Jasper THERAPEUTICS INC.

Transforming the Field of Hematopoietic Stem Cell Therapies

Nasdaq: JSPR

April 28th, 2022

Safe Harbor

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Agenda

Time	Topic	Presenter
1:00 – 1:10	Introduction to Jasper	Ron Martell, President & CEO
	JSP191 for Transplant Conditioning	
1:10 – 1:25	JSP191 Mechanism of Action and Preclinical Review	Wendy Pang, M.D., PhD, SVP Research & Translational Medicine
1:25 – 1:40	AML/ MDS Phase Ib Study Update & Discussion	Lori Muffly, M.D., Stanford University
1:40 – 2:00	SCID Phase I/II Update	Judith Shizuru, M.D., PhD, Jasper Co-Founder and Stanford University
	JSP191 for Therapeutic Use in MDS	
2:00 – 2:15	Scientific Rationale for JSP191 in Lower Risk MDS	Wendy Pang, M.D., PhD, SVP Research & Translational Medicine
2:15 – 2:30	Unmet Need in Lower Risk MDS	David Sallman, M.D., Moffitt Cancer Center
2:30 – 3:00	Q&A	

JSP191 is an investigative drug and is not approved for any indication

Introduction to Jasper

Ron Martell, President & CEO

Jasper Highlights

- Science targeting the central role of stem cells to cure a growing number of fatal diseases
- Experienced team in hematopoietic stem cell transplant and drug development

- **JSP191:** First in class, targeted anti-CD117 antibody conditioning agent
- Clinical data in SCID & AML/MDS stem cell transplant
- Registrational AML/MDS stem cell transplant trial targeted for Q1 2023
- New therapeutic study of JSP191 for disease modification in lower risk MDS starting Q4 2022

- **Jasper mRNA stem cells:** Novel hematopoietic stem cell mRNA platform to expand the curative potential of allogeneic and autologous cellular therapy
- In vivo POC in 2022, potential IND in 2023

- Validating corporate and academic partnerships
- Cash runway through AML/MDS registrational study start

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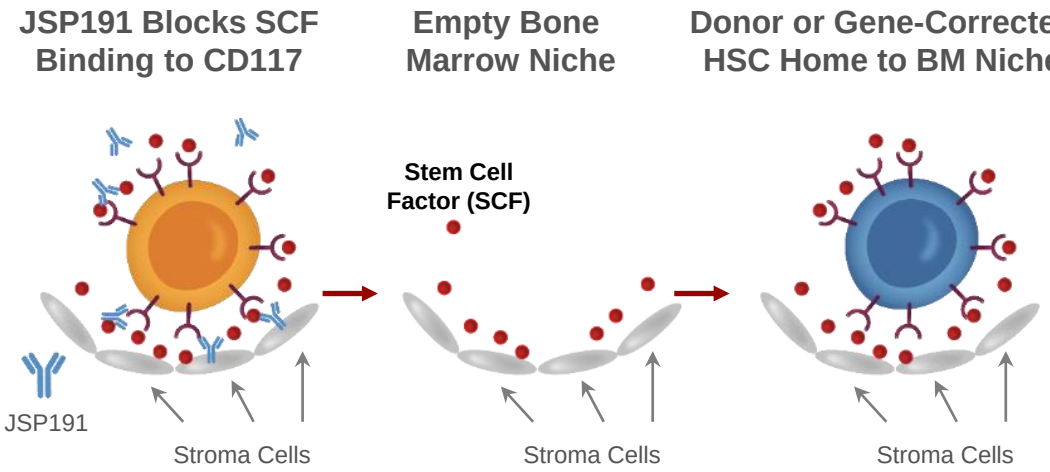
Addressing the major limitations of hematopoietic stem cell transplant

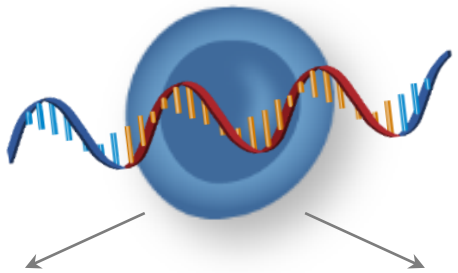
Improving conditioning and grafts by targeting biology unique to the stem cell

JSP191 Anti-CD117 Antibody for targeted **HCT conditioning**



Current HCT conditioning agents are genotoxic, limiting HCT safety and efficacy

mRNA Stem Cell Grafts to Address Current Limitations of Transplant



Reconstitution of immune & hematopoietic systems

Restoration or correction of target protein production

Current allogeneic and gene therapy grafts associated with graft failure, relapse, GvHD, low protein production

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Jasper's Expanding Pipeline

Indication	R&D Partner	Research	Preclinical	Clinical	Anticipated Milestones
JSP191 Conditioning					
Sponsored Studies					
AML/MDS	Jasper Therapeutics Inc.				• Registrational trial initiation by Q1 2023
SCID					• Mid 2023 Phase I/II complete study enrollment
Gene Therapy – Sickle Cell	Aruvant				• 2H 2022 first patient enrollment
Gene Therapy – Gaucher Type 1	AVROBIO				• 2H 2022 first patient enrollment
Gene Therapy – X-SCID	Graphite Bio				• 2H 2022 first collaboration data
Investigator Sponsored Studies					
Fanconi Anemia	Stanford University				• 2022 patient enrollment ongoing
Sickle Cell Disease	NIH National Heart, Lung, and Blood Institute				• 2022 patient enrollment
Chronic Granulomatous Disease	NIH National Institute of Allergy and Infectious Diseases				• 2022 patient enrollment
GATA2 MDS	NIH National Cancer Institute				• 2022 patient enrollment
JSP191 Therapeutic					
Lower Risk MDS (primary treatment)	Jasper Therapeutics Inc.				• 2H 2022 clinical study initiation
Jasper mRNA Stem Cell Graft Platform					
Thalassemias, Sickle Cell Disease	Jasper Therapeutics Inc.				• 2022 – In vivo proof of concept • 2023 – First IND filing
Autoimmune Diseases					

Jasper maintains full worldwide rights to develop and commercialize JSP191 and eHSCs in all indications

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JSP191 Registration Study

FDA supportive of JSP191 registrational study in AML and MDS patients ineligible for myeloablative conditioning

- Recognized need for new minimally toxic regimens with enhanced efficacy in older patients
- No additional studies required

Review of study design including comparator, endpoints and key statistical assumptions

- Jasper to submit registrational study protocol for AML patients
- MDS can be submitted under single protocol or as separate protocol

Jasper plans to initiate registration study by Q1 2023

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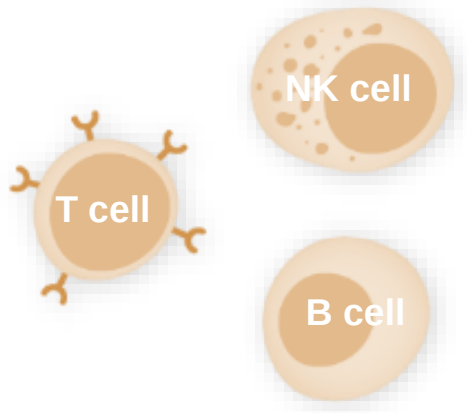
JSP191 Mechanism of Action & Preclinical Review

Wendy Pang, M.D., PhD., SVP Research & Translational Medicine Jasper Therapeutics

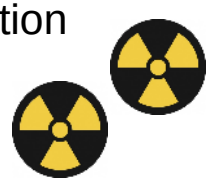
What is currently needed to get hematopoietic stem cells (HSCs) to engraft

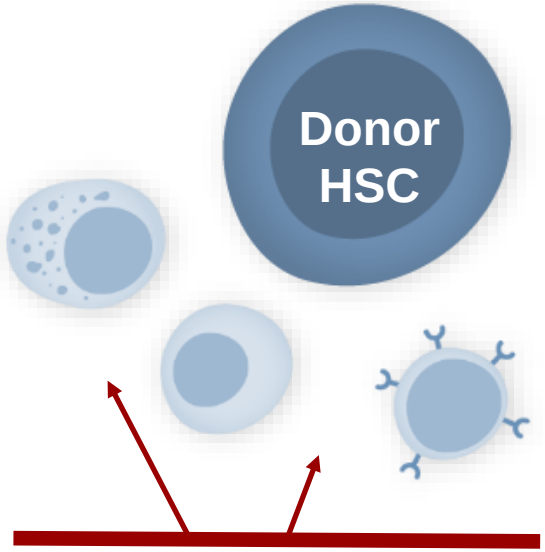


Overcome immune rejection: lymphodepleting agents
Cyclophosphamide, fludarabine, ATG, alemtuzumab

Recipient's bone marrow niche

Overcome non-immune "space barrier": eliminate recipient HSCs that occupy niche space in the bone marrow
busulfan, melphalan, thiotepa, treosulfan, cyclophosphamide, radiation





Donor graft contribution
passenger graft cells contribute to overcoming resistance

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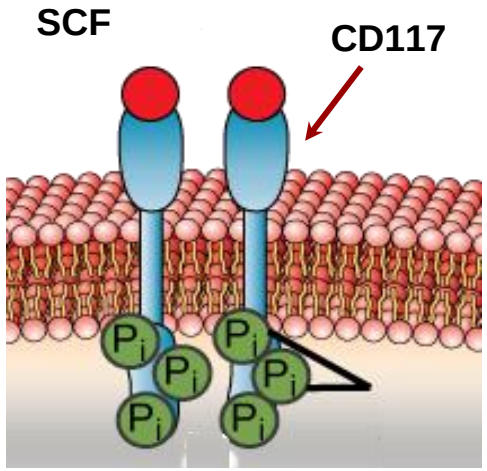
JSP191 uniquely blocks Stem Cell Factor Receptor (CD117) signaling

Leading to stem cell depletion without significant off-target toxicities

Stem Cell Factor (SCF)

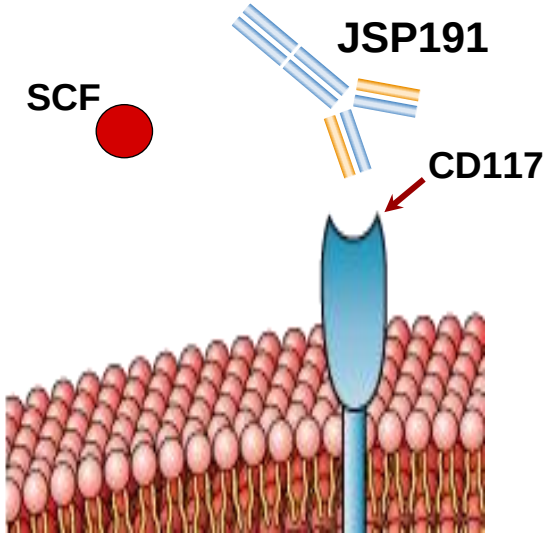
Binds to CD117



SCF / CD117 interaction required for stem cell survival

JSP191

Blocks SCF Binding to CD117



Inhibition of Stem Cell Survival Signal leads to stem cell depletion in bone marrow

JSP191 blocks CD117 (Stem Cell Factor Receptor) leading to hematopoietic stem and progenitor cell depletion

- Synergistic with other stem cell targeting mechanisms (radiation[1], CD47, 5-azacytidine[2])

JSP191 designed to minimize off target / safety effects

- Aglycosylated in order to remove effector cell recruitment and mast cell activation
- No mast cell related anaphylaxis
- No reported JSP191 related SAEs

No toxic payload that may lead to depletion of other cells expressing CD117

- CD117 also expressed on mast cells, germ cells, Cajal (GI) cells, melanocytes

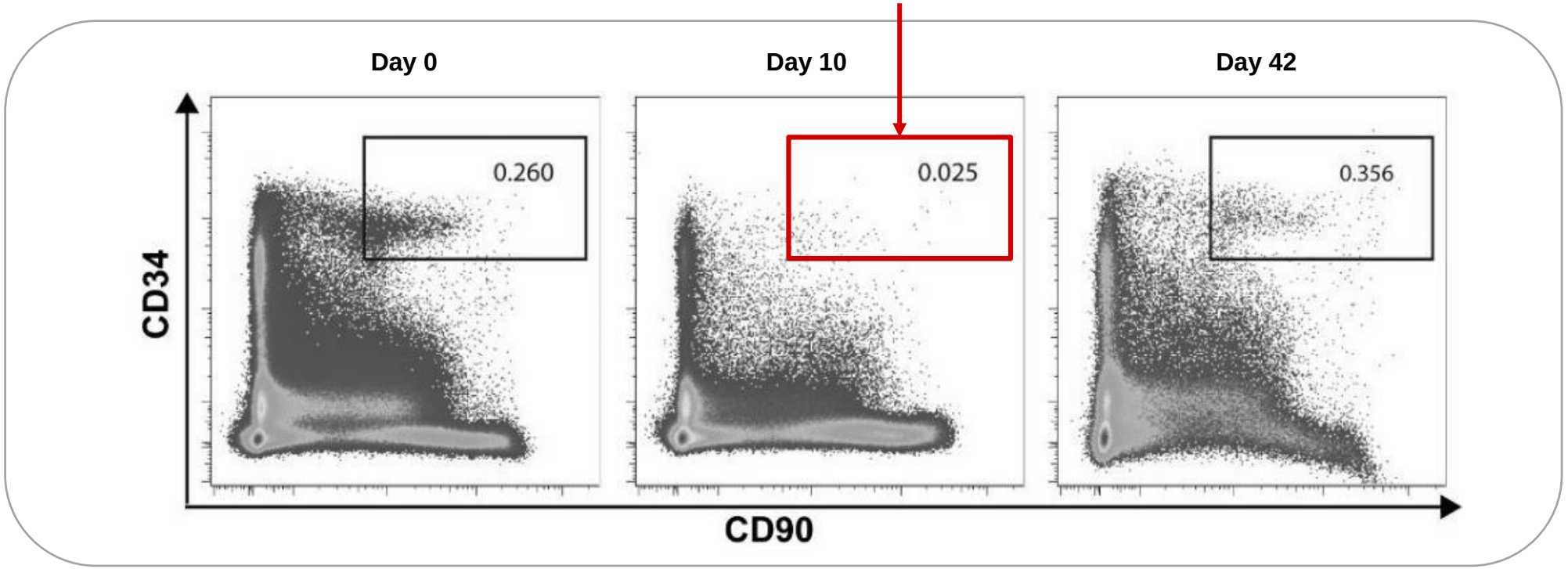
[1] Xue X, et al *Blood. 2010; 116(24):5419-5422.*
[2] Bankova AK, Pang WW, Velasco BJ, Long-Boyle JR, Shizuru JA. *Blood Adv*. 2021;5(19):3900-3912.

JSP191 alone causes robust and transient depletion of hematopoietic stem cells in non-human primates

Anti-human CD117 antibody-mediated bone marrow niche clearance in non-human primates and humanized NSG mice

Hye-Sook Kwon, Aaron C. Logan, Akanksha Chhabra, Wendy W. Pang, Agnieszka Czechowicz, Keri Tate, Alan Le, Jessica Poyser, Roger Hollis, Benjamin V. Kelly, Donald B. Kohn, Irving L. Weissman, Susan S. Prohaska and Judith A. Shizuru

Depletion of hematopoietic stem cells in NHPs at 1.0 mg/kg



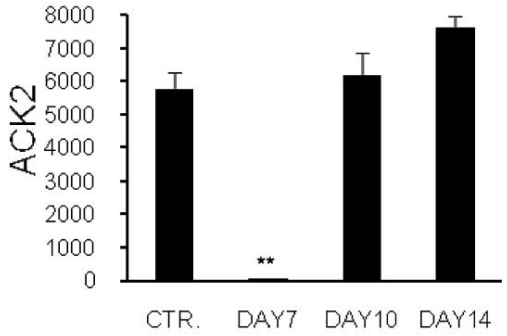
[1] Kwon HS, et al Blood. 2019; 133(19):2104-2108

JSP191 is an investigative drug and is not approved for any indication

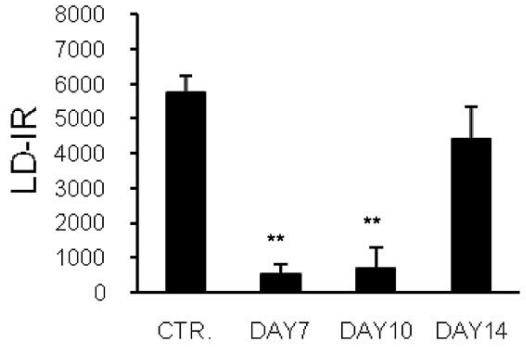
Blockade of CD117 is synergistic with low dose radiation leading to purified donor HSC engraftment in immunocompetent mouse models

HSC Depletion

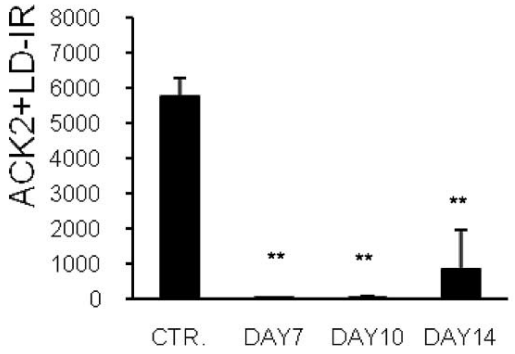
Anti-CD117 only



300cGy only

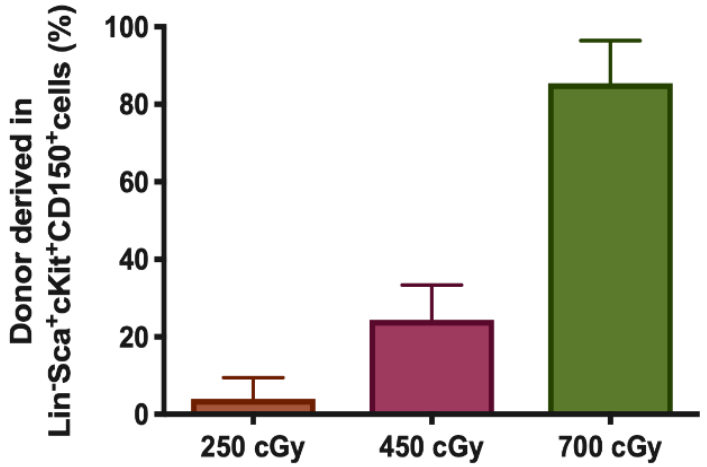


Anti-CD117 + 300 cGy

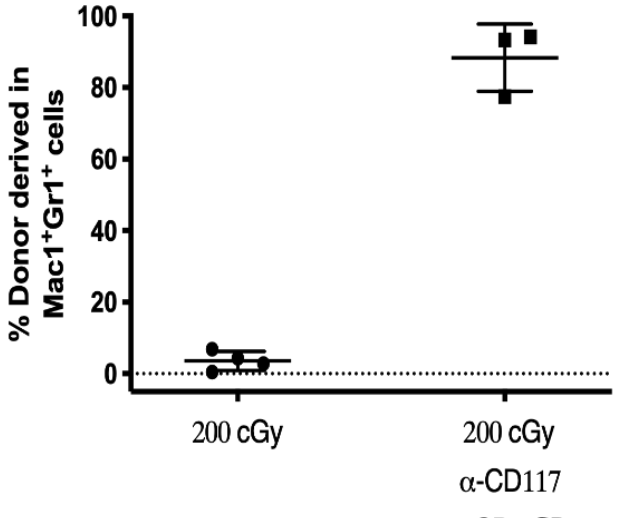


Donor HSC Engraftment

Radiation only



Anti-CD117 + Low Dose Radiation



Xue et al Blood 2010; Chhabra et al. Sci Transl Med 2016; Pang et al. ASH 2019

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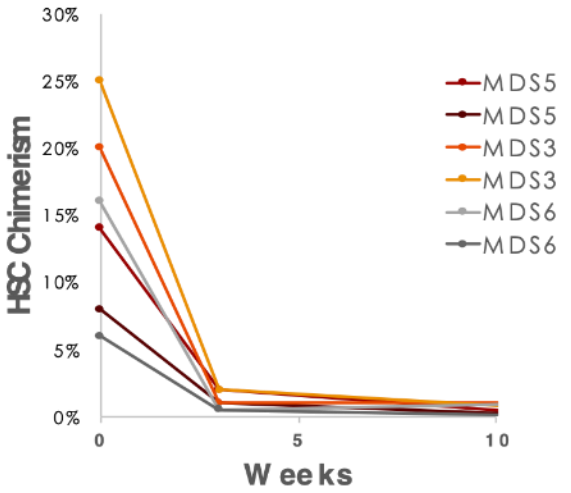
JSP191 targets and depletes MDS/AML disease initiating cells and normal stem cells leading to successful transplant in mouse models

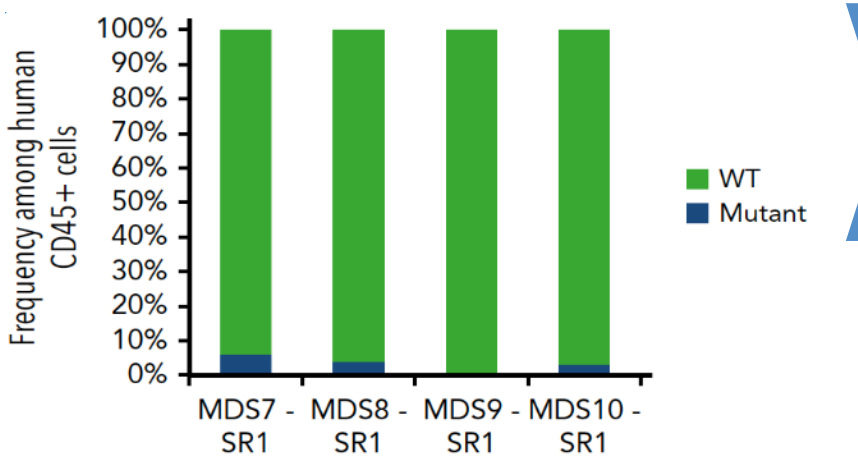
Anti-CD117 antibody depletes normal and myelodysplastic syndrome human hematopoietic stem cells in xenografted mice

Wendy W. Pang, Agnieszka Czechowicz, Aaron C. Logan, Rashmi Bhardwaj, Jessica Poyser, Christopher Y. Park, Irving L. Weissman and Judith A. Shizuru

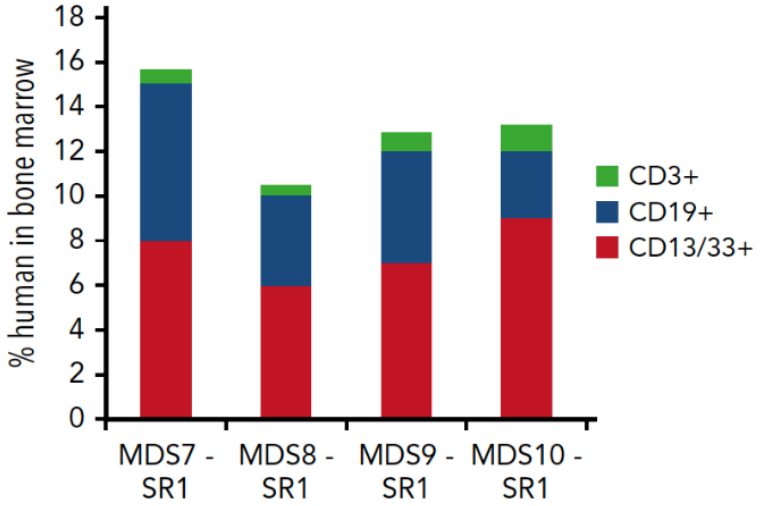
Depletes MDS stem cells



Normal stem cell engraftment



Normal blood formation



[1] Pang WP, et al Blood. 2019; 133(19):2069-2078.

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AML / MDS Phase I Update & Discussion

Lori Muffly, M.D., Stanford University

Study design

Single-arm, open label, in AML/MDS patients not eligible for myeloablative conditioning regimens

Key inclusion criteria:

- Patients with MDS or AML
- ≥60 years or with Hematopoietic Cell Transplantation-Comorbidity Index (HCT-CI) ≥3
- HLA matched related or unrelated donor
- Patients with prior HCT were excluded

→ N = 24-40 patients →

Experimental arm:

JSP191 0.6 mg/kg
+ **Flu** 30 mg/m^2 x 3 days
+ **TBI** 200-300 cGy
+ HCT

Assessments:

Primary endpoints:

- Safety and tolerability of JSP191/TBI/Flu
- JSP191 pharmacokinetics

Secondary endpoints:

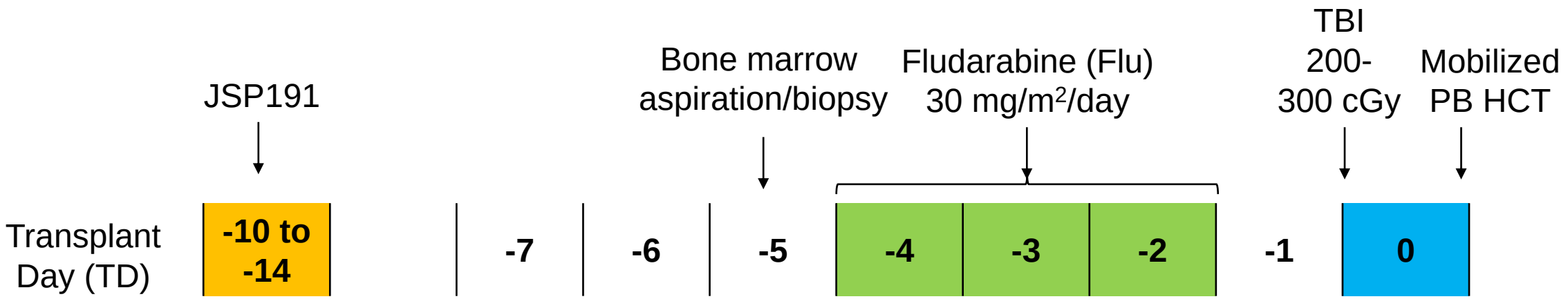
- Engraftment and donor chimerism
- Relapse-free survival
- GVHD, Non-relapse mortality, and Overall Survival
- MRD clearance

Exploratory endpoints:

- Depletion of HSPCs by JSP191

Treatment schema

Outpatient conditioning regimen



- Real-time PK measurements and modeling were used to determine Flu start date
- TBI increased from 200 to 300 cGy after first 7 subjects to aid lymphoablation
- GVHD prophylaxis: Tacrolimus, Sirolimus, Mycophenolate Mofetil (Sandmaier et al, Lancet Haematology 2019)

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AML in CR & MDS patient characteristics

Characteristic	All Patients (N = 24)	Patients with AML (N=11)*	Patients with MDS (N = 13)
Median age (range) - year	70 (62-79)	69 (62-79)	70 (67-77)
Sex – no. (%)			
Male	18 (75%)	8 (73%)	10 (77%)
Female	6 (25%)	3 (27%)	3 (23%
Prior AML/MDS Therapy – no. (%)			
Untreated or growth factor supportive care only	3 (13%)	0 (0%)	3 (23%)
Hypomethylating agent-containing regimens only	13 (54%)	4 (36%)	9 (69%)
Anthracycline-based regimens (incl. liposomal formulations) only	3 (13%)	2 (18%)	1 (8%)
Multiple lines of therapy incl. both hypomethylating agent- and anthracycline-based regimens	5 (21%)	5 (45%)	0 (0%)
Donor Type – no. (%)			
Matched related donor	5 (21%)	1 (9%)	4 (33%)
Matched unrelated donor	19 (79%)	10 (91%)	9 (67%)
TBI dose – no. (%)			
200 cGy	7 (29%)	3 (27%)	4 (31%)
300 cGy	17 (71%)	8 (73%)	9 (69%)

*Patients with de novo AML (N = 8) & AML from MDS (N = 3)

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

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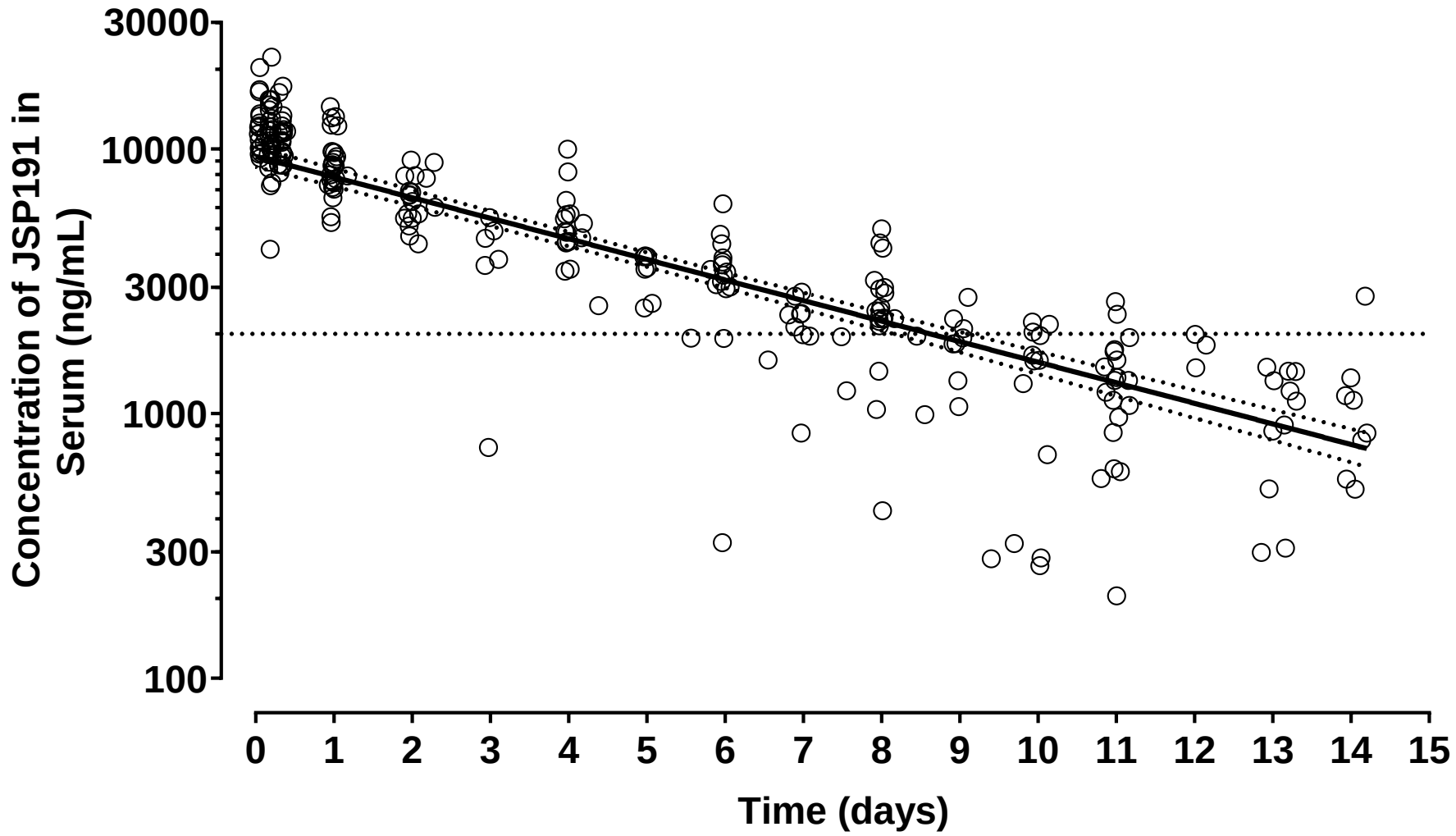
0.6 mg/kg JSP191 Pharmacokinetics: Consistent and Predictable Clearance



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JSP191 AML/MDS Phase I results to date: Safety and tolerability to date

- No significant JSP191 infusion reactions
- No JSP191-related SAEs
- No primary graft failure (one case of secondary graft failure)

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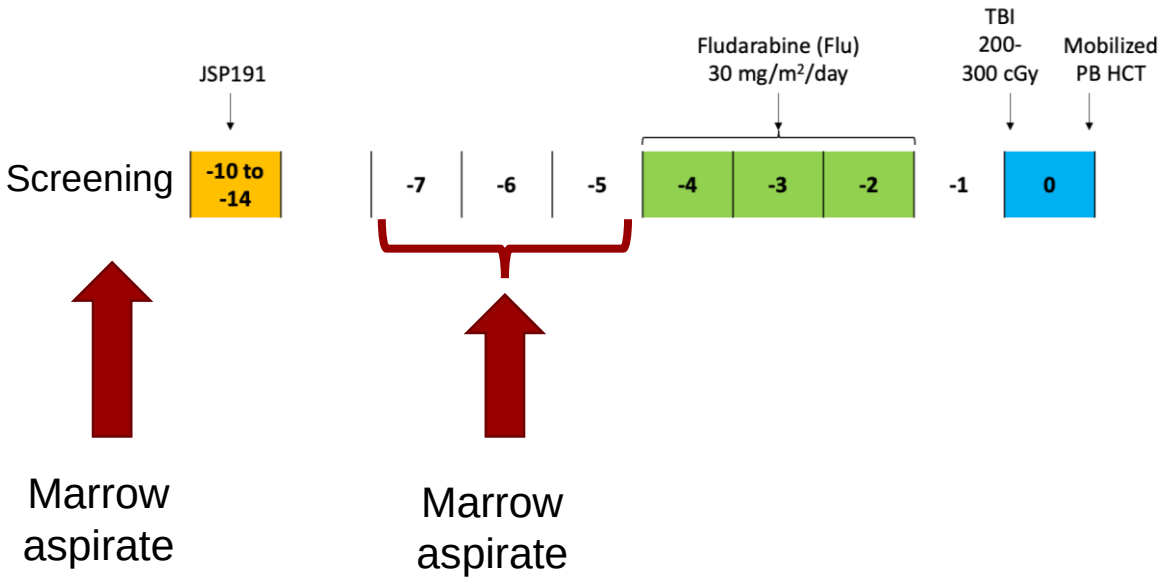
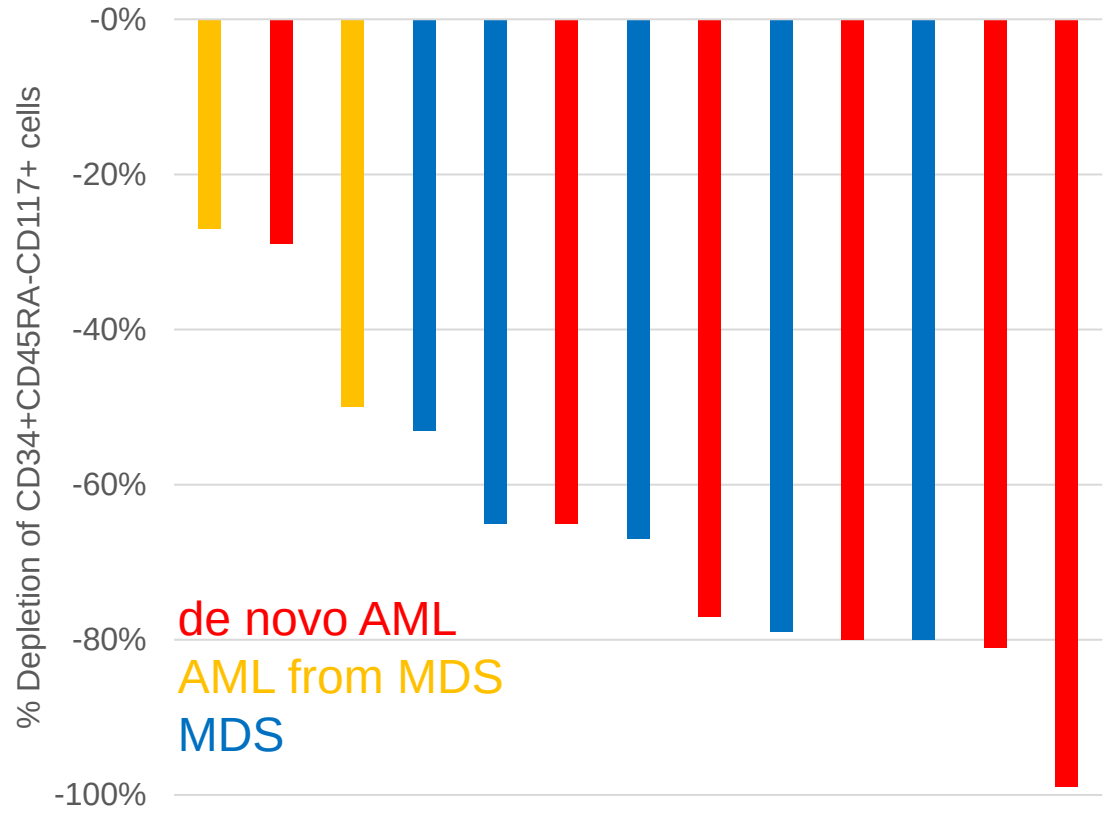
JSP191 Pharmacodynamics: Evaluation of JSP191 depletion of HSPCs in the bone marrow of AML and MDS subjects

Marrow aspirates collected at screening and prior to administration of Flu/TBI



Average HSPC depletion of 66%
(values do not necessarily reflect the nadir of HSPC depletion)



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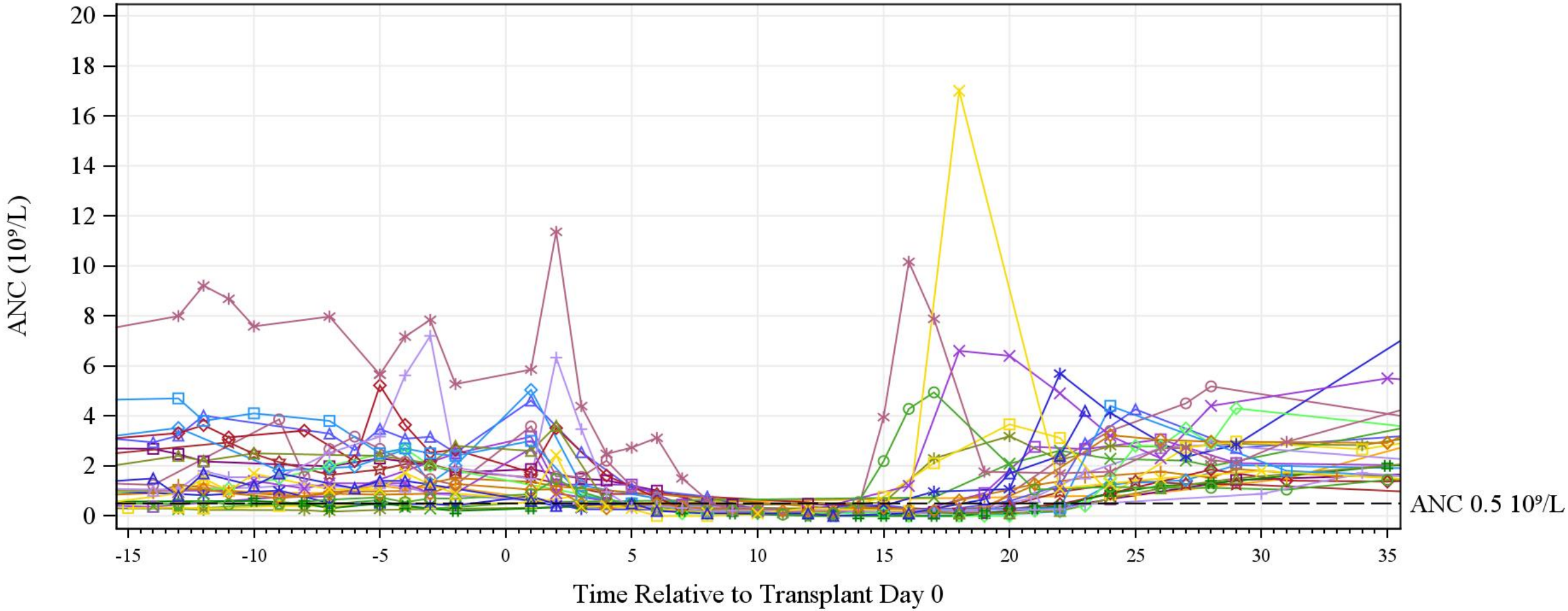
JSP191/Flu/TBI conditioning in all subjects dosed to date resulted in neutropenia followed by neutrophil engraftment by TD+26



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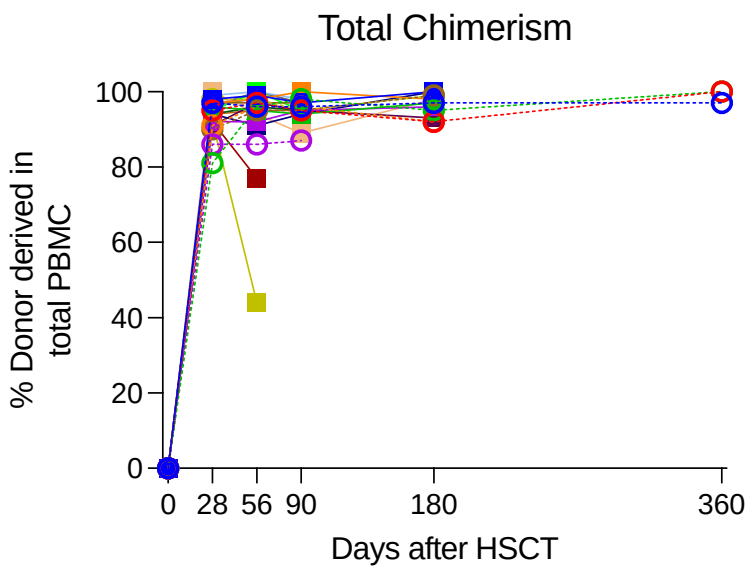
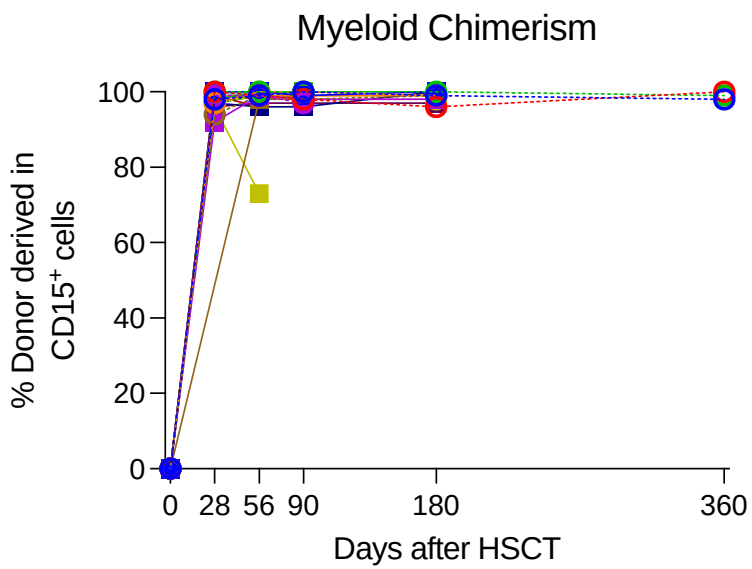
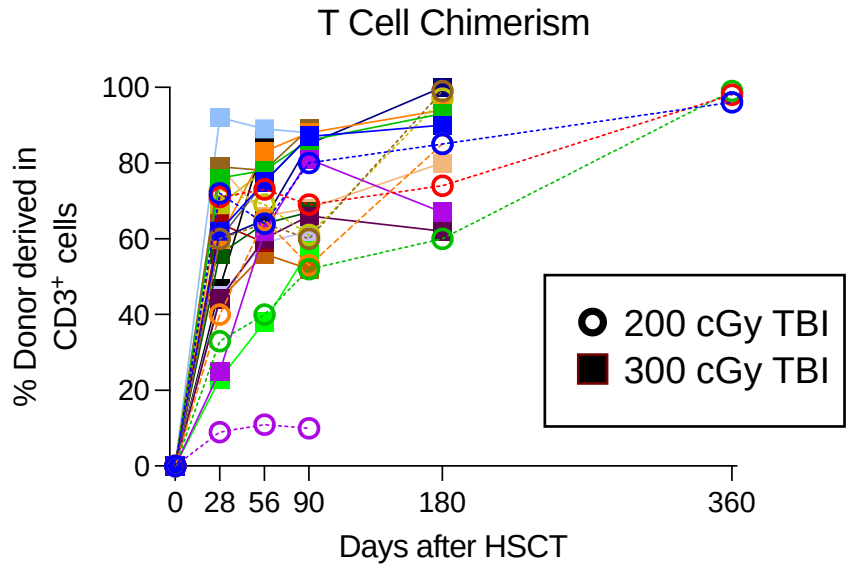
Donor Chimerism







Median Donor Chimerism:

	TD+28			TD+90			TD+180		
	Total	CD15	CD3	Total	CD15	CD3	Total	CD15	CD3
200 cGy TBI	91%	98%	60%	95%	98%	60%	97%	99%	85%
300 cGy TBI	95%	99%	60%	95%	99%	83%	98%	99%	89%

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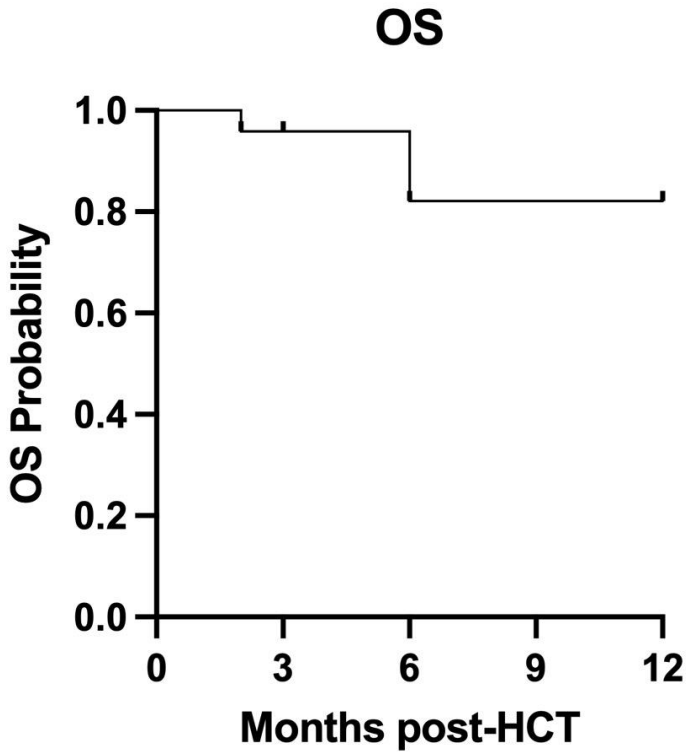
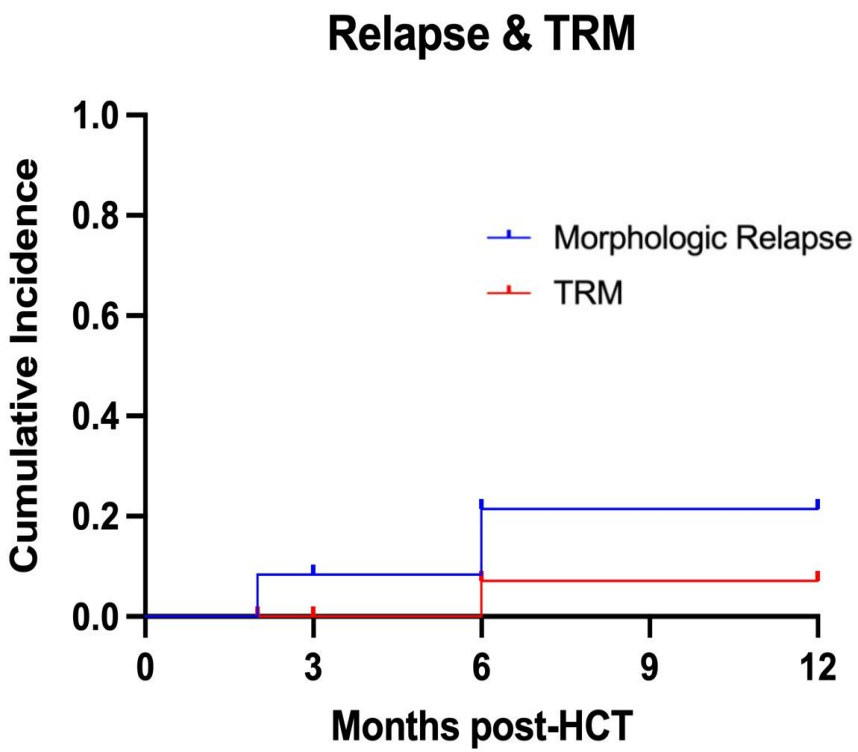
Outcomes & GVHD reported to date

N = 24, median follow-up of 6 months (range 2-12 months)





Evaluable patients:	22	14	22	14

- No classical grade II-IV acute GVHD reported to date
- 1 case of late onset grade III-IV acute GI GVHD reported to date
- Insufficient median follow up to draw conclusions regarding chronic GVHD

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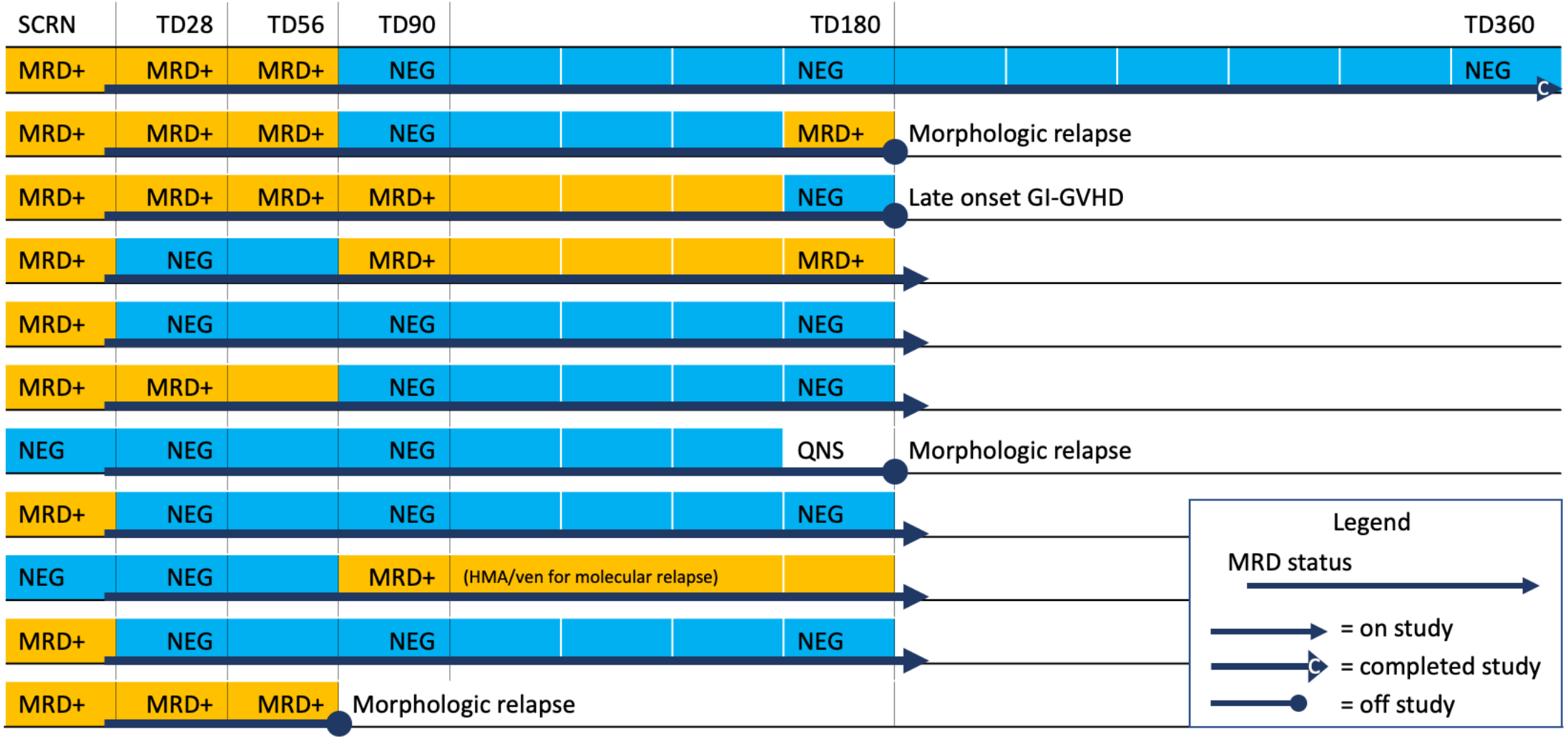
Multimodality Measurable Residual Disease (MRD) in patients with AML*

Cytogenetics, Flow Cytometry, Next Generation Sequencing

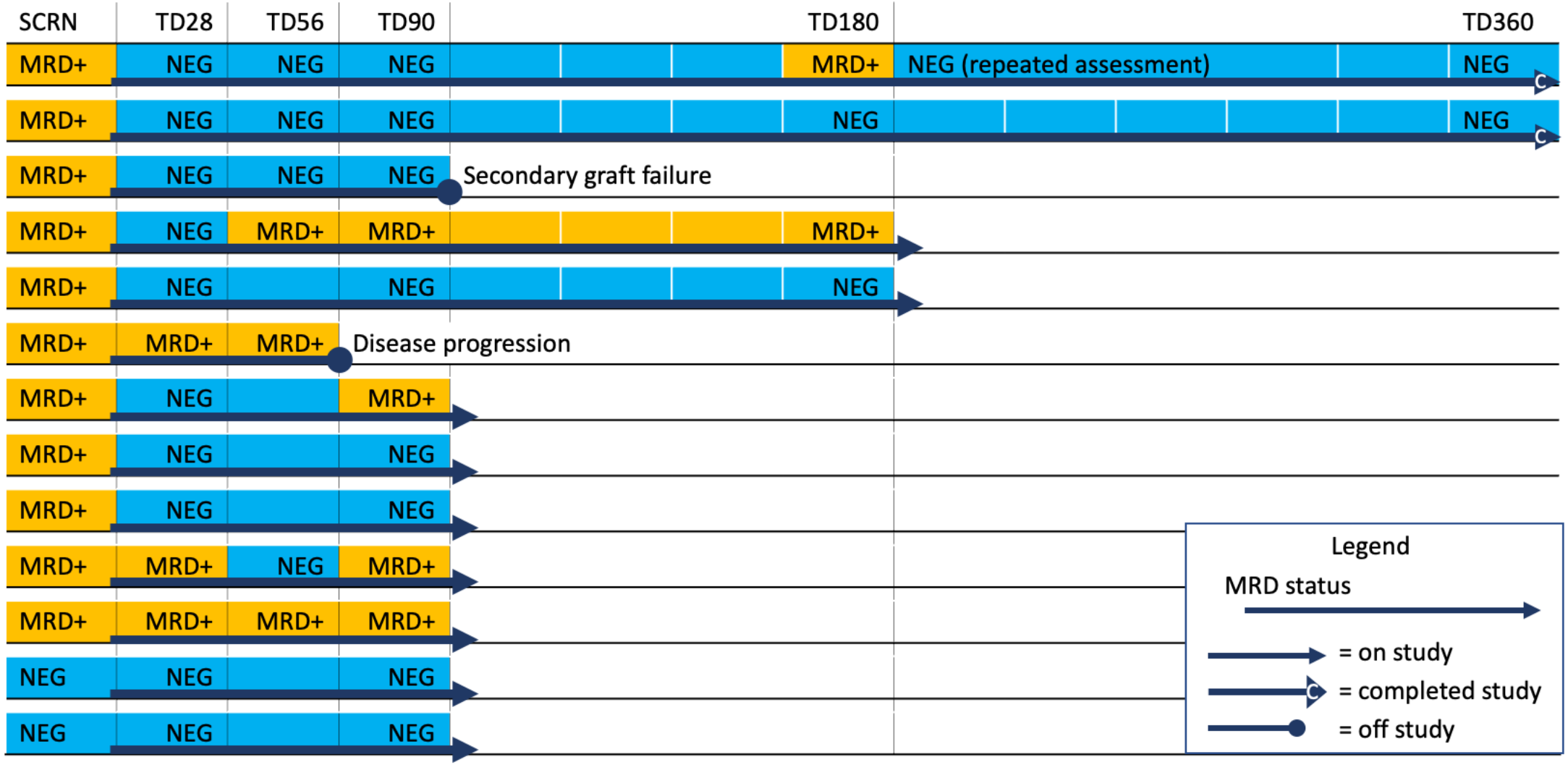


QNS = quantity not sufficient

*Patients with de novo AML (N = 8) & AML from MDS (N = 3)

Multimodality Measurable Residual Disease (MRD) in patients with MDS

Cytogenetics, Flow Cytometry, Next Generation Sequencing



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JSP191/Flu/TBI conditioning demonstrates clearance of measurable residual disease (MRD) by multiple modalities

MRD detection methods

(1) Conventional Cytogenetics: detection of chromosomal abnormalities

(2) Flow cytometry: detection of antigens on neoplastic cells compared to normal cells

(3) Next generation sequencing: detection of genetic changes (Invivoscribe MyMRD panel)

Multi-modality MRD (most sensitive)

- **12 of 20 (60%) JSP191 patients[1]** cleared MRD by all three modalities at last follow up

MRD by flow cytometry (single modality)

- **9 of 11 (82%) JSP191 patients[2]** cleared MRD by flow cytometry at last follow up
- **33 of 57 (58%) non-myeloablative (non-MAC) patients[3]** cleared MRD by flow cytometry in recent study of MRD dynamics in adult AML by Paras et al.

[1] Muffly L et al. Tandem Meetings Transplantation and Cellular Therapy (TCT) 2022 April 23-26; Salt Lake City, UT
[2] Jasper Internal Data
[3] 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.

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Summary of JSP191 AML/MDS Phase I data to date

- 0.6 mg/kg JSP191 PK is predictable and allows donor cell infusion 9-14 days after JSP191
- All patients engrafted with neutrophil recovery before Transplant Day +26
- Multimodality MRD clearance was observed in 12 of 20 evaluable patients at last follow-up
  - MRD clearance by flow alone observed in 9 of 11 patients
- JSP191/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 early MRD clearance

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Acknowledgements

Jasper Therapeutics and the Investigators would like to thank the patients and families for participating in this clinical trial (NCT#04429191).

We would also like to thank the participating clinical sites, clinical staff, and collaborators.

SCID Phase I/II Update

Judith Shizuru, M.D., PhD., Jasper Co-Founder &
Stanford University

JSP191 for Severe Combined Immunodeficiency (SCID) patients who fail hematopoietic cell transplant

SCID is a genetic immune disorder that can be cured with hematopoietic cell transplant

Due to toxicity of current conditioning agents, many patients who fail transplant do not undergo a repeat procedure and rely on lifelong immune therapy

JSP191 can provide targeted, single-agent conditioning for SCID patients who have failed their first transplant

Jasper SCID Strategy:

- Establish Single-Agent Activity
- Potential Orphan Disease Voucher

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JSP191 first clinical study in ultra orphan indication, Severe Combined Immunodeficiency (SCID)

Single Arm Trial Design

Eligible second transplant or naïve subjects receive JSP191 prior to HCT

Inclusion Criteria

- SCID as defined by PIDTC criteria
- Prior donor must be available
- Prior transplant ≥ 6 months
- Inadequate B cell engraftment
- Incomplete T cell reconstitution
- Clinical symptoms due to poor immune function

Endpoints

- Safety
- Donor stem cell engraftment
- Production of naïve CD4+ T cells
- Clinical benefit (Use of IVIG, infection, Vaccine response)

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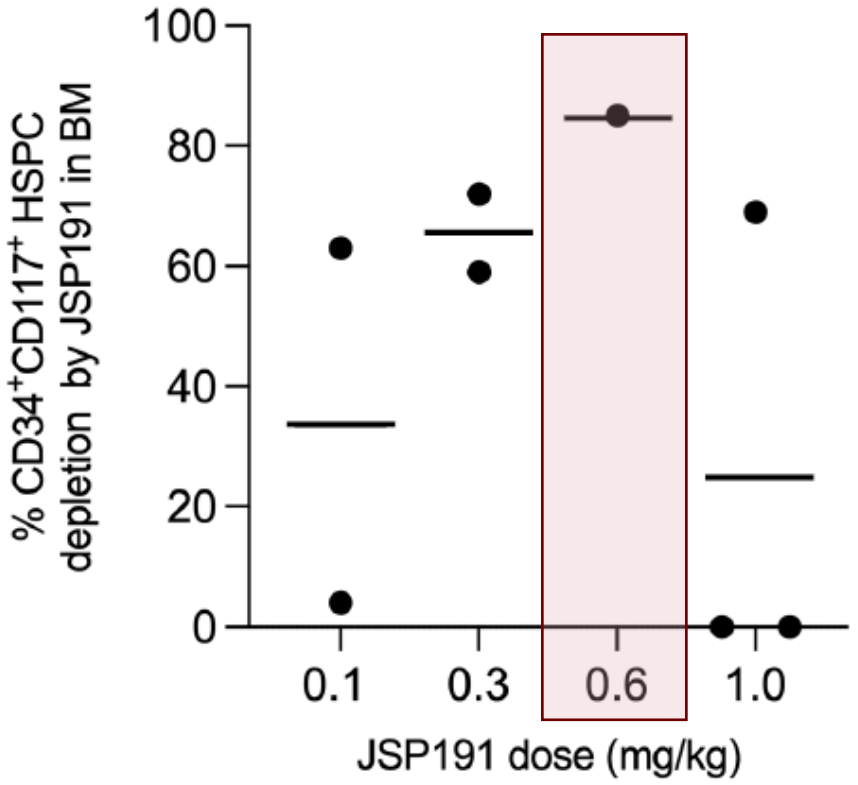
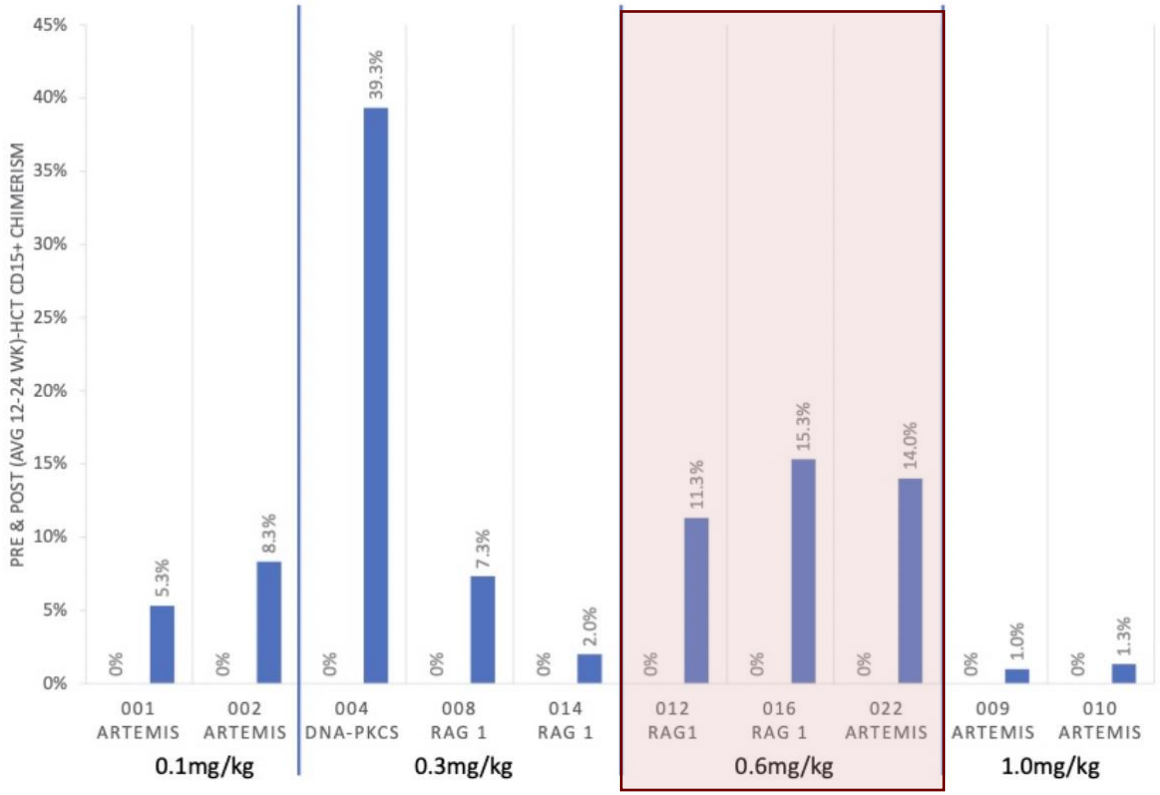
JSP191 single-agent HSPC depletion leads to donor cell engraftment in SCID re-transplant patients

Stem Cell Depletion



- CD34+CD117+ positive cells measured in bone marrow biopsy samples

Donor Cell Engraftment



- Average CD15+ myeloid donor chimerism at 12-24 weeks
- T- B- NK+ SCID re-transplant subjects

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

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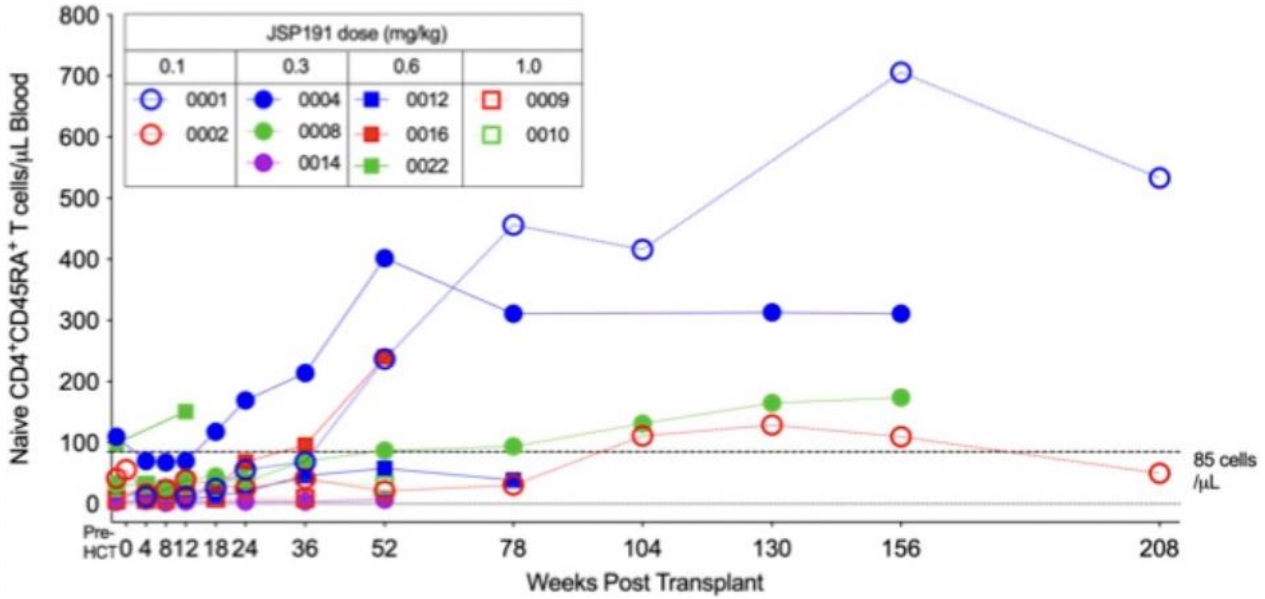
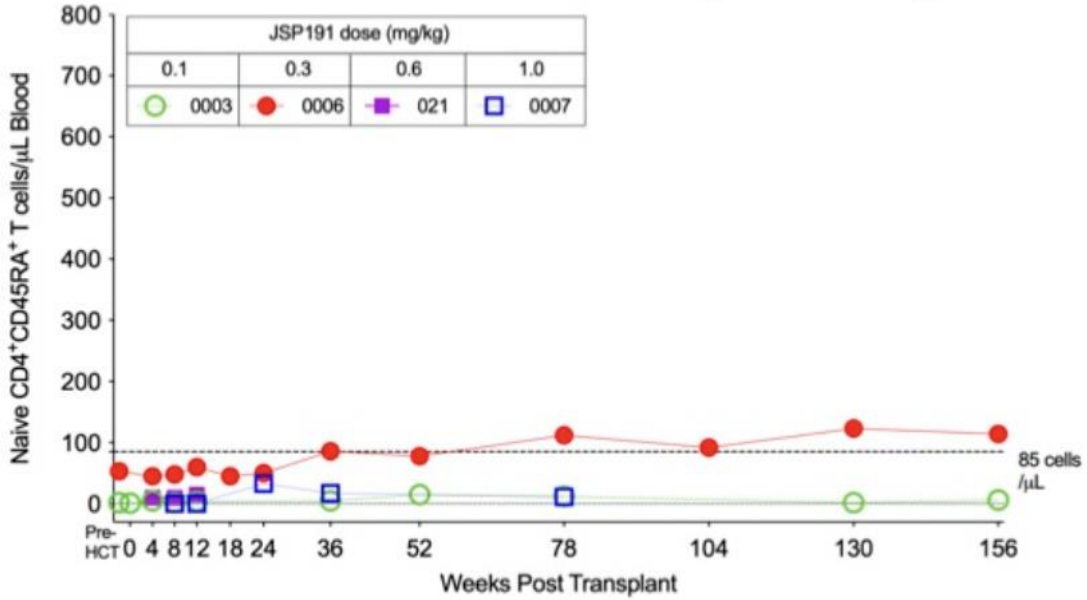
JSP191 single-agent conditioning leads to immune cell production in T- B- NK+ SCID re-transplant subjects

Naïve CD4+ T cells

T-B-NK+ SCID Re-Transplant Subjects:



T-B+NK+ and T-B+NK- SCID Re-Transplant Subjects:



Increased naïve CD4+CD45RA+ T cell production (>85/µL) was observed in the majority of T-B-NK+ SCID re-transplant subjects conditioned with 0.1-0.6 mg/kg JSP191, versus T-B-NK+ SCID subjects conditioned with 1.0 mg/kg JSP191 and T-B+ SCID subjects.

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

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Durable clinical benefit seen with JSP191 conditioned SCID re-transplant patients (T- B- NK+ patients)

Clinical Benefit

T-B-NK+ SCID Re-Transplant Subjects:

JSP191 Dose	ID	Genotype	Clinical Outcomes	Follow-up post-JSP191 HCT
0.1 mg/kg	0001	Artemis	**IVIG reduced, Chronic norovirus enteritis resolved, Chronic URI resolved**	Wk 208
	0002	Artemis	**Off IVIG, Ab response to vaccination**	Wk 208
0.3 mg/kg	0004	PRKDC	Continues on IVIG, **Chronic URI resolved**	Wk 156
	0008	RAG1	**Off IVIG, Ab response to vaccination**	Wk 156
	0014	RAG1	Continues on IVIG, **Improvement in chronic URI**	Wk 104
0.6 mg/kg	0012	RAG1	Continues on IVIG, **Improvement in chronic URI**	Wk 78
	0016	RAG1	IVIG/SCIG dependent, **Generating naïve B cells**	Wk 52
	0022	Artemis	IVIG dependent, **Generating naïve B cells**	Wk 12
1.0 mg/kg	0009	Artemis	Off Study at 140 weeks – Deceased	Wk 104
	0010	Artemis	Continues on IVIG, Persistent Chronic URI, **Improvement in chronic norovirus enteritis**	Wk 104

T-B+NK+ and T-B+NK- SCID Re-Transplant Subjects:

JSP191 Dose	ID	Genotype	Clinical Outcomes	Follow-up post-JSP191 HCT
0.1 mg/kg	0003	IL2RG	Off study at 156 weeks – Continues on IVIG, Persistent chronic norovirus enteritis	WK 156
0.3 mg/kg	0006	IL2RG	Continues on IVIG	Wk 156
0.6 mg/kg	0021	IL7R	Continues on IVIG	Wk 12
1.0 mg/kg	0007	IL2RG	Continues on IVIG, Persistent chronic URI	Wk 156

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JSP191 SCID Phase I results to date: Safety and tolerability to date

Clinical Safety

- No JSP191-related serious adverse events (SAEs)
- No myelosuppression
- No significant infusion reactions

Clinical Setting

- Protocol amended to allow for outpatient administration of JSP191
- Based on safety and successful HSC engraftment in re-transplant SCID subjects, the study of JSP191 has been expanded to include newly diagnosed infants with SCID

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

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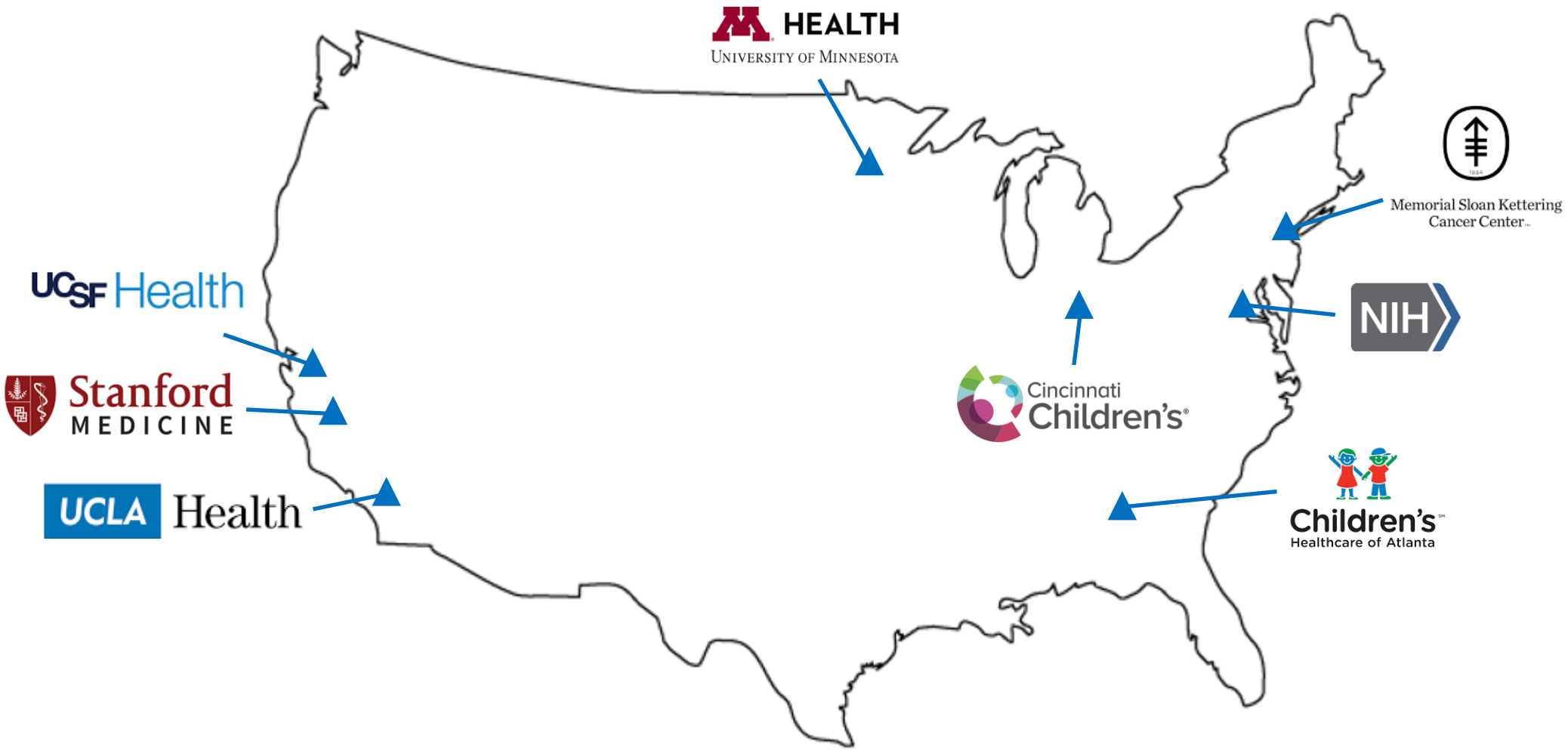
Jasper is currently enrolling at major academic transplant centers



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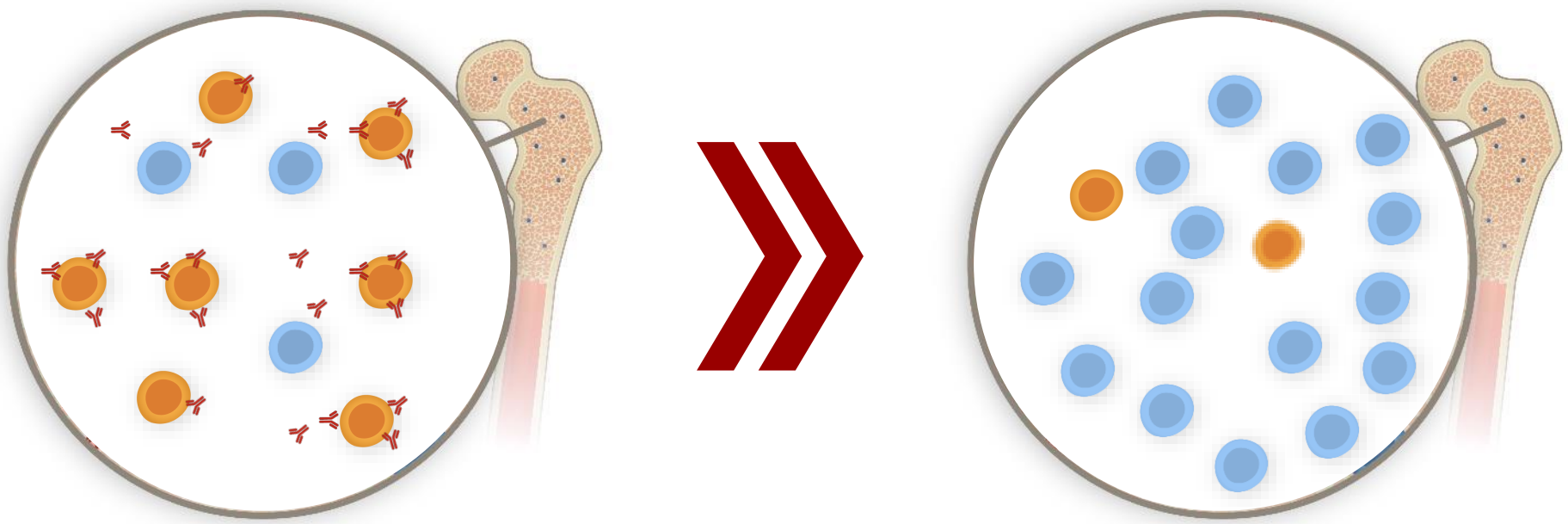
Scientific Rationale for JSP191 in Lower-Risk MDS

Wendy Pang, M.D., PhD., SVP Research & Translational Medicine Jasper Therapeutics

Based on MDS/AML clinical and preclinical data, JSP191 may preferentially deplete diseased HSCs, leaving healthy cells to re-establish marrow dominance

JSP191 administered in a LR-MDS patient

Shift of HSCs towards normal hematopoiesis



Normal HSCs MDS HSCs JSP191

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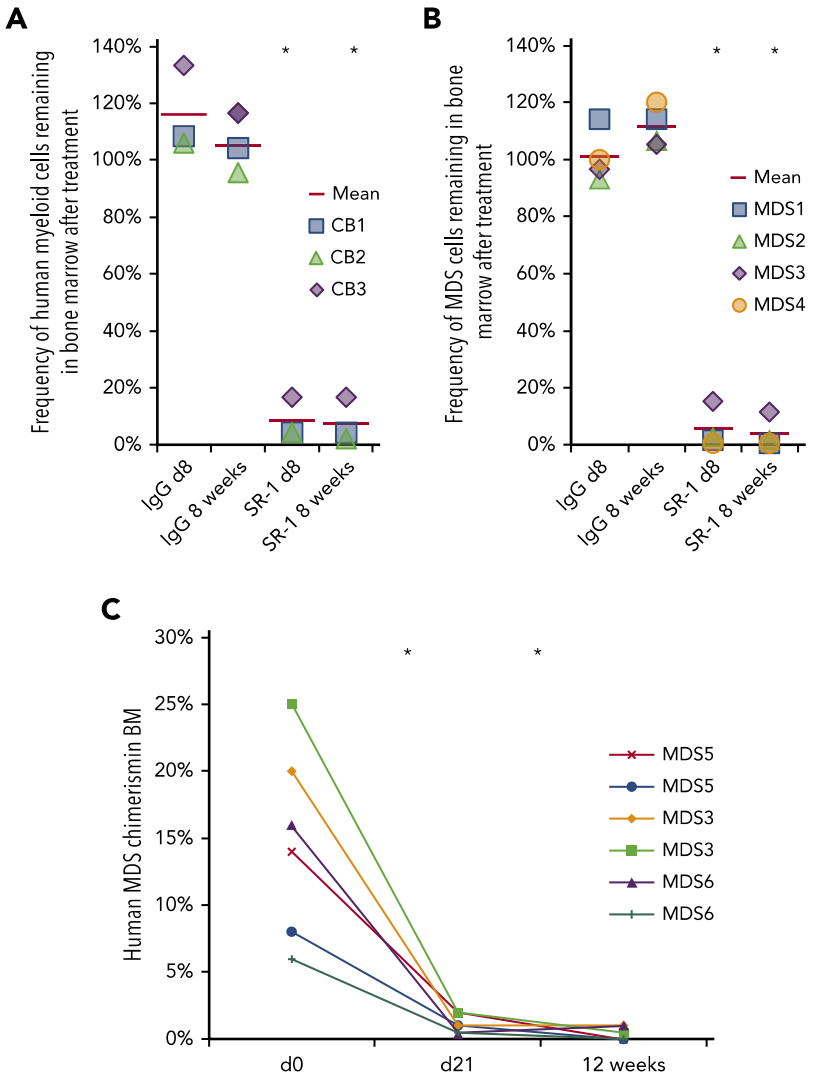
Pre-clinical data: JSP191 depletes normal and MDS Human HSCs in-vivo

Antibody that blocks SCF binding to CD117 (SR-1 and JSP191) depletes normal and MDS human HSCs *in vivo* in xenograft mouse models

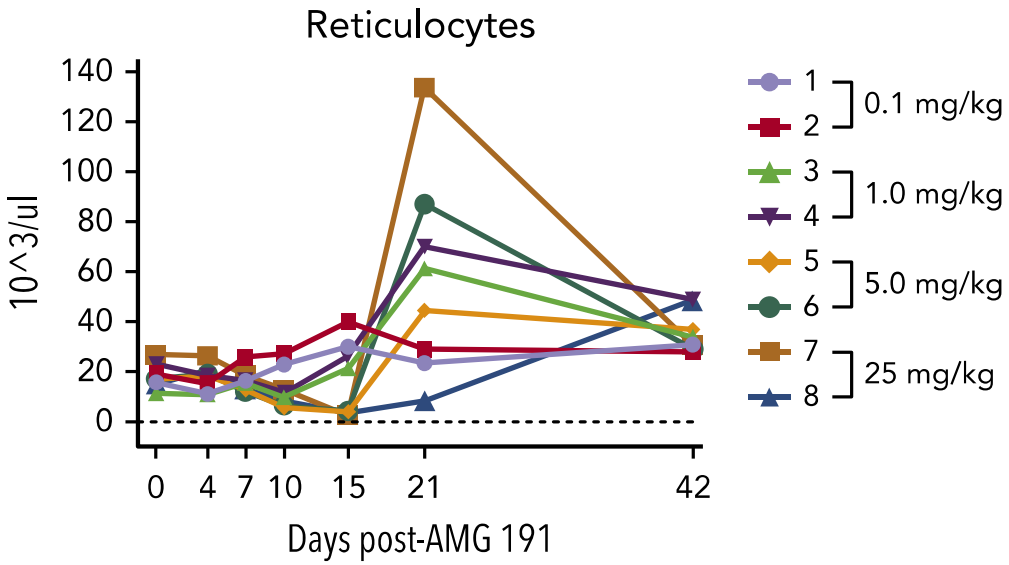


Pang et al, *Blood*, 2019

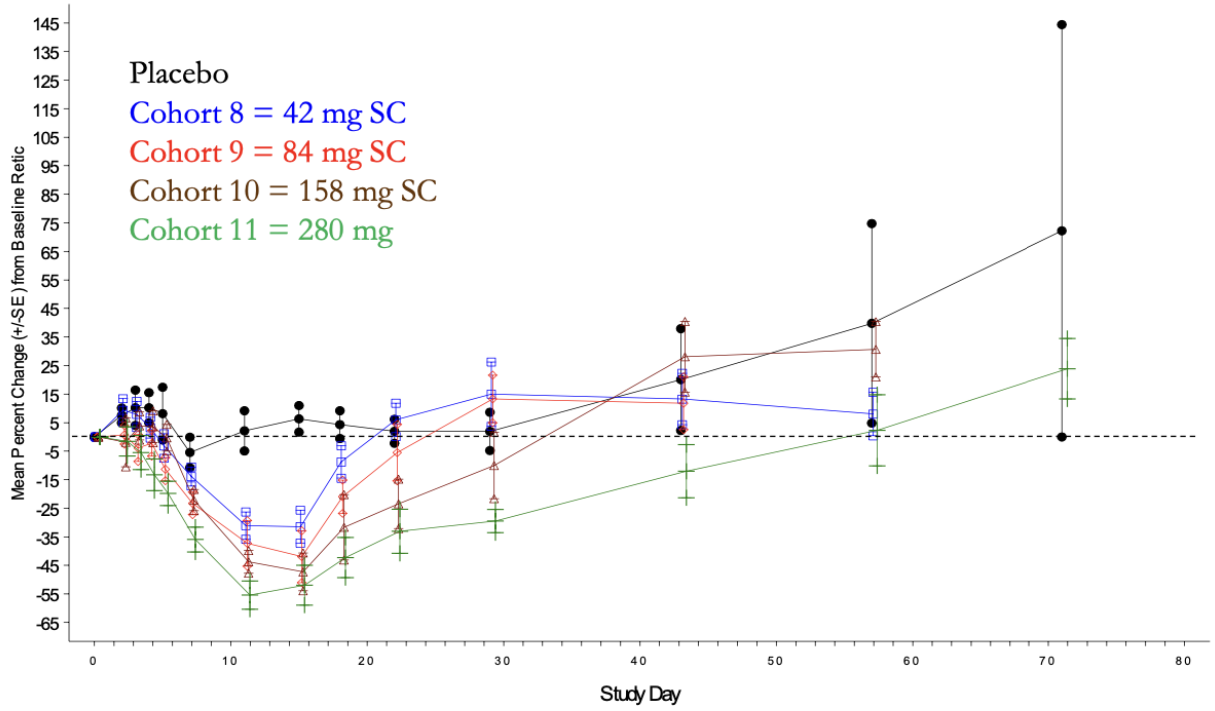
JSP191 is an investigative drug and is not approved for any indication

Hematopoietic recovery after JSP191 administration in NHP and healthy human subjects, without transplant, evidenced by rebound of reticulocytes

NHP



AMGEN Phase I SAD Reticulocytes (up to 280mg / ~4mg/kg)*



Kwon et al, *Blood* 2019, Amgen Phase I Data (unpublished)

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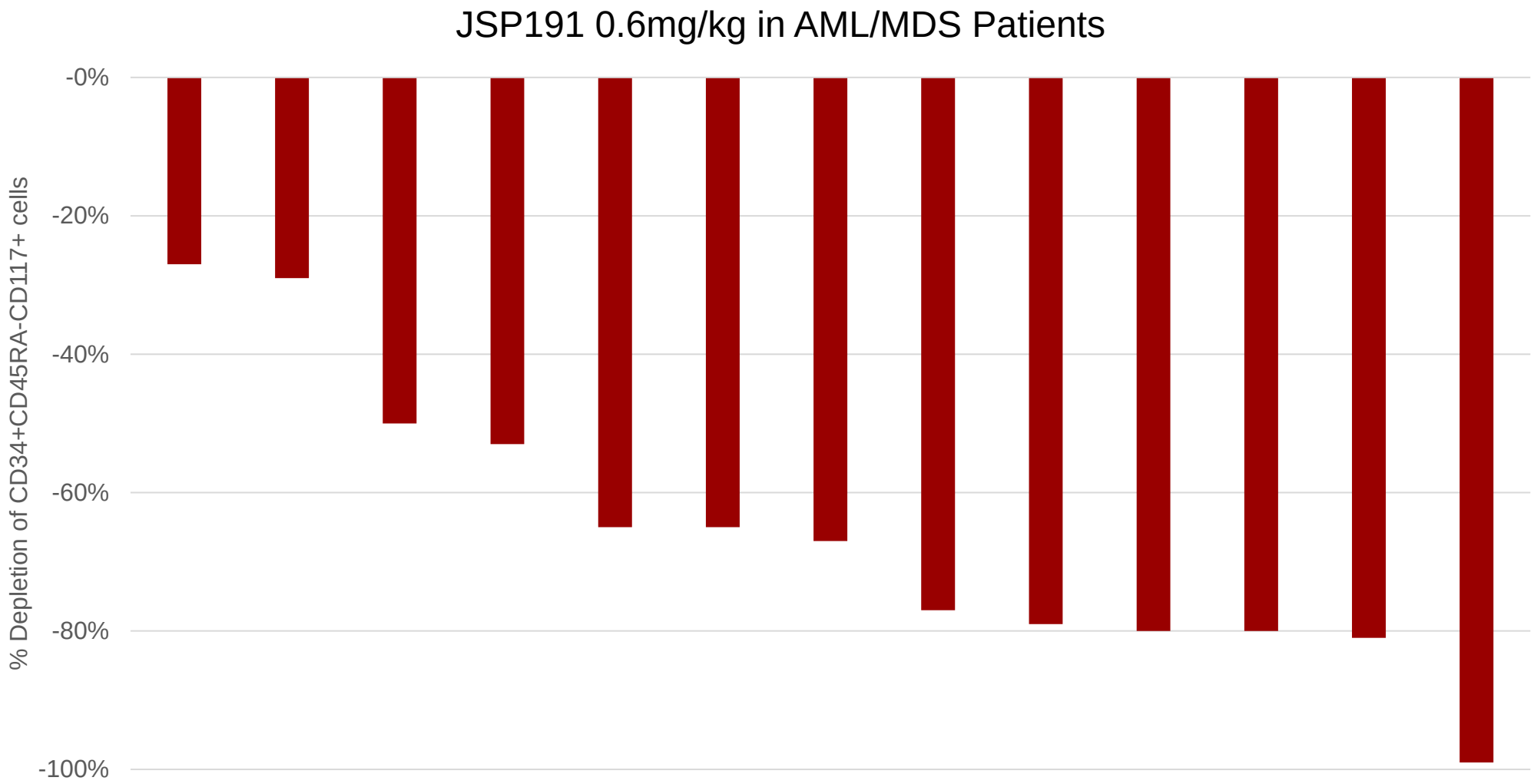
MDS/AML: Depletion of diseased HSPCs in bone marrow by single dose of JSP191

Data obtained prior to projected JSP191 nadir, or addition of fludarabine/TBI



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

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Unmet Need in Lower-Risk MDS

David Sallman, M.D., Moffitt Cancer Center

Myelodysplastic Syndromes (MDS)

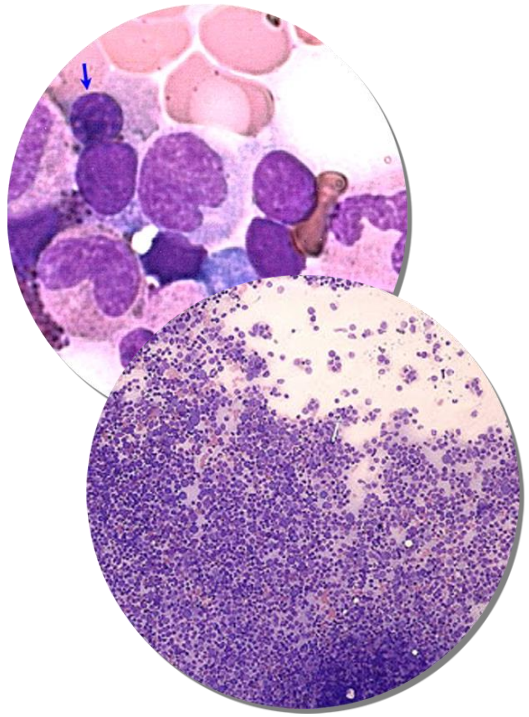
A group of malignant hematopoietic neoplasms characterized by[1]

- Bone marrow failure with resultant cytopenia and related complications
- Evidence of clonality by cytogenetic abnormalities or somatic gene mutations.
- Dysplastic cytologic morphology is the hallmark of the disease
- Tendency to progress to AML

Overall incidence 3.7-4.8/100,000[2]

- In US (true estimates ≈ 37,000-48,000)

Median age: 70 yrs; incidence: 34-47/100,000 >75 yrs[3]



AML = acute myeloid leukemia

1. Bennett J, et al. The myelodysplastic syndromes. In: Abeloff MD, et al, eds. Clinical Oncology. New York, NY: Churchill Livingstone; 2004:2849-2881. 2. SEER data. 2000-2009. 3. SEER 18 data. 2000-2009.

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How do I personalize treating lower-risk MDS?

- Identify those patients with estimated survival <2 years and in young/fit pts consider allogeneic stem cell transplant or clinical trials
- Asymptomatic and no profound cytopenia (Hgb >9.0 g/dl, platelets >30-50 and no recurrent neutropenic infections): **Observe**
- **Isolated thrombocytopenia (10% of lower-risk MDS or less):**
  - Eltrombopag
  - ATG/CSA
  - HMA
- **Recurrent Neutropenic Infections (ANC <500, very rare):**
  - ATG/CSA
  - HMA
- **Anemia (most common indication to treat):**
  - **Isolated anemia:**
    - ESA
    - Lenalidomide
    - Luspatercept
    - HMA
    - ATG/CSA
    - ICT
  - **Concomitant severe thrombocytopenia and neutropenia:**
    - HMA
    - ATG/CSA

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Risk Stratification – Revised IPSS (IPSS-R)

	IPSS-R				
Parameter	**Categories and associated scores**				
Cytogenetic risk group	Very good	Good	Intermediate	Poor	Very poor
	0	1	2	3	4
Marrow blast proportion	<2%	2%-<5%	5%-10%	>10%	
	0	1	2	3	
Hemoglobin	≥10 g/dL	8-<10 g/dL	<8 g/dL		
	0	1	1.5		
Absolute neutrophil count	$\geq 0.8 \times 10^9$/L	$<0.8 \times 10^9$/L			
	0	0.5			
Platelet count	$\geq 100 \times 10^9$/L	$50\text{-}100 \times 10^9$/L	$<50 \times 10^9$/L		
	0	0.5	1		

Overall Survival

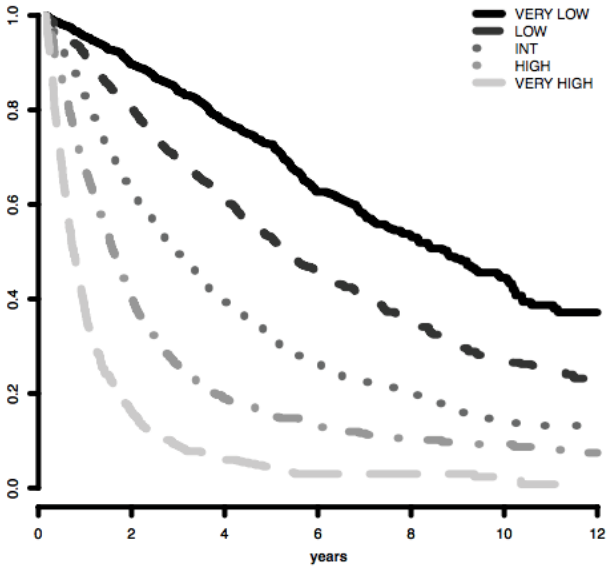

Figure 3. Survival based on IPSS-R prognostic risk-based categories. Survival related to MDS patients' prognostic risk categories (Kaplan-Meier curves, n = 7012; Dxy 0.43, $P < .001$). The number of patients in each category and their proportional representation are shown in Table 1.

Progression to AML

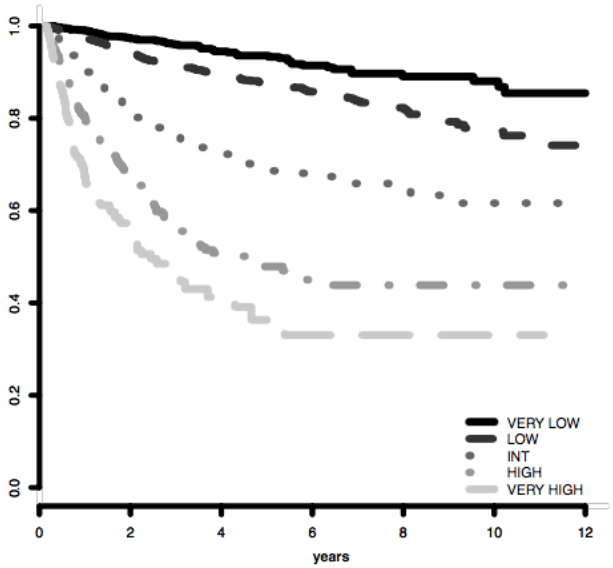

Figure 4. AML evolution based on IPSS-R prognostic risk-based categories. Progression to AML related to MDS patients' prognostic risk categories (Kaplan-Meier curves, n = 6485; Dxy 0.52, $P < .001$). The number of patients in each category and their proportional representation are shown in Table 1.

Greenberg P et al. Blood 2012.

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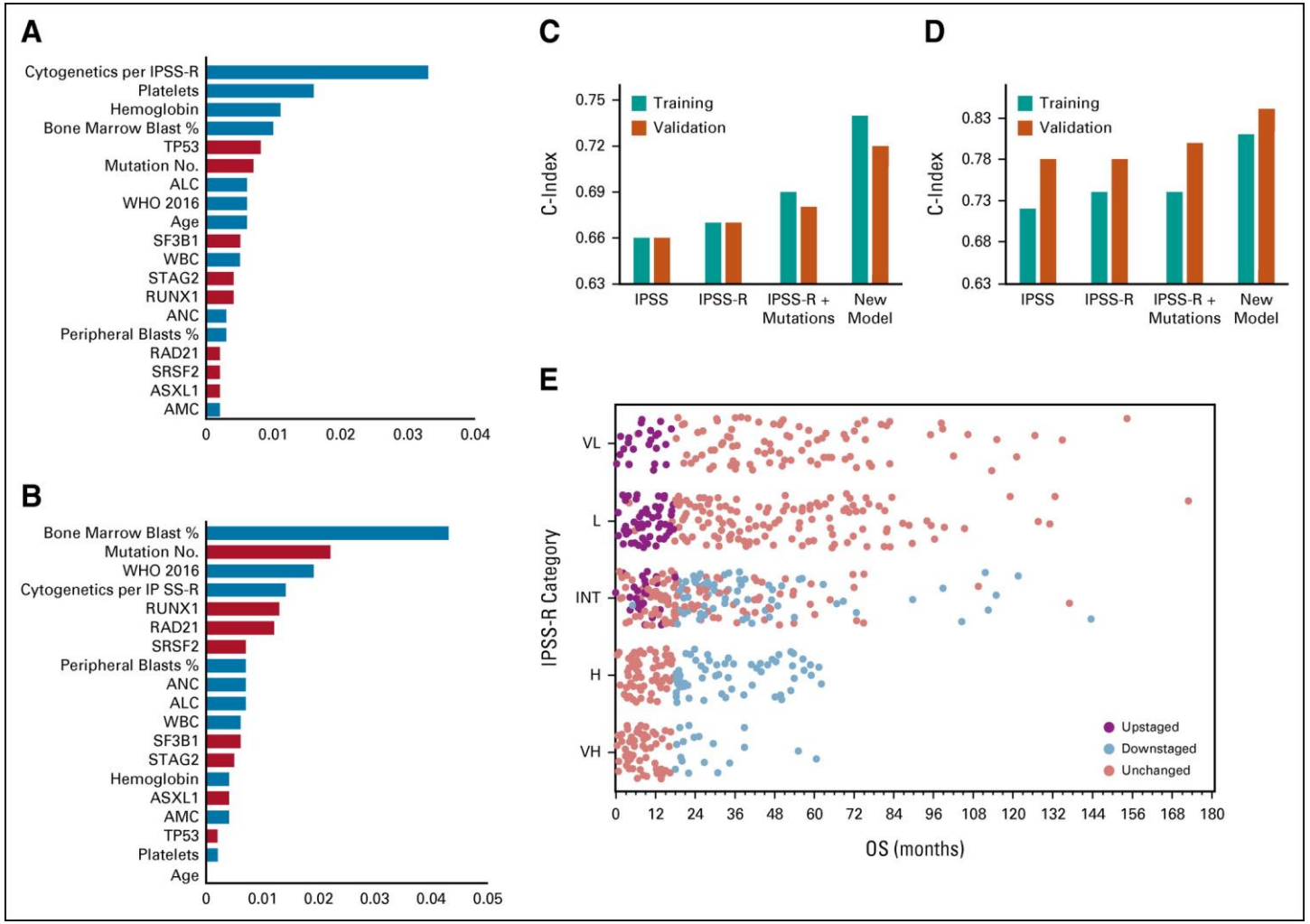
Personalized Model for MDS



Nazha A et al., JCO 2021

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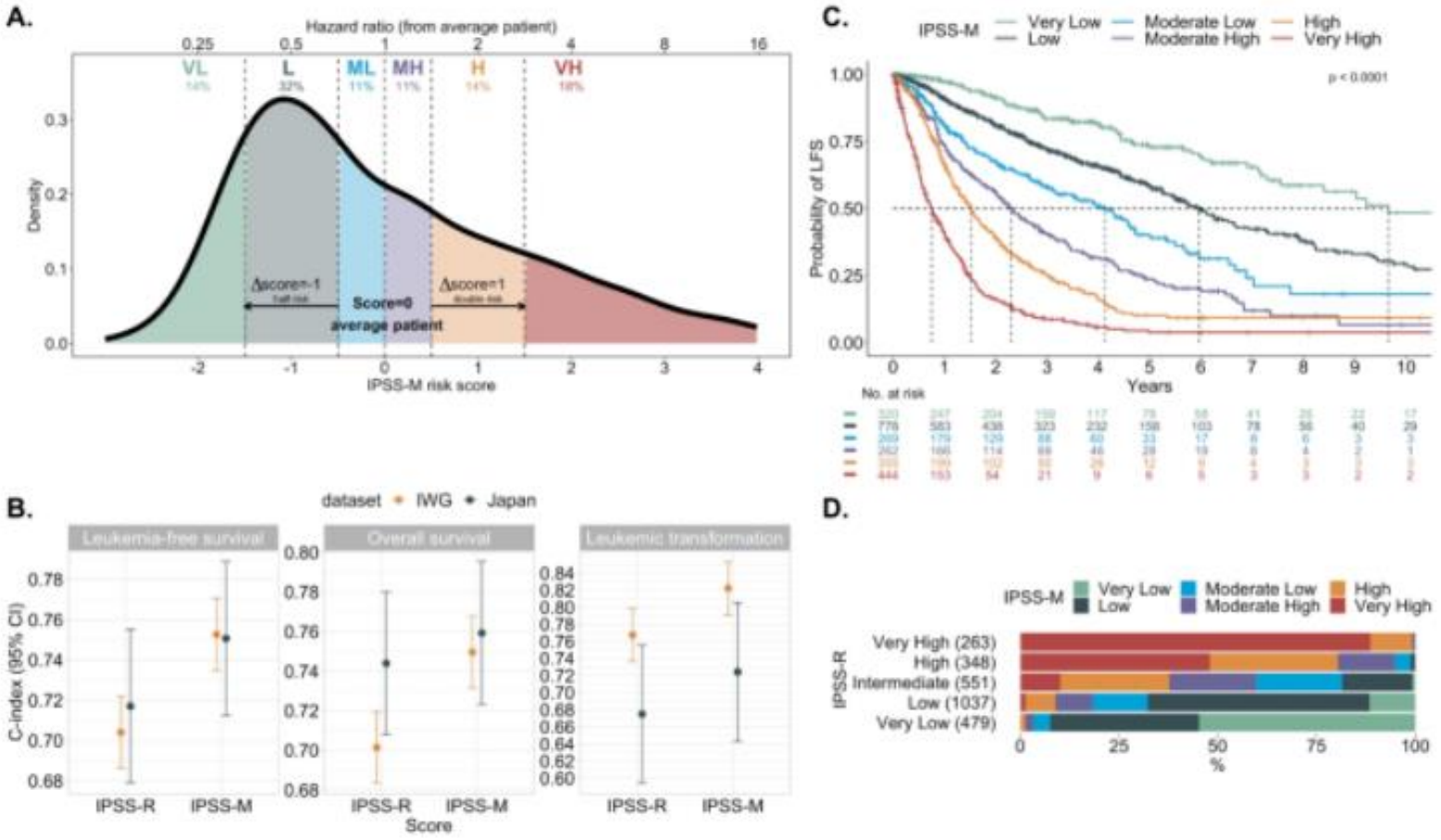
Molecular IPSS



Bernard et al., ASH 2021

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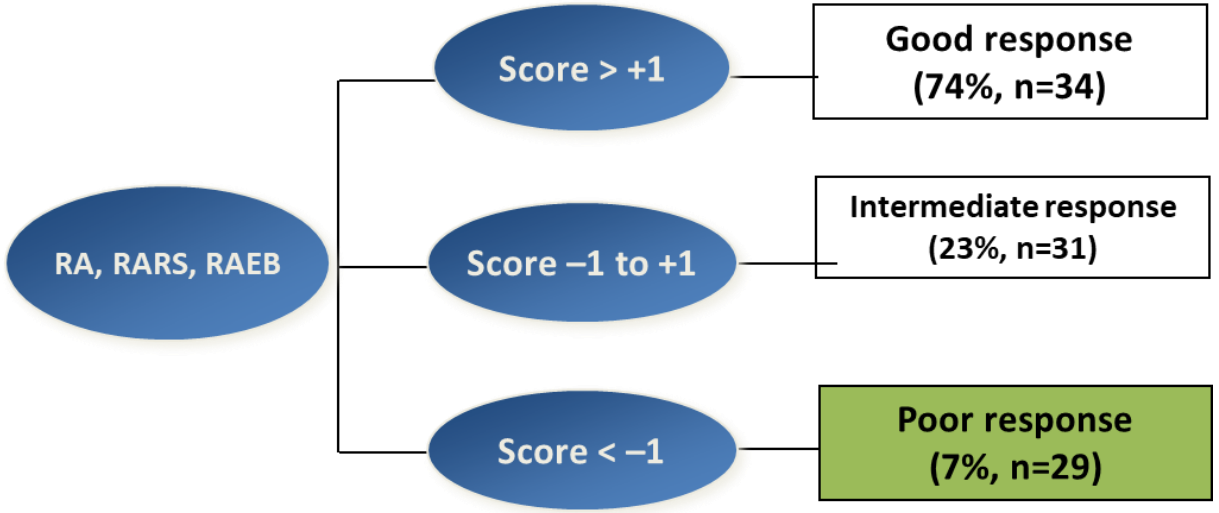
When would you give erythropoiesis-stimulating agents (ESAs)?



Treatment response score

Epo level	<100	+2
U/L	100–500	+1
	>500	–3
Transfusion	<2 units/m	+2
U RBC/month	= or >2 units/m	–2

Hellström-Lindberg E et al. Br J Haematol. 2003;120:1037

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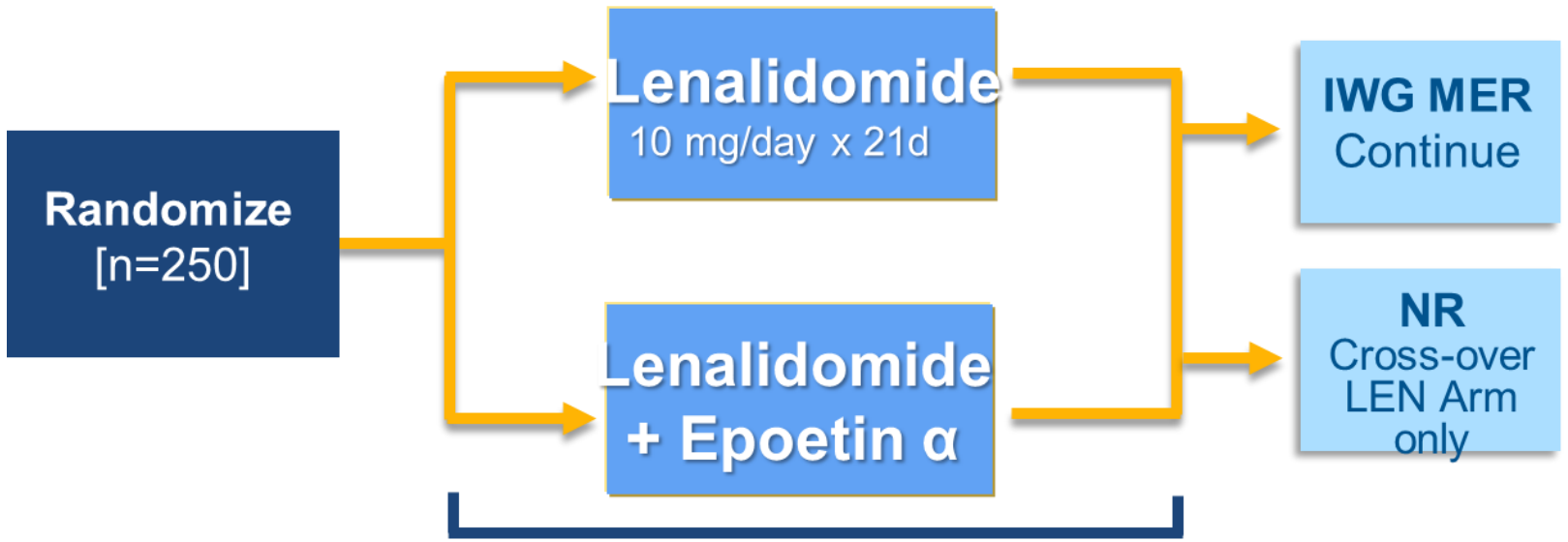
Len +/- EPO after ESA Failure (ECOG 2905)



- Eligibility: Low/Int-1 IPSS, ESA failure or low response profile, Hgb <9.5 g/dL
- Major Erythroid Response (28.3% vs 12.5%); Duration of MER was 24 months vs 13 months

List A et al., JCO 2021

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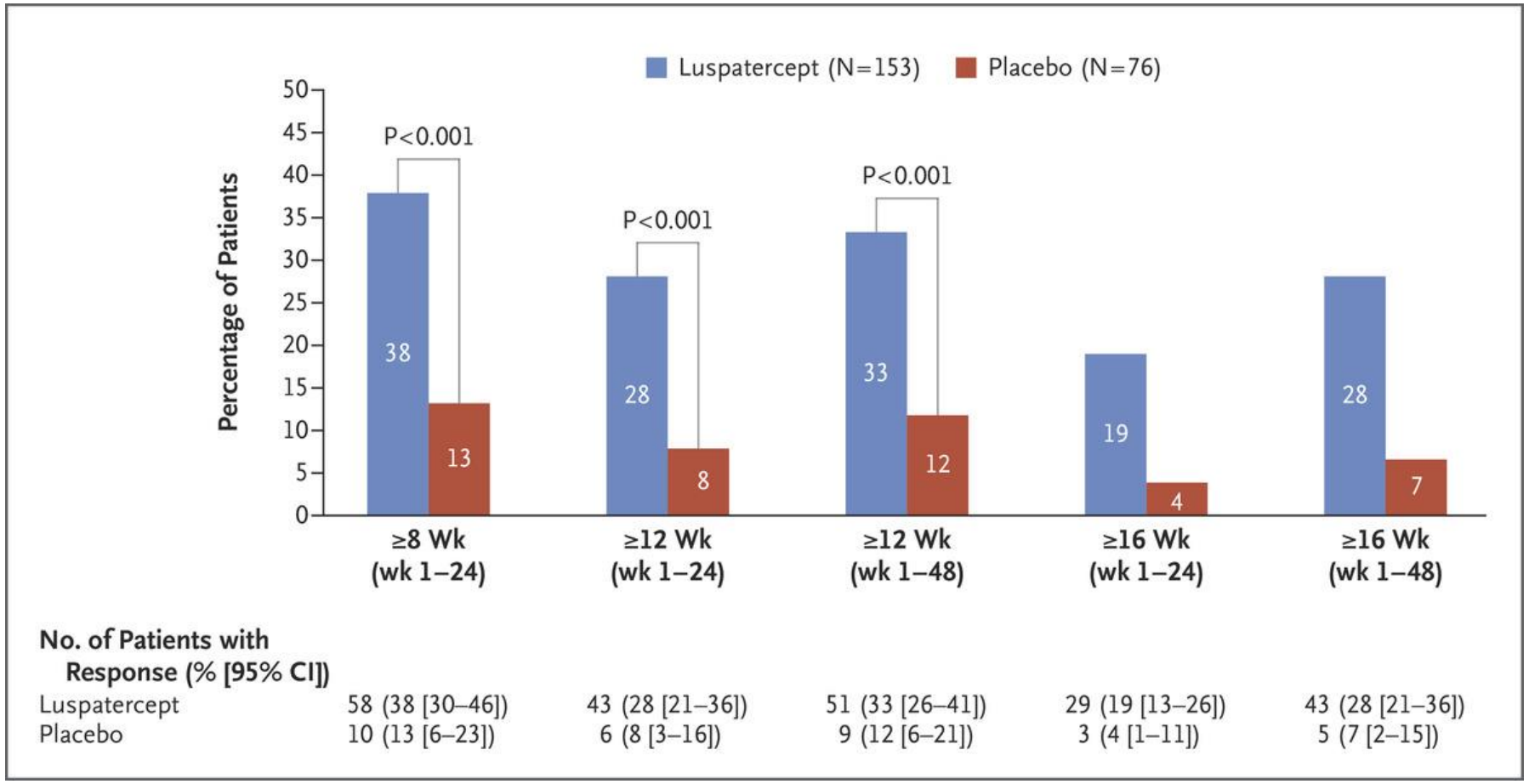
Luspatercept in ESA Failure MDS-RS



No. of Patients with Response (% [95% CI])	≥8 Wk (wk 1–24)	≥12 Wk (wk 1–24)	≥12 Wk (wk 1–48)	≥16 Wk (wk 1–24)	≥16 Wk (wk 1–48)
Luspatercept	58 (38 [30–46])	43 (28 [21–36])	51 (33 [26–41])	29 (19 [13–26])	43 (28 [21–36])
Placebo	10 (13 [6–23])	6 (8 [3–16])	9 (12 [6–21])	3 (4 [1–11])	5 (7 [2–15])

P Fenaux et al. N Engl JMed 2020;382:140-151.

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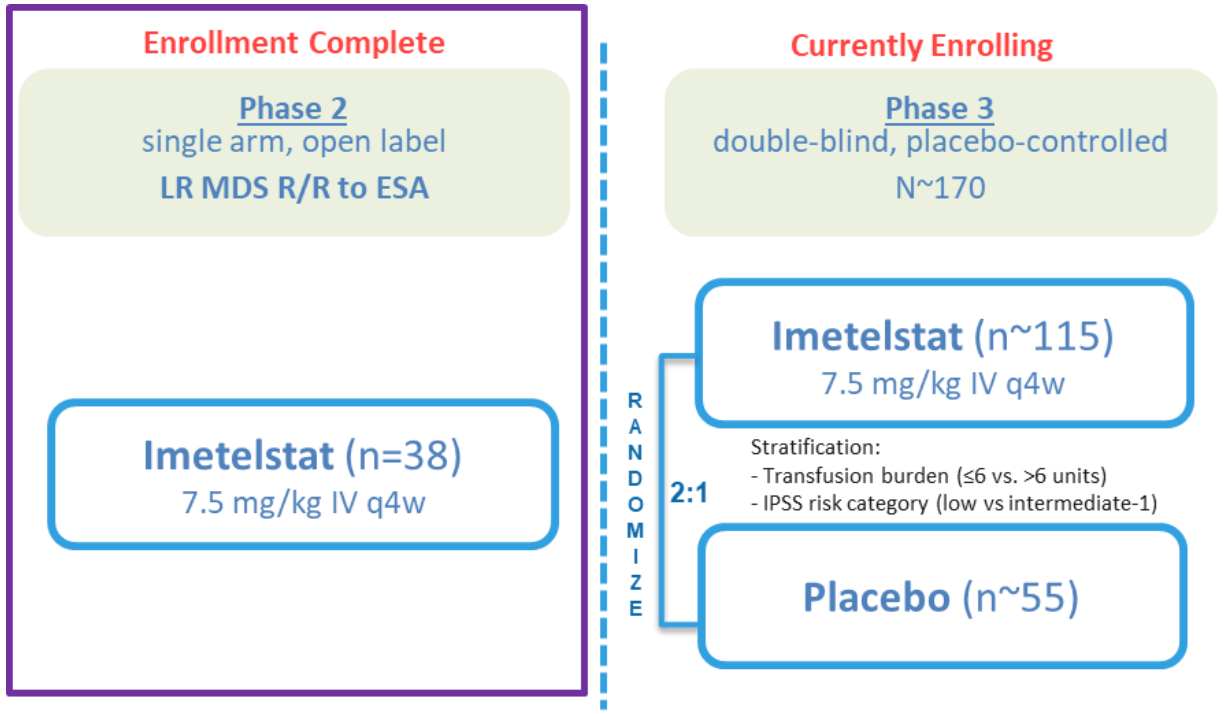
Imetelstat Phase 2/3 in Lower risk MDS



- Similar population as Medalist, any IPSS low or int-1; HMA/Len Naïve
- Primary endpoint 8 week TI; secondary 24 week TI
- Phase 2 with 42% TI and 29% maintained at 1 year. Cytopenias significant tox but reversible with holding drug

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Platzbecker et al, EHA 2020 Abstract code S183

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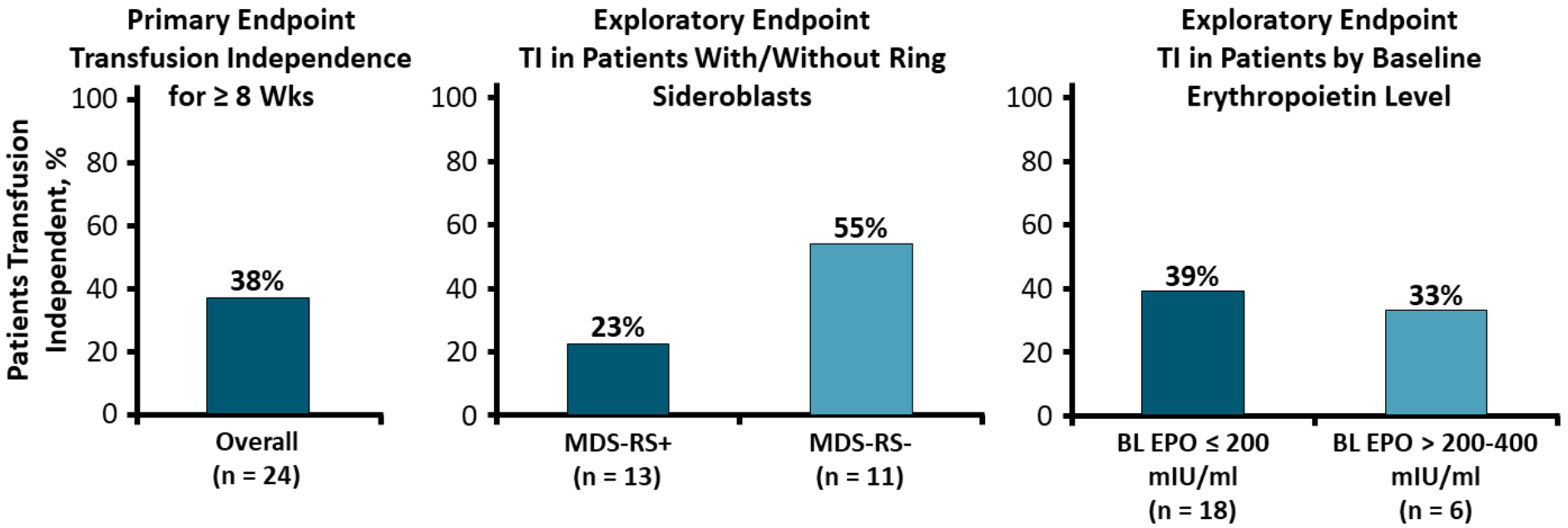
Roxadustat in LR MDS



- 78% (7/9) who achieved transfusion independence were receiving roxadustat 2.5 mg/kg
- During first 8 weeks of fixed-dose treatment, transfusion independence achieved by 25% of patients receiving roxadustat 1.5 mg/kg and 50% of patients receiving roxadustat 2.0 mg/kg
- P3 (NCT#) is ongoing with primary endpoint of TI at 8 weeks; ESA failure low-int by IPSS-R, exclude EPO > 400 for blinded part

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Henry, ASH 2020. Abstr 1277.

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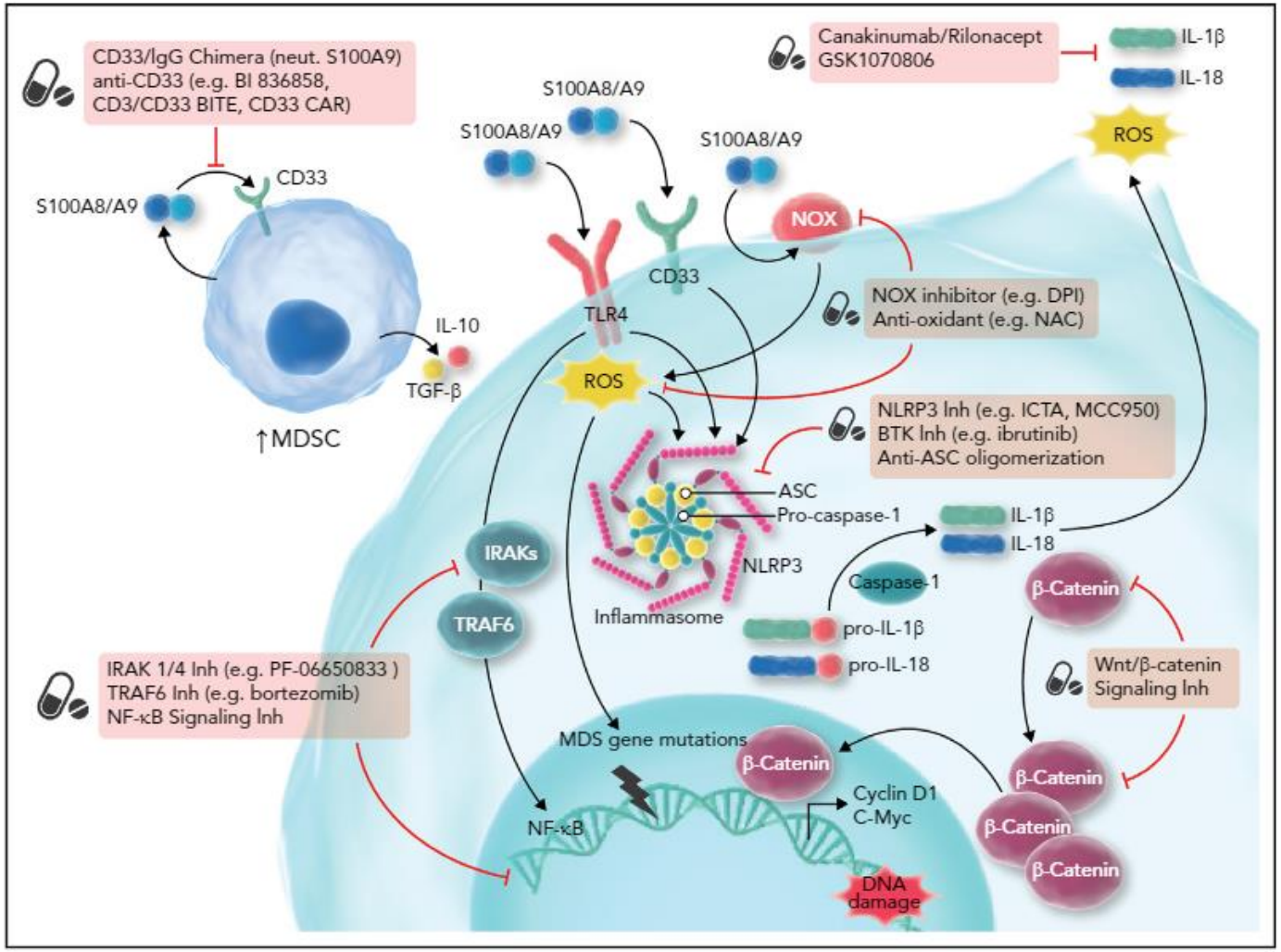
Myelodysplastic Syndrome Inflammasome Targets Under Investigation



Sallman D and List A, et al. Blood. 2019;133(10);1039-48.

JSP191 is an investigative drug
and is not approved for any indication

Predictors of Response to Len + EPO

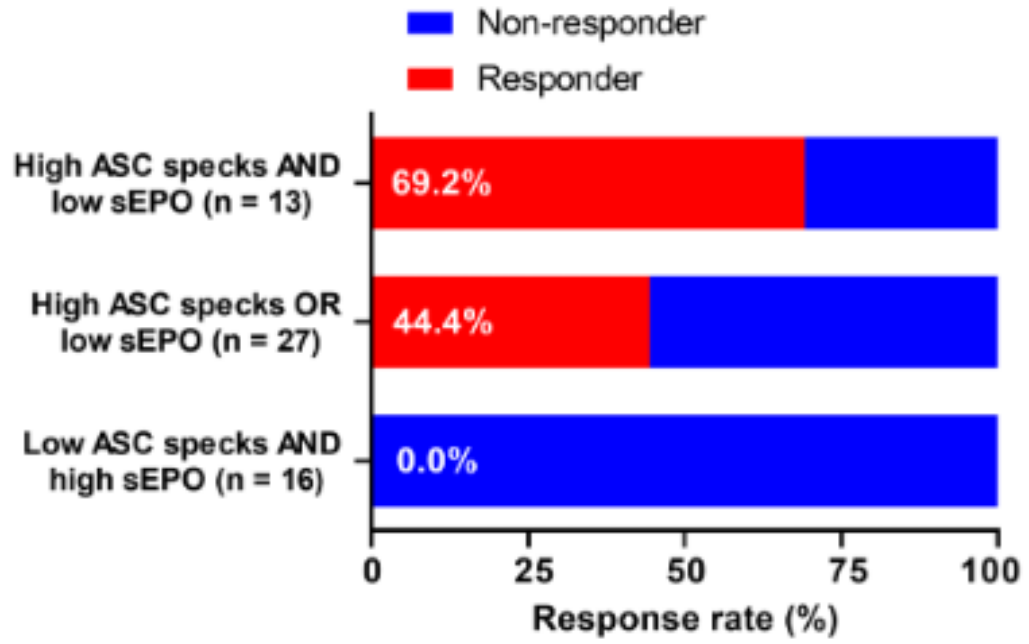


Figure 1. Erythroid response stratified by status of biomarkers. ASC: apoptosis-associated speck-like protein containing a CARD; sEPO, serum erythropoietin.

Wang C and Sallman D, Haematologica 2022

JSP191 is an investigative drug and is not approved for any indication

Q&A

Appendix

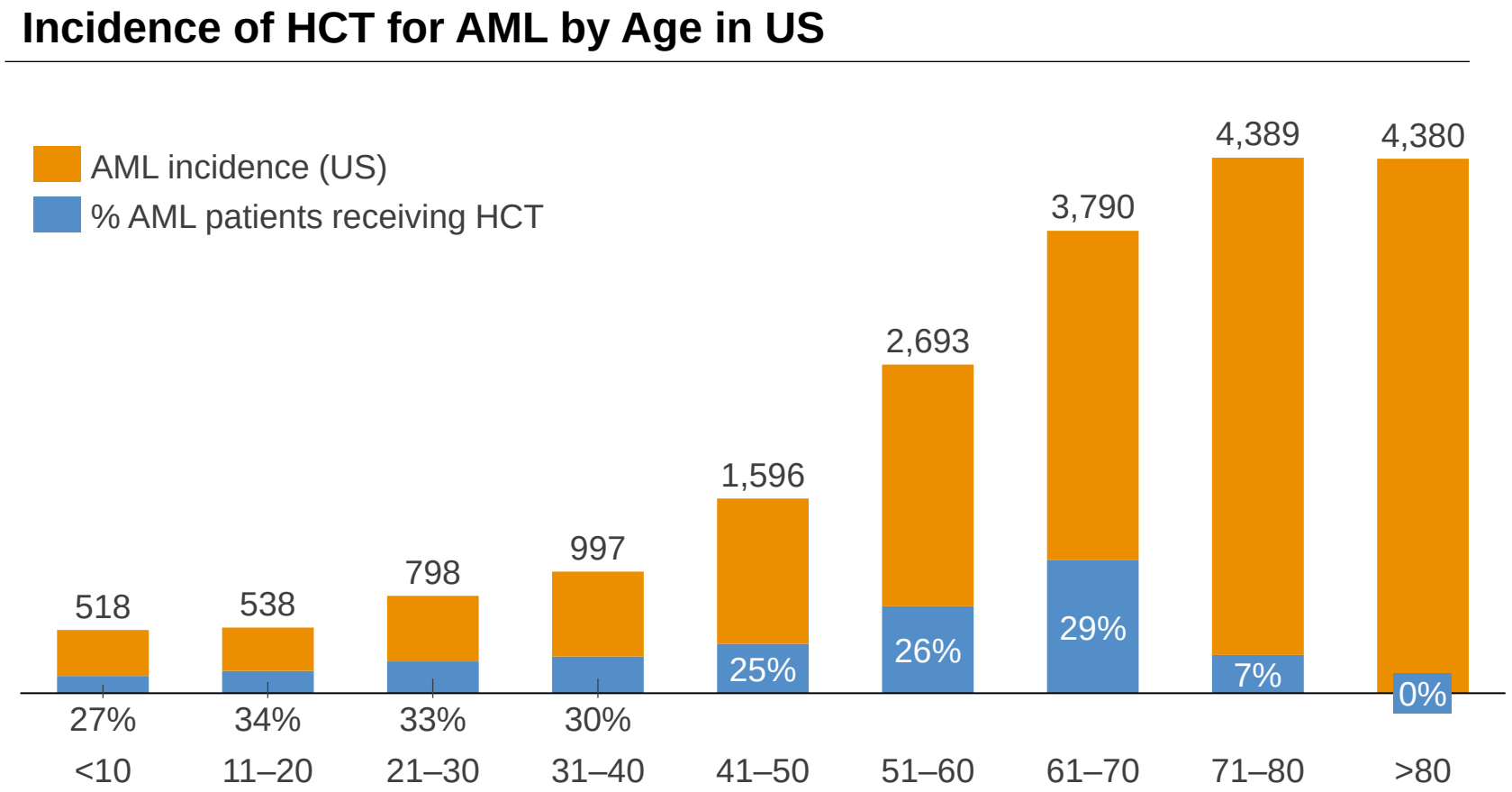
Outcomes & GvHD reported to date

	All Patients (N = 24)	Patients with AML (N=11)*	Patients with MDS (N = 13)
Median follow up (range) - months	6 (3-12)	6 (3-12)	3 (3-12)
Patients with event			
Death	3	2	1
Morphologic Relapse	4	3	1
Primary graft failure	0	0	0
Secondary graft failure	1	0	1
Transplant-related mortality			
GVHD	1[#]	1[#]	0
Organ toxicity	0	0	0
Infection	1[#]	1[#]	0

*Patients with de novo AML (N = 8) & AML from MDS (N = 3)
[#] Same patient

- 1 case of grade 2 acute GI-GVHD (resolved); 1 case of grade 2 acute skin GVHD (resolved)
- No classical grade 3-4 acute GVHD reported to date; 1 case of late onset grade 3-4 acute GI GVHD reported to date
- Insufficient median follow up to draw conclusions regarding chronic GVHD

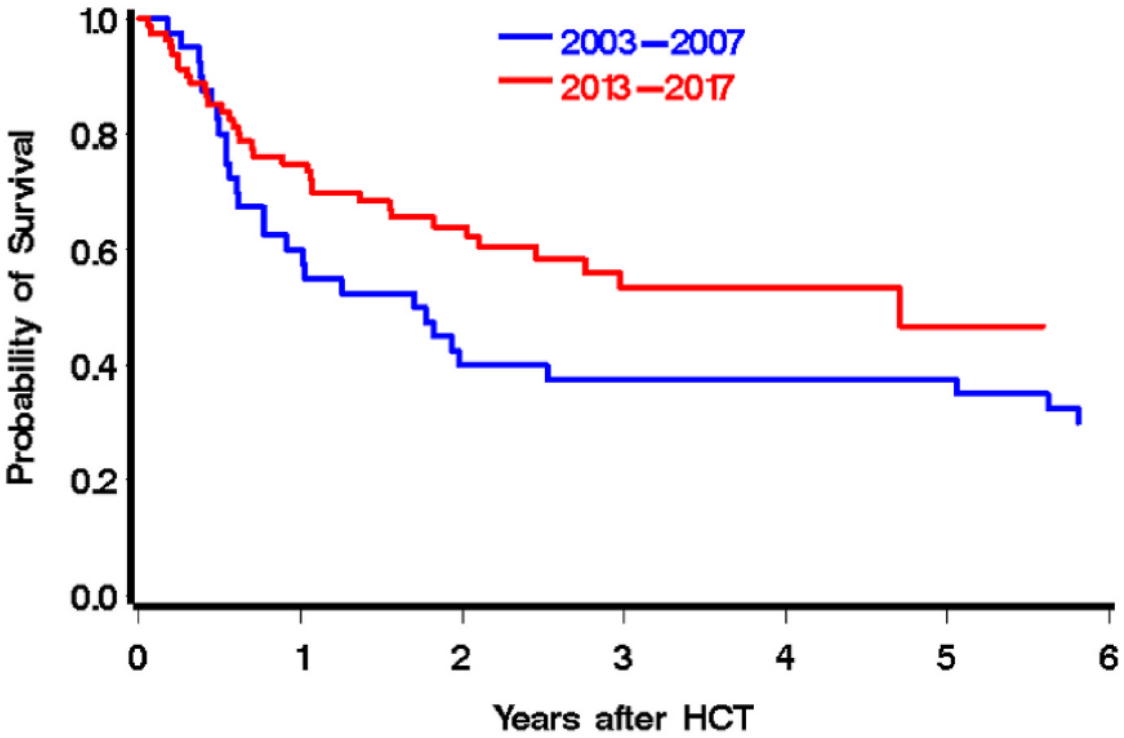
Older patients represent the majority of patients diagnosed with AML yet often cannot access transplant due to the toxicity of current regimens



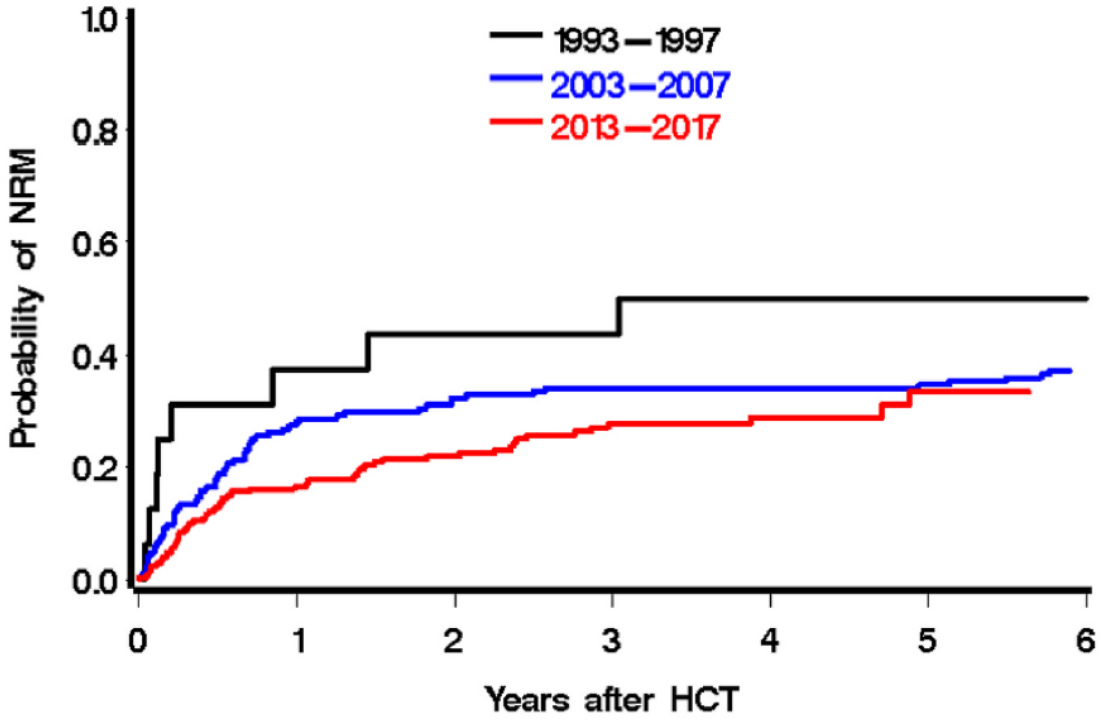
Frederick R. Appelbaum, Best Practice & Research Clinical Haematology, https://doi.org/10.1016/j.beha.2021.101320

JSP191 is an investigative drug and is not approved for any indication

Survival outcomes following allo-HCT for AML patients over age 60



Overall survival (OS) at 1y: 75%
Overall survival (OS) at 4y: 57%



Non-relapse mortality (NRM) at 1y: 16%

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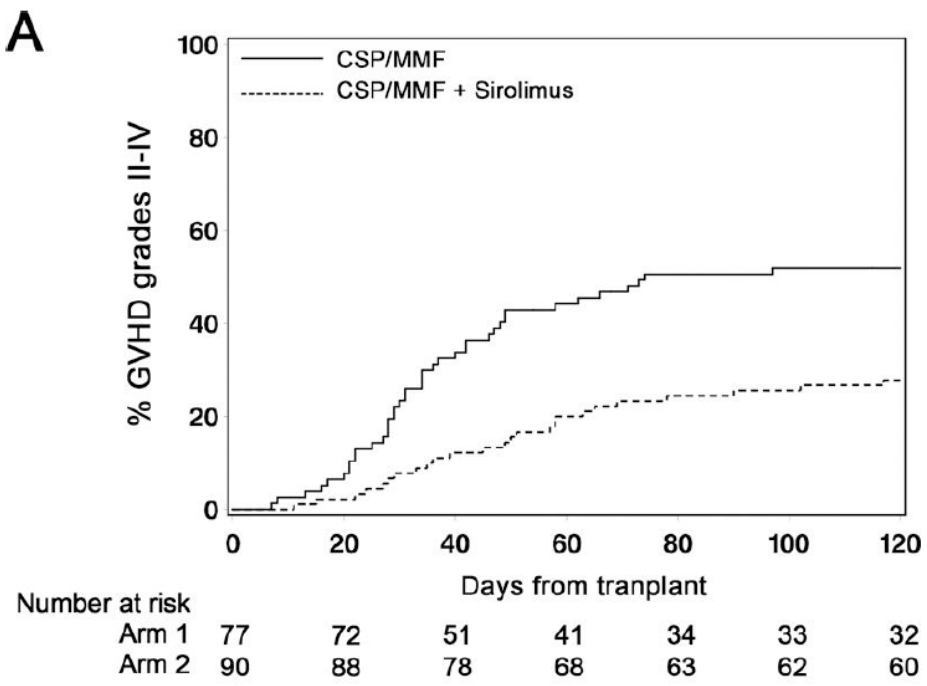
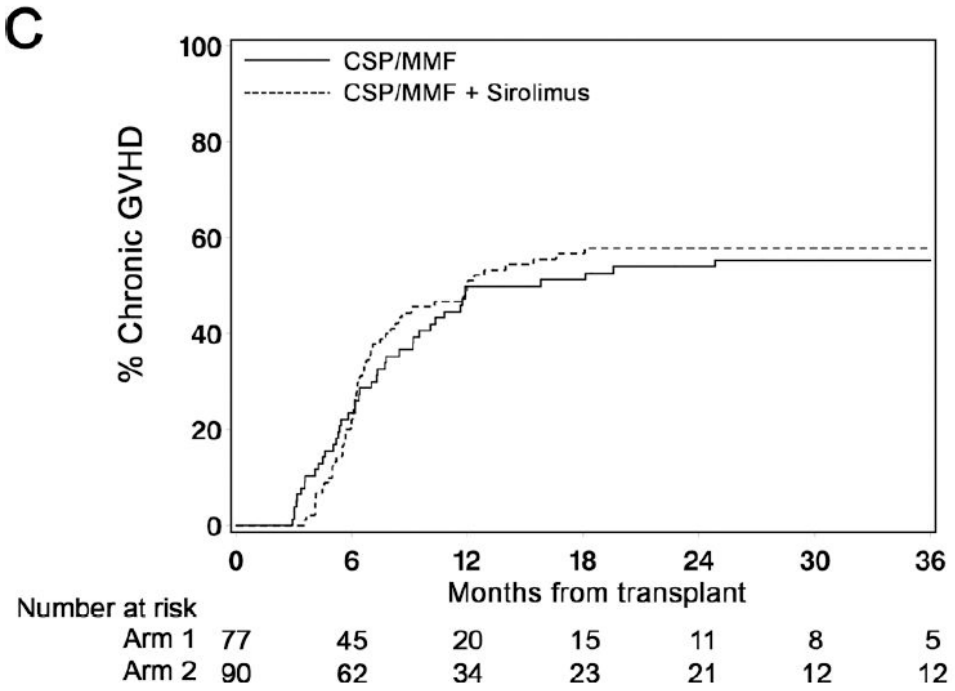
Frederick R. Appelbaum, Best Practice & Research Clinical Haematology, https://doi.org/10.1016/j.beha.2021.101320

JSP191 is an investigative drug and is not approved for any indication

Risk of GVHD following allo-HCT for hematologic malignancy



Acute GVHD at 100d: 26-52%



Chronic GHVD at 1y: 49-50%

Sandmaier BM, Kornblit B, Storer BE, et al. Addition of sirolimus to standard cyclosporine plus mycophenolate mofetil-based graft-versus-host disease prophylaxis for patients after unrelated non-myeloablative haemopoietic stem cell transplantation: a multicentre, randomised, phase 3 trial. Lancet Haematol. 2019;6(8):e409-e418.

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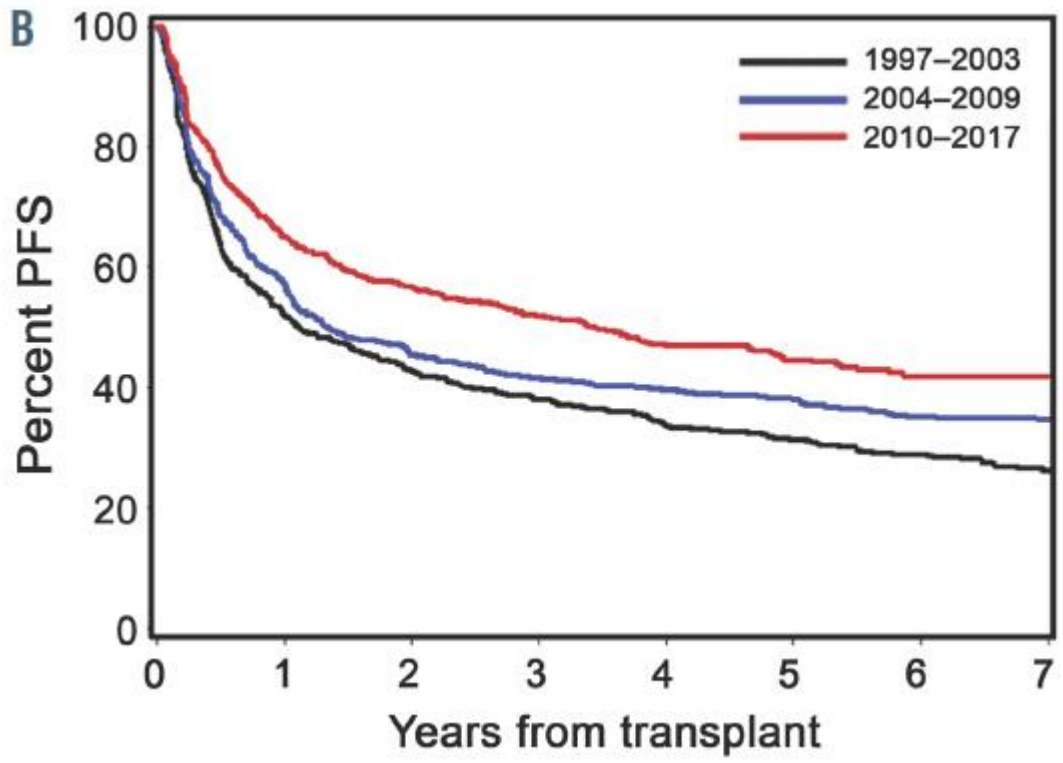
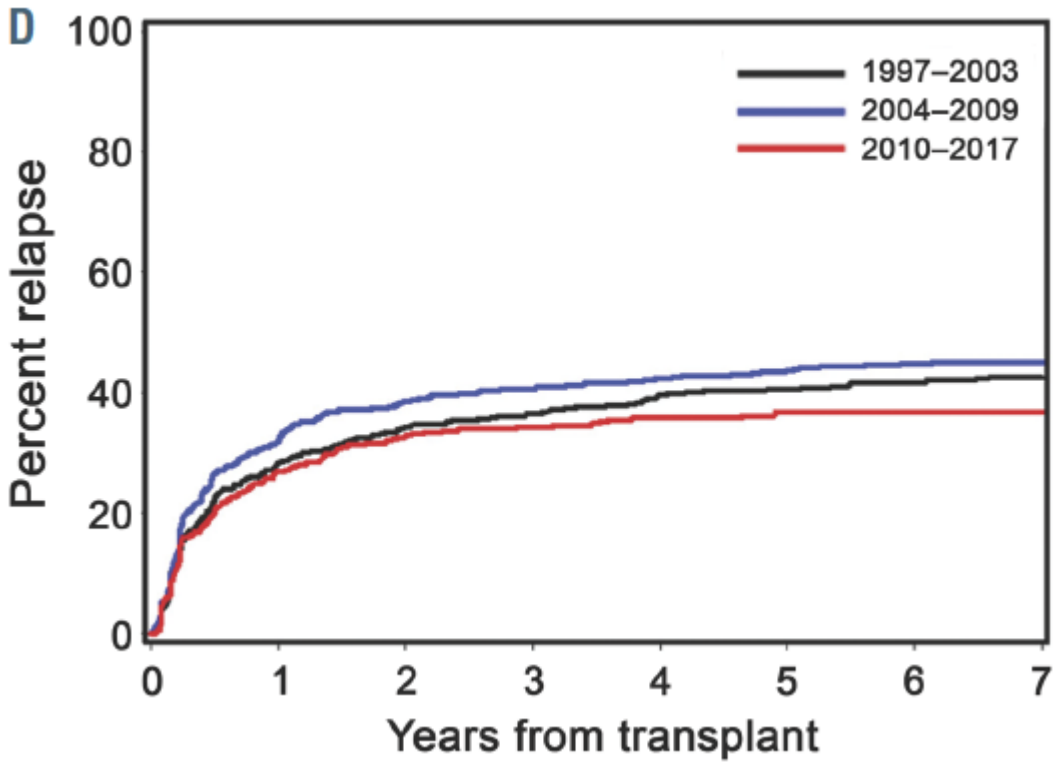
PFS and risk of relapse following allo-HCT for hematologic malignancy



Progression-free survival (PFS) at 1y: 65%



Risk of relapse at 1y: 25%

Cooper JP, Storer BE, Granot N, et al. Allogeneic hematopoietic cell transplantation with non-myeloablative conditioning for patients with hematologic malignancies: Improved outcomes over two decades. Haematologica. 2021;106(6):1599-1607.

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