Kite Pharma, Inc.

KITE – BUY – Investor Day 2015; Kite and Bluebird Soar Together into TCR's

June 24, 2015

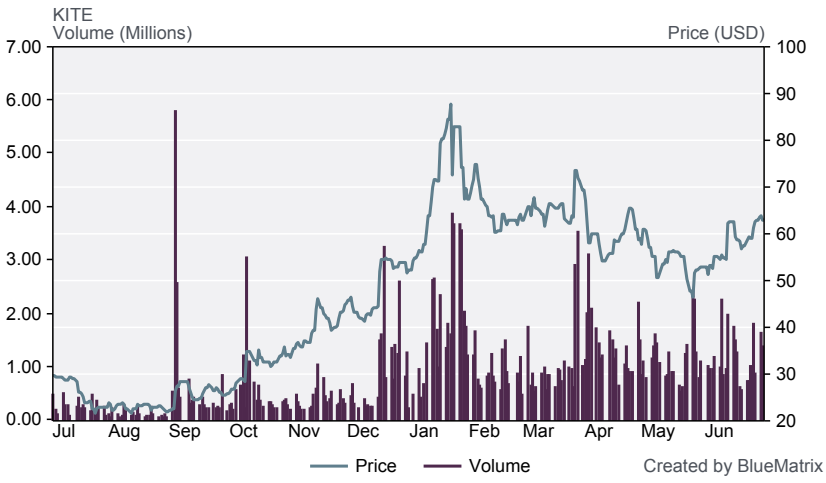
- We attended the Kite Investor Day yesterday, June 23, 2015. KITE has grown significantly over the past year and a half since its IPO, growing from 8 employees at launch to over 100 employees today and raising over $400M to date to develop their programs, including 6 products in clinical development.

- KITE develops engineered T cells that redirect the patient's immune system to kill cancer cells. Such engineered T cells can eradicate cancer without harming normal tissue.

- KITE focused on several topics, including their collaborations (NCI, AMGN, NKI, UCLA, Tel Aviv, and now bluebird bio), product development (KTE-C19 being advanced to pivotal trials later this year), and building out the TCR franchise (recent agreement with bluebird on HPV-16 TCRs, AMGN collab, and other TCRs including NY-ESO and MAGE TCRs).

- KITE is also expanding manufacturing (Santa Monica facility opening in October, El Segundo facility in 2017, with existing PCT site in Mountain View and a CMO in EU) to support the over 300 patients who will be treated in KTE-C19 trials as well as further development of other candidates in the future.

- We await pivotal Ph. 1 data on KTE-C19 in aggressive NHL/DLBCL at ASH in December, while the remaining CAR and TCR pipeline is advancing rapidly with 3 additional pivotal studies in KTE-C19 (IND submission planned 2H16) as well as KRAS and HPV16 E7 TCRs initiating clinical trials in 2H15.



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KITE BUY

COMPANY UPDATE

Investment Thesis: Growth

SHARE PRICE	$62.72
PRICE TARGET	$73.00

EPS ($) (FY Dec)	1Q	2Q	3Q	4Q	FY
2014	—	—	—	(0.19)	(0.94)
P/E					NM
2015	(0.20)	(0.23)E	(0.24)E	(0.29)E	(0.87)E
P/E					NM
2016	—	—	—	—	(1.34)E
P/E					NM

Market Data	
52-Week Range	$21.00 - $89.21
Shares Out (M)	43.1
Market Cap (M)	$2,701
ADV (3 mo; 000)	1,268

Birds of a feather fly together: KITE and bluebird bio collaborate on TCRs: KITE and bluebird bio (BLUE, NC, $174.31) announced a new collaboration to develop second generation TCR product candidates directed against human papillomavirus type 16 E6 (HPV-16 E6) oncoprotein. Bluebird bio has demonstrated expertise and substantial promise using their lentivirus/gene therapy technologies to treat Beta-thalassemia and sickle cell disease. The collaboration will likely primarily allow for both companies to share intellectual property and methodologies to develop the second generation TCR therapies to target HPV-16 E6. Expenses for development and profits will be split equally between the companies, and none of the existing KITE HPV programs will be affected by this standalone agreement.

The HPV-16 E6 oncoprotein is constitutively expressed on HPV-16+ cancer cells and is absent from healthy tissues, allowing HPV-16-directed T cells to target and kill only cancer cells. Primary HPV-associated cancers include cervical and oropharyngeal head and neck cancers, which combined can constitute up to a yearly incidence of 42,500 eligible patients. KITE is currently evaluating a first generation HPV-16 E6 TCR for diverse HPV-16+ cancers in a Phase 1/2 study with an estimated enrollment of up to 61 patients and expected completion in May 2019.

Getting KTE-C19 to market in DLBCL: One of the key focuses of the Investor Day was what steps are necessary to begin the KTE-C19 program and what trial designs will be used. KITE has already started the pivotal study in DLBCL, and they indicated they will begin the pivotal studies in MCL, ALL, and aggressive NHL later this year (table below provides an overview of pivotal trial design). Dr. Jeff Wiezorek, VP of Clinical Development detailed an overview of the trial designs, mentioning that many of the same sites will be performing both Ph. 1 and 2 studies. Chemo-conditioned patients will be hospitalized around the infusion, which follows a 6-8 day manufacturing period (which KITE is still optimizing with automation steps and other measures) post-leukapheresis. Following the hospitalization, the follow up period begins with first tumor assessment on day 30. In aggressive NHL, KITE is targeting a BLA filing for KTE-C19 by YE 2016, with Ph. 1 data presented this December at ASH and Ph. 2 data to follow sometime next year. Over the life span of all KTE-C19 pivotal trials, over 300 patients will be treated.

KITE KTE-C19 Pivotal Trial Designs 101-103 in NHL, MCL, and ALL

Trial	Indication	Size of Ph. 2 (n)	Key eligibility criteria	Endpoints
KTE-C19 101	Aggressive NHL	· Cohort 1 in DLBCL: n=72 · Cohort 2 in PMBCL/TFL (n=40)	· DLBCL, PMBCL or TFL · Chemotherapy refractory disease - SD or PD to last therapy or - Relapsed post transplant within 1 year · Adequate prior therapy - At minimum, anthracycline-containing regimen and anti-CD20 mAb · ECOG 0 or 1	· Incidence of DLT (primary phase 1) · Objective response rate (primary phase 2) · Duration of response, PFS, OS and safety
KTE-C19 102	MCL	· n=70	· Pathologically confirmed MCL · Relapsed or refractory disease · Adequate prior therapy - Anthracycline or bendamustine-chemo and - Anti-CD20 monoclonal antibody therapy and - Ibrutinib · ECOG 0 or 1 · Age >18 · Adequate hepatic, renal, cardiac function	· Objective response rate (primary) · Duration of response, PFS, OS and safety
KTE-C19 103	ALL	· n=50	· Relapsed or refractory B-precursor ALL - Primary refractory disease - Untreated first relapse with first remission ≤ 12 months – Relapsed or refractory disease after first or later salvage therapy - Relapsed or refractory disease after allogeneic transplant · M1 or greater bone marrow · ECOG 0 or 1 · Age >18 · Adequate hepatic, renal, cardiac function	· Complete response rate (primary) · Duration of response, MRD-CR rate, allogeneic SCT rate and safety

**Source: KITE presentations*

Improving DLBCL/NHL therapy: KITE reiterated the emphasis of lymphodepletion and chemotherapy preconditioning as necessary for the CAR-T therapy process. At ASCO, KITE presented data demonstrating that chemo-conditioning with cyclophosphamide and fludarabine induced immune homeostatic cytokines (IL-15, IL-7), chemokines (MCP-1), and pro-inflammatory markers including CRP and PLGF. The method used for pre-conditioning the patient does therefore affect activation and trafficking of T cells. This will be key in clinical trials, and KITE intends to optimize this factor in CAR therapy. As presented at ASCO, KITE and Rosenberg mentioned that durable responses can occur without long lasting CAR-T cells in circulation, allowing for normal B cell recovery. Rosenberg commented that many robust responses have been achieved in several weeks post T-cell administration. KITE also emphasized CAR kinetics, in that the rapidity of achieving a CR as well as the ability to then sterilize the body of tumor cells is important. We note that this message differs slightly from JUNO's, who highlighted at ASCO that it seeks to improve the LT plateau of the KM curve in DLBCL patients by first improving cell persistence. Initial JCAR017 data in DLBCL reads out sometime next year, and JUNO's goal is to achieve a high CR rate as well as a durable tail.

DLBCL is KITE's lead indication, with a market size of ~22,000 patients in the U.S. Wiezorek emphasized that DLBCL in particular poses a large unmet need (table below outlining non-CD19 CAR responses), while CD-19 directed CARs have demonstrated response rates north of 60%, with many durable responses as well.

KITE Anti-CD19 CAR T induced objective responses in pts with r/r NHL and CLL		
Tumor type	**ORR**	**CRR**
Any (n=29)	76%	38%
DLBCL/PMBCL (n=17)	65%	35%
CLL (n=7)	86%	57%
Indolent NHL (n=5)	100%	20%

Source: ASCO 2015 data, Kochenderfer et al, Blood 2012 and JCO 2015 data

Responses in DLBCL by Line of Therapy (outside of KTE C19)		
Line of therapy	**Overall outcomes**	**Refractory outcomes**
1L	CR 76%' 10-yr OS ~44%	N/A
2L	ORR 11-97%	ORR <26%
3L+	ORR 0-40%	ORR<20%
Relapse post-ASCT	>1 yr: median OS 27 mos.	<1 yr: median OS 8 mos.

**Source: KITE presentations*

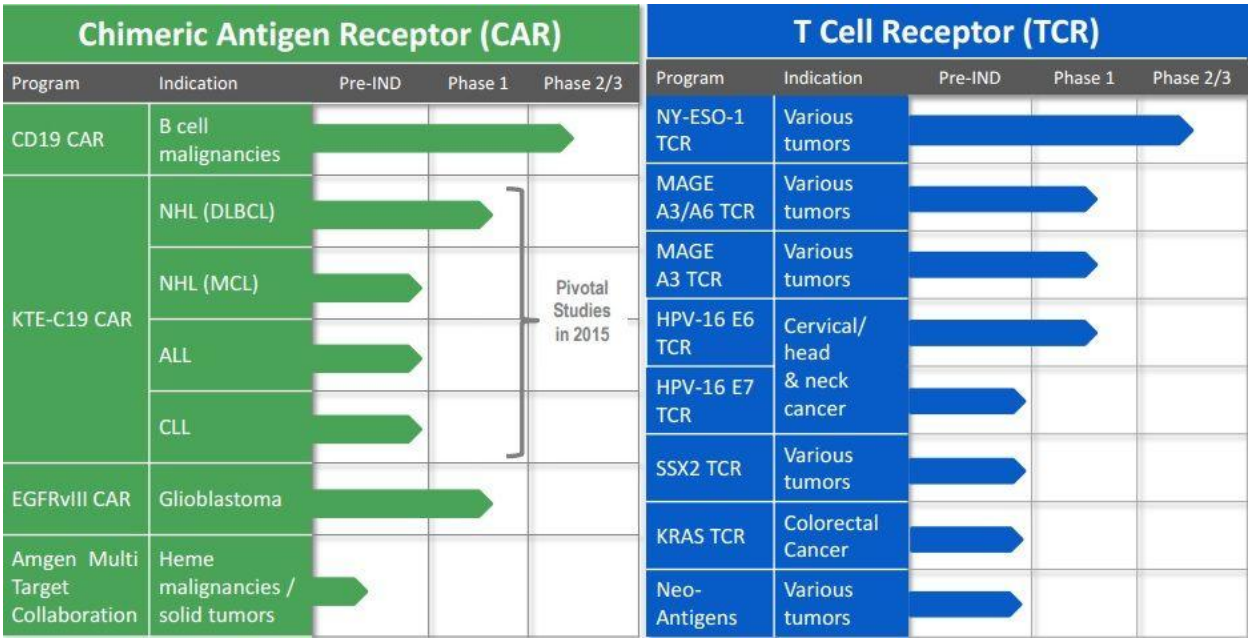
Ramping up manufacturing; commercial manufacturing ready for KTE-C19 launch in 2017: KITE will treat approximately 300 patients over the next year and a half, requiring a fairly extensive manufacturing build-out to support this development. In addition to relying on PCT in Mountain View, CA (used primarily for the DLBCL program) KITE has also built out a facility in Santa Monica that is anticipated to open in October. Along with KITE's EU program, led by Dr. Ton N. M. Schumacher, KITE is also engaging facilities for CMO production in Europe. The company is also building a facility in El Segundo, CA near the LA airport with an expected launch in 2017. Dr. Marc Better, VP of Product Sciences, commented that they fully expect the Santa Monica facility to be able to support manufacturing for the KTE-C19 program by YE. KITE believes its engineering process, which is relatively shorter compared to competitors at 6-8 days, offers superiority in the young phenotype of the product (not too many rounds of expansion) as well as no bead selection.

Where KTE-C19 fits into the treatment paradigm of new immunotherapies: Dr. Ron Levy from Stanford School of Medicine said that KTE-C19 fills a unique niche in the emerging landscape of new immunotherapies. While Rituximab raised the cure rate for DLBCL from 30% to 50%, CD-19 CARs are achieving RR's north of 60% that are durable, and Levy believes that CAR-T therapies such as KTE-C19 can eventually replace bone marrow transplants. In terms of comparing to other new immunotherapies such as ADC's, BTK inhibitors, and PI3K-delta inhibitors, Levy mentioned that they do not work especially well with DLBCL, achieving short-duration RR's of ~20-30%, as such therapies tend to work better in slower growing, low grade lymphomas such as follicular lymphoma. CAR-T therapies, in comparison, induce responses that are complete, durable and long lasting.

TCR franchise buildout: Dr. Ton Schumacher, CSO of KITE Europe and head of the KITE's collaboration with the Netherlands Cancer Institute, presented an overview of KITE's next-gen TCR programs. While CAR targets represent ~27% of the human proteome, TCR targets are more numerous due to TCR's ability to access intracellular targets, representing ~73% of the human proteome. KITE EU's proprietary TCR GENErator technology allows high-affinity of TCRs, though he emphasized the importance of an optimal affinity that is still within the natural range and binds tightly to the peptide MHC complex. KITE has active protocols at the NCI surgery branch, including HPV-16 E6 and HPV-18 E6 and E7 in cervical, head and neck cancers, mNY-ESO1 in pancreas and other cancers, Kras (G12D and G12V) in colorectal, and MAGE A3in various tumors. The collaboration with bluebird expands this portfolio, and KITE commented that filing is 2-3 years out for 2nd gen TCRs, while it files in 1H16 in the first-generation HPV-16 E6 program.

Future combos with checkpoint inhibitors: During the later Q&A panel, Dr.Levy commented that he believes combining checkpoint blockade with CAR-T's is the most exciting potential development in cancer immunotherapy. While checkpoint blocking antibodies have demonstrated tremendous efficacy, they only work on a certain subset of patients, so the question remains how to expand to a broader population. Some CAR-T players have already partnered on checkpoint inhibitors and CAR-T therapies: Juno (JUNO, NEUTRAL, $51.40) and AstraZeneca (AZN, NC, $67.59) announced their partnership on a PD-L1/CD19-CAR in NHL April 23. The study, which initiates later this year, assesses the impact that inhibiting PD-L1 with AZN's MEDI4736 has on the safety and efficacy of Juno's CAR-T construct. Inhibiting PD-1/PD-L1 would essentially prevent cancer cells from avoiding the host immune system, directly allowing increased exposure and efficacy of CAR-T engineered T cells. In addition, epitope spreading could be enhanced due to the immune response bolstered by the combo therapy further triggering an autoimmune response against proteins found on the surface of tumor cells.

Upcoming catalysts: 1) Pivotal Ph. 1 data at ASH in Dec. 2015 in aggressive NHL, 2) 3 additional pivotal trials in KTE-C19 initiating 2H15, 3) HPV-16 E6 TCR submitting IND in 1H16, 4) KRAS and HPV16 E7 TCRs initiating clinical trials under KITE-NCI CRADA in 2015, 5) KITE-AMGN CAR programs submitting IND's in 2H16, and 6) Ph. 2 pivotal data in KTE-C19 aggressive NHL in 1H16 and BLA filing for KTE-C19 by YE 2016.



**Source: KITE presentations*

KITE Valuation: As data continue to emerge supporting the viability of KITE's program/platform, we believe the risk could reduce and value could increase. Value should increase because the net present value of commercialization rises. We believe KITE may generate revenue by 2018. We estimate peak sales in second and third line NHL, assuming $200-250k per treatment, approach $1.5B by 2021. Medivation (MDVN, NC, $116.06) and Pharmacyclics (PCYC, NC, $261.25) are similar companies with early-stage product launches by partner companies and have market valuations approaching $9.7 billion and $19.7 billion, respectively. We estimate, at a current market cap of ~$2.2 billion, it is possible KITE could grow to 7-9 times its current size by 2022. We discount that valuation to today by 15% annually, which yields our price target of $73 (unchanged).

Key KITE Risks: KITE is an experimental stage company very early in development. Poor clinical readouts or inability to successfully commercialize its products is a risk. Risk of side effects of CAR-T therapies is also high, notably with cytokine release syndrome with even death in some patients, potentially limiting its use in earlier lines of therapy. There is also limited data outside of ALL, and establishing a durable response is critical to commercial success. Moreover, manufacturing and process development is not at commercial scale yet, and we note being able to deliver CAR-T to patients with affordable COGS is imperative. Further, given the number of companies currently in the CAR-T space, KITE's lead and platform could be commoditized. We believe profitability is several years away. Therefore, the stock can and may be highly volatile.

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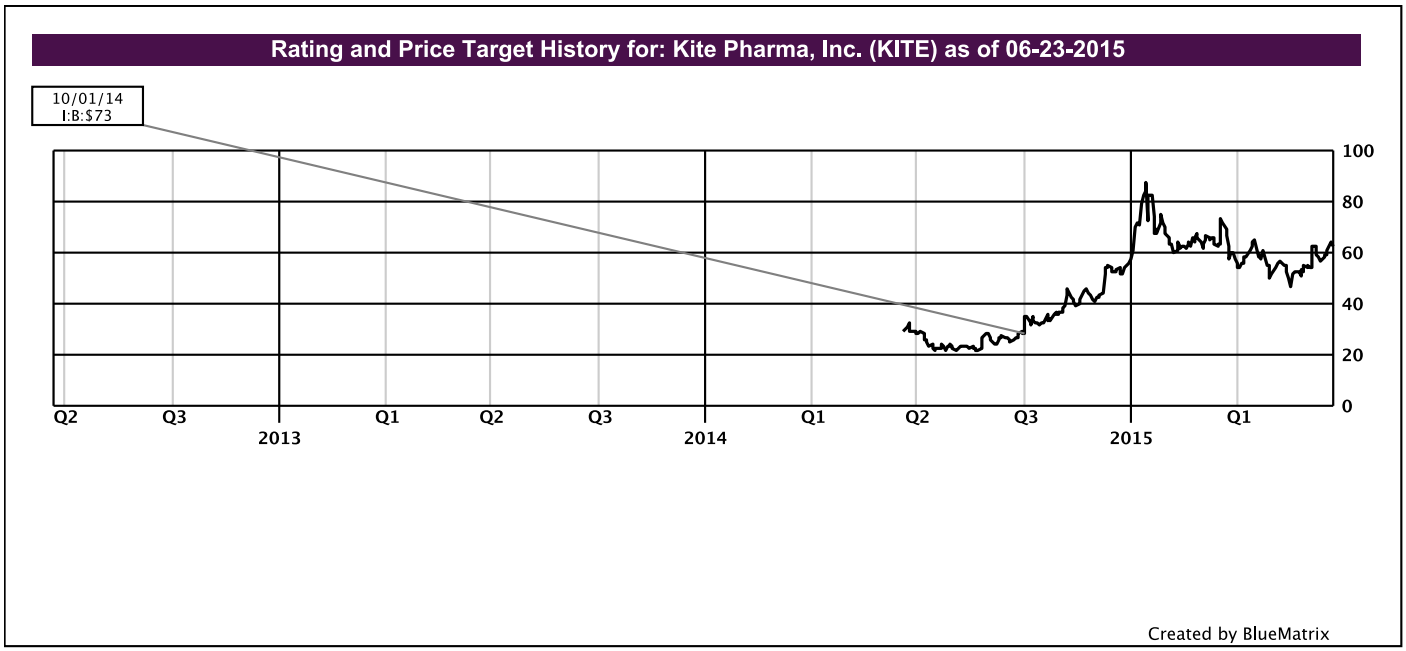

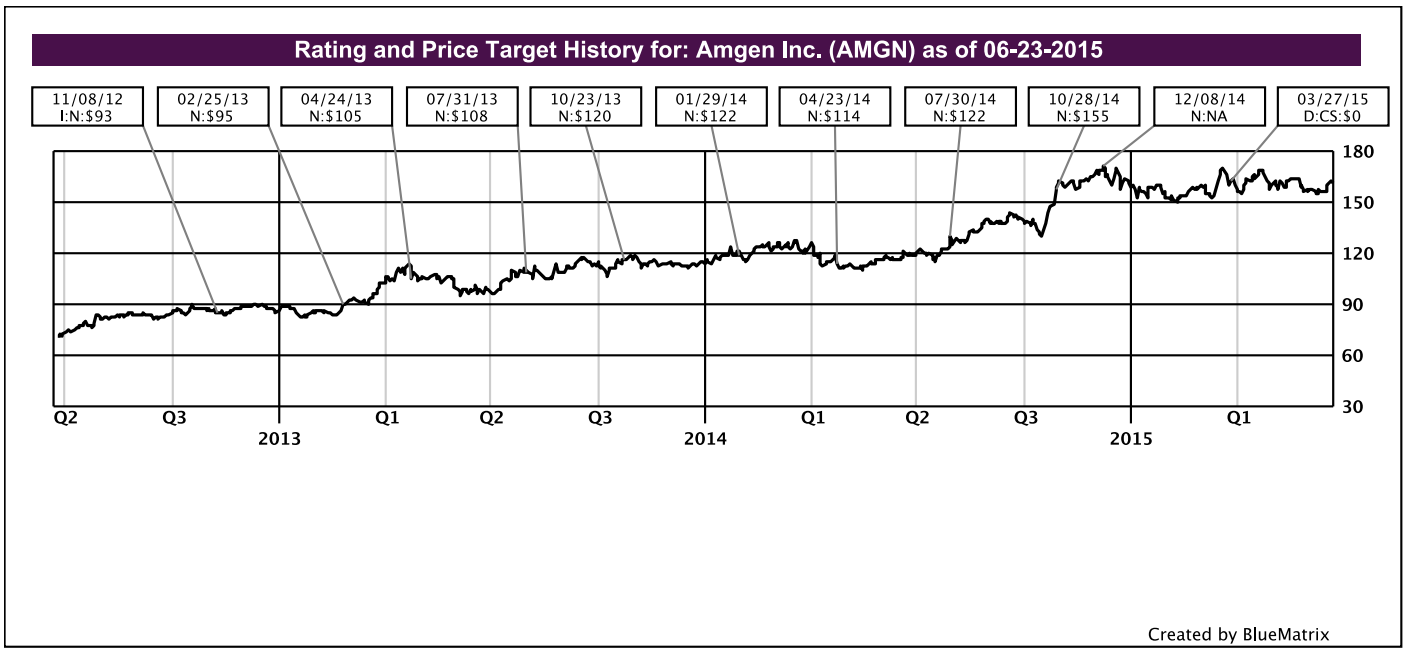

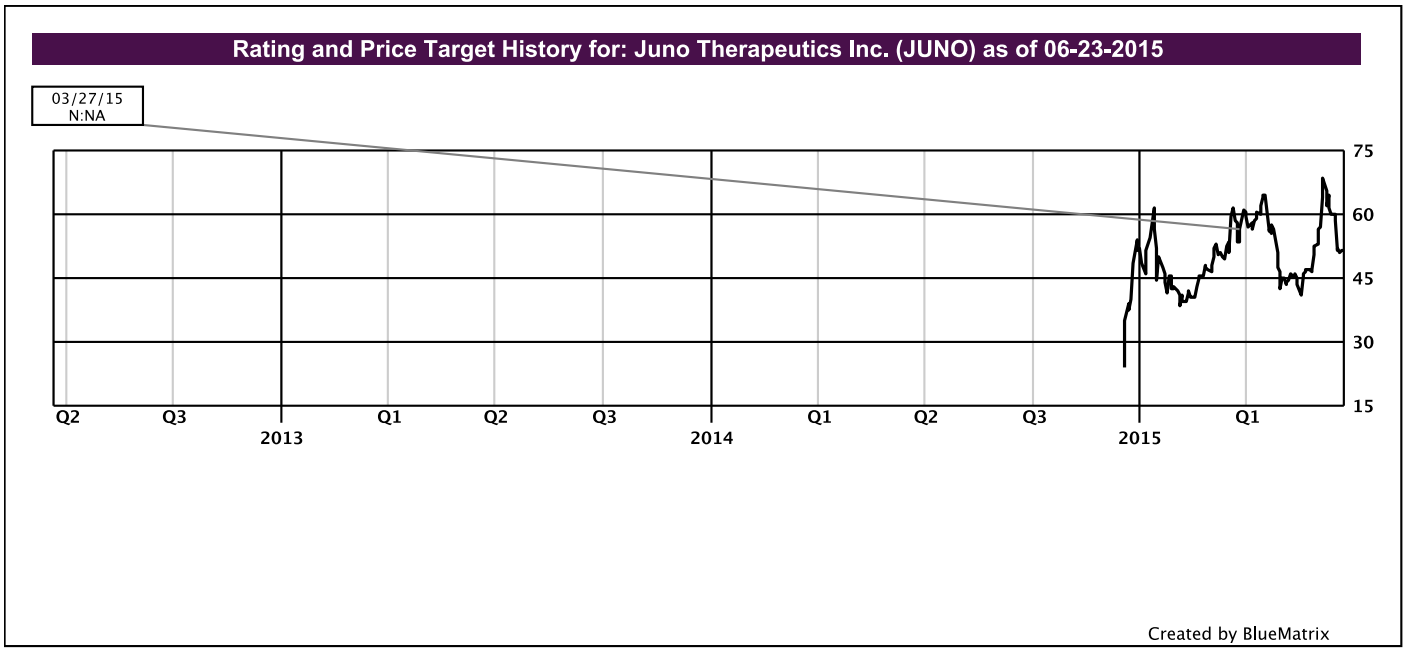

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