January 21, 2014

OUTPERFORM

Reason for report:

FLASH NOTE

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LEERINK

KARYOPHARM THERAPEUTICS, INC.

Incremental Selinexor Updates at ASCO GI

• **Bottom Line:** KPTI provided an incremental update from its ongoing single-agent Selinexor Phase I dose-escalation trial and the dose-expansion cohort in colorectal cancer at ASCO GI this weekend. We believe updates to Selinexor in the colorectal cancer (CRC) cohort confirm activity and safety seen previously. Updates to KPTI's PAK4 inhibitor program validate PAK4 as a target in pancreatic cancer, in our view. We continue to believe Selinexor has single-agent activity across a broad range of indications and a manageable tolerability profile. Maintain Outperform.

• **Updates to Selinexor Phase I study in CRC cohort confirm activity and illustrate safety profile.** Minor changes were provided on efficacy since the last update in September 2013. Of 35 evaluable patients, 1 PR (partial response) and 11 SDs (stable diseases) were achieved (vs. 1 PR and 10 SDs in 29 patients at the last update). Adverse events (AEs) were broken out for CRC specifically, with low rates of G3-4 AEs and significant but manageable G1-2 gastrointestinal toxicities. A table comparing the data presented at ASCO GI and the last update can be found on page 2.

• **Incremental updates to PAK4 inhibitor program validate PAK4 as a target in pancreatic cancer.** KPTI has identified new PAK4 modulators with anti-proliferative activity. KPT-7189, a small molecule PAK4 modulator, was able to suppress PAK4 protein expression and reverse anti-apoptotic signaling in pancreatic cancer cell lines. KPT-7189 was also able to inhibit the spheroid forming ability of pancreatic cancer stem cells. KPT-7651, another PAK modulator, showed good oral bioavailability and was well tolerated by mice. PAK4 is an XPO1 cargo protein identified by KPTI.

• **Next up:** KPTI is on track to initiate two solid tumor Phase II trials in gynecological (ovarian, fallopian tube, peritoneal, endometria, cervical carcinoma) and squamous cell carcinomas (lung, head and neck, esophageal), respectively, in early 2014. Each trial will enroll ~60 patients in each study to assess progression free survival (PFS) and response rates with the goal to identify a path to approval in solid tumor indications by 2015. Of note, KPTI also initiated a small (n=30) Phase II study in glioblastoma.

Key Stats:	**(NASDAQ:KPTI)**
S&P 600 Health Care Index:	**1,320.64**
Price:	**$27.01**
52 Week High:	$28.75
52 Week Low:	$15.50
Shares Outstanding (mil):	29.7
Market Capitalization (mil):	$802.2

Please refer to pages 4 - 6 for Important Disclosures, Price Charts and Analyst Certification.

CRC	September 30 2013		ASCO GI 2014	
	Patients	%	Patients	%
Evaluable	29	100%	35	100%
PR+SD	11	38%	12	34%
PR	1	3%	1	3%
SD	10	34%	11	31%
PD	16	55%	21	60%
WC	0	0%	2	6%
NE	2	7%		

CRC	ASCO GI 2014
	%
G4 thrombocytopenia	6%
G3 Fatigue	23%
G3 Hyponatremia	26%
G3 thrombocytopenia	6%
G3 anorexia	9%
G3 nausea	3%
G3 dehydration	6%
G3 cataract	3%
G3 anemia	11%
G3 hyperglycemia	3%
G1-2 nausea	71%
G1-2 anorexia	51%
G1-2 fatigue	49%
G1-2 vomiting	57%
G1-2 dysgeusia	49%
G1-2 weight loss	46%
G1-2 diarrhea	26%
G1-2 blurred vision	20%

Source: KPTI ASCO GI poster

Event	Indication	Timing
Phase I program		
Phase I dose expansion data	Heme Arm 1 (MM, WM, DLBCL)	mid-14
Phase I dose expansion data	Heme Arm 2 (AML)	mid-14
Phase I dose expansion data	Solid tumors	mid-14
Phase I dose expansion data	Heme Arm 3 (TCL)	2014
Phase I dose expansion data	Heme Arm 4, 5 (ALL, CML)	2014
Phase I data	Food effect study in soft tissue/bone sacromas	2014
Hematological cancers		
Initiation of pivotal Phase II/III (single agent)	elderly r/r AML	2Q14
Initiation of pivotal Phase II/III (single agent)	DLBCL or MM	2Q14
Pivotal Phase II/III data	elderly r/r AML	1H16
Pivotal Phase II/III data	DLBCL or MM	1H16
Launch	r/r AML	1H17
Launch	DLBCL or MM	1H17
Solid tumors		
Initiate Phase II	single agent solid tumor (gynecological)	1Q14
Initiate Phase II	single agent solid tumor (squamous cell cancers [lung, head and neck, esophageal)	1Q14
Phase II data	single agent recurrent glioblastoma	2H15
Phase II data	single agent solid tumor (gynecological)	2H15
Phase II data	single agent solid tumor (squamous cell cancers [lung, head and neck, esophageal)	2H15
Investigator-Initiated Studies		
Initiation Phase I/II	combination	2013/14

Source: Company filings and Leerink Swann estimates

Disclosures Appendix

Analyst Certification

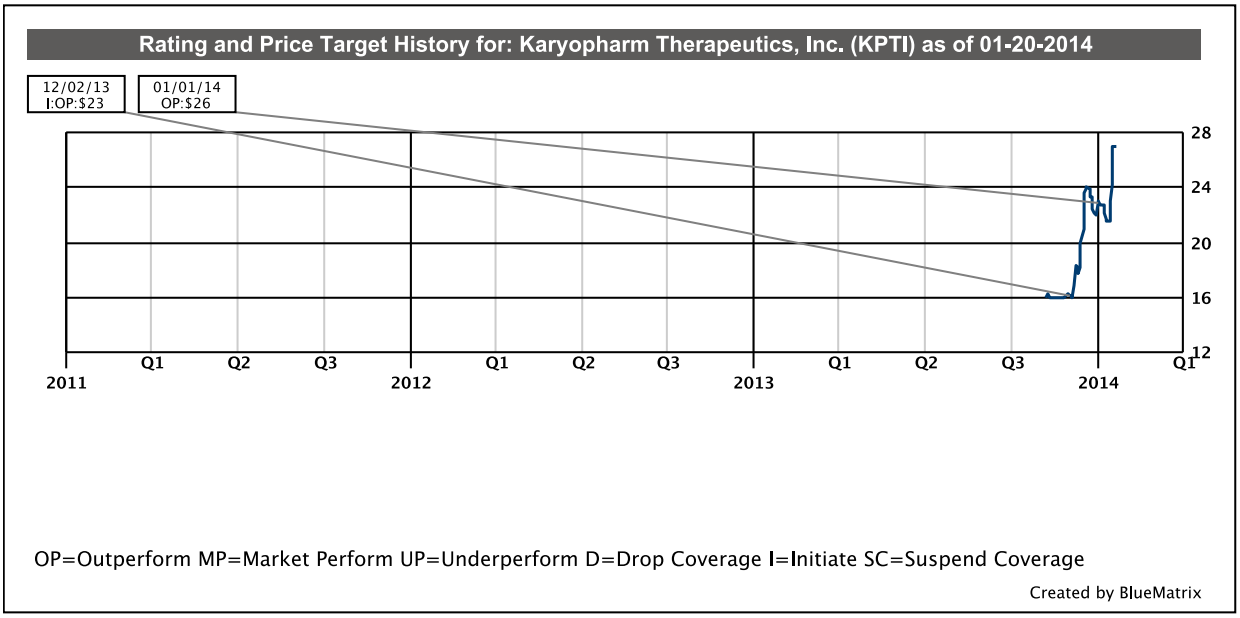
I, Michael Schmidt, Ph.D., certify that the views expressed in this report accurately reflect my views and that no part of my compensation was, is, or will be directly related to the specific recommendation or views contained in this report.

Valuation

We estimate a $26 fair value for KPTI shares in 12 months, based on a discounted cash flow (DCF) analysis. We apply a 12% discount rate to 35% probability of success-weighted Selinexor cash flows derived from three relapsed/ refractory hematological cancer indications (AML, DLBCL, and MM). Potential future Selinexor revenues derived from solid tumor indications as well as the preclinical and pet pipeline are upside to our valuation. Our valuation uses a terminal value derived by applying a 6x multiple to 2025ESelinexor revenue, discounted back by 11 periods. The 6x revenue multiple is in line with mid-cap biotech industry average. Based on our DCF analysis, we attribute $22/share to Selinexor and the remainder to expected cash in one year.

Risks to Valuation

Early stage biotech companies such as KPTI face significant clinical and regulatory development risk, as well as commercial risks. KPTI also faces execution risk and financial risk. We estimate that KPTI's current cash will be sufficient to fund into early 2017, and the company may have additional financing needs before turning cash flow positive. The vast majority of our KPTI valuation is based on Selinexor, the company's only clinical stage product candidate, so potential setbacks due to possible safety and/or efficacy related issues of Selinexor could have a significant impact to our valuation.



Distribution of Ratings/Investment Banking Services (IB) as of 12/31/13				
			IB Serv./Past 12 Mos.	
Rating	Count	Percent	Count	Percent
BUY [OP]	118	64.50	30	25.00
HOLD [MP]	65	35.50	2	3.00
SELL [UP]	0	0.00	0	0.00

Explanation of Ratings

Outperform (Buy): We expect this stock to outperform its benchmark over the next 12 months.

Market Perform (Hold/Neutral): We expect this stock to perform in line with its benchmark over the next 12 months.

Underperform (Sell): We expect this stock to underperform its benchmark over the next 12 months.The degree of outperformance or underperformance required to warrant an Outperform or an Underperform rating should be commensurate with the risk profile of the company.

For the purposes of these definitions the relevant benchmark will be the S&P 600® Health Care Index for issuers with a market capitalization of less than $2 billion and the S&P 500® Health Care Index for issuers with a market capitalization over $2 billion.

Important Disclosures

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In the past 12 months, the Firm has received compensation for providing investment banking services to Karyopharm Therapeutics, Inc. .

Leerink Partners LLC makes a market in Karyopharm Therapeutics, Inc.

Leerink Partners LLC has acted as the manager for a public offering of Karyopharm Therapeutics, Inc. in the past 12 months.

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