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OUTPERFORM

Reason for report:

FLASH NOTE

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KARYOPHARM THERAPEUTICS, INC.

Selinexor Phase I Update at ASCO Confirms Safety/Efficacy Profile

• **Bottom Line:** KPTI provided an incremental update from its ongoing single-agent Phase I dose-escalation trials this weekend. Three key data presentations included two poster presentations in solid tumors and AML (abstracts 2537 and 7032) and one oral presentation in NHL/DLBCL (abstract 8518). We believe the presentations largely confirm prior data showing that the drug has broad activity and is safe, with AEs largely manageable. Specifically, presented updates vs. data previously available in abstracts included three additional responses in DLBCL including one CR, one additional CR and 9 additional SDs in AML, and one additional response in cervical cancer. Detailed data tables are included in this note. We continue to believe Selinexor has clear single agent activity across a broad range of indications and a manageable tolerability profile. Ongoing or planned Phase II studies in AML, DLBCL, Richter's syndrome, prostate cancer, ovarian, endometrial, and cervical carcinoma (SIGN), recurrent glioblastoma (KING), and SCC of head and neck, lung, or esophagus need to validate and quantify early activity seen in Phase I. Reiterate Outperform rating.

• **DLBCL Phase I update positive.** KPTI presented data from 13 additional NHL patients, including 7 new DLBCL patients who had 1 CR, 2PRs and 3 SDs. The Phase 2/3 recommended dose was determined to be 60mg/m2 BIW. Recall, a potentially pivotal trial will launch in 2H14 and randomize 300 DLBCL pts 2:1 to Selinexor vs. single agent physician's choice of chemotherapy after progression from 2+ lines of prior therapy. The trial will be powered at 80% to show a PFS of 6.4 vs. 4.0 months, respectively, for Selinexor and control arms.

• **Activity in very late stage solid tumor patients encouraging.** KPTI presented Phase I data of Selinexor in solid tumors at ASCO on Friday. Minor updates included one additional response (PR) that was reported in a cervical cancer patient. Four partial responses (PRs) have now been attained with Selinexor in solid tumor indications, including 1 PR in colorectal cancer (CRC) of 39 evaluable patients, 1 PR in ovarian cancer of 5 evaluable patients, 1 PR in cervical cancer of 5 evaluable patients, and 1 PR in melanoma of 3 evaluable patients. Seven patients with stable disease (SD) were also attained in chemotherapy refractory prostate cancer patients (mCRPC) of 8 evaluable patients. We believe the initial data, in particular waterfall plots showing tumor shrinkage across several indications in very late stage solid tumor patients, are encouraging and warrant further trials. The Phase II SIGN trial (ovarian, endometrial, and cervical carcinoma) is ongoing with data expected in 2H15. The Phase II KING trial (glioblastoma) is ongoing with data expected in 2H15. Phase II trials in squamous cell cancers (head and neck, lung, or esophagus) and metastatic castration resistant prostate cancer are expected to initiate in 2Q14 and 2H14, respectively.

• **Mostly disease stabilization seen in additional AML patients.** KPTI presented data from 15 additional AML patients vs. data contained in the abstract. One PR turned into a CR. One additional patient attained MLFS and 9 additional patients achieved SD. Given the larger denominator, the ORR changed to 21% (from 28% in abstract), but disease control rate remained unchanged (66%). A randomized study of Selinexor 55mg/

Key Stats:	**(NASDAQ:KPTI)**
S&P 600 Health Care Index:	**1,266.01**
Price:	**$26.25**
52 Week High:	$47.87
52 Week Low:	$15.50
Shares Outstanding (mil):	29.7
Market Capitalization (mil):	$779.6

m2 PO BIW vs. physician's choice 2nd line in elderly AML is enrolling. Combination studies have begun or are planned.

• **Next Up** are two additional data presentations in sarcoma and ovarian cancer, followed by KPTI's ASCO investor meeting on Monday.

Non-Hodgkin's Lymphoma															
ASCO presentation 2014	**Evaluated**	**CR**		**PR**		**SD**		**PD**		**ORR**		**DCR**	
Richter's Syndrome	5	0	0%	2	40%	3	60%	0	0%	2	40%	5	100%
NHL	38	2	5%	8	21%	17	45%	7	18%	10	26%	27	71%
DLBCL	21	1	5%	5	24%	9	43%	5	24%	6	29%	15	71%
MCL	3	0	0%	1	33%	1	33%	0	0%	1	33%	2	67%
FL	7	0	0%	1	14%	5	71%	0	0%	1	14%	6	86%
Transformed	3	0	0%	1	33%	0	0%	2	67%	1	33%	1	33%
T-cell	4	1	25%	0	0%	2	50%	0	0%	1	25%	3	75%
ASCO abstract 2014	**Evaluated**	**CR**		**PR**		**SD**		**PD**		**ORR**		**DCR**	
Richter's Syndrome	3	0	0%	1	33%	2	67%	0	0%	1	33%	3	100%
NHL	25	0	0%	6	24%	12	48%	7	28%	6	24%	18	72%
DLBCL	14	0	0%	3	21%	6	43%	5	36%	3	21%	9	64%
MCL	2	0	0%	1	50%	1	50%	0	0%	1	50%	2	100%
FL	6	0	0%	1	17%	5	83%	0	0%	1	17%	6	100%
Transformed	3	0	0%	1	33%	0	0%	2	67%	1	33%	1	33%
T-cell	0	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
ASH 2013 Update	**Evaluated**	**CR**		**PR**		**SD**		**PD**		**ORR**		**DCR**	
Richter's Syndrome	4	0	0%	1	25%	3	75%	0	0%	1	25%	4	100%
NHL	22	0	0%	5	23%	10	45%	7	32%	5	23%	15	68%
DLBCL	11	0	0%	3	27%	5	45%	2	18%	3	27%	8	73%
MCL	3	0	0%	1	33%	1	33%	0	0%	1	33%	2	67%
FL	6	0	0%	1	17%	4	67%	0	0%	1	17%	5	83%
Transformed	2	0	0%	0	0%	0	0%	2	100%	0	0%	0	0%
T-cell	0	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

Source: Karyopharm presentations

AML						
AML (Arm 2)	**ASH 2013 Update**		**ASCO abstract 2014 Update**		**ASCO poster 2014 Update**	
	Pts	**%**	**Pts**	**%**	**Pts**	**%**
Enrolled	39		48		65	
Evaluated	33	85%	32	67%	47	72%
CR	4	12%	4	13%	5	11%
CRi	1	3%	2	6%	2	4%
MLFS	1	3%	1	3%	2	4%
PR	2	6%	2	6%	1	2%
SD	10	30%	12	38%	21	45%
PD	11	33%	11	34%	16	34%
ORR	**8**	**24%**	**9**	**28%**	**10**	**21%**
DCR	**18**	**55%**	**21**	**66%**	**31**	**66%**

Source: Karyopharm data

DCR=Disease Control Rate (CR+CR(i)+PR+MLFS+SD), ORR=Overall Response Rate (CR+CR(i)+PR+MLFS),
CR=Complete Response,
CR(i)=Complete Response Incomplete, MLFS=Morphological Leukemia Free State,
SD=Stable Disease, PD=Progressive Disease

Solid Tumors

September 20, 2013 update

Dose-escalation, evaluable patients	Evaluated	PR		SD		PD	
CRC	29	1	3%	10	34%	16	55%
SCCHN	9			4	44%	4	44%
lung cancer	6			4	67%	2	33%
ovarian cancer	7			3	43%	2	29%
cervical cancer	2			2	100%		
endometrial stromal sarcoma	2			2	100%		
melanoma	2	1	50%	1	50%		
pancreatic cancer	5			1	20%	1	20%
prostate cancer	4			3	75%		
glioblastoma	1					1	100%
other	10			3	30%	6	60%
Total	**77**	**2**	**3%**	**33**	**43%**	**32**	**42%**

ASCO GI Update January 21, 2014

Dose-escalation, evaluable patients	Evaluated	PR		SD		PD	
CRC	32	1	3%	11	34%	21	66%

ASCO 2014 abstract update

Dose-escalation, evaluable patients	Evaluated	PR		SD		PD	
CRC		1					
SCCHN	13			9	69%		
ovarian cancer	5	1	20%	2	40%	2	40%
cervical cancer							
endometrial stromal sarcoma							
melanoma		1					
prostate cancer	5			5	100%		
glioblastoma							
other							
Total	**87**	**3**	**3%**	**39**	**45%**		

ASCO 2014 poster update

Dose-escalation, evaluable patients	Evaluated	PR		SD		PD	
CRC	39	1	3%	13	33%	25	64%
SCCHN	14	0	0%	9	64%	5	36%
ovarian cancer	5	1	20%	2	40%	2	40%
cervical cancer	5	1	20%	3	60%	1	20%
endometrial stromal sarcoma	8		0%	7	88%	1	13%
melanoma	3	1	33%	1	33%	1	33%
prostate cancer	8	0	0%	7	88%	1	13%
glioblastoma	5	0	0%	0	0%	5	100%
other	19	0	0%	6	32%	13	68%
Total	**106**	**4**	**4%**	**48**	**45%**	**54**	**51%**

Source: KPTI data presentations

Disclosures Appendix

Analyst Certification

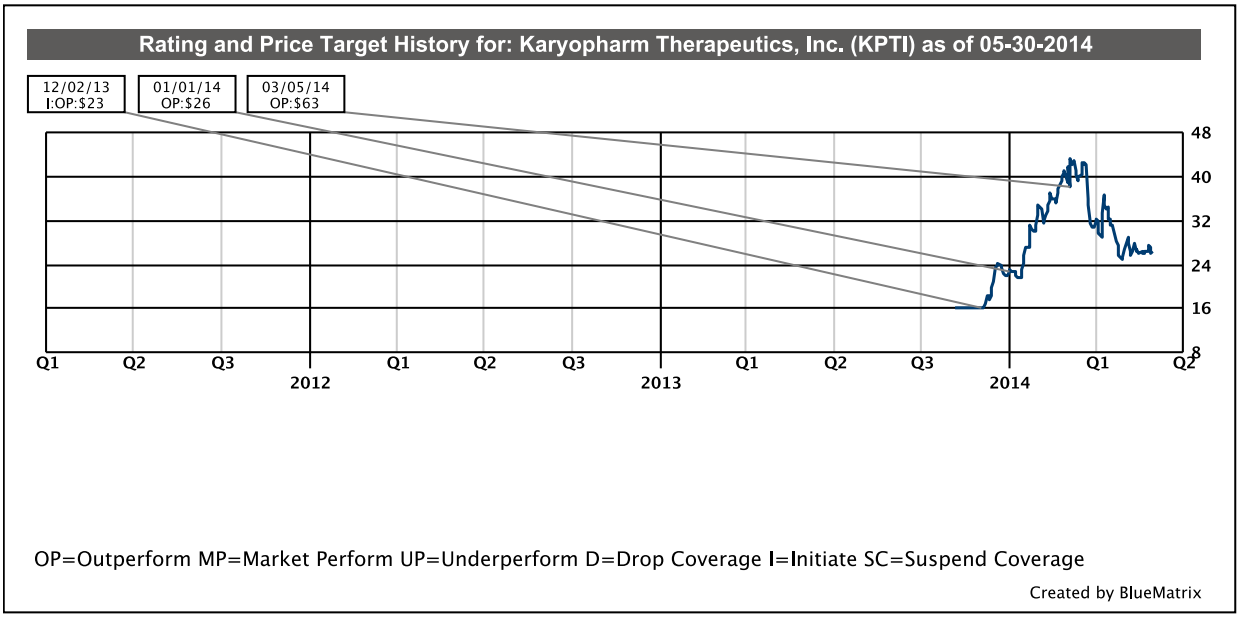
I, Michael Schmidt, Ph.D., certify that the views expressed in this report accurately reflect my views and that no part of my compensation was, is, or will be directly related to the specific recommendation or views contained in this report.

Valuation

Our price target for KPTI is $63/share. Our valuation is based on a discounted cash flow (DCF) analysis. We apply a 12% discount rate to 35% probability of success (POS) weighted Selinexor cash flows derived from three relapsed/ refractory hematological cancer indications (AML, DLBCL, and MM), 20% POS-weighted sales in Richter's syndrome and 10% POS-weighted sales in solid tumor indications. Our valuation uses a terminal value derived by applying a 6x multiple to 2025E Selinexor revenue, discounted back by 11 periods. The 6x revenue multiple is in line with the mid-cap biotech industry average. Based on our DCF analysis, we attribute $60/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 2016, 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 on our valuation.



Distribution of Ratings/Investment Banking Services (IB) as of 03/31/14				
			IB Serv./Past 12 Mos.	
Rating	Count	Percent	Count	Percent
BUY [OP]	131	68.23	46	35.11
HOLD [MP]	61	31.77	3	4.92
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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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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