RATING: **OUTPERFORM**

REASON FOR REPORT: **INITIATION**

JUNO THERAPEUTICS, INC. (NASDAQ: JUNO)

INITIATING COVERAGE WITH OUTPERFORM RATING AND $73.00 PRICE TARGET

Exhibit 1: Key Statistics

KEY STATS	NASDAQ: Juno
Price:	$61.51
Price Target:	$73.00
Valuation methodology:	DCF
52 Week High:	$61.70
52 Week Low:	$44.91
Shares Outstanding:	$92.3 million
Market Capitalization:	$4.79 billion
Book Value/Share:	$.57
Cash per Share:	$4.82
Dividend (Annualized):	N/A
Dividend Yield:	N/A
S&P 600 Health Care Index:	1444

Source: Yahoo! Finance and ValAn Estimates

Company Description: Juno Therapeutics is a clinical stage biopharmaceutical company based in Seattle, primarily focusing on immunotherapy or immune-oncology, which re-engages the body immune system, by modifying immune cells to combat blood malignancies or cancer.

Above-average 17% upside potential despite recent stock performance: We are initiating coverage on Juno Therapeutics (NASDAQ: JUNO) common stock with an Outperform rating and $73.00 price target, which represents approximately a 17% upside from current trading levels of $61.51.

Phase I clinical trial results for JCAR015 and JCAR017 are highly encouraging: Juno's leading product candidate JCAR015, which treats adult refractory/ relapsed Acute Lymphoblastic Leukemia patients (r/r ALL), has shown an 89% complete remission rate in 27 evaluable subjects. Further, early data released from clinical trials for product candidate JCAR017, used for the treatment of pediatric leukemia, are also highly favorable; with 85% of the test subjects treated experiencing complete remission. We believe that the phase II stage of the clinical trials should commence by late 2016 and successful commercialization by late 2017, given the likelihood of accelerated US regulatory drug approval for both JCAR015 and JCAR017.

Valuation: Our price target of $73.00 and Outperform rating for JUNO is based on a DCF model, assuming a cost of equity of 16.7%.

INVESTMENT RATIONALE

- **Strong future product pipeline should continue to deliver breakthrough results:** In addition to JCAR015 and JCAR017 outlined above, the Company has approximately eight other products in the development pipeline, at various pre-clinical and clinical phases. More importantly, these products are being jointly developed with leading cancer research centers and institutions, such as Fred Hutchinson Cancer Research Center and Memorial Sloan Kettering Center. The product candidates are mainly being developed with a target treatment of adult and pediatric Acute Lymphoblastic Leukemia (ALL), Non-Hodgkin's Lymphoma (NHL), Chronic Lymphocytic Leukemia (CLL) and Acute Myeloid Leukemia (AML). These diseases are categorized as rare diseases, as their incidence is under 200,000 per year in the U.S. While there are upcoming CAR and TCR technology products from competitors, we note that there have no successful available or approved treatments as of date.

- **Addressable and potential leukemia market may be niche but above-average future disease growth drives demand:** At the end of 2014, the number of total cancel incidence stood at 1.6 million individuals per year. As per the American Society of Clinical Oncology ("ASCO"), the disease is expected to grow by 40% by 2025, translating into a CAGR growth of 3.5%. We note that leukemia is expected to grow by a much higher rate per ASCO. At the end of 2014, the number of incidence of leukemia stood at 52,000 individuals and is expected to grow by more than 90% through 2025. As Juno is developing treatments for patients suffering from leukemia, we believe the Company will address the unmet specialized market and successfully dominate this niche market in the future.

- **Venture funding from prominent partners and collaboration with top-notch cancer research institutes has preceded recent successful IPO:** We note that the Company was founded with initial investment of $120 million by The Fred Hutchinson Cancer Research Center and Memorial Sloan-Kettering Cancer Center, along with Seattle Children's Research Institute. We believe that these institutions are among the leading research institutes in the field of oncology. These institutions are also the sponsors for the clinical trials being conducted by the Company. Prior to the successful IPO in December 2014, we note that on 24 April 2014 and 5 August 2014, the Company also raised $176 million and $134 million respectively. Therefore, we believe that Juno Therapeutics, with prior backing from such prominent and leading players in the oncology domain, has a robust product pipeline that shows a great deal of promise.

- **Orphan drug status for drugs may serve Juno well:** On 18 December 2014, the Food and Drug Administration (FDA) has granted JCAR015 an "orphan drug" designation, which is awarded to drugs and biologics for treatment of diseases that affect fewer than 200,000 people. More importantly, FDA's orphan drug office also provides incentives for sponsors to develop products for rare diseases as well as seven-year exclusivity for marketing. Further, on 24 November 2014, the FDA also granted JCAR015 "breakthrough drug" designation. The breakthrough therapy designation provides potential benefits that include frequent meetings with FDA to discuss the development plan for the product candidate and ensure collection of appropriate data needed to support accelerated approval. These incentives and designations help strengthen the overall competitive moat of the Company.

BUSINESS SUMMARY

- **Juno Therapeutics** (NASDAQ: JUNO), incorporated in August 2013, is a clinical stage biopharmaceutical company based in Seattle, focusing on revolutionizing medicine by re-engaging the body immune system to cure cancer. This treatment is also broadly known as immunotherapy or immune-oncology, and the treatment primarily modifies immune cells to combat blood malignancies or cancer.

- **Founded by Fred Hutchinson Cancer Research Center (FHCRC), a leading research cancer institute along with Memorial Sloan Kettering Cancer Center and Seattle Children's Research Institute**, the Company is a pioneer in the area of cell-mediated immunotherapy. The Company's vision is to use human T cells as therapeutics and develop cell based cancer immunotherapies such as Chimeric Antigen Receptor (CAR) and high-affinity T Cell Receptor (TCR) technologies, which genetically modify or engineer T cells to recognize and kill cancer cells.

- **Juno's lead product candidate JCAR015 targets CD19**, a protein cell found on the surface of B cell malignancies. JCAR015 has successfully completed phase I clinical trial with 89% remission rate for 28 adult patients suffering from r/r ALL and it is expected to enroll patients for Phase II in mid-2015.

- **Focused on leukemia and lymphoma:** Juno's clinical programs are mostly focused on treating B cell lymphomas and leukemia's such as Acute Lymphoblastic Leukemia ("ALL"), Acute Myeloid Leukemia ("AML") and Non-Hodgkin's Lymphoma ("NHL"). We now provide the reader with a brief description of the product candidates, which are under development.

  Products in the Clinical trials Phase:

  - **JCAR015** is targeted on the treatment of B cell lymphoblastic leukemia or ALL. JCAR015 uses a CAR based technology that utilizes the single chain variable Fragment (scFv) to identify and kill cancer cells based on cell surface based protein CD-19. The Company expects to initiate the Phase II trial for JCAR015 by mid-2015.
  - **JCAR017** is being developed for the treatment of pediatric ALL and B cell NHL. This CAR based technology is in the phase I clinical trial stage and expected to be in registration trials in 2016.
  - **JCAR014** is being developed for the treatment of patients with B cell malignancies, with either relapsed/refractory ("r/r") NHL or r/r ALL. The product candidate is in phase I/II trial and the Company is yet to announce their plans or a timeline for registration trials.

  Products in the Pre-clinical trials Phase:

  - **L1CAM CAR** is designed for the treatment of nervous system and solid organ related cancer such as neuroblastoma, glioblastoma. The Company is planning to commence phase I trial by early 2015 and expects the initial clinical data results in 2016.
  - **WT-1 TCR** is being developed for the treatment of relapsed AML, myelodysplasia syndrome and chronic myeloid leukemia type of cancers. The product candidate is currently in phase I/II trials.

JUNO'S STRATEGIC ALLIANCES

As noted earlier, Juno has entered into various strategic alliances with leading cancer research centers and medical institutions. We expect such strategic partnerships to support Juno's efforts in developing a continuous pipeline of breakthrough cancer drugs in the coming years. We now briefly summarize below each strategic alliance, along with their financial arrangements.

- **Fred Hutchinson Cancer Research Center ("FHCRC"):** On October 2013, the Company entered into a collaboration agreement with FHCRC for product candidate JCAR014. The product candidate is in the phase I/II of the clinical trial for patients suffering from B cell malignancies. According to this agreement, Juno has one pending U.S patent application, two pending Patent Cooperation Treaty applications and some outside U.S patent applications. Further, Juno has to pay an annual maintenance fee of $50,000 for the first four years and $100,000 per year from the fifth year onwards. On the achievement of required clinical and regulatory milestones, Juno will be obligated to pay up to maximum of $6.75 million per product. Additionally, the agreement contains a "success payment" clause based on the increase in the estimated fair value of Juno's common stock. Juno has to make bi-annual success payments to FHCRC based on specified threshold share value ascending from $10 million at $20 per share to $375 million at $160 per share, not exceeding an aggregate of $375 million, payable in cash or publicly traded equity. Given, recent stock price performance, we are modeling success payments in the $40-45 million for every six months in the coming years, and expect Juno to record about $40 million in the fourth quarter of 2014.

- **Memorial Sloan-Kettering ("MSK"):** On November 2013, Juno entered into a collaboration agreement with MSK for a product candidate JCAR015. The product candidate is in the phase I clinical trial of patients with r/r ALL in adults. This license agreement also provides Juno the rights in CAR technology patents, such as two issued U.S patent applications, three pending U.S applications, three pending Patent Cooperation Treaty applications, and some other patent applications in outside U.S. According to the agreement, Juno paid upfront fees of $6.9 million and further need to pay royalty fee of minimum $100,000 per year from fifth year onwards. Further, Juno has the obligation to pay, up to a maximum of $6.75 million to MSK, on the achievement of certain required clinical and regulatory milestones for the JCAR015 product. Additionally, the agreement contains a success payment clause based on the increase in the estimated fair value of Juno's common stock. Juno has to make bi-annual payments to MSK based on specified threshold share value ascending from $10 million at $40 per share to $150 million at $120 per share, not exceeding an aggregate of $150 million, payable in cash or publicly traded equity. Similar to FHCRC, we are modeling $70 million in 4Q14 and 2Q15 as success payments, given recent stock performance.

- **St. Jude Children's Research Hospital ("St. Jude"):** On December 2013, Juno entered into a patent license with St. Jude Children's Research Hospital for its Chimeric Antigen Receptor (CAR) technology. This license provides rights to one issued U.S. patent and two pending U.S. patent applications. According to the agreement, Juno paid an initial amount of $25 million to St. Jude. Further, Juno has the obligation to pay royalty fee of $100,000 per year for first two years, and $500,000 per year thereafter. In addition, Juno needs to pay the milestone amount aggregating $62.5 million based on the clinical, regulatory and commercialization milestones achievement for their products such as JCAR014 and JCAR017. Finally, we note that, in this regard, Juno also needs to defend some of its patent rights in a pending litigation with University

of Pennsylvania, and Novartis Pharmaceutical Corporation (see Risks for more details). We are modeling continued legal fees in the $1.6 million area per quarter to address this ongoing litigation.

- **Seattle Children's Research Institute ("SCRI"):** In February 2014, Juno signed a collaboration agreement with SCRI for product candidate JCAR017, an immunotherapy against pediatric r/r ALL. This agreement benefits Juno and gives the rights on five pending U.S. patent applications, one pending Patent Cooperation Treaty application, and other patents outside U.S. Pursuant to the agreement , Juno paid an upfront fee of $200,000 and needs to pay $200,000 per year for the first five years, and then $200,000 per year thereafter. In addition, based on the progress achievement in regulatory and milestones for JCAR017, Juno is obligated to pay $9 million per product.

- **City of Hope ("COH"):** On November 2009, ZetaRx (Juno acquired ZetaRx in October 2013) entered into an agreement with City of Hope. The first acquisition provides Juno the rights to eleven issued U.S. patents, three pending U.S. patent applications, and some other patents outside U.S. According to this agreement, Juno needs to pay an annual license fee of $25,000 per year.

- **Opus Bio, Inc. ("Opus Bio"):** On December 2014, Juno entered into an exclusive license agreement with Opus Bio, pursuant to which Opus Bio has agreed to grant Juno an exclusive, worldwide, sublicense able license, under certain patent rights related to a CD22-directed CAR product candidate, subject to certain specified conditions. If the conditions on the effectiveness of the license agreement were to be satisfied, Juno will be obligated to make an upfront payment of $20.0 million in cash to Opus Bio and subsequently issue an aggregate of 1,602,564 shares of common stock. As these conditions were met due to the Company's IPO, we are estimating both the cash payment as well as the share issuance in the fourth quarter of 2014.

SIGNIFICANT EVENTS

While the Company's public history is limited, we summarize below the most recent important events, which have occurred since the beginning of 2014.

Exhibit 2: Key Events

Date	Events
23 December 2014	12.7 million Shares of common stock issued at a share price of $24, through its initial public offering.
18 December 2014	Announced the pricing for the issuance of 11 million common shares at $24 per share and granted the underwriters a 30-day options to purchase up to an additional 1.6 million shares of common stock
8 December 2014	CAR T and TCR investigational product candidates such as JCAR017, JCAR015 and JCAR014 shows promising outcomes in Phase I clinical trials on patients with acute lymphoblastic leukemia (“ALL”) and non-Hodgkin lymphoma (“NHL”).
5 December 2014	Entered into a license agreement with Opus Bio, Inc. for a CAR T product candidate this specifically targets a protein expressed on B cell leukemia and lymphomas called CD22.
1 December 2014	Appointed Dr Jefferey Bluestoneas a scientific advisor.
25 November 2014	Appointed Maggie Wilderotter to the Board of directors.
24 November 2014	FDA granted breakthrough therapy designation to the JCAR015 product candidate.
18 November 2014	FDA granted Orphan drug designation to the JCAR015 product candidate.
17 November 2014	Filed form S-1 with the Securities and Exchange Commission.
1 October 2014	Appointed Mr. Hal Barron as the Company’s board of directors.
5 August 2014	Raised $134 million through Series B round of funding.
21 May 2014	Juno's scientific founders, Dr Michel Sadelain and Renier J. Brenthens of Memorial Sloan Kettering Cancer Center awarded with NYIPLA “Inventor of the Year”
24 April 2014	Raised $176 million from Series A round of funding from the leading technology venture capital firm ARCH Venture Partners and the Alaska Permanent Fund.
31 March 2014	Appointed Mr. Steve Harr as Chief Financial Officer and Head of Corporate Development.
4 December 2013	Company was founded with initial investment of $120 million by The Fred Hutchinson Cancer Research Center and Memorial Sloan-Kettering Cancer Center along with Seattle Children’s Research Institute.

Source: Company Website

PIPELINE AND UPCOMING EVENTS

We shall now acquaint the reader with the product candidates, their details and next events along with Juno's collaboration partners in development of each of these products. We note that these products are at various phases of clinical trials such as Pre-clinical and Phase I/II, with no product yet in the Phase III/IV or commercialization phases.

Exhibit 3: Upcoming Product Pipeline

Product	Target	Partner	Indications	Status	Next Event
JCAR015	CD19	MSK	Adult ALL and Adult NHL	Phase I/II	Expecting Phase II trials by mid-2015
JCAR017	CD19	SCRI	Pediatric ALL and Adult NHL	Phase I/II	Expecting registration trial in 2016
JCAR014	CD19	FHCRC	NHL, Adult ALL	Phase I/II	
JTCR016	WT-1	FHCRC	AML and NSCLC	Phase I/II	Expecting Phase I data by end 2016
Fully Human scFv CAR	CD-22	Opus Bio	Pediatric ALL and NHL	Phase I	
Fully Human scFv CARs	CD-19	N/A	B Cell Malignancies	Pre-clinical	
L1CAM CAR	L1CAM	SCRI	Neuroblastoma	Phase I	Expecting Phase I data by end 2015
Armored CARs	CD-19	N/A	B cell Malignancies	Pre-clinical	
Armored CARs	MUC16 & IL-12	MSK	Ovarian cancer	Pre-clinical	
CAR	ROR-1	FHCRC	CLL and solid organ tumors	Pre-Clinical	Expecting Phase I data in 2016

Note: ALL – Acute Lymphoblastic Leukemia, NHL- Non-Hodgkin Lymphoma, CLL-Chronic Lymphocytic Leukemia, AML- Acute Myeloid Leukemia

Source: Company filings

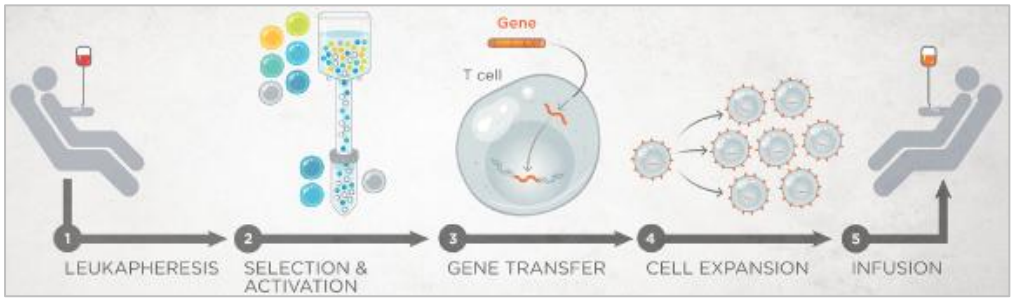
A brief definition of the top two major diseases, target is provided here below for the convenience of the non-biological reader:

- **r/r ALL-** Acute Lymphoblastic Leukemia is a cancer of white blood cells denoted by uncontrolled growth of immature cells called lymphoblast. After the treatment if some patients still have cancer cells in their bone marrow, this disease state is called relapsed or refractory ALL or r/r ALL.
- **NHL-** Non-Hodgkin's Lymphoma is the most common cancer of the lymph tissue (found in the lymph nodes of the immune system)and may spread all over the body through lymph tissue. The more predictable Hodgkin's lymphoma has a higher chance of full recovery.

CHIMERIC ANTIGEN RECEPTORS (CARs) TECHNOLOGY

Chimeric Antigen Receptors (or "CAR") is an application therapy process related to cell mediated immunotherapy, in which T cells are extracted from the patient's blood through a process called leukapheresis and are genetically modified or re-engineered externally to recognize the target protein expressed on the surface of cancer cell. The reprogrammed T cells are then re-introduced into the patient's body to identify and eliminate cancer cells. The exhibit shown below depicts the process for typical CAR therapy.

Exhibit 4: CAR Therapy Process



Source: Company filings

Key Components in the CAR mechanism

The Chimeric Antigen Receptors are mainly composed of a targeting element, spacer, trans-membrane domain, co-stimulatory domain and essential stimulating domain. A single chain variable Fragment ("scFv") acts as a targeting element (also known as a binding domain). scFv is a fusion protein, which helps to recognize protein of interest expressed on the uppermost layer of cancer cells. The spacer region then helps to link the scFv to the trans-membrane domain. According to researchers, the effectiveness of the CAR T cells can be enhanced through alteration in the spacer region, based on the size of the target protein. When the scFv binds with cancer cells, the essential signaling domain named CD3-zeta triggers the conformational changes. The CD28 or 4-1BB behave as a co-stimulatory signaling domain and provides an additional signal so that the T cell works promptly and destroys the cancer cell. Exhibit 5 below depicts the several important components that participate in the process.

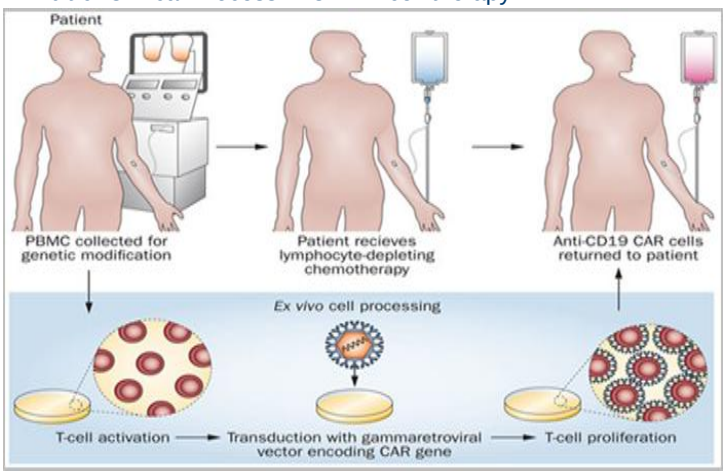
Exhibit 5: Chimeric Antigen Receptors Complex

Source: Company filings

Clinical Concepts in CAR T cell Therapy

Juno and other biopharmaceutical companies use CAR technology, primarily to kill cancerous cells by modifying T cells, which are a type of white blood cells, crucial in cell-mediated immunity. The T cells are separated from the patient's blood through the process leukapheresis and activated ex vivo. After a few days, the CAR construct is transferred into the activated T cell by using viral vector like gamma retrovirus or lentivirus. Thereafter, the proliferation of engineered T cell is performed and finally reintroduced into the patient's body.

Exhibit 6: Clinical Process in CAR T cell therapy



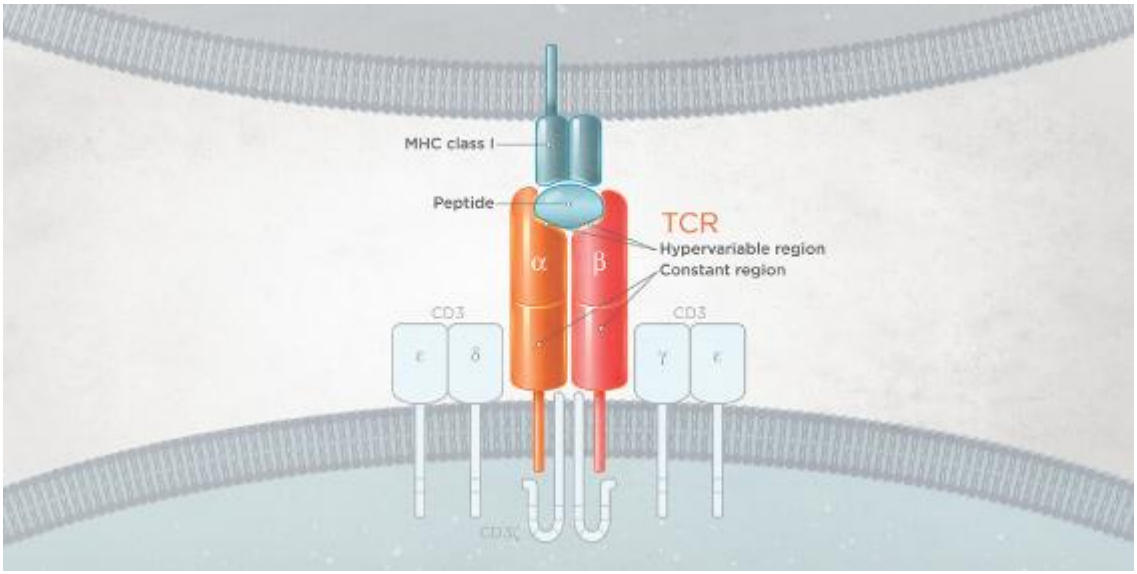
Source: Nature.com

T CELL RECEPTORS (TCRs) TECHNOLOGY

In addition to the afore-mentioned CAR technology, Juno is also developing products based on the T Cell Receptors or TCR technology. This is briefly explained below. As noted above, T cell or T lymphocytes are a type of white blood cell that play a major role in cell mediated immunity that mainly provides immunity against intracellular bacteria, virus-infected cell and cancerous cell. The TCR technology activates the effective immune response against cancer through introduction of programmed T cells. The programmed T cell has potential to recognize a specific major histo-compatibility complex ("MHC") or peptide structure that targets different kinds of tumors. The MHC molecules help display peptide segments derived from pathogens on the surface of cell that trigger the appropriate response from the T- cells.

TCR is a heterodimer in which 95% of the cell consists of alpha and beta protein chain and remaining 5% consists of gamma and delta. The TCR, CD3 molecules (CD3-Gamma, CD3-Delta, and CD3Epsilon) and zeta chains together form the TCR complex. TCR-CD3 complex interaction plays an important role in signal transduction, which then leads to T cell activation. The zeta chain is associated with development of thymic and coupling antigen recognition in the intracellular transmission of molecule.

Exhibit 7: TCR Complex



Source: Company filings

CARs AND TCRs INVESTMENT THESIS

- **Cell-mediated immunotherapies show a great deal of promise:** Broadly speaking, the next generation immunotherapy mechanisms (which include CAR and TCR technologies) have indeed given hope for treatment of rare categories of diseases, within the cancer domain. In an innovative study, Juno's leading partner, FHCRC, successfully eradicated melanoma (skin cancer) from certain patients through immunotherapy. Subsequent to this success, there has been increasing research and development in the science of immunotherapy for curing hematopoietic cancers and other rare diseases. This approach of reprogramming immune cells and its subsequent reintroduction into the patient demonstrates promising results to treat cancer. Additionally, immunotherapy does not cause adverse side effects when compared to traditional techniques such as chemotherapy or radiation therapy. Both the CAR and TCR technologies demonstrate that Juno may be at the pioneering front of oncological research.

- **Selective identification and destruction may reduce risks of complication:** The CAR technologies selectively target antigens include peptides, carbohydrates and glycolipids, which identify and eliminate the foreign pathogens accurately. Unlike traditional technique such as chemotherapy and radiations therapy, which target the entire cell regions, CARS technology selectively identify and attack the target cells. This reduces the overall cellular damage, which minimizes the risk of complication.

- **Minimal risk causing undesired autoimmunity**: As these technologies are genetically reprogrammed to the patient's specification, it is highly unlikely that the reintroduced T cells will be targeted by the body's own immunity and/or rejected by the immune system.

- **High barrier to entry in sector:** High investment and challenges due to regulations along with high risk makes it tough for the new players to enter the market, thus favoring already existing companies in the industry. In the past, Juno has witnessed favorable results from clinical trials and most of their product candidates are being designated as breakthrough therapy, gaining an edge over new players entering the market.

- **Significant traction and exposure by investors for next generation therapeutics including CARs and TCRs:** Capital requirement and regular funding is vital for emerging biopharmaceutical companies. Noteworthy results from clinical trials have developed interest among various funding such as venture capital and private equity organizations. The recent stock performance of some of Juno's competitors such as Kite Pharma (NASDAQ: KITE) highlight the investor interest in the CAR arena.

KEY ADVANTAGE: CARs And TCRs Based Therapeutics Approach May Open Also Doors to New Alternative Treatments

We outline below the reasons why the CAR and TCRs technologies may have other broader treatment implications:

- **Actively engaging naturally occurring cells to respond against foreign antigen may be the wave of the future:** The human body has the ability to respond against unwanted toxic and provide defense mechanisms when required. During the process of reintroduction, engineered receptors use single chain variable fragment (scFv) to recognize the protein present on the surface of pathogens and cancerous cell and perform accordingly.

- **Potential application of T cell therapies in organ transplantation:** The scientific community is now exploring the feasibility and potential application of T cell immunotherapy in complications related to organ transplantation. As the Major Histocompatibility Complex (or "MHC"), a set of cell surface molecules controlling the majority of the human immune system, is different in each person, MHC may be responsible for the rejection of the transplanted organ by provoking the immune response in the recipient. New research is concentrated on improving the acceptance of transplanted organs, or to minimize the intake of lifelong immunosuppressive drugs and their side effects.

- **Significant advancement seen in immunotherapies for treatment of cancer through adoptive cell transfer techniques:** In the recent past, there has been significant advancement in cell transfer techniques. Following the discovery of Monoclonal antibodies or mABs, which are designed to make immune system more reactive to cancer cell by inhibiting the growth signals of cell, CARs and TCRs have become one of the most sought technologies in drug development process. Large pharmaceutical companies including Novartis, Bristol-Mayer's, Pfizer, AstraZeneca and GlaxoSmithKline have commenced research in collaboration with emerging biopharmaceutical firm and medical/ research institutions, in advancing CAR and TCR research.

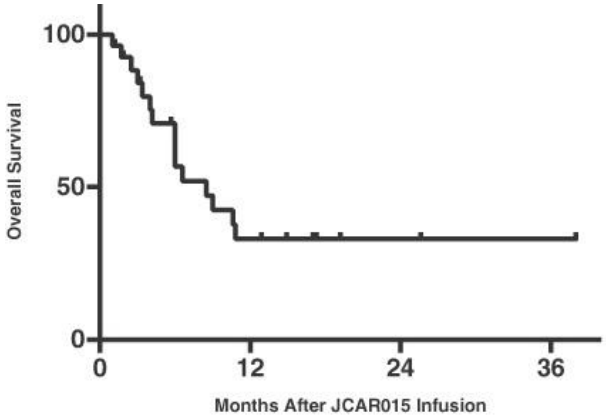
RECENT CLINICAL RESULTS: UNPRECEDENTED

JCAR015 CLINICAL DATA RESULTS - HIGHLY ENCOURAGING

In this ongoing phase I clinical trial, 89% of 27 evaluated adult patient suffering from ALL have shown complete remission ("CR") and 78% of patients have shown complete molecular remission ("CMR") using polymerase chain reaction and/or flow cytometry techniques. Out of a total 28 r/r ALL adult patients, thirteen patients have shown low disease burden and fifteen patients have shown high disease burden. Approximately 18% of 28 total adult patients showed or experienced severe CRS in their body and 33% patients showed high disease burden, while none among them were diagnosed with low disease burden. Two deaths occurred due to cytokine release syndrome, which may be directly or indirectly related to the trial. Additionally, one of the deceased patients suffered from class III congestive heart failure and experienced severe hypotension during the treatment. The adverse events of grade 3 or higher as defined by Common Terminology Criteria for Adverse Events ("CTCAE") related to product candidate JCAR015 are least prevalent as established from the clinical data released on November 14, 2014. Out of 28 evaluable adult patients, only 25% were adversely affected by grade III and above neurotoxicity.

Subsequent to the patient deaths, several protocols were changed related to dosage during clinical trials. Previously patients were receiving a dosage of 3x10^6 T cell/kg and subsequent to the change in protocol, researchers lowered the dosage to 1x10^6 T cell/kg in patients with high disease burden. The researchers are currently evaluating the efficacy and safety results of lower T cell dosage in the morphologic r/r ALL adult patients. As per Exhibit 8, JCAR015 median survival was 8.5 months as compared to standard of care median survival of 3 months. The clinical data result shows that the efficacy of CAR T therapy is higher as compared to other traditional techniques.

Exhibit 8: JCAR Patients Survival Rate



Source: Company filings

Exhibit 9: JCAR015 Clinical Results

	Disease Burden		
	Low	High	Total
Number of Patients	13	15	28
Complete Remission	13/13 (100%)	11/14 (79%)	24/27 (89%)
Complete Molecular Remission	11/13 (85%)	10/14 (71%)	21/27 (78%)
Severe CRS	0/13 (0%)	5/15 (33%)	5/28 (18%)
Grade 3 and Above Neurotoxicity	1/13 (8%)	6/15 (40%)	7/28 (25%)

Source: Company filings

JCAR017 CLINICAL DATA - ALSO PROMISING

In the ongoing Phase I clinical trial of JCAR017, 85% of 13 evaluated patients with pediatrics r/r ALL show CR. Out of the total 13 pediatric r/r ALL patients, four have shown low disease burden and nine patients have shown high disease burden. Approximately, 23% of 13 pediatric patients showed or experienced severe CRS in their body with 22% patients showing high disease burden, while 25% among severe CRS patients are diagnosed with low disease burden. The adverse events of grade 3 or higher as defined by CTCAE in product candidate JCAR017 are least prevalent as established from the clinical data released on November 26, 2014. Out of the evaluable pediatric r/r ALL patients, only 15% were adversely affected by grade III and above neurotoxicity. In the phase I/II trials, the evaluable patients received four different dosage of 5x10^5 T cells/kg, 5x10^6 T cells/kg, 1x10^6 T cells/kg and 1x10^7 T cells/kg. Further, clinical trials are to be conducted to evaluate the safety, efficacy and toxicity effect of JCAR017 in children and young adults.

Exhibit 10: JCAR017 Clinical Results

	Disease Burden		
	Low	High	Total
Number of Patients	4	9	13
Complete Remission	4/4 (100%)	7/9 (78%)[1]	11/13 (85%)[1]
Complete Molecular Remission[2]	4/4 (100%)	7/9 (78%)[1]	11/13 (85%)[1]
Severe CRS[3]	1/4 (25%)	2/9 (22%)	3/13 (23%)
Grade 3 and Above Neurotoxicity	1/4 (25%)	1/9 (11%)	2/13 (15%)

(1) One non-responder received steroids at line placement for apheresis
(2) Measured by flow cytometry
(3) Defined as requiring mechanical ventilator or significant vasopressor support

Source: Company filings

GLOBAL BIOPHARMACEUTICAL MARKET

We now provide the reader with a brief overview of the bio-pharma market, followed by the oncology market overview that Juno competes in. The sources for this section are primarily IMS Health and ABRMG reports on bio-pharmaceuticals and oncology.

In the last decade, the biopharmaceutical industry has seen a phenomenal growth by developing innovative new therapies and providing alternative to traditional chemotherapy. The biopharmaceutical industry has provided remarkable R&D investment, resulting in the development of lifesaving cure for rare diseases. Biopharmaceuticals are the medicinal drugs manufactured in or extracted from the living organisms or biological sources such as living cell, somatic cells, gene therapies, etc. In the last decade, the biopharmaceutical industry has invested more than $400 billion dollar in R&D, including $51 billion in 2013 alone. According to the Boston Consulting Group, participation in corporate venture capital funding by the 30 big biopharmaceutical companies rose to 63% in 2013 from 50% in 2007.

As per a report published by Research and Markets, the global biopharmaceutical industry is projected to grow at 12-14% CAGR between 2010 and 2020. Estimated at $ 200 billion in 2013, and anticipated to reach around $500 billion by 2020, the biopharmaceutical industry has seen 15-17% of revenue growth in 2013-2014. R&D spending has grown at a rate of 10.3% CAGR, from $2 billion in 1980 to $51.1 billion in 2013. Total R&D as a percentage of sales stood at 22.7% and is set to rise further with increased emphasis on research for successful development of products.

The biopharmaceutical industry consists of a number of products, which are classified based on market segments. The market segments are Gene and Cell therapies, Cytokines, PEH: Proteins, Enzymes, and Hormones, Monoclonal Antibodies, Vaccines, Others: Blood and Allergenic components, bio-surgical products like tissue grafts and sealants, biologics used for diagnostic purposes and bio-nanotechnology drugs. Among different product segments, monoclonal antibodies (moAb) constitute the largest product segment in the global biopharmaceuticals market accounting for an estimated share of 25.6% in 2013, amounting to US$51.1 billion. In terms of therapeutic area, neurology applications is the largest market for global biopharmaceuticals with an estimated 2013 share of 28.2% valued at US$56.3 billion, and further expected reach a projected US$144.5 billion by 2020. We shall now briefly acquaint the reader with the specifics of the oncology industry.

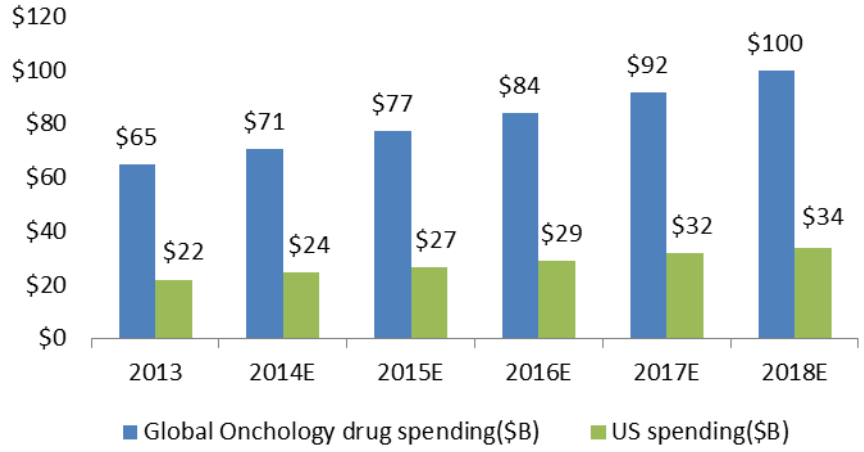
GLOBAL ONCOLOGY MARKET

According to IMS Health, the global oncology market is expected to surpass the $100 billion threshold by 2018, signifying a 40%+ growth from 2013. Global spending on oncology grew at a CAGR of 5.4% in the last five years, reaching $65 billion in 2013 and is projected to grow at a CAGR of 9% over the next five years. However, the industry spending grew at 14.2% from 2003 to 2008. The recent lower growth is mostly attributable to fewer innovative therapies for large patient population, patent expiries and fall in use of supportive care medicines. The most recent development in the science of oncology is targeted therapies (which include Juno's products), whose share of global oncology sales has significantly increased from 11% in 2003 to 46% in 2013. Similarly, the average cost per month for branded oncology drug has increased by 100% over a decade to $10,000 per drug in 2014.

According to IMS, the US market dominates the spending which accounts for approximately 34% of total global spending. We believe that the level of U.S. spending will remain moderate in the near

future. The number of new cancer cases in the U.S. is expected to increase by nearly 42% by 2025, that is, from 1.6 million cases in 2013 to 2.4 million cases in 2025, which justifies the increase in spending.

Exhibit 11: Projected global vs. U.S. oncology spending



Source: IMS Health Informatics

Despite the dominating US and Europe oncology spending, we note that over 60% of world's new annual cases originate from Africa, Asia and Central and South America, together accounting for nearly 75% of the world's cancer deaths. Among developing economies, India, China and Russia account for 40% of world's population with around two times the cancer mortality rates compared with that in the US and the UK. *(Source: ABMRG 2014 Global Oncology market report).* Therefore, Juno's worldwide market potential outside the US may prove to be valuable in the coming years.

RISKS AND CHALLENGES FACED BY THE INDUSTRY

- **Long time frames and high development costs:** Developing a new product in the biopharmaceutical industry is the longest when compared to other industries. In addition, the chances of product reaching the market at the end of development phase is relatively low, due to high attrition rates during the R&D process. The biopharmaceutical industry spends the highest portion of revenue in research and development compared to other industries.

- **Uncertainty regarding legal framework:** The development process of new medicines in a biopharmaceutical industry is very complex, as the research phase to the approval of a new product by the authorities is expensive and time consuming. In United States, Food and Drug Administration (FDA) is the regulatory agency for inspecting the development process or stage of biopharmaceutical companies. Only one of every 10,000 potential medicines makes it through the pipeline and is approved by the FDA. On an average, it takes around 15 years of research and development for the product or project to get marketed.

- **Technological and development uncertainties:** The biopharmaceutical industry generally depends on technology and this implies that pharmaceutical industry deals with a high technological uncertainty for developing new products. These uncertainties in biopharmaceutical industry are becoming increasingly difficult to predict because of rapidly changing environment where its know-how changes from day to day. Understanding these parameters in new technological development is generally becoming more uncertain.

- **Financing at the development stage:** Smaller firms often run parallel trials in the developing stage, which increases the cost of running these trials for the companies. Running these trials becomes expensive for the company as it takes longer time for learning and developing the products. Thus, company often fails to secure finances for some of the products or projects in the early development stage.

US KEY ONCOLOGY COMPANIES

We have summarized key oncology players in the table below based on 2013 oncology revenues. As of 2013, the entire oncology market stands at $88.9 billion based on revenues.

Exhibit 12: Key Competitors and their Market Share

Company	2013 oncology revenue	Market share based on 2013 oncology revenue	Major Products
Roche	$25.4 billion	28.6%	Herceptin, Avastin, MabThera/Rituxan, Xeloda, Tarceva
Amgen	$11.8 billion	13.3%	Vecitibix, Blincyto, Lanreotide, Ramucirumab
Novartis	$8.5 billion	9.6%	Gleevec, Afinitor, Femara, Avastin
Celgene	$6.3 billion	7.1%	Melphalan, Lenalidomide, Paclitaxel, Pomalidomide
Johnson & Johnson	$4.7 billion	5.3%	Abiraterone, Doxorubicin
Lilly	$4.3 billion	4.8%	Ramucirumab, Cetuximab
Merck & Co.	$3.0 billion	3.4%	Olaparib, Vandetanib, Anastrozole, Casodex
Bristol-Myers Squibb	$2.9 billion	3.3%	Emend, Intron, Sylatron
Takeda	$2.9 billion	3.3%	Nivolumab, Opdivo
Others	$19.1 billion	21.3%	Panitumumab, Brentuximab, Vedotin

Source: Global Data

INTELLECTUAL PROPERTY OWNED BY COMPETITORS

Biopharmaceutical companies are heavily dependent on intellectual property such as licenses, patents, etc. to build and maintain a competitive edge over their competitors. The below table familiarizes the reader with the various licenses and patents owned by Juno's competitors. We believe that this information is vital to understanding Juno's future.

Exhibit 13: Intellectual Property owned by competitors

Collaborator	Product	Delivery Technology	Indication	Licensed Technology/IP
Novartis/ University of Pennsylvania	CT019	CARs	Phase II trials Got breakthrough drug designation	Novartis licenses worldwide rights to CAR T-19 from University of Pennsylvania and obtains worldwide commercial rights to products from the collaboration
Bluebird Bio/ Celgene		CARs		Celgene has an option to license any products resulting from the collaboration after the completion of a phase I clinical study for each such product. Bluebird bio will be responsible for R&D activity through phase I studies.
Kite Pharma	KTE-C19	CARs and TCRs	Phase I/II: Diffuse large B-cell lymphoma	Kite licensed technology from the National Cancer Institute
Cellectis/ Pfizer	UCART19	CARs		NA
Adaptimmune/ GSK	NA	TCRs	Phase I/II: Synovial sarcoma	NA
Bluebird Bio/Celgene	NA	CARs	NA	Celgene has an option to license any products resulting from the collaboration after the completion of a phase I clinical study for each such product. bluebird bio will be responsible for R&D activity through phase I studies.
Kite Pharma	KTE-C19	CARs and TCRs	Phase I/II: Diffuse large B-cell lymphoma	Kite licensed technology from the National Cancer Institute
Cellectis/ Pfizer	UCART19	CARs	NA	NA

Source: Company filings and ValAn Global Research

VALUATION AND EARNING MODEL FORECASTS

We arrive at the fair value estimate and price target of $73.00 based on our discounted cash flow (DCF) model. This indicates that the Company is trading at a 17% discount to our fair value estimate and warrants our Outperform rating. Exhibit 14 below shows the assumptions taken to carry out the DCF valuation.

Exhibit 14: Assumptions to arrive fair value

Risk Free Rate	**1.970%**
Market Risk Premium	**10.50%**
Liquidity Premium	**2.00%**
Beta	**1.20**
Cost of Equity	**16.57%**
Tax Rate	**37.50%**
Assumed Terminal Growth Rate	**3.50%**

Source: Bloomberg and ValAn Global estimates

VALUATION

Although there are several large firms in oncology, Juno employs a relatively niche technology relevant to a small subset of the cancer spectrum and there are very few companies operating in this same or related technology. Due to such limited options, we believe a DCF valuation is the most suitable approach to arrive at the fair value estimate.

We begin by estimating the revenue considering the total cancer patients in the U.S. This figure is then segmented based on the type of treatments or therapies expected to be offered to type of cancer diseases such as r/r ALL, r/r NHL, CLL and CML. With number of incidence and the growth rate of cancer patients, we estimate the target segment for the Company's product candidates. The Company's total revenue is then arrived at by assuming an appropriate market size and market penetration values for each product candidates, cost per patient and suitable growth rates. Based on the revenue and margin assumptions, free cash flows to the firm and equity holders are calculated.

As the Company's growth depends on the successful commercialization of its product candidates, we believe that investment in this company is riskier than that of the established companies, thus we assume a market risk premium of 10.5%. Risk free rate is assumed to be 1.97%, which is in line with the US Government 10 Year Yield and a liquidity premium of 2% considering the lower average daily trading volume of JUNO, compared to large cap companies. With a beta of 1.2, which is the recommended figure for biotechnology companies, we arrive at a cost of equity of 16.57%. In addition, Juno, being an early stage biopharmaceutical company, we believe a terminal growth rate of 3.5% is appropriate.

Exhibit 15, shown below depicts our free cash flow and present value calculations.

Exhibit 15: Discounted cash flow valuation

Free Cash Flow Calculation		2014E	2015E	2016E	2017E	2018E	2019E	2020E
Profit After Tax		$ (191,404)	$ (211,335)	$ (184,875)	$ (100,122)	$ 564,041	$ 814,314	$ 1,762,841
Add: Depreciation & Amortization		111	111	111	111	111	111	111
Free Cash Flow to the Firm		**$ (191,294)**	**$ (211,224)**	**$ (184,764)**	**$ (100,011)**	**$ 564,152**	**$ 814,425**	**$ 1,762,951**
Less: Interest*(1-Tax)		-	-	-	-	-	-	-
Add: Net Borrowings		-	-	-	-	-	-	-
Free Cash Flow to the Equity (FCFE)		$ (191,294)	$ (211,224)	$ (184,764)	$ (100,011)	$ 564,152	$ 814,425	$ 1,762,951
Free Cash Flow to the Equity (FCFE) /share		$ (2.07)	$ (2.22)	$ (1.92)	$ (1.02)	$ 5.72	$ 7.91	$ 17.02
Present Value of FCFE per share	$ 37.76							
Terminal Value of FCFE per share	$ 34.97							
Value Per share	**$ 72.74**							
Current Market Price	$ 61.51							
Premium (Discount) to Intrinsic Value	**-15.4%**							

Source: ValAn Estimates

EARNINGS MODEL AND FORECAST ASSUMPTIONS

Our earnings model for Juno is primarily driven by the sales generated from its product candidates, namely, JCAR015, JCAR017, JCAR014 and CD 22 CAR-Technology. To estimate sales figures for these product candidates, we obtained the annual number of cancer incidences from the American Cancer Society's "Cancer - Facts and Figures 2014" and projected appropriate future growth rates. Assuming modestly upward annual market penetration rates, we determine the number of patients expected to be treated with the particular product candidate. With the price of recently FDA approved product for treatment of cancer, estimated number of cancer patients to be treated and success probabilities, we finally arrive at the estimated sales figures for the each of the product candidates.

The exhibit 16 and exhibit 17 show estimated revenue from JCAR015 for the treatment of Acute Lymphoblastic Leukemia (ALL). Similarly, the estimated revenues from JCAR015 for the treatment of Non-Hodgkin's Lymphomas (NHL) and from JCAR017, JCAR014 and CD 22 CAR-Technology for the treatment of both ALL and NHL are available in our excel model.

Exhibit 16: ALL disease projection for JCAR015 and JCAR017

Acute Lymphoblastic Leukemia (ALL)	2017 Q4E	2018 Q1E	2018 Q2E	2018 Q3E	2018 Q4E	2019 Q1E	2019 Q2E	2019 Q3E	2019 Q4E	2020E
US ALL Annual Incidence	6,331	6,355	6,378	6,402	6,426	6,451	6,475	6,499	6,523	6,621
% Annual Growth	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Mortality rate	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%
Total Eligible ALL patients	1,514	1,520	1,526	1,531	1,537	1,543	1,549	1,555	1,560	1,584
% of B cell ALL	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Total Eligible B Cell ALL patients	1,211	1,216	1,221	1,225	1,230	1,234	1,239	1,244	1,248	1,267

Source: ValAn estimates, Note: Assumed probability of success 80%

Exhibit 17: Revenue projection for JCAR015

JCAR015	2017 Q4E	2018 Q1E	2018 Q2E	2018 Q3E	2018 Q4E	2019 Q1E	2019 Q2E	2019 Q3E	2019 Q4E	2020E
Total Eligible B Cell ALL patients- Cumulative basis	1,211	1,216	1,221	1,225	1,230	1,234	1,239	1,244	1,248	1,267
% of Adult ALL	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Eligible B cell adult ALL patients	606	608	610	613	615	617	620	622	624	634
% penetration JCAR015	10%	20%	20%	20%	20%	30%	30%	30%	30%	40%
Patients treated with JCAR015	61	122	122	123	123	185	186	187	187	253
Cost per person per period ($)	$ 43,750	$ 43,750	$ 43,750	$ 43,750	$ 43,750	$ 43,750	$ 43,750	$ 43,750	$ 43,750	$ 175,000
US Sales ($ mm)	$ 2,650	$ 5,320	$ 5,340	$ 5,360	$ 5,380	$ 8,101	$ 8,131	$ 8,162	$ 8,192	$ 44,347
Non-US Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Royalty ($ mm)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Sales ($ mm)	$ 2,120	$ 4,256	$ 4,272	$ 4,288	$ 4,304	$ 6,481	$ 6,505	$ 6,529	$ 6,554	$ 35,477

Source: ValAn estimates, Note: Assumed probability of success 80%

SUCCESS PAYMENTS

As discussed in the strategic partnership section, Juno is obligated to make success payments to Fred Hutchinson Cancer Research Center (FHCRC) and Memorial Sloan Kettering Cancer Center (MSK) based on increases in its per share fair market value (or, in other words due to the IPO, the common stock trading price) The compensation to be made is derived based on whether the Company's common stock meets or exceeds the specified threshold values, which ranges from $20.00 to $160.00 per share for FHCRC and from $40.00 to $120.00 per share for MSK. It could be paid in cash or through issuance of publicly tradable shares. Such payment is due or payable on biannual anniversary of any event such as initial public offering, asset sale (selling off all the assets), Company sale, merger, transfer of majority of shares held by ARCH Venture Fund VII, L.P. or affiliated entity. As the Company completed the initial public offering in December 2014, we have incorporated bi-annual success payments in the form of shares in the coming years.

Exhibit 18: Criteria for the amount of success payment to be made to FHCRC

Multiple of equity value at issuance	5.0x	7.5x	10.0x	15.0x	20.0x	25.0x	30.0x	35.0x	40.0x
Per share common stock price required for payment	$20	$30	$40	$60	$80	$100	$120	$140	$160
Success payment(s) (in millions)	$10	$25	$40	$50	$50	$50	$50	$50	$50

Source: Company filings

Exhibit 19: Criteria for the amount of success payment to be made to MSK

Multiple of equity value at issuance	10.0x	15.0x	30.0x
Per share common stock price required for payment	$40	$60	$120
Success payment(s) (in millions)	$10	$70	$70

Source: Company filings

Aggregate amount of success payments cannot exceed $375 million to FHCRC and $150 million to MSK. Exhibit 18 and 19 shows the contribution to be made towards success payment to FHCRC and MSK respectively, when the Company's share prices reach certain multiple to the original $4.00 issuance price of Series A convertible preferred stock.

STOCK-BASED COMPENSATION COSTS

The Company adopted equity incentive plan in 2013, under which it may grant incentive stock options, restricted stock unit awards, restricted stock unit awards, non-statutory stock options, stock appreciation rights, and other stock-based awards. As the Company currently offers stock options and restricted stock awards to its employees and directors, we have estimated these costs in our financial model as R&D expenses as well as G&A expenses. As of September 30, 2014, the Company recorded $0.3 million under its 2013 equity incentive plan, out of which $0.1 million is recorded as the research and development costs and $0.2 million is recorded as the G&A expense.

Similarly, under 2014 equity incentive plan the Company recorded $2.8 million of stock-based compensation cost, out of which $0.6 million is recorded under research and development expense and $2.2 million under G&A expenses. We expect the same trend to continue for future quarters.

Juno has also $8 million unrecognized compensation costs stock options for related to employees' and directors', which the Company expects to recognize over a weighted average period of 3.85 years. Similarly, unrecognized compensation costs for restricted stock awards stands $11.4 million, which the Company expects to recognize over a weighted average period of 3.23 years. We have assumed recognition of these compensation costs as a straight line average over the appropriate time period of recognition in our model.

SENSITIVITY ANALYSES

Exhibit 20 below shows the relative sensitivity of JUNO's intrinsic stock value to our assumed terminal growth rates and cost of equity in our DCF model

Exhibit 20: Sensitivity of stock price to growth and cost of equity assumptions

Intrinsic Value	Cost of Equity					
Growth Rate	15%	16%	17%	18%	19%	20%
1%	$ 81.01	$ 71.76	$ 63.88	$ 57.10	$ 51.23	$ 46.12
2%	$ 83.96	$ 74.07	$ 65.70	$ 58.55	$ 52.40	$ 47.06
3%	$ 87.41	$ 76.73	$ 67.78	$ 60.20	$ 53.71	$ 48.11
4%	$ 91.49	$ 79.84	$ 70.19	$ 62.08	$ 55.20	$ 49.30
5%	$ 96.38	$ 83.51	$ 72.99	$ 64.25	$ 56.90	$ 50.65
6%	$ 102.35	$ 87.92	$ 76.30	$ 66.78	$ 58.86	$ 52.18

Source: Company filings

KEY CATALYSTS

Given below are potential event catalysts, which may affect the Company valuation at certain future points in time.

- **Expected Phase II trials for JCAR015 could accelerate the US approval process:** The Company plans to start Phase II clinical trials for JCAR015, a product candidate for anti CD19, by mid-2015. We believe that superior results in Phase II clinical trials could accelerate future regulatory approvals for the product candidate, which could translate into an upside potential for the valuation of the Company. As the Company's Phase I clinical trials result were promising, we believe that similar results will be achieved in Phase II clinical trials.

- **Expected JCAR014 Phase I data by early 2017:** JCAR014 is currently in the Phase I/II trial. The Company does not have plans to advance into registration trials due to limited patient's participation in this trial. We expect the Phase I results to be released by early 2017, which if positive, could translate into an increase in stock valuation.

- **Expected accelerated approval of JCAR017 in 2016:** Ongoing Phase I clinical trials for JCAR017 have shown promising results with r/r ALL patients. Assuming results from the ongoing Phase I/II clinical trials on patients with B cell NHL are positive, the approval process for next clinical trials could be accelerated, which could subsequently impact valuations positively.

- **Initial data from Phase I/II for WT-1TCR by end 2016:** The Company develops high affinity TCR T cell product candidate, which targets the WT-1 protein, found on the surface of numerous cancer cells such as adult myeloid leukemia, non-small cell lung, breast, and pancreatic, ovarian and colorectal cancers. Initial data of Phase I trials has revealed a positive effect of the product on patients. We are expecting that positive results in Phase I final data by 2016 could lead increased valuations.

INVESTMENT RISKS

- **Inconsistent cash flows:** Juno, an early-stage company has been incurring losses since its inception and we expect these losses to continue well into 2017-18. This is largely attributable to high research spending. The Company's ability to generate revenue is dependent of sufficient funding to carry out research and development activities followed by successful commercialization of its products. Though the Company has achieved significant clinical trial successes in cell-based immunotherapy, the technology is relatively unproven. Considering the Company's limited operating history it is difficult to predict the future performance. Thus, lack of consistent cash flow remains an uncertain factor for the overall Company valuation.

- **Side effects– Toxicity related to Cytokine cannot be overlooked:** Despite progressing CAR T research related to cancer cells, we cannot overlook undesirable side effects such as releasing of cytokines causing systematic symptoms like hypotension, tachycardia, headache, scratchy throat and intractable seizures, or status epilepticus. Though cytokine-releasing syndrome ("CRS") cannot be prevented, it can be reversed. In a few cases, patients may require therapeutic intervention to avoid possible adverse side effects. Recent data provided by Memorial Sloan Kettering Cancer Center (partner with Juno) on the basis of JCAR015 clinical trials, 18% of 28 adult patients suffering from relapsed/ refractory acute lymphoblastic leukemia ("r/r ALL") have shown severe CRS with two death occurring, which could lead to problem related to further FDA approval and limit their potential to commercialization the product candidate. In future, negative clinical trial results could severely affect the Company's stock price.

- **Risk due to delays in clinical trial approvals:** The process of clinical testing is time consuming, expensive and subject to high uncertainty. Clinical studies are prone to failures at any stage leading to the clinical trials being unsuccessful. Other risks are delays in reaching consensus with regulatory agencies on study design and results, delays in recruiting suitable patients to participate in the clinical studies, etc.

- **Patent dispute between St. Jude Children's Research Hospital and University of Pennsylvania:** St. Jude Research Hospital alleges that University of Pennsylvania unlawfully used their research papers related to U.S. Patent No. 8,399,645 ("the '645 Patent") covering the CAR technology and their subsequent efforts to commercialize the product in collaboration with Novartis. The outcome of the case and the timing of its resolution are uncertain, and may result in the invalidation of the '645 patent. The Company has incurred substantial expenses in connection with this litigation and will continue to do so until the litigation is resolved. Additionally, any unfavorable litigation outcome can considerably impact the Company's valuation.

- **Largely dependent on external financing for development and commercialization of products:** Juno's business operations require substantial amount of cash to fund clinical development of product candidates and subsequently undertaking clinical trials. Further, the Company will also require additional cash for commercialization of the product candidates.

MANAGEMENT PROFILE

- **CEO, President:** Hans Bishop- since September 2013
  - B.Sc. Chemistry from Brunel University in London
  - Former Chairman of the Board of Genesis Biopharma, Inc.
  - Former Board Member of Avanir Pharmaceuticals, Inc.
  - Former Chief Operating Officer of PhotoThera, Inc.
  - Former Executive Vice President and Chief Operating Officer at Dendreon Corporation
  - Former President of the Specialty Medicine Business at Bayer Healthcare Pharmaceuticals, Inc.
  - Former Senior Vice President of Global Commercial Operations of Chiron Corporation
- **CFO and Head of Corporate Development:** Steven D. Harr- April 2014
  - B.A. in Economics from College of the Holy Cross and an M.D. from the Johns Hopkins University School of Medicine.
  - Former Managing Director and Head of Biotechnology Investment Banking at Morgan Stanley from May 2010 until he joined Juno
  - Former Morgan Stanley's lead biotech research analyst and Co-Head of Global Healthcare Research
- **Executive Vice President, Research and Development:** Mark W. Frohlich- since February 2014
  - B.S. in Electrical Engineering and Economics from Yale University and an M.D. from Harvard Medical School
  - Former Executive Vice President of Research and Development and Chief Medical Officer at Dendreon Corporation
  - Former resident in internal medicine and a fellow in oncology at the University of California, San Francisco.
- **Chief Medical Officer:** Mark J. Gilbert- since March 2014
  - B.S. in Biochemistry from the University of Iowa and his M.D. from the University of Iowa Medical School
  - Former interim CMO or consultant in strategic drug development and portfolio management in medical oncology for several US biotech and pharmaceutical companies.
  - Vice President and Head Global Clinical Development, Therapeutic Area Oncology, at Bayer Schering Pharmaceuticals.
  - Held several executive positions with Berlex Pharmaceuticals and its parent company Schering, AG
  - Held senior management position at Immunex, where his responsibilities included development and medical affairs for Leukine and Mitoxantrone in hematology, oncology, Crohn's disease, and multiple sclerosis.
- **Chief Scientific Officer:** Kendall M. Mohler- since October 2013
  - B.S. from the University of Kansas and a Ph.D. in Immunology from University of Texas Health Science Center at Dallas, Southwestern Medical School.
  - Former CSO at ZetaRxBiotherapeutics, a company focused on development of gene-modified T cells for oncology indications.
  - Co-founder of Trubion Pharmaceuticals, an antibody-alternative protein therapy company, and during his tenure served as SVP, R&D and Chief Scientific Officer.
  - Former Vice President of Biological Sciences at Immunex Corporation

  - Involved in numerous scientific management positions and was a member of the Enbrel development team from inception to BLA approval. Dr. Mohler has published more than 35 manuscripts and has four issued patents and 6 pending patent applications.
- **Senior Vice President, Regulatory Strategy and Portfolio Management:** Elizabeth Smith-since November 2013
  - B.A. in Biology from Central Washington University
  - Ms. Smith has over 20 years of experience in the field of regulatory affairs, quality, and manufacturing, with an emphasis on biologics and advanced cellular therapies in oncology
  - Former Vice President of Regulatory Affairs at Dendreon and led the regulatory efforts resulting in FDA licensure of Provenge, the first approved active cellular therapy for the treatment of cancer.
  - Previously held regulatory and manufacturing positions at Genentech and Immunex.
- **General Counsel & Secretary:** Barney Cassidy- since January 2014
  - B.A. in Philosophy from the Jesuit House of Studies, Loyola University, New Orleans, an M.A. in Philosophy from the University of Toronto, and a J.D. from Harvard Law School. He also completed the Executive Education Program for Growing Companies at Stanford Graduate School of Business.
  - Served in various roles including as its Executive Vice President, General Counsel, and Secretary at Tessera Technologies, Inc.
  - Former President of Tessera Intellectual Property Corp.
  - He served in various roles including Senior Vice President and General Counsel at Tumbleweed Communications Corp.
  - Practiced law at Wilson Sonsini Goodrich & Rosati and Skadden, Arps, Slate, Meagher & Flom LLP
- **Senior Vice President, Manufacturing:** Andrew Walker- since April 2014
  - Ph.D. in Chemical Engineering from the University of California, Berkeley, B.S. in Chemical Engineering from the University of Washington and Management of Technology certificate from the UC Berkeley Haas School of Business.
  - Served in senior leadership roles including Head of the Manufacturing and Head of the Process Development Department at CMC Biologics, a contract biologics drug development and manufacturing organization.
- **VP of People:** Robin Andrulevich- since October 2014
  - B.A. in Communications Science from University of Connecticut and also attended Barnard College and Columbia University.
  - Served as the Talent Director for the early-stage technology venture capital firm, Madrona Venture Group
  - Held several key senior leadership human resources and talent roles at Amazon.

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JUNO EARNINGS MODEL

Income Statement 2014-2020E

Income Statement:	August 5, 2013 to September 30, 2013	Nine Months Ended September 30, 2014	2014 Q4E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
Revenues	-	-	-	-	-	-	121,165	978,444	1,567,086	$ 2,944,440
Cost of goods sold	-	-	-	-	-	-	24,233	195,689	313,417	588,888
Royalty Revenue	-	-	-	-	-	-	-	-	-	-
Gross profit	-	-	-	-	-	-	96,932	782,755	1,253,669	2,355,552
Operating expenses:										
Research and development	$ 6	$ 22,447	$ 28,689	$ 51,136	115,144	96,827	93,765	95,897	100,177	$ 99,657
General and administrative	57	13,384	18,448	31,832	75,071	66,528	64,822	62,029	65,710	61,397
Litigation	-	4,987	1,662	6,649	6,649	6,649	6,649	6,649	6,649	6,649
Total operating expenses	63	40,818	48,799	89,617	196,864	170,004	165,237	164,576	172,536	167,703
Income/Loss from operations	**$ (63)**	**$ (40,818)**	**$ (48,799)**	**$ (89,617)**	**$ (196,864)**	**$ (170,004)**	**$ (165,237)**	**$ (164,576)**	**$ (172,536)**	**$ (167,703)**
Other income (expense)	-	(10,718)	(3,573)	(14,291)	(14,291)	(14,291)	(14,291)	(14,291)	(14,291)	(14,291)
Contract payments:										
FHCRC			$ -	$ -	$ -	$ -	$ -	$ 100	$ 100	$ 100
MSK			-	-	-	-	-	100	100	100
SCRI				-	50	50	50	50	50	200
COH			6	6	25	25	25	25	25	25
ZetaRx to FHCRC			1	1	5	5	16	20	20	20
Opus Bio			20,000	20,000	-					
SJCRH			25	25	100	500	500	500	500	500
Royalties based on sales						-	1,598	12,903	20,665	38,828
Milestone Payments						-	15,338	26,150	97,817	82,479
Interest rate			4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Interest expense, net	-	-	-	-	-	-	-	-	-	-
Net income/loss and comprehensive income/loss	**$ (63)**	**$ (51,536)**	**$ (72,404)**	**$ (123,940)**	**$ (211,335)**	**$ (184,875)**	**$ (100,122)**	**$ 564,041**	**$ 947,565**	**$ 2,051,306**
Income tax benefit (expense)-Without NOL			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 211,515**	**$ 355,337**	**$ 769,240**
Net Operating Loss Carry Forward, Balance		**$ 154,410**	**$ 226,814**	**$ 350,755**	**$ 773,425**	**$ 1,143,174**	**$ 1,343,418**	**$ 215,336**	**$ -**	**$ -**
Actual Income Tax Expense			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ (133,251)**	**$ (288,465)**
Tax rate %			*37.50%*	*37.50%*	*37.50%*	*37.50%*	*37.50%*	*37.50%*	*37.50%*	*37.50%*
Net income/loss attributable to common stockholders:										
Net income/loss and comprehensive income/loss	$ (63)	$ (51,536)	$ (72,404)	$ (123,940)	$ (211,335)	$ (184,875)	$ (100,122)	$ 564,041	$ 814,314	$ 1,762,841
Deemed dividends upon issuance of convertible preferred stock, non-cash	-	(67,464)	-	(67,464)	-	-	-	-	-	-
Net Income/loss attributable to common stockholders	**$ (63)**	**$ (119,000)**	**$ (72,404)**	**$ (191,404)**	**$ (211,335)**	**$ (184,875)**	**$ (100,122)**	**$ 564,041**	**$ 814,314**	**$ 1,762,841**
Net Income/loss per share attributable to common stockholders, basic and diluted	$ (0.14)	$ (17.50)	$ (10.65)	$ (28.15)	$ (31.08)	$ (27.19)	$ (14.73)	$ 82.96	$ 119.78	$ 259.29
Weighted average common shares outstanding, basic and diluted	455	6,799	6,799	6,799	6,799	6,799	6,799	6,799	6,799	$ 6,799
Pro forma net income/ loss per share attributable to common stockholders, basic and diluted		**$ (3.06)**	**$ (0.78)**	**$ (2.07)**	**$ (2.22)**	**$ (1.92)**	**$ (1.03)**	**$ 5.72**	**$ 7.91**	**$ 17.01**
Weighted average common shares outstanding, basic and diluted		38,924	92,377	92,377	95,275	96,068	97,640	98,611	103,009	103,610

Source: Company filings and Valan Global estimates

Balance Sheet 2014-2020E

Balance Sheet:	, 2013 to Septembeths Ended Septembe		2014 Q4E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
ASSETS:										
Current assets:										
Cash	$ 35,966	$ 237,834	$ 445,093	$ 445,093	$ 233,869	$ 199,105	$ 99,094	$ 663,246	$ 1,610,921	$ 3,662,338
Prepaid expenses and other current assets	159	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264
Total current assets	$ 36,125	$ 239,098	$ 446,357	$ 446,357	$ 235,133	$ 200,369	$ 100,358	$ 664,510	$ 1,612,185	$ 3,663,602
Property and equipment, net	40	1,596	1,596	1,596	1,596	1,596	1,596	1,596	1,596	1,596
Fair value of convertible preferred stock option	3,829	-	-	-	-	-	-	-	-	-
Other assets	100	8,668	8,668	8,668	8,668	8,668	8,668	8,668	8,668	8,668
Total assets	**$ 40,094**	**$ 249,362**	**$ 456,621**	**$ 456,621**	**$ 245,397**	**$ 210,633**	**$ 110,622**	**$ 674,774**	**$ 1,622,449**	**$ 3,673,866**
LIABILITIES AND CONVERTIBLE PREFERRED STOCK:										
Current liabilities:										
Accounts payable	1,148	2,119	2,119	2,119	2,119	2,119	2,119	2,119	2,119	2,119
Accrued liabilities	9,970	12,288	12,288	12,288	12,288	12,288	12,288	12,288	12,288	12,288
Deferred rent	-	125	125	125	125	125	125	125	125	125
Total current liabilities	$ 11,118	$ 14,532	$ 14,532	$ 14,532	$ 14,532	$ 14,532	$ 14,532	$ 14,532	$ 14,532	$ 14,532
Other long-term liabilities	75	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544	1,544
Debt	-	-	-	-	-	-	-	-	-	-
Commitments and contingencies	-	-	-	-	-	-	-	-	-	-
Convertible preferred stock	72,583	387,695	387,695	387,695	387,695	387,695	387,695	387,695	387,695	387,695
STOCKHOLDERS' EQUITY (DEFICIT)										
Common stock	1	1	1	1	1	1	1	1	1	1
Additional paid-in capital	8,137	-	279,636	279,636	279,636	429,636	429,636	429,636	429,636	429,636
Accumulated deficit	(51,820)	(154,410)	(226,787)	(226,787)	(438,011)	(622,775)	(722,786)	(158,635)	789,041	2,840,458
Total stockholders' (deficit) equity	(43,682)	(154,409)	52,850	52,850	(158,374)	(193,138)	(293,149)	271,003	1,218,678	3,270,095
Total liabilities, convertible preferred stock, and stockholders' (deficit) equity	**$ 40,094**	**$ 249,362**	**$ 456,621**	**$ 456,621**	**$ 245,397**	**$ 210,633**	**$ 110,622**	**$ 674,774**	**$ 1,622,449**	**$ 3,673,866**

Source: Company filings and Valan Global estimates

Cash Flows 2014-2020E

Cash Flow Statement:	August 5, 2013 to September 30, 2013	Nine Months Ended September 30, 2014	2014 Q4E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
OPERATING ACTIVITIES										
Net loss	$ (63)	$ (51,536)	$ (72,404)	$ (123,940)	$ (211,335)	$ (184,875)	$ (100,122)	$ 564,041	$ 947,565	$ 2,051,306
Adjustments to reconcile net loss to net cash used in operating activities:										
Depreciation	-	83	28	111	111	111	111	111	111	111
Stock-based compensation	3	3,083	-	3,083	-	-	-	-	-	-
Loss from remeasurement of fair value of convertible preferred stock options	-	10,718	-	10,718	-	-	-	-	-	-
Changes in operating assets and liabilities:				-						
Prepaid expenses and other assets	-	(6,218)	-	(6,218)	-	-	-	-	-	-
Accounts payable	-	971	-	971	-	-	-	-	-	-
Accrued liabilities and deferred rent	60	3,484	-	3,484	-	-	-	-	-	-
Net cash used in operating activities	**$ -**	**$ (39,415)**	**$ (72,377)**	**$ (111,792)**	**$ (211,224)**	**$ (184,764)**	**$ (100,011)**	**$ 564,152**	**$ 947,676**	**$ 2,051,416**
INVESTING ACTIVITIES										
Purchase of cost-method investment	$ -	$ (3,455)	$ -	$ (3,455)	$ -	$ -	$ -	$ -	$ -	$ -
Purchase of property and equipment	-	(1,636)	-	(1,636)	-	-	-	-	-	-
Net cash used in investing activities	**$ -**	**$ (5,091)**	**$ -**	**$ (5,091)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
FINANCING ACTIVITIES										
Proceeds from issuance of convertible preferred stock	$ -	$ 246,374	$ -	$ 246,374	$ -	$ -	$ -	$ -	$ -	$ -
Proceeds related to primary stock offering	-	-	279,636	279,636	-	150,000	-	-	-	-
Proceeds from issuance of notes payable	-	-	-	-	-	-	-	-	-	-
Line of credit (payments) proceeds, net	-	-	-	-	-	-	-	-	-	-
Net cash provided by financing activities	$ -	$ 246,374	$ 279,636	$ 526,010	$ -	$ 150,000	$ -	$ -	$ -	$ -
Net increase in cash during the period	$ -	$ 201,868	$ 207,259	$ 409,127	$ (211,224)	$ (34,764)	$ (100,011)	$ 564,152	$ 947,676	$ 2,051,416
Cash, beginning of the period	-	35,966	237,834	445,093	445,093	233,869	199,105	99,094	663,246	1,610,921
Cash, end of the period	**$ -**	**$ 237,834**	**$ 445,093**	**$ 445,093**	**$ 233,869**	**$ 199,105**	**$ 99,094**	**$ 663,246**	**$ 1,610,921**	**$ 3,662,338**

Source: Company filings and Valan Global estimates