (33%) with median PFS of 6.7 months. The most common Grade 3+ AEs were neutropenia (33%), diarrhea (15%), and ALT elevations (13%). Verastem is currently enrolling the Phase 2 PRIMO study of duvelisib monotherapy in ~120 R/R PTCL patients; PTCL represents the next potential Copiktra approval. Data from the PRIMO study could be available in 2H19.

4Q19 – Duvelisib MAA Filing. Verastem filed the Duvelisib dossier to the EMA in November 2019, with potential EU approval in 2020; the filing could potentially accelerate EU partnering efforts.

2019+ – Additional Copiktra International Partnerships. In addition to the June 2018 Japan partnership with Yakult and September 2018 China deal with CSPC, there are potentially additional geographies where Verastem seeks to partner Copiktra, while retaining material economics. Additional upfronts and milestones to Verastem have the potential to add additional non-dilutive capital as Verastem transitions to a commercial entity. We would expect potential partners to become more aggressive now that FDA has approved Copiktra.

2019+ – Additional Copiktra Combination Studies. In addition to the June 2018 EHA data with Copiktra + FCR (fludarabine, cyclophosphamide, and rituximab) in the frontline setting in younger CLL patients, we would expect additional studies, data, and publications of Copiktra in various combination regimens in multiple additional settings. For instance, Dr. Mathew Davids of the Dana-Farber Cancer Institute plans to begin enrolling a Phase 1/2 trial (NCT03534323) to assess the combination of

Copiktra/Venclexta in ~47 r/r CLL/SLL patients. Copiktra will be dosed for one week than Venclexta will be added. The primary endpoints of the trial are MTD dose of the combination and rate of complete remission. The study will not enroll patients with prior exposure to either agent.

2019+ – Proof-Of-Concept from Defactinib IO Combinations. There are several ongoing studies evaluating Defactinib combinations with IO antibodies Bavencio and Keytruda. Verastem is conducting the Phase 1/2 trial with Bavencio (anti-PD-L1) in ovarian cancer, while Washington University School of Medicine, and Cancer Research United Kingdom are conducting early phase trials with Keytruda (anti-PD-1) in advanced NSCLC, pancreatic cancer and mesothelioma. All-comer Phase 1 data from the trial with Washington University evaluating Defactinib plus Keytruda and Gemcitabine presented at ASCO 2018 supported expansion into a PDAC cohort.

Verastem – Prior Events

2010 – Copiktra Licensed to Infinity Pharmaceuticals. Copiktra, Verastem's commercial PI3K δ/γ dual inhibitor, was licensed by Infinity Pharmaceuticals from Intellikine, a division of Takeda Pharmaceuticals (TKPPY, Not Rated), with other PI3K assets.

1Q12 – Verastem's IPO Raises $63 Million. In February 2012, Verastem announced the closing of its IPO of ~6.3 million shares of common stock at $10.00 per share with aggregate net proceeds of approximately $56.7 million to fund continued development of its early stage therapeutic and companion diagnostic platforms targeting cancer stem cells.

July 2012 – Verastem Licenses Defactinib From Pfizer. Verastem entered an exclusive license agreement with Pfizer (PFE, Not Rated) to research, develop, manufacture and commercialize Pfizer's focal adhesion kinase (FAK) inhibitors, including Defactinib (VS-6063, PF-04554878), for all therapeutic, diagnostic and prophylactic uses in humans. FAK inhibitors are thought to block the transcription of chemokines that recruit regulatory T cells and create an immuno-suppressive tumor microenvironment. Verastem paid $1.5 million upfront and issued 192,012 common shares to Pfizer. Pfizer is eligible for up to $2 million in developmental milestones, up to an additional $125 million in regulatory and sales milestones, and high-single to mid double-digit royalties on future net sales.

Exhibit 6: Verastem – Important Prior Events

Date	Event	Comment	Significance
2010	Duvelisib licensed to Infinity Pharmaceuticals	Infinity licenses Duvelisib for up to $450mm and profit share	❖❖❖
1Q12	Verastem IPO raises $63mm	Funds development against cancer stem cells	❖❖
3Q12	Verastem licenses Defactinib, other assets	Assets from Pfizer are initial targets of the company	❖❖❖
2012	Duvelisib achieves positive Phase 1 in volunteers	Supports further development of the compound	❖❖❖❖
1Q14	Phase 3 DUO Study of Duvelisib in r/r CLL/SLL initiates	Data are the basis for the NDA filling	❖❖❖
3Q14	Duvelisib licensed to AbbVie for Oncology indications	$275mm upfront, $530mm in milestones, US profit share	❖❖❖
3Q15	Defactinib registration-directed study terminates	COMMAND trial in mesothelioma stopped for futility	❖❖❖
3Q15	Duvelisib fully enrolls Phase 2 DYNAMO study in NHL	ORR data support accelerated approval in 3L FL	❖❖❖❖
4Q15	Verastem initiates corporate restructuring	Reduce headcount by 50%	❖❖❖
2H15	Duvelisib recieves FDA Fast Track for r/r CLL, FL	Fast Track facilitates the development, interaction w/FDA	❖❖❖❖
2015	Duvelisib misses in Phase 2 autoimmune studies	Development pivots solely to oncology indications	❖❖❖
1Q16	Defactanib initial IO collaborations	Evaluating w/Anti-PD-(L)1s for ovarian, pancreatic cancers	❖❖❖
Sep '16	AbbVie teminates Duvelisib collaboration	Rights return to INFI; ABBV paid $405mm in total	❖❖❖❖
Nov '16	VSTM In-Licenses Duvelisib from INFI	Phase 3 asset for $28mm in milestones and royalty	❖❖❖❖❖
Dec '16	P2 DYNAMO Data in Oral Presentation at ASH	Demonstrates meaningful ORR for accelerated appoval	❖❖❖❖❖
Jun '17	DYNAMO Long-Term Follow-up Data at ICML and EHA	Improved ORR; in-line safety from ASH dataset	❖❖❖❖
3Q17	Duvelisib granted FDA Fast Track for r/r PTCL	Fast Track facilitates the development, interaction w/FDA	❖❖❖❖
Oct '17	FDA guidance on Duvelisib NDA submission	Informed NDA submission strategy	❖❖❖❖
Dec '17	Duvelisib Phase 3 DUO Data in Oral Presentation at ASH	13.3mo PFS by IRC, manageable safety profile support NDA	❖❖❖❖❖
Dec '17	Duvelisib Phase 1 Data in TCL at ASH	Oral presentation supports further development	❖❖❖❖
Dec '17	$25mm Equity Financing	Proceeds to fund precommercialization efforts	❖❖❖❖
Jan '18	Expands Hercules Debt Facility to $50mm	Provides $35mm in additional funding	❖❖❖❖
Feb '18	Duvelisib NDA Submitted	Seeks full approval r/r CLL/SLL; accelerated approval 3L FL	❖❖❖❖
Feb '18	Duvelisib Phase 1 results published in *Blood*	Publication to drive awareness in medical community	❖❖❖❖❖
1Q18	Duvelisib initiates Phase 2 BRIO study	Enrolling BTK-experienced CLL/SLL patients	❖❖❖❖
1Q18	Duvelisib initiates Phase 2 PRIMO study	Enrolling r/r PTCL pts; positive data to expand label	❖❖❖
Apr '18	Duvelisib NDA accepted for Priority Review	Validates potential of Duvelisib to address an unmet need	❖❖❖❖❖
Jun '18	Verastem presents 5 abstracts at ASCO	Additional Duvelisib data; Defactinib/Keytruda in Pancreatic	❖❖❖❖
Jun '18	Duvelisib partnered in Japan	$10mm upfront, $90mm milestones, double-digit royalties	❖❖❖❖
Jun '18	Duvelisib at the EHA meeting	Oral presentation in early CLL, biomarker data	❖❖❖❖
2Q18	$107mm in Equity capital raised	2 offerings, ATM to fund pre-commercialization activities	❖❖❖❖

(Significance: ❖ least important, ❖❖❖❖❖ most important.)

Source: BTIG BioPharmaceuticals Research.

2012 – Copiktra Phase 1 Results. Phase 1 safety data from 84 healthy subjects were presented at medical conferences in 2012. Copiktra single doses of 1mg, 2mg, 5mg, 25mg, and 30mg, and multiple doses of 1mg, 2mg, and 5mg twice daily, and 10mg daily were assessed. Copiktra pharmacokinetics were dose-dependent and achieved concentrations sufficient for potential PI3K-δ and PI3K-γ inhibition. At these doses, Copiktra safety was in line with placebo.

3Q13 – Verastem Raises $64 Million. In July 2013, Verastem announced the closing of ~4.3 million shares of common stock at $15.00/share with total net proceeds of ~$59.8 million to fund Defactinib and other clinical development.

1Q14 – Phase 3 DUO Trial Initiates in Relapsed/Refractory Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma. The randomized, Phase 3 DUO trial enrolled 319 relapsed/refractory CLL/SLL patients to receive either twice daily oral 25mg Copiktra dosed continuously or IV ofatumumab the standard-of care – 300mg IV on Day 1, 2000mg IV weekly for 7 weeks and monthly for 4 months. The crossover trial design allowed patients who progress on either arm to cross over to the other. All patients were required to receive Pneumocystis prophylaxis, and CMV prophylaxis was recommended. The primary endpoint was PFS; secondary endpoints included ORR, duration of response, and OS. Safety was also evaluated. Eligibility required 1+ prior anti-cancer therapy, hemoglobin of at least 8g/dL and platelet count of 10,000µL or higher, independent of transfusion support. There was no minimum absolute neutrophil count. Patients with prior BTK or PI3K inhibitors were excluded. Positive data were presented in an oral presentation at ASH 2017.

3Q14 – Duvelisib Licensed to AbbVie for Oncology Uses. Duvelisib was then licensed from Infinity to AbbVie (ABBV, Not Rated) to develop and commercialize it for oncology uses. Terms were $275 million upfront, up to an additional $530 million in milestones, US profit share and 23.5%-30.5% royalties on international sales. AbbVie made total payments to Infinity of $405 million before terminating the agreement in September 2016.

1Q15 – Verastem Raises $54 Million. In January 2015, Verastem announced the pricing of 8.3 million common shares at $6.50 per share with aggregate net proceeds of approximately $50.9 million to fund the Defactinib clinical program including the registration-directed COMMAND study in mesothelioma and a Phase 2 trial in patients with KRAS-mutant NSCLC.

Aug 2015 – Copiktra Granted FDA Fast Track Designation for Relapsed/ Refractory CLL. Fast Track is designed to facilitate the development of drugs that treat serious conditions and fill an unmet medical need. This designation should help facilitate Verastem's interaction with the agency, and may help expedite the ongoing NDA review process. Copiktra has FDA and EMA Orphan Drug Designation for this indication.

Sep 2015 – Defactinib's COMMAND Study Stopped Due to Futility. Verastem terminated Defactinib's COMMAND trial in malignant pleural mesothelioma due to no difference in Defactinib versus placebo in the ITT population or patients with Merlin-low tumors. The registration-directed, randomized, double-blind, placebo-controlled COMMAND study was evaluating Defactinib as a switch maintenance treatment in patients with malignant pleural mesothelioma benefiting from frontline therapy.

Sep 2015 – Publication Highlights Positive Effects of FAK Inhibition on the Tumor Micro Environment. The preclinical studies published in Cell show that active FAK accumulation in the nucleus of tumor cells promotes immune escape, as FAK facilitates the transcription of chemokines and cytokines that encourage the development of an immunosuppressive tumor micro environment. The data support further assessment of FAK inhibitor combinations with CD8+ T cell stimulatory therapeutics.

3Q15 – Copiktra's DYNAMO Study Completes Enrollment for Indolent Non-Hodgkin's Lymphoma (iNHL)/Follicular Lymphoma (FL). The single-arm 129-patient Phase 2 DYNAMO trial evaluated twice daily, oral 25mg Copiktra dosed continuously for the treatment of double-refractory indolent NHL (refractory to both rituximab and chemotherapy or radioimmunotherapy). 83 patients had follicular lymphoma (FL), 28 had small lymphocytic lymphoma (SLL), and 18 had marginal zone lymphoma (MZL). There were no eligibility restrictions for cytopenias. The primary endpoint was best ORR and secondary endpoints included duration of response, PFS, OS, and safety. Positive data were presented as an oral presentation at ASH 2016, with strengthened long-term follow-up data presented in an oral presentation at the 2017 International Conference on Malignant Lymphoma (ICML) and EHA meetings.

Oct 2015 – Verastem Corporate Restructuring. In the wake of the Defactinib COMMAND trial, Verastem reduced its headcount by ~50% to 20 full time employees.

Nov 2015 – Copiktra Granted FDA Fast Track Designation for Double-Refractory Follicular Lymphoma (FL). Follicular Lymphoma was a material patient subset in the DYNAMO study. Fast Track is designed to facilitate the development of drugs that treat serious conditions and fill an unmet medical need. This designation should help facilitate Verastem's interaction with the agency, and may help expedite the ongoing NDA review process. Copiktra has FDA and EMA Orphan Drug Designation for this indication.

2015 – Duvelisib Misses in Autoimmune Indications, Transitions Focus to Oncology. The Phase 2 ASPIRA study of duvelisib 0.5mg, 1.0mg, or 5.0mg twice-daily plus methotrexate for 12 weeks did not improve the primary endpoint of ACR20 versus placebo in rheumatoid arthritis. Additionally, duvelisib 1mg, 5mg, and 25mg twice daily over 5-14 days did not improve FEV1 in a Phase 2 allergen challenge study in patients with mild asthma. Copiktra development to focus on oncology indications.

1Q16 – Defactinib IO Collaboration with Bavencio for Ovarian Cancer. The Phase 1/2 trial is evaluating Defactinib in combination with Pfizer/Merck KGaA's anti-PD-L1 antibody, Bavencio (avelumab) in patients with relapsed/refractory ovarian cancer. The dose-escalation portion will enroll ~18 patients to determine the recommended Phase 2 dose. The expansion portion will treat ~80 patients at the Phase 2 dose. The primary endpoints are safety, maximum tolerated dose, and ORR (Part 2). Survival and immune-based response metrics are secondary endpoints. According to clinicaltrials.gov, full study completion is expected around year-end 2018.

1Q16 – Washington University Initiates Phase 1/1b Trial of Defactinib Plus Keytruda and Gemcitabine in Pancreatic Cancer. The investigator-initiated Phase 1/1b dose-escalation study will enroll ~50 patients with advanced pancreatic cancer. The primary endpoint is recommended Phase 2 dose. Secondary outcomes are safety and anti-tumor efficacy measures. The full study completion is expected in July 2020, according to clinicaltrials.gov. Preliminary data were presented at ASCO 2018 (see below).

July 2016 – Publication Suggests FAK (Focal Adhesion Kinase) Inhibition "Turns On" Pancreatic Cancers to Checkpoint Immunotherapy. The preclinical study published by Jiang et al. in Nature Medicine concluded that FAK inhibition may be an important combination strategy with checkpoint inhibitors. The study demonstrated that FAK signaling contributes to fibrotic and immune suppressive tumor microenvironment in neoplastic pancreatic ductal adenocarcinoma (PDAC) cells, and FAK inhibition through VS-4718 increases the immune surveillance of PDAC tumors by altering production of pro-inflammatory and immunosuppressive cytokines, making these tumors responsive to immunotherapy.

Sep 2016 – AbbVie Terminates Copiktra Collaboration, Returns Rights to Infinity. With multiple AbbVie collaborations, including its purchase of Pharmacyclics with ibrutinib (Imbruvica) which has considerable use in front-line CLL, and a partnership with Roche (RHHBY, Not Rated) for Venclexta, causing conflicts with the ring fence around each collaboration, AbbVie notified Infinity it was terminating the duvelisib collaboration in June 2016, after the top-line data from DYNAMO. The AbbVie/Infinity agreement formally ended in September that year.

Nov 2016 – Verastem Grabs Copiktra for Oncology from Infinity. With Infinity perhaps unprepared for the return of Copiktra, and the burden of material R&D that was ongoing, Infinity looked to partner Copiktra, having only a short time to complete a transaction. Verastem entered an agreement with Infinity to license Copiktra, which included exclusive worldwide rights to research, develop, commercialize and manufacture Copiktra-based products for oncology indications. Verastem paid Infinity $6 million in cash upon positive Phase 3 data from the DUO trial in 4Q17 and will pay $22 million in cash or stock on an approval of Copiktra in the US or internationally. Verastem will pay tiered mid-to-high single-digit royalties to infinity and a 4% royalty to Infinity to cover a legacy agreement on the compound with Mundipharma (Private).

Dec 2016 – DYNAMO Oral Presentation at ASH. Verastem presented the primary analysis of the Phase 2 DYNAMO study in an oral presentation at ASH. The follicular lymphoma (FL) cohort (83 of the 129 total) serves as the basis for the ongoing NDA review for accelerated approval in double-refractory FL patients. ORR was 46% including a 41% ORR in FL patients (all PRs) by independent review, meeting the primary endpoint that ORR was not 30% or less (p=0.0001). 83% of evaluable patients had target lymph node reduction by independent review. The overall study median PFS and duration of response was 8.4 and 9.9 months, respectively, by independent review. Copiktra was considered well tolerated, with a manageable safety profile in the presence of appropriate risk mitigation, according to Flinn et al.

Dec 2016 – CONTEMPO Presentation at ASH. Preliminary data from the Phase 1b/2 CONTEMPO trial of Copiktra plus rituximab (DR) or obinutuzumab (DO) in untreated CD20+ FL patients were presented at ASH. Best ORR assessed by the investigator was 92% in the DR arm (n=27) with a 22% CR, and 81% in the DO arm (n=26) with a 23% CR. The safety profile of DR and DO were consistent with the previously characterized safety of Copiktra monotherapy according to Casulo et al. (#2979; ASH 2016). Enrollment onto the study was terminated early and Copiktra development in follicular lymphoma remains focused on the double-refractory population.

June 2017 – DYNAMO Oral Presentations Highlight Improved Long-Term Data in Double-Refractory Follicular Lymphoma. Verastem presented long-term follow-up data from the 83-patient FL subset data of DYNAMO in oral presentations at the ICML and EHA meetings, with comments generally relating to the FL cohort. ORR in FL patients improved to 43%, including 1 CR, by independent review, and 53% by investigator assessment. Median PFS and duration of response was 8.3 and 7.9 months, respectively, by independent review. Responses were observed rapidly within a median of 2 months and patients were on Copiktra for a median of 5 months. Median OS was 27.8 months. Zinzani et al. concluded Copiktra remained well tolerated, and demonstrates a favorable benefit/risk profile in double-refractory FL.

3Q17 – Copiktra Granted FDA Fast Track Designation for Peripheral T-Cell Lymphoma (PTCL). Verastem initiated a Phase 2 study of Copiktra to assess the molecule's efficacy and safety in PTCL in 1Q18 (see below). Fast Track is designed to facilitate the development of drugs that treat serious conditions and fill an unmet medical need. This designation should help facilitate Verastem's interaction with the agency, and the designation may help expedite the review process.

3Q17 – Defactinib Phase 1/2 Combination with Keytruda Launches by Cancer Research United Kingdom. The investigator-sponsored study is evaluating Defactinib plus Keytruda, Merck's (MRK, Not Rated) anti-PD-1 antibody, in patients with refractory NSCLC, pancreatic cancer and mesothelioma. The all comers Phase 1 portion will enroll 2 cohorts of up to 6 patients each. The expansion cohorts in NSCLC, pancreatic cancer, and mesothelioma will enroll ~15 patients each with prespecified futility analyses. The primary endpoint is safety. Secondary outcomes include efficacy and PK assessments. Primary completion is expected in May 2019, according to clinicaltrials.gov.

Sep 2017 – Verastem Announces Positive Top Line Results from the Phase 3 DUO Study in CLL/SLL. Positive top line data from the randomized, 319-patient Phase 3 DUO study in relapsed/refractory CLL/SLL demonstrated a median PFS of 13.3 months for Copiktra that was significantly greater than the 9.9 months for ofatumumab (HR 0.52; p <0.0001) by a blinded independent review committee. In the key subpopulation of patients with difficult to treat 17p deletion patients, median PFS was 12.7 vs. 9.0 months for Copiktra and ofatumumab, respectively (HR 0.41; p =0.0011).

Oct 2017 – FDA Provides Constructive Guidance on Copiktra's Regulatory Pathway. Verastem met with FDA and received written feedback regarding its Copiktra NDA strategy. Based on this guidance, Verastem's NDA requested full approval of Copiktra for the treatment of relapsed/refractory CLL/SLL, and accelerated approval for the treatment of patients with relapsed/refractory FL.

Dec 2017 – Copiktra's Phase 3 DUO Data Gets an Oral Presentation at the 2017 American Society of Hematology Meeting. Positive data from the randomized, 319-patient Phase 3 DUO study in relapsed/refractory CLL/SLL were discussed during an oral presentation at ASH 2017, signaling the significance of new treatment options for later line CLL patients. 89 patients with progression on ofatumumab crossed over to receive Copiktra, while 8 crossed from Copiktra to ofatumumab. The trial was positive on the PFS primary endpoint (see above). ORR was 73.8% for Copiktra and 44.7% for ofatumumab (p <0.0001) per independent review and 85% of Copiktra patients had 50%+ decrease in lymph node burden from baseline compared to 15.7% of those treated with ofatumumab. Importantly, Copiktra's safety profile appeared manageable, consistent with some of the AEs seen in the prior data, according to KOLs, an important consideration for Copiktra's potential use in the community setting given oral dosing.

Dec 2017 – Copiktra Phase I Combination Data in Relapsed/Refractory T-Cell Lymphoma Oral Presentation at ASH. Investigators from Memorial Sloan Kettering presented results from a parallel, dose-escalation Phase I trial evaluating Copiktra with either Romidepsin or Bortezomib for relapsed/ refractory peripheral (PTCL) or cutaneous (CTCL) T-cell lymphoma. Both regimens achieved PTCL response rates of at least 50% (3CRs and 2PRs). AST/ALT elevations limited dose escalation with bortezomib but not Romidepsin. Further evaluation of Copiktra plus Romidepsin is planned.

Dec 2017 – Verastem Raises $25 Million. In December 2017 Verastem announced the pricing of 8.4 million common shares at $2.97 per share with aggregate net proceeds of approximately $24.6 million to fund commercial preparation and launch costs of Copiktra.

Jan 2018 – Verastem Increases Debt Facility to $50 Million. Verastem increased its existing loan agreement with Hercules Capital to provide up to $50 million through 1Q19 to support regulatory and commercial activities of Copiktra and ongoing development. Up to $25 million remains available to be drawn upon in several tranches, upon FDA acceptance of the Copiktra NDA, and other conditions.

Jan 2018 – Preclinical Data Supports Copiktra IO Combinations. At the ASCO-SITC Clinical Immuno-Oncology Symposium, Verastem's J. Patcher and D. Weaver presented preclinical data supporting the potential of Copiktra combination therapy with anti-PD-(L)1 or co-stimulatory antibodies in patients with B cell malignancies. Copiktra is clinically active as monotherapy in B cell malignancies. Additionally, PI3Kδ inhibition is known to reduce immune-suppressive Tregs, and PI3Kγ inhibition is known to reduce immunosuppressive myeloid cells. In multiple B cell lymphoma models, Copiktra greatly potentiated the efficacy of checkpoint and co-stimulatory antibodies (anti-PD-1 and anti-OX-40 antibodies), supporting further work with other IO combinations in patients with B cell malignancies, as well as other tumor types.

Verastem – Risks

Regulatory – FDA, Health Agency Oversight. As with any company whose main business is drug development, Verastem is subject to the rigorous and strenuous regulatory requirements of the US Food and Drug Administration (FDA) and other international medicinal development regulatory agencies to have its new drugs approved and marketed. Promotion of its approved drug products is also regulated by FDA and related agencies throughout the globe. Though the company's specific focus on ethical (prescription) pharmaceuticals places significant risk on its operations, we believe this risk over time should be no greater or less than that for any other research-based drug development company in the biotechnology/biopharmaceutical industry.

Material Dependence Upon Copiktra Success. A material portion of Verastem's estimated revenue, cash, and profits are estimated to come from its development of Copiktra, an oncology drug approved by FDA for monotherapy treatment of relapsed/refractory CLL/SLL and FL in the 3rd line setting. If reported Copiktra clinical benefit (efficacy and safety) is not sufficient to satisfy regulatory authorities such as FDA or EMA, the large anticipated potential revenue, cash and profits expected as a result of its approval are at risk, which could materially restrict the company in several ways, and will likely materially negatively affect VSTM shares. As noted in the valuation comments above, the Copiktra development program is of material investor interest and we believe represents a material portion of Verastem's valuation; therefore, if Copiktra is not commercially adopted, or does not progress efficiently in label expansion efforts, there is material risk that VSTM shares could trade negatively, and result in capital losses for VSTM shareholders.

Manufacturing – FDA Oversight. FDA has been quite vigilant in the inspection of drug and biologic manufacturing plants both in the US and globally. Verastem and/or its contract manufacturers could therefore be subject to risk with FDA about manufacturing. If there is a meaningful problem with Verastem's manufacturing operations, that could be material to its potential products and consequently could have a material negative affect on Verastem's operations and VSTM shares.

Reimbursement Risk. Patients, physicians, or insurers may not ascertain the benefits or value of Verastem's branded therapeutics in a beneficial light, and in particular, insurers could require rigorous requirements prior to authorizing the payment for prescriptions once they are approved. If managed care does not significantly accept Verastem's product and pricing arrangements, company revenue could be insufficient to obtain profitability, and VSTM shareholders could experience negative returns as a result.

Commercial Risk. Copiktra participates in a highly competitive market with existing and development stage therapeutics. Verastem has recently established its marketing capabilities. If the company is unable to achieve significant product sales necessary for profitability, then VSTM shares could be materially harmed. Also, if Verastem fails to obtain an international commercial partner for its products, then VSTM shares could also be significantly harmed.

Financing Risk. VSTM shares may be subject to financing risk, as the company may need to raise additional capital to support the commercial launch of Copiktra for CLL/SLL and FL. It may need to raise additional funds to complete studies in other indications for Copiktra and/or its other opportunities in the pipeline. If Verastem is unable to obtain licensure for the US or additional international markets for its products, or is unable to sufficiently differentiate them compared to generic or other branded options in the indication being pursued, material additional dilution of existing shareholders is possible, and investor perception of VSTM shares could be substantially harmed.

Additional Risks. Verastem has incurred, and expects to incur, significant costs as a result of laws and regulations relating to corporate governance and other matters. Verastem is subject to federal, state and foreign healthcare laws and regulations and implementation or changes to such healthcare laws and regulations could adversely affect its business and results of operations.

Verastem – Income Statement ($000, except per share amounts)

Verastem, Inc.	2015A	2016A	2017A	2018A	1Q19A	2Q19A	3Q19A	4Q19E	2019E	2020E
Income Statement ($000, except per share amts.)										
Product Revenue										
Duvelisib (Total)	$ -	$ -	$ -	$ 1,718	$ 1,671	$ 3,019	$ 4,032	$ 5,162	$ 13,884	$ 35,104
- US	*0*	*0*	*0*	*1,718*	*1,671*	*3,019*	*4,032*	*5,162*	*13,884*	*35,104*
- International	*0*	*0*	*0*	*0*	-	-	-	-	*0*	*0*
Defactinib (Total)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
- US	*0*	*0*	*0*	*0*	-	-	-	-	*0*	*0*
- International	*0*	*0*	*0*	*0*	-	-	-	-	*0*	*0*
Other/Collab revenue	*0*	0	$ -	$ -	-	-	-	-	$ -	$ -
Proprietary Drug Revenue to Verastem (US on	$ -	$ -	$ -	$ 1,718	$ 1,671	$ 3,019	$ 4,032	$ 5,162	$ 13,884	$ 35,104
Milestone & Royalty Revenue										
Royalty from Partners	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Upfront, Milestone Payments										
Duvelisib Milestones, Amort. Upfronts	$ -	$ -	$ -	$ 25,000	-	-	5,000	-	$ 5,000	$ 10,000
Defactinib Milestones, Upfront payments	-	-	-	-	-	-	-	-	-	-
Upfront, Milestones from Partners	$ -	$ -	$ -	$ 25,000	$ -	$ -	$ 5,000	$ -	$ 5,000	$ 10,000
Total Roylty., Upfnt., Milestn. Payments	$ -	$ -	$ -	$ 25,000	-	$ -	$ 5,000	$ -	$ 5,000	$ 10,000
Other Revenue	$ -	$ -	$ -	$ -	$ -	$ 117	$ -	$ -	$ 117	$ -
Total Verastem Revenue	$ -	$ -	$ -	$ 26,718	$ 1,671	$ 3,136	$ 9,032	$ 5,162	$ 19,001	$ 45,104
Expenses:										
COGS	0	0	0	165	158	377	371	465	1,371	4,563
R & D	40,565	19,779	46,423	43,648	9,758	11,346	12,219	13,500	46,823	38,500
S G & A	17,634	17,223	21,381	77,265	26,033	29,298	22,153	20,000	97,484	75,500
Amortization of acquired intangible assets				423	392	392	392	392	1,568	1,571
Total Expenses	$58,199	$37,002	$67,804	$121,501	$36,341	$41,413	$35,135	$34,357	$147,246	$120,135
Operating Income	($58,199)	($37,002)	($67,804)	($94,783)	($34,670)	($38,277)	($26,103)	$ (29,195)	($128,245)	($75,031)
Operating Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Interest Income	334	$562	$561	$2,603	$1,497	$1,268	$1,005	$950	$4,720	$1,500
Interest Expense	0	0	(559)	(5,810)	(4,929)	(5,185)	(5,041)	(5,000)	(20,155)	(10,563)
Other Income (Expense)	0	0	0	25,556	-	-	-	-	0	0
Other Financing Income (Expense)	0	0	0	0	-	-	-	-	0	0
Total Other Income, net	$334	$562	$2	$22,349	($3,432)	($3,917)	($4,036)	($4,050)	($15,435)	($9,063)
Pretax Income	(57,865)	(36,440)	($67,802)	($72,434)	($38,102)	($42,194)	($30,139)	$ (33,245)	($143,680)	($84,094)
Pretax Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Effective Taxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax Rate	0.0%	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Fully Taxed rate	($14,466)	($9,110)	($16,951)	($18,109)	($9,526)	($10,549)	($7,535)	($8,311)	($35,920)	($21,023)
Tax Rate	25.0%	25.0%	25.0%	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*
Other Convertible Preferred, other securities transactions	-	-	$0	-	-	-	-	-	-	-
Net Income (Loss) - Effective taxed	**($57,865)**	**($36,440)**	**($67,802)**	**($72,434)**	**($38,102)**	**($42,194)**	**($30,139)**	**($33,245)**	**($143,680)**	**($84,094)**
Income - Fully taxed	(43,399)	(27,330)	($50,852)	($54,326)	($28,577)	($31,646)	($22,604)	($24,934)	($107,760)	($63,070)
Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
EPS (ex-charges; eff. taxed)	**($1.61)**	**($0.99)**	**($1.76)**	**($1.12)**	**($0.52)**	**($0.57)**	**($0.41)**	**($0.45)**	**($1.94)**	**($1.13)**
EPS (ex-charges; fully-taxed)	**($1.21)**	**($0.74)**	**($1.32)**	**($0.84)**	**($0.39)**	**($0.43)**	**($0.30)**	**($0.34)**	**($1.45)**	**($0.68)**
Shares O/S (000), Basic	35,932	36,988	38,422	64,962	73,854	73,877	74,228	74,378	74,084	74,578
Shares O/S (000), Diluted	41,465	42,979	43,188	72,700	91,149	91,172	91,523	91,673	91,456	92,773
				-- Expenses (% of sales) --						
Cost of Sales (product sales)	0.0%	NM	NM	9.6%	9.5%	12.5%	9.2%	9.0%	9.9%	13.0%
Gross	NM	NM	NM	90.4%	90.5%	87.5%	90.8%	91.0%	90.1%	87.0%
R & D	NM	NM	NM	163.4%	584.0%	361.8%	135.3%	261.5%	246.4%	85.4%
S G & A	NM	NM	NM	289.2%	1557.9%	934.2%	245.3%	387.5%	513.1%	167.4%
Total	NM	NM	NM	454.8%	2174.8%	1320.6%	389.0%	665.6%	774.9%	266.4%
				-- Year / Year Growth --						
Revenue	NM	NM	NM	NM	NM	NM	NM	NM	-28.9%	137.4%
Operating Income	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pretax Income	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Net Income	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
EPS (ex-charges)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
EPS (ex-charges; fully-taxed)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Source: Verastem, Inc. SEC documents and BTIG BioPharmaceuticals estimates.

Contact Information: Robert (Bert) Hazlett, Managing Director, BTIG BioPharmaceuticals Research, rhazlett@btig.com, 212-738-6145.

Verastem – Balance Sheet, Statement of Cash Flows ($000, except per share amounts)

ASSETS	12/31/2014A	12/31/2015A	12/31/2016A	12/31/2017A	12/31/2018A	12/31/2019E	12/31/2020E
Cash & equivalents	$33,901	$24,870	$32,349	$82,176	$129,867	$46,050	$47,918
Investments/Mktb. Securities	$58,774	$85,388	$48,548	$4,496	$119,786	$75,000	$0
Account receivable, net	$0	$0	$0	$0	$306	$2,850	$5,412
Inventory	$0	$0	$0	$0	$327	$570	$1,804
Prepaid & other current assets	$2,641	$585	$398	$1,115	$2,973	$190	$902
Total Current Assets	$95,316	$110,843	$81,295	$87,787	$253,259	$124,660	$56,036
Property & Equipment, net,	$2,825	$2,048	$1,417	$861	$1,369	$1,369	$1,369
Intangible assets, net,				$0	$21,577	$20,006	$18,434
Restricted cash	$203	$203	$162	$162	$0	$0	$0
Other Assets	$305	$0	$755	$981	$1,031	$1,031	$1,031
Total Assets	**$98,649**	**$113,094**	**$83,629**	**$89,791**	**$277,236**	**$147,066**	**$76,871**
LIABILITIES & S.E.							
Accounts payable	$3,216	$3,942	$4,095	$9,186	$10,253	$2,850	$5,412
Accrued expenses	$5,519	$6,098	$6,896	$7,942	$21,108	$23,641	$27,187
Other current liability	$469	$69	$0	$0	$5,716	$0	$0
Total Current Liabilities	$9,204	$10,109	$10,991	$17,128	$37,077	$26,491	$32,600
Convert Note - 2048, non-current, net	$0	$0	$0	$0	$95,231	$150,000	$150,000
Long-term debt	$0	$0	$0	$14,828	$19,506	$35,000	$35,000
Other Liability	$679	$516	$341	$151	$1,123	$1,123	$1,123
Total Liabilities	**$9,883**	**$10,625**	**$11,332**	**$32,107**	**$152,937**	**$212,614**	**$218,723**
Shareholders Equity							
Common Stock	$3	$4	$4	$5	$7	$7	$7
Additional Paid in capital	$229,770	$301,305	$307,587	$360,823	$499,741	$453,614	$461,405
Accumulated other comprehensive income	$11	$43	$29	($2)	$127	$86	$86
Accumulated equity (defecit)	($141,018)	($198,883)	($235,323)	($303,142)	($375,576)	($519,256)	($603,349)
Total Shareholders Equity	$88,766	$102,469	$72,297	$57,684	$124,299	($65,548)	($141,852)
Total Liabilities and Shareholders Equity	**$98,649**	**$113,094**	**$83,629**	**$89,791**	**$277,236**	**$147,066**	**$76,871**

	12/31/2014A	12/31/2015A	12/31/2016A	12/31/2017A	12/31/2018A	12/31/2019E	12/31/2020E
CASH FLOW STATEMENT							
Cash Flow from Operating Activities							
Net income (loss)	(53,365)	(57,865)	(36,440)	(67,802)	(72,434)	(143,680)	(84,094)
Depreciation & Amortization	427	754	670	556	996	1,026	1,057
Amortization of acquired intangible assets					423	1,571	1,571
Noncash compensation expense	12,360	10,085	6,287	5,033	6,671	8,005	8,245
Amortization on available for sale securities	290	264	(140)	223	1,814	0	0
Other adjustments	1,201	46	0	0	(25,635)	0	0
Accounts receivable	0	0	0	0	(306)	(2,544)	(2,562)
Inventory					(327)	(243)	(1,234)
Prepaid expenses, other current and other assets	27	276	(568)	(943)	(1,167)	2,783	(712)
Accounts payable	287	863	153	5,046	1,048	(7,403)	2,562
Accrued expenses and other liabilities	2,119	418	623	577	13,902	2,533	3,546
Other operating activities	(248)	(400)	(69)	0	500	0	0
Cash Flow from Operating Activities	**(36,902)**	**(45,559)**	**(29,484)**	**(57,310)**	**(74,515)**	**(137,951)**	**(71,620)**
Cash Flow from Investing Activities							
Capital Expenditures, net	(2,429)	(211)	(39)	0	(1,425)	(1,468)	(1,512)
Purchase of investments	(39,361)	(199,851)	(82,101)	(7,957)	(125,452)	0	0
Maturities of investments	85,047	173,005	119,067	51,910	10,500	44,786	75,000
Other	(117)	0	41	0	(22,000)	0	0
Cash Flow from Investing Activities	**43,140**	**(27,057)**	**36,968**	**43,953**	**(138,377)**	**43,318**	**73,488**
Cash Flow from Financing Activities							
Proceeds from iss. of common stock (net)	9,554	64,002	0	48,511	105,965	75	0
Proceeds/Retirement of Debt	0	0	0	14,811	9,900	10,000	0
Convertible Notes - 2048	0	0	0	0	145,297	0	0
Other	(780)	(417)	(5)	(138)	0		
Cash Flow from Financing Activities	**8,774**	**63,585**	**(5)**	**63,184**	**261,162**	**10,075**	**0**
Beginning cash balance	**18,889**	**33,901**	**24,870**	**32,349**	**82,338**	**130,608**	**46,050**
Net increase (decrease) in cash	15,012	(9,031)	7,479	49,827	48,270	(84,558)	1,868
Ending cash and rest Cash balance	**33,901**	**24,870**	**32,349**	**82,338**	**130,608**	**46,050**	**47,918**
Ending cash and investments	**92,675**	**110,258**	**80,897**	**86,672**	**249,653**	**121,050**	**47,918**

Source: **Verastem, Inc. SEC documents and BTIG BioPharmaceuticals estimates.**

Contact information: Robert (Bert) Hazlett, Managing Director, BTIG BioPharmaceuticals Research, rhazlett@BTIG.com, 212-738-6145.

BTIG Covered Companies Mentioned in this Report

VERASTEM, INC. (VSTM, Neutral, $NA PT; Current Price: $1.72; Analyst: Robert.Hazlett)

Appendix: Analyst Certification and Other Important Disclosures

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I, Robert C. Hazlett, hereby certify that the views about the companies and securities discussed in this report are accurately expressed and that I have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report.

I, James Colby, hereby certify that the views about the companies and securities discussed in this report are accurately expressed and that I have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report.

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Valuation: We rate VSTM shares at Neutral based on our NPV analysis. BTIG does not assign Price Targets to Neutral Rated stocks.

Risks: Verastem is subject to risks associated with: Regulatory Oversight, Manufacturing, Reimbursement, Commercialization and Competition, Financing, among other risks.

Note: Closing Price and Target Price have been adjusted for corporate actions.

Date	Closing Price ($)	Target Price ($)	Analyst	Rating
13-Jul-18	8.50	17	Bert Hazlett	Buy
09-May-19	1.89	8	Bert Hazlett	Buy
20-Jun-19	1.59	NA	Bert Hazlett	Neutral

Company–Specific Regulatory Disclosures

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