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## Epizyme (EPZM - OUTPERFORM): EPZM Reports Initial Results for the Ongoing Phase 1/2 of EPZ-5676 DOT1L Inhibitor in the Acute Leukemia with MLL-r Setting

Price: \$19.94

12-Month Price Target: \$37

- **Initial results from the Phase I/II study of EPZ-5676 in the acute leukemia MLL-r setting were announced this morning.** The goal of therapy in the acute leukemia setting is to drive patients to a deep and durable remission and historically, this level of efficacy is not achieved with half-measures. In the data presented, there's clear evidence of activity with EPZ-5676 in some patients but to us, the more informative result is actually the complete absence of activity in half the patients with the MLL-r rearrangement. This outcome is in stark contrast to pre-clinical findings and suggests to us that EPZ-5676 dose, duration and schedule was, to this point in the study, inadequate. We will await the results of a more properly constructed experiment with appropriate dose and schedule prior to changing our outlook on the potential for EPZ-5676 in these patients with acute leukemia and MLL-r. Additionally, we believe that the move to the downside in the stock is exaggerated by the next event, which is the IPO unlock (November 26).
- **EPZ-5676 was well tolerated.** No DLT's were observed up to 54 mg/m<sup>2</sup> on 21 days on – 7 days off schedule. The 80 mg/m<sup>2</sup> cohort is currently enrolling. Continuous infusion is planned for Phase Ib study to be initiated in December.
- **4 of 8 patients with the MLL rearrangement responded to therapy.** 16 patients were enrolled in the Phase I, including 8 acute leukemia patients with MLL-r. Blast maturation occurred in 3 of the responders, and leukocytosis occurred in 2. A 90% circulating blast reduction occurred in 1 patient, no tissue for a bone marrow maturation test was available.
- **The dose expansion study will enroll 20 patients with MLL rearrangement.** The starting dose will be 80 mg/m<sup>2</sup> continuous infusion with the possibility of dose escalation. A pediatric study is expected to initiate in Q2:14 and a Phase II study in MLL-PTD is planned for 2014.
- **The time and dose-dependent methyl mark inhibition validates EPZ-5676 mechanism of action.** Methyl mark inhibition decreased in a dose and time-dependent fashion, and rebounded during the 7-day off-drug period. We expect the continuous infusion schedule will increase methyl mark inhibition beyond what can be achieved with the 21-day cycle.
- **EZP-6438 dose escalation studies continue, with no DLT observed to date, and Phase II studies are set to begin in EZH2 mutated DLBCL and Grade 3 FL in 2014.** Epizyme is also expected to expand development of '6438 beyond EZH2 mutated NHL into other INI1-deficient tumors based upon pre-clinical work published in April ([here](#)) and at AACR ([here](#)). A companion clinical test is also being developed with partner Roche. EZH2 has an oncogenic roll in MRT and synovial sarcomas, which have an incidence of 1,700 patients which represent upside to our estimates.
- **Reiterate OUTPERFORM rating and \$37 price target.** Our price target of \$37/share is derived from applying 8x and 15x multiples to our 2019 estimated sales and royalty revenues, respectively, discounted by 35% annually (fully-diluted share count, assumes an increase of 2 million additional shares for future financings). We note that with positive data, a decline in our discount rate from 35% per year to 20% per year yields a potential value in 12 months of \$66/share.
- Risks to the achievement of our price target include clinical, regulatory or market failure for EPZ-5676 and/or EPZ-6438.

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## **Investment Thesis**

Epizyme is focused on developing drugs that are highly specific for individual HMTs and the company seeks to prove that the treatment of a genetically definable patient with a potent and highly selective HMT inhibitor can lead to deep and durable levels of disease control. EPZM's most advanced product candidate, EPZ-5676, is in Phase I in AML/ALL patients, including mixed lineage rearranged leukemia (MLL-r). The company's second most advanced product candidate, EPZ-6438, is in an ongoing Phase I/II trial in a genetically defined subtype of non-Hodgkin's lymphoma (NHL). The company has entered into therapeutic collaborations with Celgene, Eisai, and GlaxoSmithKline (GSK), but maintains 100% of the US rights to EPZ-5676 and rights to opt into 50% of the US economics for EPZ-6438. As a result of the cause and effect link between the oncogenic HMT driver and malignancy, we would expect early evidence of deep and durable efficacy, potentially in even just a few genetically pre-defined patients, to lead to significant appreciation of EPZM's shares as investors price in clinical, regulatory and market success.

## **Milestones**

Dec. 2013	Begin second stage of the Phase I/II study of EPZ-5676 in AML/ALL patients with MLL-r
H1:14	Partner Eisai to initiate Phase II study of EPZ-6438 in the NHL (DLBCL and grade 3 FL) setting
H2:14	Begin pivotal Phase II trial for EPZ-5676 in adults with MLL-r
2014	Final data for the Phase I study of EPZ-6438 in the NHL setting
2014	Initiation of Phase II trials for EPZ-6438 in patients with INI1-deficient tumors (synovial sarcoma)
2014	Final data for the Phase I/II study of EPZ-5676 in the MLL-r setting
2014	Initiation of Phase I study of EPZ-5676 in the pediatric MLL-r setting
2014	Initiation of Phase I/II study of EPZ-5676 in the MLL-PTD setting
Q1:15	Begin pivotal Phase II/III trial for EPZ-6438 in EZH2-driven NHL
Q2:15	Begin pivotal Phase II trial for EPZ-5676 in children with MLL-r
H2:15	Data from pivotal Phase II trial for EPZ-5676 in adults with MLL-r
H2:15	Data from pivotal Phase II/III trial for EPZ-6438 in EZH2-driven NHL
H2:16	File NDA for EPZ-5676
H1:17	File NDA for EPZ-6438

### Analyst Certification

I, Gregory R. Wade, Ph.D., David M. Nierengarten, Ph.D., Christopher N. Marai, Ph.D., certify that the views expressed in this report accurately reflect my personal opinion and that I have not and will not, directly or indirectly, receive compensation or other payments in connection with my specific recommendations or views contained in this report.

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Company	Disclosure
Epizyme	1,3,5,7

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EPZM

1) 06/26/13  
OUTPERFORM \$37



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