UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of earliest event reported): June 2, 2023

JASPER THERAPEUTICS, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware	001-39138	84-2984849
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(IRS Employer Identification No.)

2200 Bridge Pkwy Suite #102
Redwood City, California 94065
(Address of Principal Executive Offices) (Zip Code)

(650) 549-1400
Registrant's telephone number, including area code

N/A
(Former Name, or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Exchange Act:

(Title of each class)	(Trading Symbol)	(Name of exchange on which registered)
Voting Common Stock, par value $0.0001 per share	**JSPR**	**The Nasdaq Stock Market LLC**
Redeemable Warrants, each whole warrant exercisable for one share of Voting Common Stock at an exercise price of $11.50	**JSPRW**	**The Nasdaq Stock Market LLC**

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 7.01. Regulation FD Disclosure.

Jasper Therapeutics, Inc. (the "Company") is furnishing an updated corporate presentation, attached as Exhibit 99.1 to this Current Report on Form 8-K (the "Corporate Presentation"), which the Company intends to post on the Company's website. The Corporate Presentation is current as of June 2, 2023, and the Company disclaims any obligation to update this material in the future.

The information in this Item 7.01, including the Corporate Presentation attached hereto as Exhibit 99.1, is being furnished under Item 7.01 of Form 8-K and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, and it shall not be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as shall be expressly set forth by specific reference in such a filing.

Item 8.01. Other Events.

The Corporate Presentation included the following information: the Company recently met with the U.S. Food and Drug Administration (the "FDA"), which provided the Company with valuable guidance and feedback regarding the Company's proposed program for briquilimab for the treatment of Chronic Spontaneous Urticaria ("CSU"). As a result of the feedback received from the FDA, the Company currently expects to file its investigational new drug application ("IND") for briquilimab for the treatment of CSU, and dose the first patient in the study, in the second half of 2023.

The Company will continue to engage with the FDA towards filing its IND and the launch of the CSU clinical trial.

Forward Looking Statements

Except for the factual statements made herein, information contained in this Current Report on Form 8-K consists of forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that involve risks, uncertainties and assumptions that are difficult to predict. Words and expressions reflecting optimism, satisfaction or disappointment with current prospects or future events, as well as words such as "believes," "intends," "expects," "plans" and similar expressions, or the use of future tense, identify forward-looking statements, but their absence does not mean that a statement is not forward-looking. Such forward-looking statements are not guarantees of performance and actual actions or events could differ materially from those contained in such statements. For example, there can be no assurance that the Company will meet its expected timing to file the IND with the FDA or the timing to complete the first patient enrollment for its proposed program for briquilimab for the treatment of CSU, and the outcome of any anticipated future discussions with the FDA. Reference is also made to other factors detailed from time to time in the Company's periodic reports filed with the Securities and Exchange Commission, including the Company's most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q. The forward-looking statements contained in this Current Report on Form 8-K speak only as of the date of this Current Report on Form 8-K and the Company assumes no obligation to publicly update any forward-looking statements to reflect changes in information, events or circumstances after the date of this Current Report on Form 8-K, unless required by law.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
99.1	Corporate Presentation, dated June 2023.
104	Cover Page Interactive Data File, formatted in Inline Extensible Business Reporting Language (iXBRL).

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: June 2, 2023

JASPER THERAPEUTICS, INC.

By: /s/ Jeet Mahal
Name: Jeet Mahal
Title: Chief Operating Officer and
Chief Financial Officer

Jasper THERAPEUTICS INC.

Harnessing the Power of Jasper's Differentiated c-Kit Therapeutic Approach

Nasdaq: JSPR

June 2023

Safe Harbor Statements

Forward-Looking Statements

This investor presentation and any accompanying oral presentation (together, this "Presentation") contain forward-looking statements. All statements other than statements of historical fact contained in this Presentation, including statements regarding the future opportunities and prospects of Jasper Therapeutics, Inc. (together with its subsidiary, "Jasper" or the "Company"), including milestones, potential regulatory filings and the anticipated timing thereof, patient enrollment, future timelines, business strategy, and plans and objectives for future operations, are forward-looking statements. Jasper has based these forward-looking statements on its estimates and assumptions and its current expectations and projections about future events. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those contained in the "Risk Factors" section of the Company's Annual Reports on Form 10-K for the year ended December 31, 2022, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K that the Company has subsequently filed or may subsequently file with the SEC. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this Presentation are inherently uncertain and may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Accordingly, you should not rely upon forward-looking statements as predictions of future events. Jasper undertakes no obligation to update publicly or revise any forward-looking statements for any reason after the date of this Presentation or to conform these statements to actual results or to changes in Jasper's expectations.

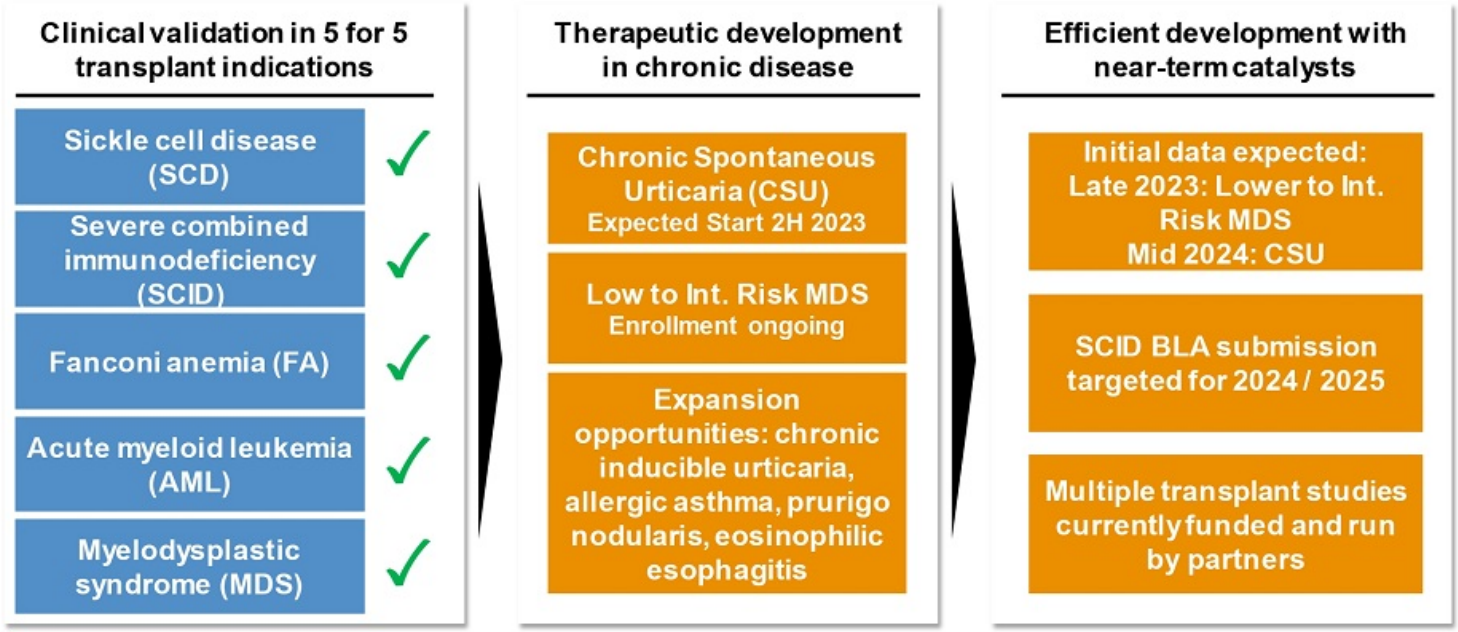
Industry and Market Data

Certain data in this Presentation was obtained from various external sources, and neither the Company nor its affiliates, advisers or representatives has verified such data with independent sources. Accordingly, neither the Company nor any of its affiliates, advisers or representatives makes any representations as to the accuracy or completeness of that data or undertakes any obligation to update such data after the date of this Presentation. Such data involves risks and uncertainties and is subject to change based on various factors.

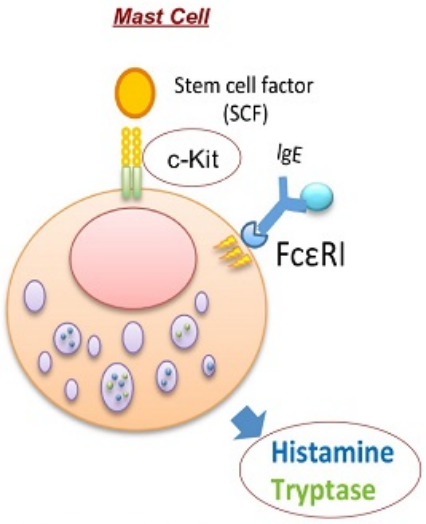
Trademarks

The trademarks included herein are the property of the owners thereof and are used for reference purposes only. Such use should not be construed as an endorsement of the products or services of the Company.

Briquilimab is an anti c-Kit antibody for acute and chronic therapy in multiple mast and stem cell diseases



Tyrosine kinase KIT plays a central role in regulating mast and stem cell survival



Blocking c-Kit signaling depletes mast cells

Mast Cells

Play a key role in immune system through the release of compounds that induce inflammation (degranulation)

Unregulated mast cell activation may cause episodes of hives and inflammation (i.e. Chronic Urticaria)

Briquilimab blocks c-Kit signaling and may lead to lasting depletion of mast cells in Chronic Urticaria and other mast cell diseases

Stem Cells

Hemopoietic stem cells are the pluripotent cells that drive ongoing production of red blood cells, platelets and immune cells

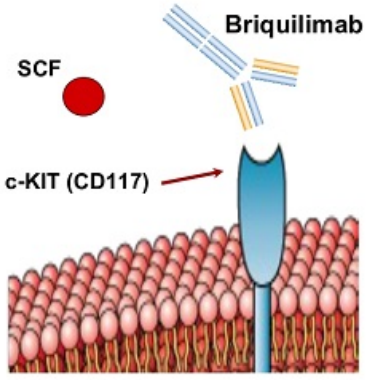
Many blood cancers and genetic diseases can be cured by depleting diseased stem cells and replacing with donor or gene modified stem cells

Briquilimab can be added to existing transplant regimens to block c-Kit signaling on stem cells and potentially deliver more effective transplants

Briquilimab is optimally designed to directly block c-Kit signaling

Briquilimab

Blocks SCF binding to c-Kit (CD117) to directly inhibit receptor signaling



Validated Mechanism of Action

Briquilimab is designed to directly block SCF from binding to c-Kit (CD117) with high affinity and avidity

- Aglycoslyated IgG1 antibody directly inhibits stem cell factor from binding to the c-Kit receptor on mast and stem cells
- Inhibition of SCF signaling leads to depletion of mast cells in the skin and hematopoietic stem cells in the bone marrow
- Wide therapeutic potential across a range of mast and stem cell-mediated diseases

Favorable Drug Properties

- Kd < 5pM affinity to human c-Kit with IC50 ~ 70pM
- Human mast cell survival bioassay IC50 ~12.5nM
- No Fc mediated ADCC or complement mediated cytotoxicity which reduces risk of adverse effects related to express CD117
- Human clinical data as IV or Sub-Q delivery

Encouraging Clinical Profile

- Predictable clearance from ages 3yrs to 79yrs, no need to monitor PK
- Demonstrated single agent lasting depletion of mast cells
- Demonstrated efficacy in 5 clinical transplant studies
- No briquilimab-related SAEs reported

Briquilimab Therapeutic Development

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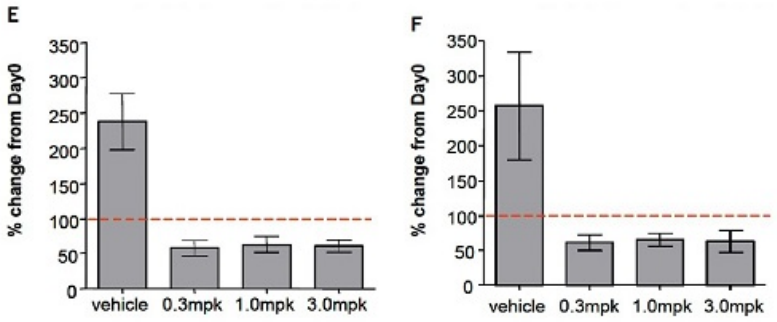
Briquilimab for Chronic Urticaria

Briquilimab c-Kit and mast cell activity

Activity Assay	Result
Binding affinity to human c-Kit Fc dimer	Kd < 5 pM
Biacore assessment of c-Kit signaling neutralization	Ki 70pM
Human mast cell c-Kit phosphorylation bioassay	IC_{50} 1.8nM
Human mast cell survival bioassay	IC_{50} 12.5nM
Monkey mast cell cutaneous wound proliferation assay	Vehicle: 150% increase in tryptase positive mast cells JSP191 (0.3, 1.0, 3.0 mg/kg): 50% reduction vs. baseline
Monkey basal mast cell depletion model	JSP191 (0.3, 1.0, 3.0 mg/kg): 16-21% depletion
Monkey lung mast cell depletion model	JSP191 (0.3, 1.0, 3.0 mg/kg): Dose dependent depletion

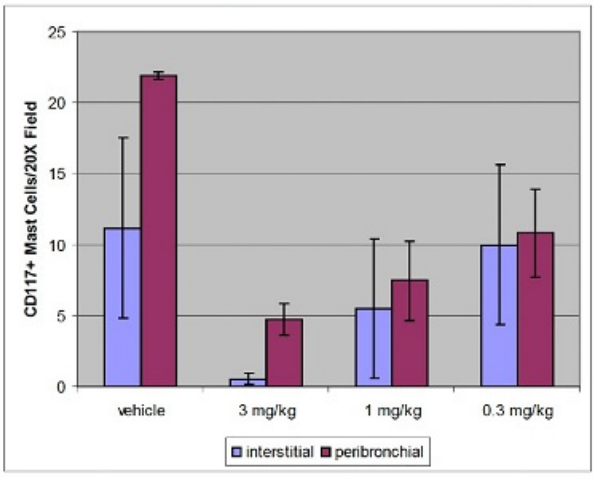
Source: Amgen internal data

Briquilimab mast cell depletion in non-human primates following cutaneous wound injury



(A, B) Laser scanning cytometry was used to quantify MCs over the area of the entire skin biopsy. Two sections were averaged together from 2 independent biopsies from each of three animals. (C, D) The same samples were independently scored by a pathologist using light microscopy. (B, D) Biopsies from the same animal are used for the bar graphs of panels A and C. (E, F) Day 14 data was normalized to Day 0 for laser scanning cytometry (E) or pathologist scoring (F). v; vehicle.

Briquilimab mast cell depletion in lungs of non-human primates

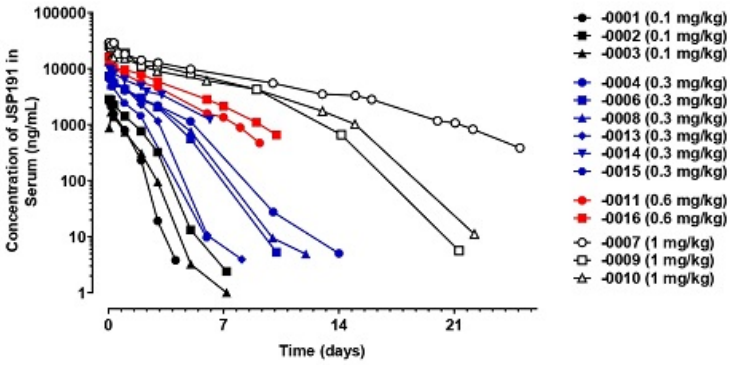


The effect of c-Kit inhibition on the mast cell population in the lung was evaluated in African green monkeys treated SC with 0 (vehicle control; n = 2), 0.3 (n = 4), 1.0 (n = 3), or 3.0 (n = 2) mg/kg AMG 191 once per week for 4 weeks. Mast cells were visualized by CD117 immunohistochemistry in lung samples collected at the study termination (day 28) and CD117-positive mast cells were counted manually in 10 20x parenchymal and 10 20x peribronchiolar lung fields per animal. The data is presented as the mean ± SD for each treatment group.

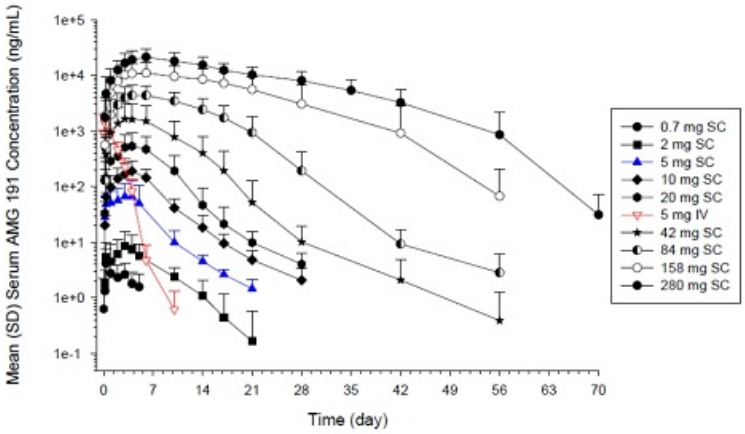
Source: Amgen research report R2006481

Briquilimab can be dosed IV or subcutaneously (SQ)

Briquilimab IV serum concentrations

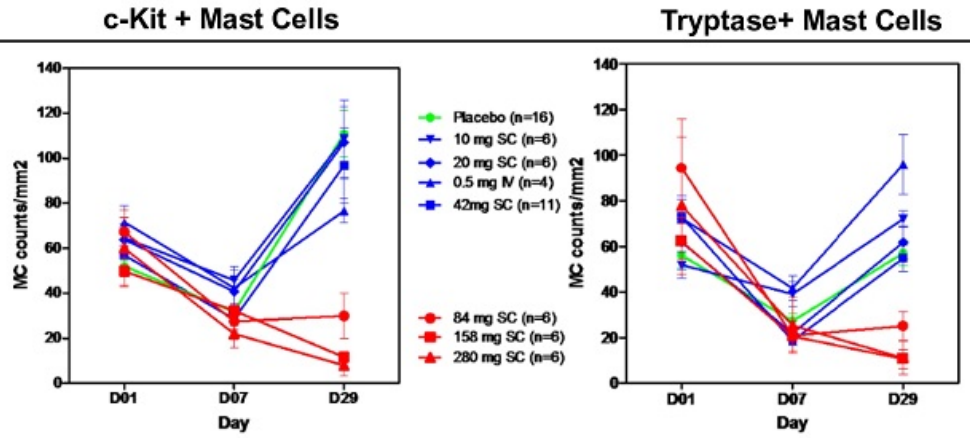


Briquilimab subcutaneous serum concentrations



Source: Jasper SCID Study, Amgen Phase I Study Data

Phase I: Briquilimab robustly depletes tryptase and c-Kit positive skin mast cells



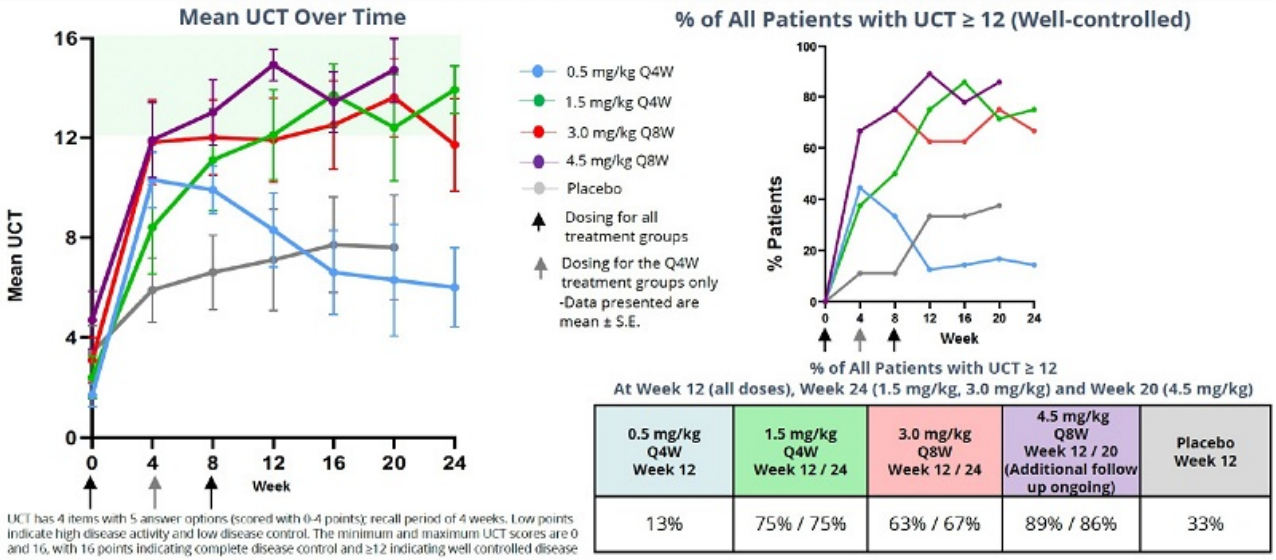
Briquilimab Phase 1a (N=71):

Reduction in SCF (c-Kit) positive and Tryptase positive mast cells in punch biopsy wound model

*Punch Biopsy Wound Model
Source: Amgen Phase 1a (SAD = 71 briquilimab patients; MAD = 8 briquilimab patients)

Celldex's barzolvolimab has demonstrated proof-of-concept of c-Kit signal blockade for Chronic Spontaneous Urticaria patients

Barzolvolimab Phase 1b MAD (IV) Shows Efficacy in Chronic Spontaneous Urticaria Patients



UCT has 4 items with 5 answer options (scored with 0-4 points); recall period of 4 weeks. Low points indicate high disease activity and low disease control. The minimum and maximum UCT scores are 0 and 16, with 16 points indicating complete disease control and ≥12 indicating well controlled disease

% of All Patients with UCT ≥ 12
At Week 12 (all doses), Week 24 (1.5 mg/kg, 3.0 mg/kg) and Week 20 (4.5 mg/kg)

0.5 mg/kg Q4W Week 12	1.5 mg/kg Q4W Week 12 / 24	3.0 mg/kg Q8W Week 12 / 24	4.5 mg/kg Q8W Week 12 / 20 (Additional follow up ongoing)	Placebo Week 12
13%	75% / 75%	63% / 67%	89% / 86%	33%

Source: Celldex AAAAI February Presentation (February 2023)

Potential initial clinical study for Briquilimab in Chronic Spontaneous Urticaria

	Chronic Spontaneous Urticaria (CSU)
Patient Population	• H1-antihistamines refractory • Xolair-naïve and/or Xolair-failed
Expected Enrollment	• 20-40 patients
Study Duration	• 12-18 months
Timing	• Incorporating recent FDA guidance on study design • Targeting 2H IND and Study Start
Trial Design	• Randomized, Placebo-Controlled • Test multiple ascending doses/frequencies • 12-week activity assessment with potential study expansion
Endpoints	• PK/PD • Safety and tolerability • Urticaria Activity Score (UAS7) • Itch Severity Score (ISS7) • Hives Severity Score (HSS7) • Angioedema Activity Score (ASS7)

Key points of differentiation between Briquilimab and Barzolvolimab (CDX-0159)

Key Similarities

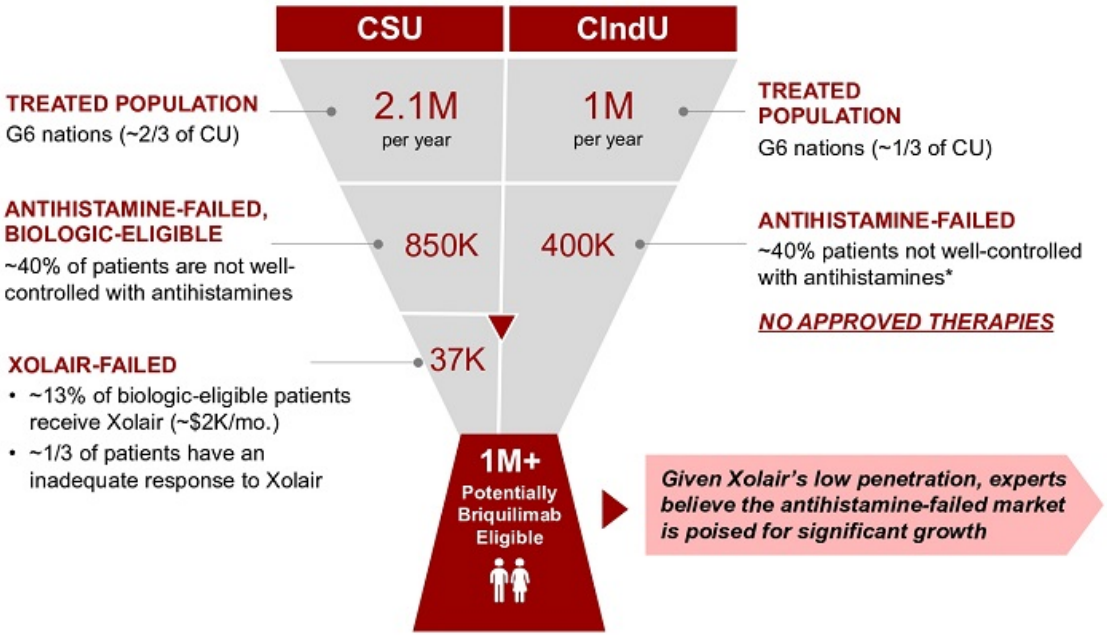
1. **Antibody design**
   - Both antibodies are aglycosylated, humanized IgG1 monoclonal antibodies
2. **c-Kit (CD117) signal blockade**
   - Both antibodies block c-Kit signaling on mast cells
3. **On-target depletion of mast cells**
   - Phase 1a data suggests similar, dose-dependent depletion of c-Kit positive and tryptase positive mast cells in the skin

Key Differences

1. **Briquilimab directly blocks SCF binding**
   - Direct and complete blockage of ligand binding to the c-Kit receptor
2. **Improved PK clearance**
   - Briquilimab's improved PK clearance may minimize unwanted effects on other c-Kit positive cells
3. **Potential first to market anti c-Kit mAb**
   - Briquilimab SCID indication with potential BLA filing in 2024 / 2025

Source: Alvarado et al Allergy 2022:00:1-11; Maurer et al AAAAI, February 2022; Celldex EAACI 2022 Presentation (June 30, 2022), Jasper Internal Data

Chronic urticaria represents a significant and expanding market, with estimated 1+ million potential patients



Source: Market research conducted by Novartis (presentation in 2021)

There is a significant unmet need for Chronic Urticaria patients who fail antihistamines – safer, more effective therapies are needed

Chronic Urticaria
1.5-3 million cases in the US[1]

Population	Approved Therapies[2]	Limitations
H-1 Antihistamines	• Zyrtec • Claritin	• **30-50% of patients are still uncontrolled** after FDA-approved doses[2]
Antihistamine-Failed	• **Xolair** (only approved agent in CSU; 2014)* • ***Non-approved agents:*** *cyclosporine, montelukast, dapsone**	• **20-40% of patients have an inadequate response to Xolair[3]** • Low penetration rate of Xolair (~13%) due to black box warning for anaphylaxis[4]

Significant unmet need in Chronic Urticaria patients who fail antihistamines
Safer, more effective therapies are needed to meet market potential

*Montelukast = Leukotriene receptor antagonist; cyclosporine = immunosuppressant; dapsone = sulphone
Sources: [1] GlobalData; [2] Zuberbier T, et al. (2021) *European Journal of Allergy and Clinical Immunology;* [3] Omalizumab prescribing information; [4] Market research conducted by Novartis (presentation in 2021).

Briquilimab has the potential to expand beyond Chronic Urticaria into other mast cell-mediated and inflammatory diseases

Mast Cell-Mediated Diseases (Addressed by c-Kit Inhibition)

Chronic Inducible Urticaria

Patients are inadequately controlled by antihistamines; only approved biologic therapy (Xolair) has significant safety concerns[5]

- ***CIndU:*** *80K patients biologic-eligible (US)[1,5]*

Severe Asthma

Life-threatening disease with no approved biologics for ~50% of patients who lack Type 2-high disease[5]

- ***Severe Asthma:*** *500K patients biologic-eligible (US)[2,5]*

Other Mast Cell Diseases

Numerous mast-cell mediated diseases are still inadequately controlled by current treatment options[5]

- ***Prurigo Nodularis:*** *75K patients biologic-eligible (US)[3,5]*
- ***Eosinophilic Esophagitis:*** *50K patients biologic-eligible (US)[4,5]*

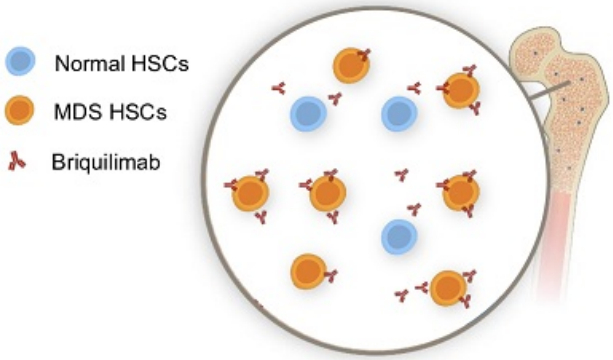
Source: [1] GlobalData; [2] Hekking, PW, et al. American Academy of Allergy, Asthma & Immunology, 2014; [3] Stander S, et al. American Academy of Dermatology, 2020; [4] Dellon ES, Gastroenterol Clin North Am., 2014; [5] Physician interviews conducted by Jasper in 2022

Jasper THERAPEUTICS INC.

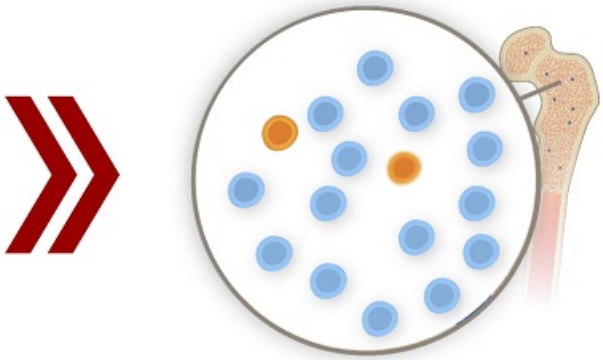
Briquilimab for Lower to Intermediate Risk MDS

Briquilimab's ability to directly deplete cancerous stem cells may be leveraged as a disease-modifying therapeutic in lower to intermediate risk MDS patients

Briquilimab administered in a LR-MDS patient



Shift of HSCs towards normal hematopoiesis



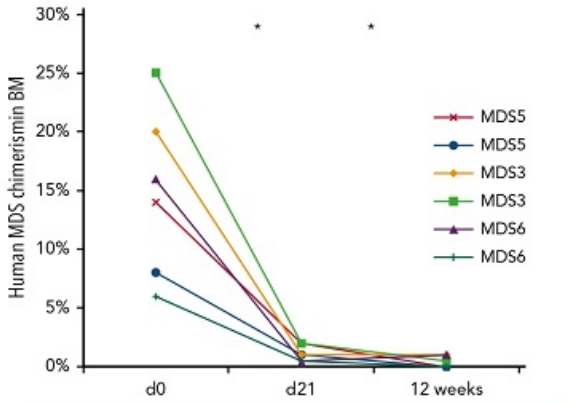
Patients are currently managed with supportive / stimulating therapies that do not target diseased cells

" There is a tremendous unmet need for new treatments for MDS; rates of relapse are high, and many patients are not eligible for existing approved therapies..."

- Platzbecker et al., 2021 Leukemia

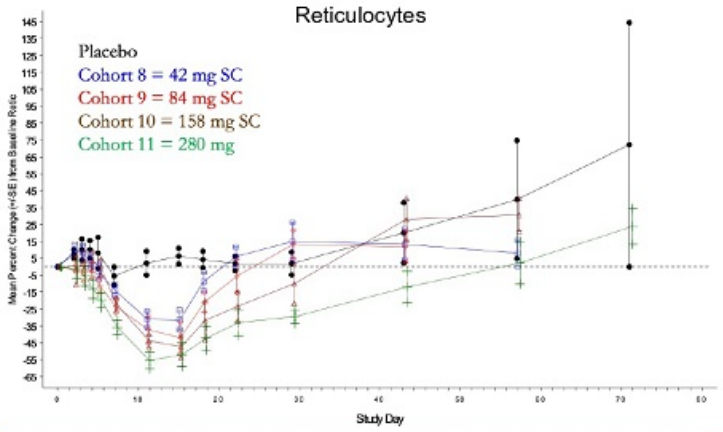
Briquilimab depletion may enable healthy HSCs to take over the bone marrow niche and restore functional hematopoiesis

Briquilimab lasting depletion of MDS cells in Xenograft model[1]



MDS cells are depleted and stay depleted

Briquilimab depletion and rebound of healthy HSCs[2]



Healthy HSCs are depleted, recover and expand

[1] Kwon et al, *Blood* 2019
[2] Amgen Phase I healthy volunteer data (unpublished)

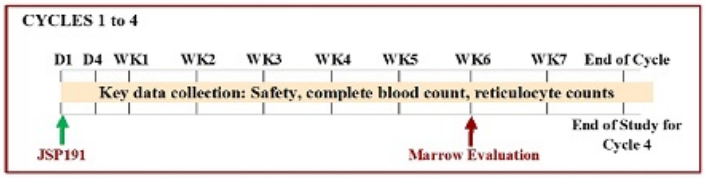
A Phase I open-label, dose-escalation, safety and tolerability study of briquilimab as a second line therapy in patients with lower-risk myelodysplastic syndrome

Population

- IPSS-R very low, low or intermediate risk MDS patients
- RBC transfusion dependence, thrombocytopenia or neutropenia

Single Arm Design

- **Dosing:** 4 cohorts – 0.3 mg/kg (w/ sentinel dose of 0.1 mg/kg), 0.6 mg/kg, 0.9 mg/kg, 1.2 mg/kg
- **Dose cycles:** Every 8 weeks
- **Size:** 3-6 per cohort

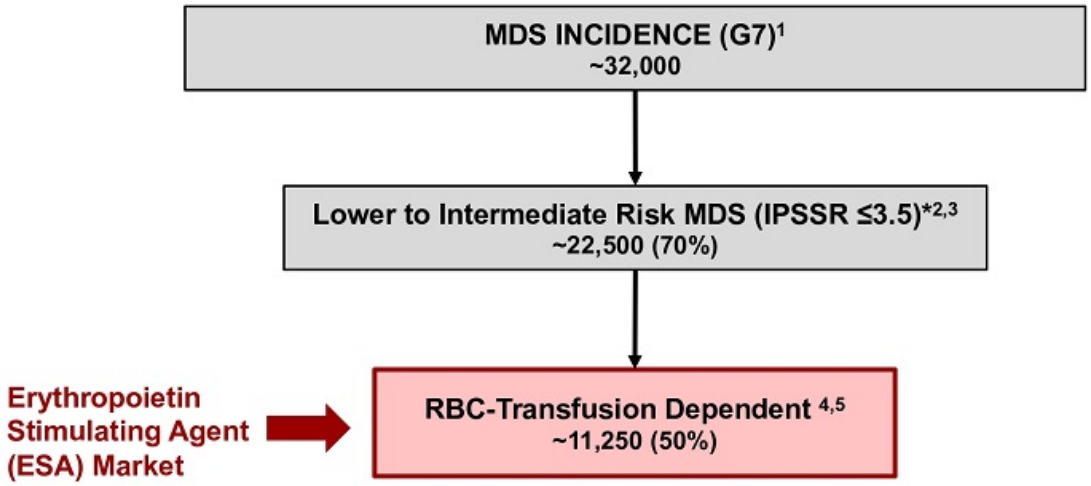


Key Assessments

- **Primary Objectives:** Safety, tolerability and DLT of MAD briquilimab
- **Secondary Objectives:** PK, Efficacy by HI-E/HI-P/HI-N and duration of response, reduction in RBC transfusions, ORR and duration of response by IWG 2006, progression free survival
- **Exploratory:** Depletion of leukemic stem & progenitor cells, hematopoietic stem & progenitor cells, molecular characteristics of LSCs/HSCs/HPCs, cytokine profile, briquilimab immunogenicity

HI-E: Hematologic Improvement-Erythroid; Hematologic Improvement-Platelet; Hematologic Improvement-Neutrophil (IWG 2018 criteria)

Lower to intermediate risk MDS market opportunity



*Median survival for very low and low risk MDS is 8.8 years and 5.3 years, respectively.

Sources: [1] Lubeck 2016, Blood; [2] GlobalData; [3] Greenberg 2012, Blood; [4] de Swart 2015, BJHaem; [5] de Swart 2020, Haematologica

Briquilimab Transplant Development

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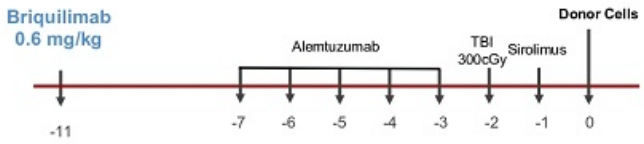
Sickle Cell & Beta Thalassemia

Phase I: Addition of briquilimab to non-myeloablative hematopoietic cell transplantation for Sickle Cell Disease and Beta-Thalassemia

SCD patients

- High-risk SCD
- 6/6 HLA matched family donor available

Single Arm Trial Design



Study Endpoints

- Percent myeloid (CD14/15) chimerism
- Donor stem cell engraftment
- Safety / GVHD

- Sickle cell disease (SCD) is a group of inherited red blood cell / hemoglobin disorders; patients with SCD have misshapen red blood cells, which prevents normal cell function / behavior
- Patients typically develop chronic problems such as renal disease, lung disease, and pulmonary hypertension, putting them at high risk for complications when treated with chemotherapy / radiation
- The NHLBI (NIH) is studying a briquilimab combination with alemtuzumab, low-dose irradiation, sirolimus + HSCT to potentially cure patients with sickle cell disease
- **First three briquilimab treated SCD patients have achieved successful transplant with 100% donor myeloid chimerism. All three patients have total hemoglobin above pre-transplant levels.**

Jasper
THERAPEUTICS INC.

SCID

Briquilimab conditioning for severe combined immunodeficiency (SCID)

Jasper SCID Strategy:

- Establish Single Agent Activity POC
- Focus on Re-transplant T-B- Subjects
- FDA Supportive of Ultra-Orphan Data Package
- Potential Priority Review Voucher

T-B-: A form of severe combined immunodeficiency (SCID) is the T cell-negative (T-), B cell-negative (B-) SCID phenotype

Briquilimab SCID phase I results: Safety and tolerability to date

Clinical Safety

- No briquilimab-related serious adverse events (SAEs)
- No myelosuppression
- No significant infusion reactions

Clinical Setting

- Protocol amended to allow for outpatient administration of briquilimab
- Based on safety and successful HSC engraftment in re-transplant SCID subjects, the study of briquilimab has been expanded to include newly diagnosed infants with SCID

Source: Agarwal R, et al. Clinical Immunology Society Annual Meeting (CIS); 2022 Mar 31-Apr 3; Charlotte, NC

Potential biologics license application (BLA) and PRV opportunity for briquilimab in SCID

SCID is a lethal genetic immune disorder where HCT is the only proven cure

Potential FDA filing strategy

SCID re-transplant patients are ultra orphan, high unmet need population

Focus on current clinical data with briquilimab in 10 SCID re-transplant T-B- patients

- Immune reconstitution (chimerism, naïve T-cells)
- Function immunity (reduction of IVIG, infections, response to vaccination)

Additional longitudinal data in existing patients and separate natural history data

Briquilimab granted Rare Pediatric Disease Designation in SCID and may be eligible for Priority Review Voucher (PRV) with approval

T-B-: A form of severe combined immunodeficiency (SCID) is the T cell-negative (T-), B cell-negative (B-) SCID phenotype

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Fanconi Anemia

Phase I: Depleted donor stem cell transplant in children and adults with Fanconi Anemia after being conditioned with a regimen containing briquilimab

Single Arm Trial Design

- **Fanconi patients in bone marrow failure**
- ≥ 5 / 10 HLA-matched related or unrelated donor

Study Endpoints

- Safety
- Donor stem cell engraftment
- Restoration of blood counts

- Fanconi is an inherited DNA repair deficiency that leads to progressive failure of hematopoietic stem and progenitor cells and transfusion dependency
- Allogeneic stem cell transplant is the only current cure, however Fanconi patients are highly susceptible to toxic side effects of conditioning with radiation or alkylating agents
- Successful allogeneic transplant will result in healthy bone marrow with normal DNA repair capabilities and normal blood cell counts
- Stanford is studying a briquilimab based conditioning regimen plus a TCRαβ+ T-cell/CD19+ B-cell Depleted Hematopoietic Graft to cure Fanconi patients with reduced risk of GVHD
- **The first two patients have achieved 100% donor myeloid chimerism along with recovery of normal blood counts. To date, no GVHD or Veno-Occlusive Disease has been reported; grade 3 mucositis was observed.**

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Source: Agarwal R, et al. EBMT's Inborn Errors Working Party Annual Meeting (IEWP); 2022 Sep 23-Apr 25; Paris, France

Potential Fanconi Anemia development path for briquilimab

Allogeneic stem cell transplant can restore bone marrow and blood formation in Fanconi Anemia patients

Development strategy

Continue to enroll under current protocol (n up to 12)

Discuss path to BLA with FDA with 6-month data in first three patients

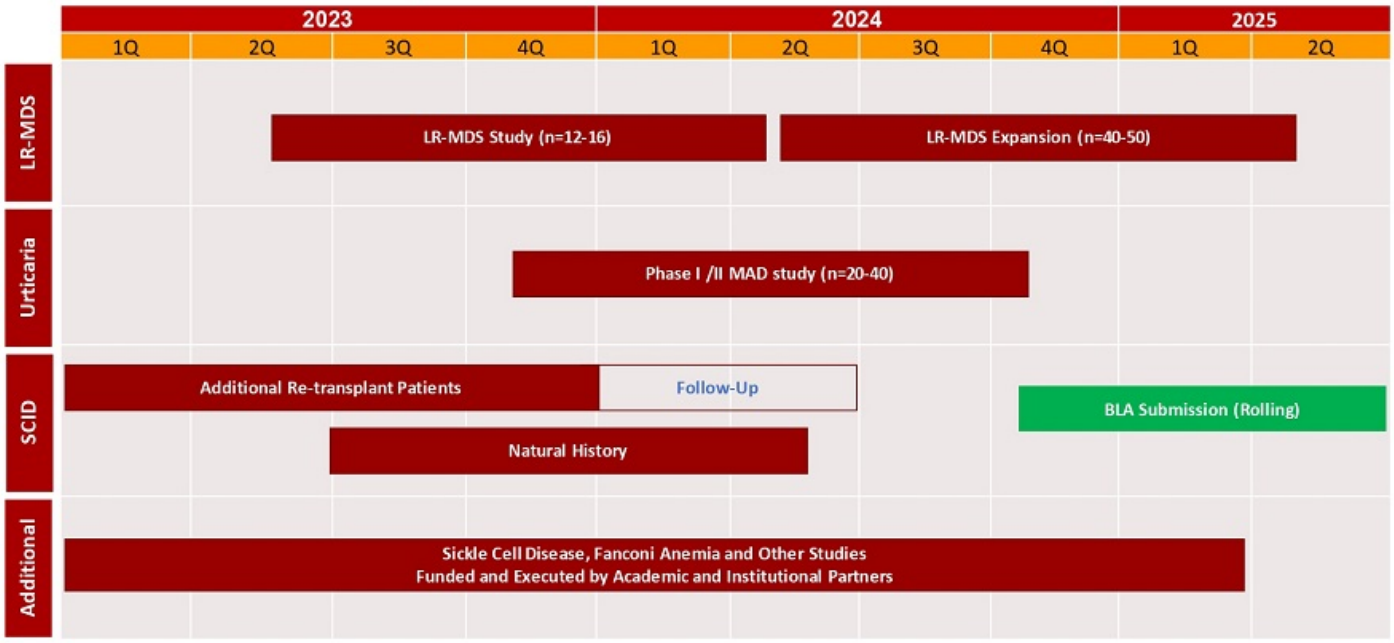
- Example: Rocket Pharmaceuticals has communicated that FDA guidance of gene therapy efficacy in at least 5 of 12 patients may be sufficient to support a potential BLA filing[1]

Consider expansion to additional clinical sites following FDA discussion

Successful development of briquilimab in Fanconi Anemia may lead to rare pediatric disease designation and a Priority Review Voucher

1. Rocket Pharmaceuticals January 2023 Investor Presentation

Briquilimab development plan



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Harnessing the Power of Jasper's Differentiated c-Kit Therapeutic Approach

Nasdaq: JSPR

June 2023

Additional Slides

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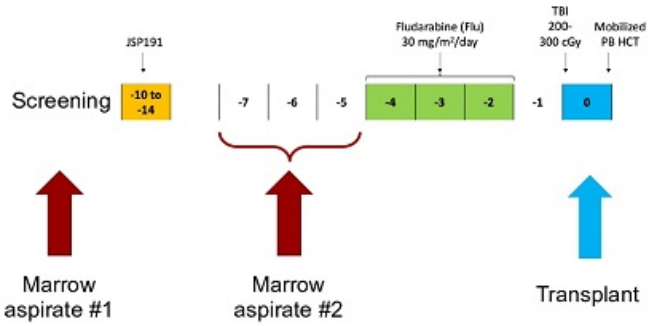
AML / MDS

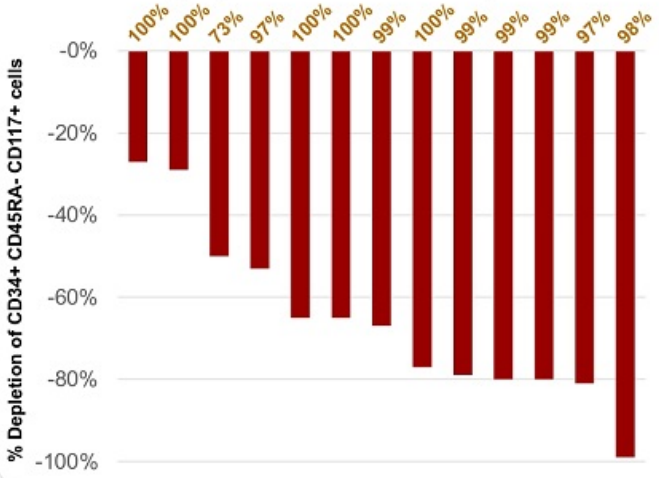
AML/MDS Study: Single agent briquilimab depletes diseased stem & progenitor cells in bone marrow in 5 to 7 days

Marrow aspirates collected at screening and prior to administration of Flu/TBI
(prior to projected maximum briquilimab effect)



Stem and progenitor cell depletion following briquilimab 0.6 mg/kg single dose in AML/MDS patients

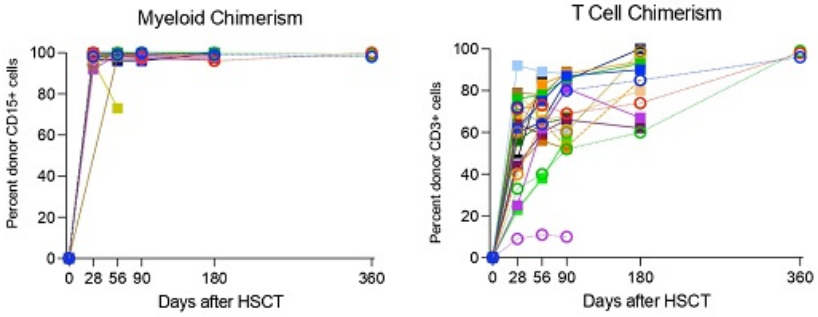
(% Myeloid chimerism at last follow up)



Briquilimab based conditioning demonstrates donor cell takeover of bone marrow stem cells and elimination of detectable cancer in older patients

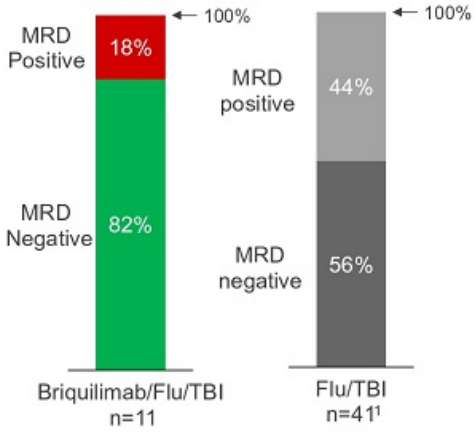
Donor cell takeover of the bone marrow

(Median donor chimerism)



Clearance of detectable cancer

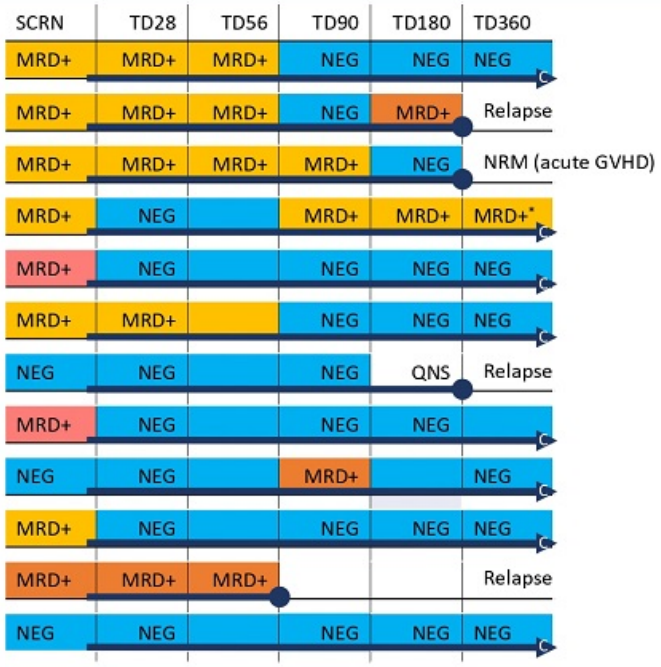
(Measurable residual disease by flow cytometry)



[1] Paras G, Morsink LM, Othus M, et al. Conditioning intensity and peritransplant flow cytometric MRD dynamics in adult AML. Blood. 2022;139(11):1694-1706

Multimodality Measurable Residual Disease (MRD) in AML patients

Cytogenetics, Flow Cytometry, Next Generation Sequencing



- MRD clearance in 6 of 9 (67%) at last follow-up
- Median time to MRD negativity: 90 days post-HCT
- 8 of 12 (67%) alive and MRD negative @ 1 yr post-HCT

MRD+	By NGS only
MRD+	By Flow only
MRD+	By Flow and NGS
NEG	MRD negative by all assays

* MRD+ for DNMT3A only

= completed study = off study

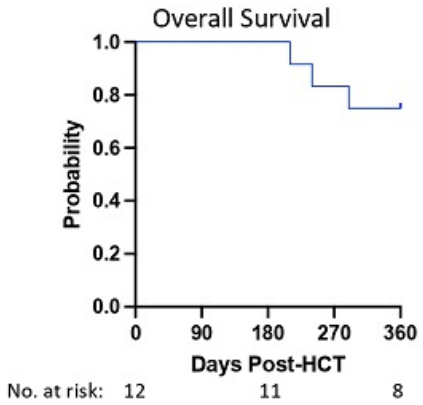
Briquilimab (JSP191) is an investigational agent and not approved for any indication.

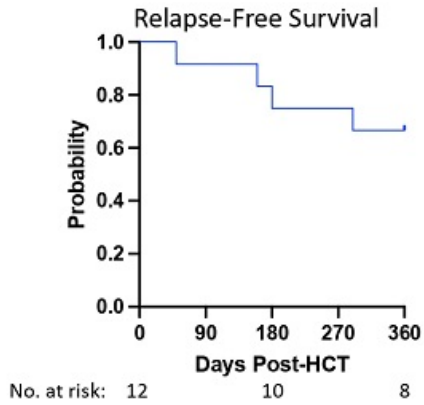
QNS = quantity not sufficient

Outcomes in AML patients

N = 12, complete 1 year follow-up

	Patients with AML (N=12)
Alive without AML @ 1 yr	8 (67%)
Alive and AML MRD negative @ 1 yr	8 (67%)
Alive without AML and off immunosuppression @ 1 yr	6 (50%)

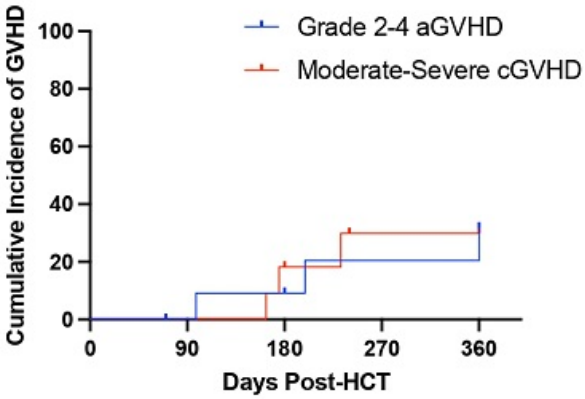




Briquilimab (JSP191) is an investigational agent and not approved for any indication.

GVHD in AML patients

N = 12, complete 1 year follow-up



	Patients with AML (N=12)
Acute GVHD (per MAGIC)	
Grade 2-4	3 (25%)
Grade 2	2 (17%)
Grade 3	1 (8%)
Grade 4	0 (0%)
Chronic GVHD (per NIH Consensus)	
Mild	0 (0%)
Moderate	4 (33%)
Severe	0 (0%)

Briquilimab (JSP191) is an investigational agent and not approved for any indication.

Summary: Subanalysis of AML Patients (N=12) Enrolled in Phase I Trial with Full 1 Year Follow-up

- 0.6 mg/kg briquilimab demonstrated predictable clearance, allowing safe and effective donor cell infusion 9-14 days after briquilimab
- RFS 67%, OS 75%, NRM 8% @ 1 yr post-HCT, with low rates of GVHD
- 67% alive without evidence of AML MRD @ 1 yr post-HCT
- MRD clearance observed in 6 of 9 patients at last available follow-up, with median time to MRD negativity of 90 days post-HCT
- Briquilimab/Flu/TBI is a novel conditioning regimen that appears safe, well-tolerated, has on target effects on HSPC depletion, permits full donor myeloid chimerism, and results in promising MRD clearance in older AML in CR patients

Briquilimab (JSP191) is an investigational agent and not approved for any indication.

No briquilimab-related SAEs, no 100-day transplant related mortality and proof of concept for outpatient stem cell transplant

Clinical Safety

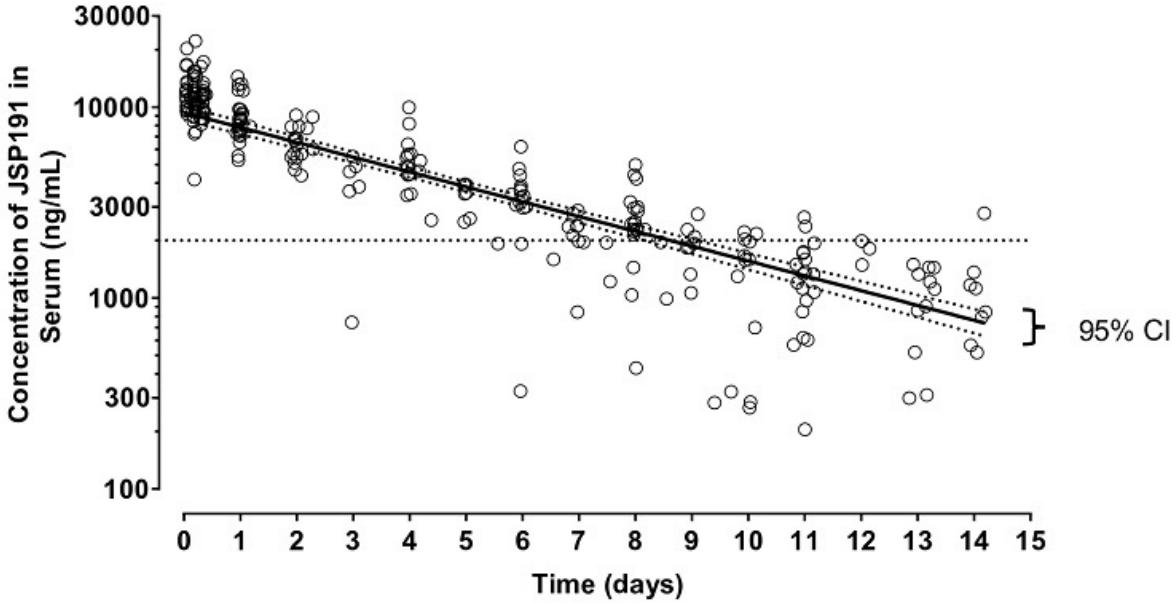
- No briquilimab-related SAEs
- No significant briquilimab infusion reactions
- One subject with refractory late onset grade 3 acute GI GVHD
- One subject with secondary graft failure
- No 100-day transplant-related mortality
- No significant mucositis, hypersensitivity, hepatotoxicity, or other organ damage

Clinical Setting

- Protocol allows for outpatient conditioning
- 14 subjects given outpatient briquilimab along with outpatient transplant

SAE: Serious Adverse Event; GI-GVHD: Gastrointestinal Graft vs. Host Disease
NCT04429191

0.6 mg/kg IV Briquilimab Pharmacokinetics: consistent and predictable clearance



Muffly L et al. Tandem Meetings Transplantation and Cellular Therapy (TCT) 2022 April 23-26; Salt Lake City, UT

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Preclinical

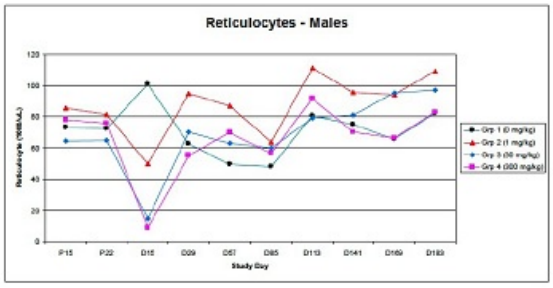
Briquilimab 6-month non-human primate (NHP) toxicology study

- 4 groups (control, 1, 30, 300 mg/kg weekly subcutaneous), n=8 to 12 per group, 50% female
- Dosing for 26 weeks followed by 32-week treatment-free phase
- Test article-related clinical signs: Paleness of skin and fur in all males and females given 30 or 300mg/kg
- Test related clinical pathology effects:
  - Adverse hematology change due to decrease in absolute reticulocyte counts and red cell mass at 30 and 300 mg/kg weekly
  - Adverse effect on sperm motility, density, morphology; decreased weight of epididymis and testes; germ cell loss in epididymis and testes
  - Increased platelet counts in 30 and 300 mg/kg group
  - Decreased number of colonic mast cells
  - All clinical pathology resolved by end of 32-week treatment-free phase
- Anti-drug antibodies: Binding antibodies detected in 13/28 (46%) dosed animals of which 6 also tested positive for neutralizing antibodies

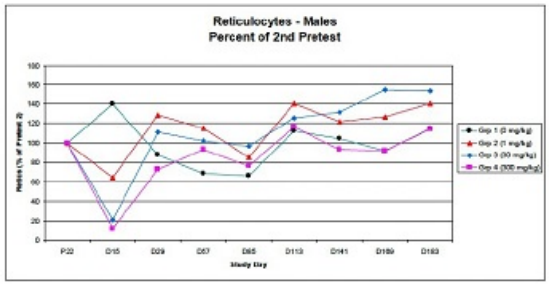
Source: Amgen Report 109076

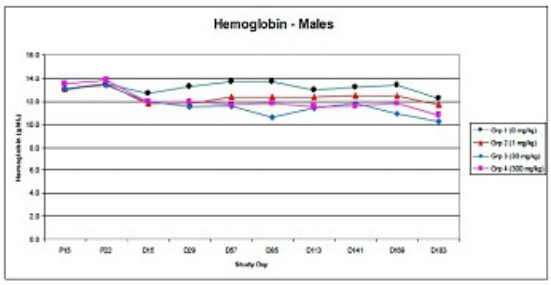
Reticulocytes and Hemoglobin Levels – 6mo NHP toxicology study

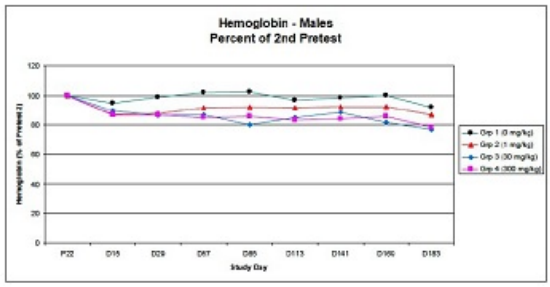
Absolute



Percent of 2nd Pretest

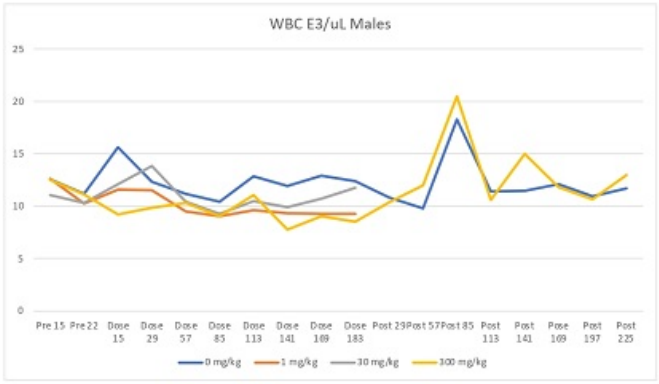


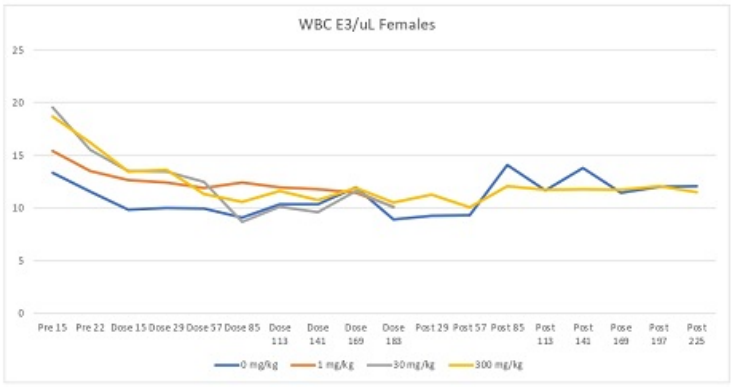




Source: Amgen Report 109076

White Blood Cells – 6mo NHP toxicology study





Source: Amgen Report 109076

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Phase I Healthy Volunteers

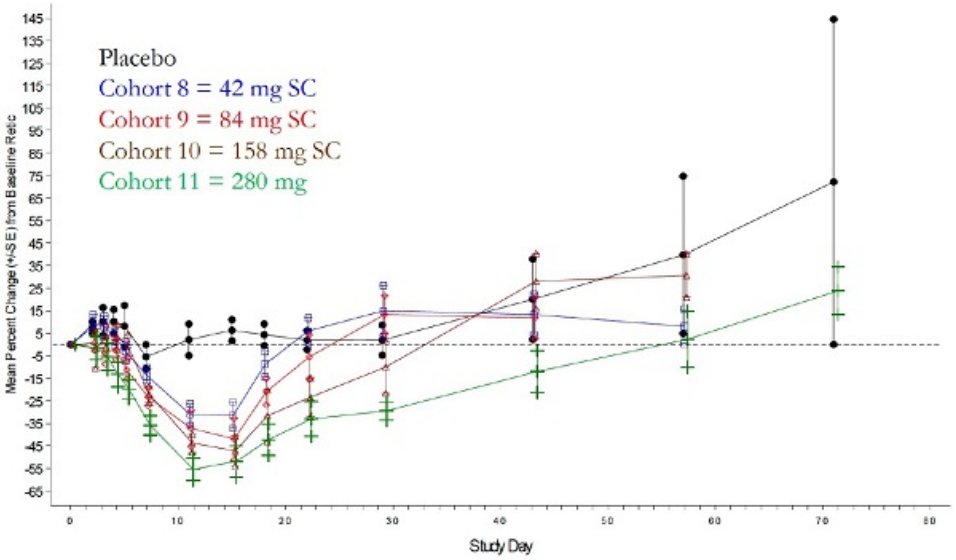
Briquilimab (JSP191/AMG191) Phase I SAD Study: Adverse events of interest

Adverse Event Description	Grade	Number of Subjects	Cohort	Comment
Dysgeusia	1/2	5	11 (280 mg SC)	All recovered over approximately 4-8 weeks
Upper Respiratory Tract Infection	1*	14	All	All 14 subjects on AMG 191, compared to 0 placebo subjects
Headache	2	4	4 (5 mg SC)	4 additional subjects dosed at 3:1 (AMG 191:placebo)
Acute Infusion Reaction (urticaria, facial erythema, transient decrease in blood pressure)	2	1	7 (5 mg IV)	Subject treated with promethazine 25 mg p.o., hydrocortisone 100 mg i.v., and 250 mL normal saline i.v. Adverse event duration = 6 days
Decreased neutrophil count	2	3	8 (42 mg SC)	8 additional subjects dosed at 3:1 (AMG 191:placebo)
Injection site reaction	1	Sentinel pair (1active; 1 placebo)	9 (84 mg SC)	Acute injection site reaction subsided w/o treatment. Urticaria developed approx. 9 hrs post-dose and lasted >24hrs. Subject treated with oral doses of: prednisone 40 mg, promethazine 25 mg, cetirizine 10 mg, and paracetamol 1g.
Urticaria	2			

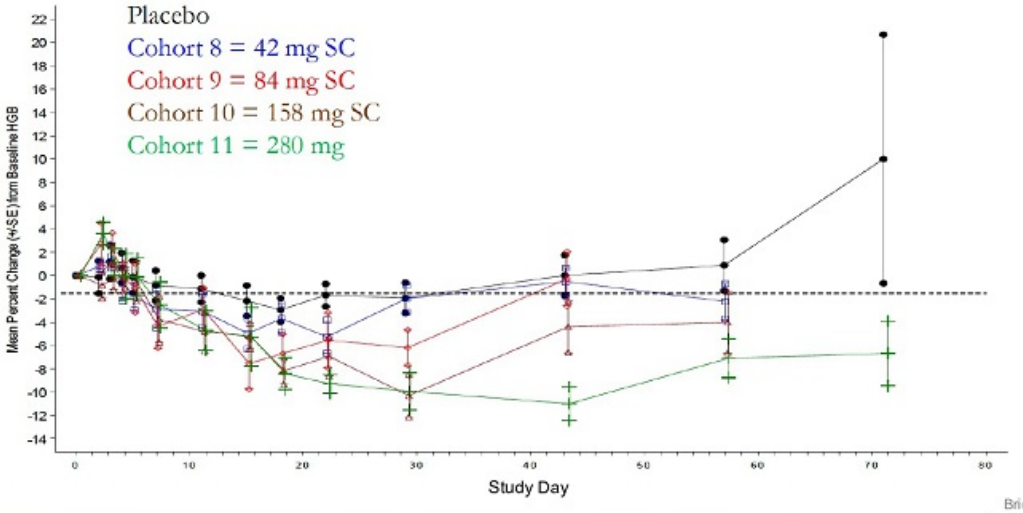
* All mild (Grade 1) AEs except for two Grade 2 events

Phase I – Human SAD

Reticulocytes – Percent Change (Mean ± SD) from Baseline: Cohorts 8, 9, 10 and 11 (Draft)



Hemoglobin – Percent Change (Mean ± SD) from Baseline: Cohorts 8, 9,10, and 11 (Draft)



MAD – Grade 3 adverse event

One subject reported an allergic reaction 36 hours after 2nd dose in cohort 1 (14 mg q2w)

- Urticaria, facial angioedema, no respiratory symptoms, no clinically relevant changes in vital signs
- No previous report of urticaria or angioedema
- Treatment with promethazine 25 mg and prednisone 40 mg, cetirizine 10 mg
- Within 15 hours, urticaria symptoms resolved and angioedema improved (mild periorbital and upper lip swelling)
- Urticaria returned the following day despite continued cetirizine and resolved following additional treatment with prednisone
- Subject received no further briquilimab/placebo

Phase I: Healthy volunteer immunogenicity summary

- Pre-existing ADAs: 2/77 (Briquilimab (AMG191) treated subjects)
- Developing ADAs: 13/77
- Neutralizing ADAs: 8/77
- Post-dose ADAs seen in subjects given 20mg SC or greater, but no clear relationship to dose or results of punch biopsy wound model