Needham Healthcare Conference

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Chairman and Chief Executive Officer, Geron Corporation

April 9, 2019

Forward-Looking Statements

Except for statements of historical fact, the statements contained in this presentation are forward-looking statements made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. These include, without limitation, statements regarding the expectations, plans, timelines and prospects for imetelstat and Geron, including without limitation: (i) that the imetelstat IND transfers from Janssen to Geron by the end of the second quarter of 2019; (ii) that IMbark and IMerge will continue; (iii) Geron's plan to open the Phase 3 portion of IMerge for screening and enrollment by mid-year 2019; (iv) that Geron will outline a decision regarding late-stage development in myelofibrosis by the end of the third quarter 2019; (v) that imetelstat for MDS would be prescribed before or in lieu of lenalidomide, hypomethylating agents and/or luspatercept; (vi) financial or operating projections or requirements of Geron; and (vii) other statements that are not historical facts, constitute forward-looking statements. These statements involve risks and uncertainties that can cause actual results to differ materially from those in such forward-looking statements. These risks and uncertainties, include, without limitation: (i) whether contingencies delay or prevent the Phase 3 portion of IMerge from opening for screening and enrollment by mid-year 2019; (ii) whether regulatory authorities permit the further development of imetelstat for MF or MDS on a timely basis, or at all; (iii) whether there is a delay in Geron's decision regarding further development of imetelstat for MF; (iv) whether any circumstances arise that prevent a timely transition of the IND and imetelstat program from Janssen; (v) whether Geron's patents protect the commercial opportunity of imetelstat; (vi) whether imetelstat's benefit-risk profile for MDS is better than lenalidomide, hypomethylating agents and/or luspatercept; and (vii) whether Geron can obtain sufficient funding to support further development of imetelstat. Additional information and factors that could cause actual results to differ materially from those in the forward-looking statements are contained in Geron's periodic reports filed with the Securities and Exchange Commission under the heading "Risk Factors," including Geron's annual report on Form 10-K for the year ended December 31, 2018. Undue reliance should not be placed on forward-looking statements, which speak only as of the date they are made, and the facts and assumptions underlying the forward-looking statements may change. Except as required by law, Geron disclaims any obligation to update these forward-looking statements to reflect future information, events or circumstances.

Company Highlights

Novel Drug, Unique Target

- 100% global rights to imetelstat
- Imetelstat is a first-in-class telomerase inhibitor focused on hematologic myeloid malignancies

Late-Stage Clinical Development

- Planning to open Phase 3 for screening and enrollment by mid-year 2019 in lower risk myelodysplastic syndromes (MDS)
- Additional potential indication in myelofibrosis (MF) patients who are relapsed or refractory to JAK inhibitor (JAKi) therapy; late-stage development decision expected end of third quarter 2019

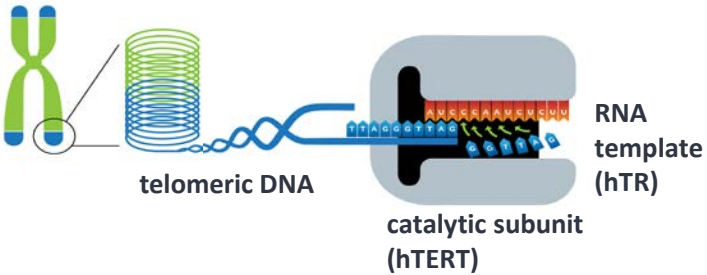
Resources Supporting Development Plans

- Building robust development team with hematology-oncology expertise to maximize imetelstat's potential value and support other assets in the future
- Sufficient cash (~$182M as of 12/31/18) to move imetelstat forward into Phase 3

Telomerase
A novel molecular target in oncology

Telomerase enzyme

- Comprised of an RNA template component (hTR) and a reverse transcriptase catalytic protein subunit (hTERT)
- In 2009, three Geron collaborators won the Nobel Prize for Medicine for discovery of telomerase and its relationship with telomeres



Malignant Progenitor Cells

Telomerase **highly upregulated**, in over 90% of cancers, enabling continued and uncontrolled proliferation

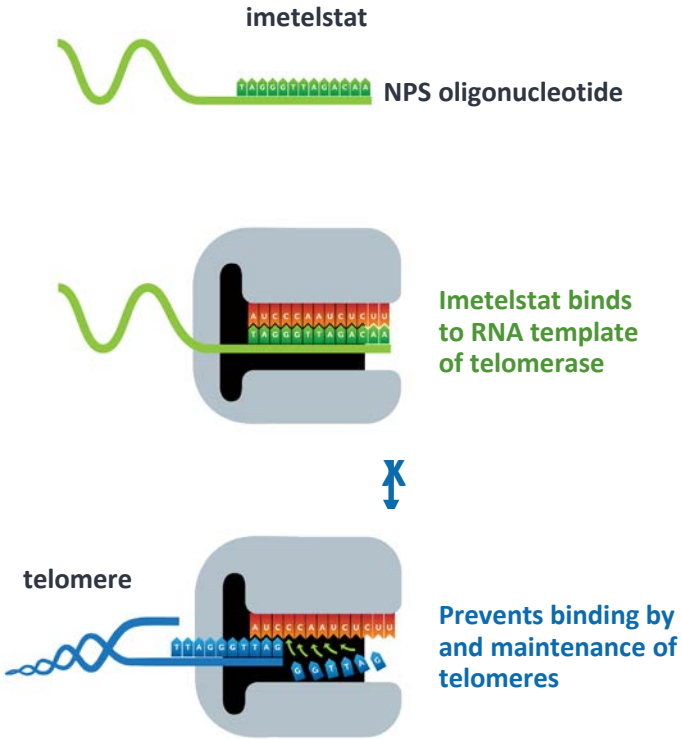
Normal Progenitor Cells

Telomerase **transiently upregulated** to support controlled proliferation

Somatic Cells

Telomerase inactive

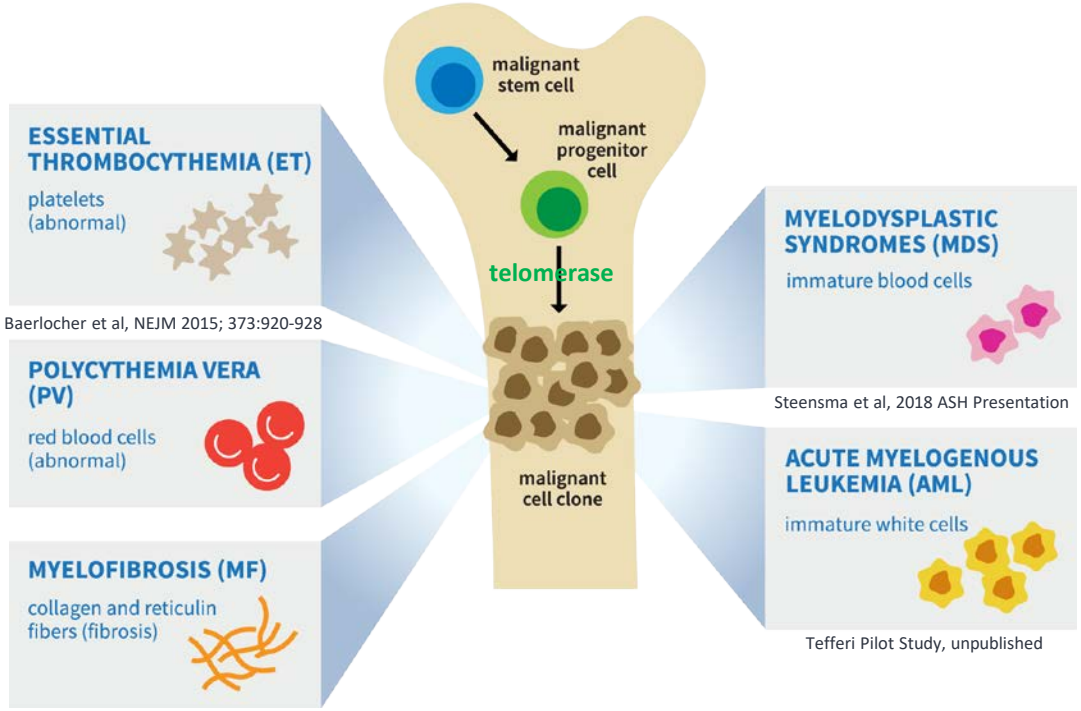
Imetelstat
A first-in-class telomerase inhibitor



- **Target:** malignant progenitor cell clonal proliferation
- **Structure:** 13-mer thio-phosphoramidate (NPS) oligonucleotide complementary to hTR, with covalently-bound lipid tail to increase cell permeability/tissue distribution
- **Long tissue residence time** in bone marrow, spleen, liver
- **Potent competitive inhibitor of telomerase**
- **Clinical experience:** more than 600 patients treated in Phase 1 and 2 trials

Hematologic Myeloid Malignancies

Arise from malignant progenitor cells in the bone marrow



Baerlocher et al, NEJM 2015; 373:920-928

Tefferi et al, NEJM 2015; 373:908-919

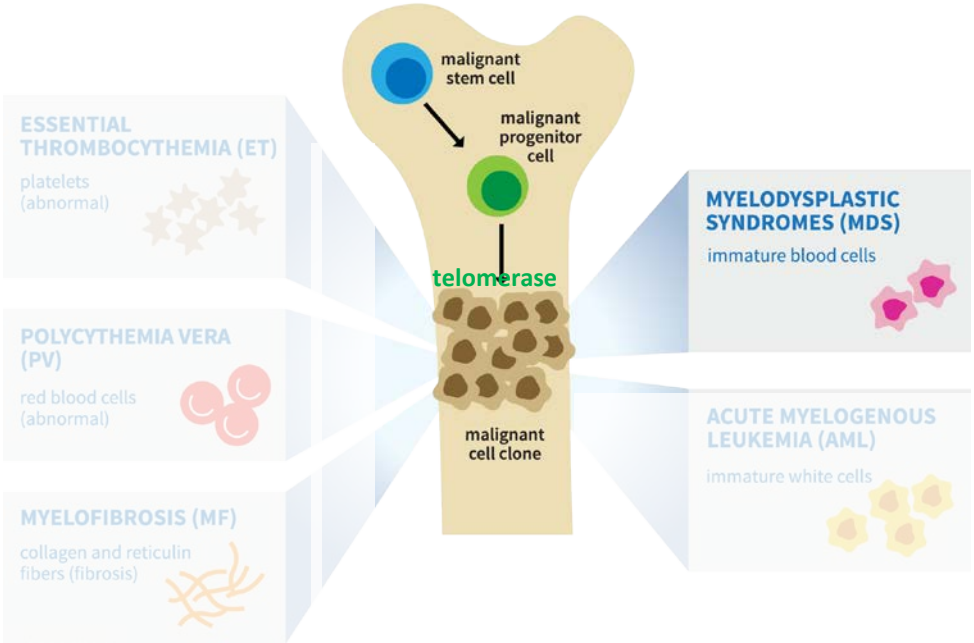
Steensma et al, 2018 ASH Presentation

Tefferi Pilot Study, unpublished

- **Higher telomerase activity expressed compared to normal cells**
- **Inhibiting telomerase limits proliferative capacity of malignant cells, particularly progenitor cells**
- **Clinical evidence of potential disease-modifying activity**
  - Activity within multiple outcome measures suggest clinical benefit

Myelodysplastic Syndromes

Myelodysplastic Syndromes (MDS)
Disease characteristics



- MDS is a **diverse group of clonal hematologic malignancies**
- **Comprised of numerous subtypes,** including refractory anemia with ring-sideroblasts (RARS) and refractory cytopenia with multi-lineage dysplasia-RS (RCMD-RS)
- RS+ MDS associated with lower risk of AML transformation and better survival than RS- patients
- Median age at diagnosis is 70
- Up to **30%** of patients progress to acute myeloid leukemia (AML)

Lower Risk MDS

- Median overall survival is 3.5-5.7 years
- **Chronic anemia** is the predominant clinical problem with many patients dependent on red blood cell (RBC) transfusions due to low hemoglobin
- **Transfusion dependency** is associated with iron overload, and **shorter survival** - **2 units of RBC monthly may reduce life expectancy by 50%** and **increase risk of progression to AML**
- Annual transfusions for transfusion dependent patients cost $29,000-$51,000 per year

Sekeres, Natl Compr Canc Netw 2011; 9:57-63
Greenberg et al, Blood 1997; 89:2079-2088
Lucioni, Am J Blood Res 2013, 3(3):246-259
Bejar & Steensma, Blood 2014; 124:2793-2803
Malcovati et al, JCO 2007; 25:3503-3510
www.cancer.org/cancer/myelodysplastic-syndromes

MDS Patient Population in the U.S.

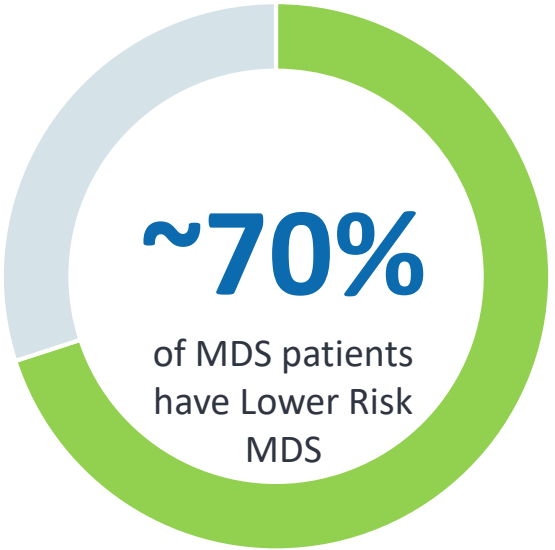
Addressing a large unmet need

60,000

MDS patients in the U.S.

16,000

Cases diagnosed annually in the U.S.



U.S. revenue potential for imetelstat in lower risk MDS could exceed $500M

Cogle, Curr Hematol Malig Rep; 2015, 10272-10281
Greenberg et al, Blood 1997; 89:2079-2088
Geron Proprietary Market Research

Treatment Landscape for Lower Risk MDS

No new therapies approved since 2006

Erythropoiesis Stimulating Agents (ESAs)

- Improvement in anemia in ~50% of patients
- Median treatment duration: ~2 years

Patients refractory to ESAs become dependent on red blood cell transfusions

Lenalidomide

Not approved in U.S. or Europe for non-del(5q) patients

- ≥8-week RBC-TI: 27%

Hypomethylating Agents (HMAs)

Approved in U.S. for all patients, including del(5q) and non-del(5q)

Not approved in Europe

- ≥8-week RBC-TI: ~17%

Fenaux and Adès, Blood 2013; 121:4280-4286
Santini et al, J Clin Oncol 2016; 34:2988-2996
Tobiasson et al, BCJ 2014; 4: e189
RBC-TI, red blood cell-transfusion independence

Treatment Landscape for Lower Risk MDS

Sequencing imetelstat ahead of available therapies

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Imetelstat

≥8-week RBC-TI: 37%

target patient population: non-del(5q), lenalidomide and HMA naïve patients

Fenaux and Adès, Blood 2013; 121:4280-4286
Santini et al, J Clin Oncol 2016; 34:2988-2996
Tobiasson et al, BCJ 2014; 4: e189
ASH 2018 Presentation: Steensma D, et al

IMerge: 2-Part Phase 2/3 Trial

Part 1 – Phase 2 portion

IMerge
ClinicalTrials.gov
(NCT02598661)

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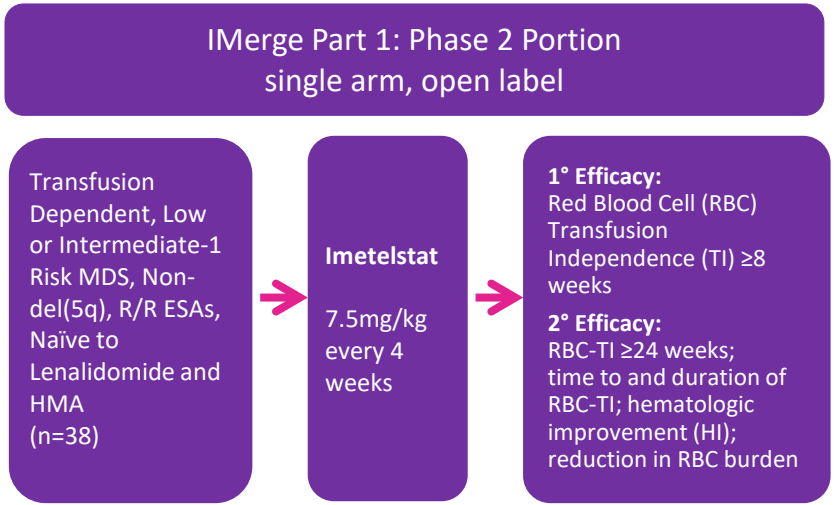

- **Transfusion dependent** is defined as an RBC transfusion requirement of ≥4 units over 8 weeks prior to trial entry
- **ESA R/R** following ≥8 weeks of weekly epoetin alfa 40,000 U or darbepoetin alfa 150 mcg (or equivalent) or serum erythropoietin (sEPO) >500 mU/mL
- Supportive care permitted in both arms: RBC transfusions, myeloid growth factors per investigator discretion as clinically needed and local guidelines

Clinical Trial Conduct and Status

- **Target patient population** defined: no del(5q) chromosomal abnormality or non-del(5q), naïve to lenalidomide or HMA treatment
- Starting dose confirmed
- Data for target patient population (n=38) reported in oral presentation at ASH in December 2018
- Treatment and follow-up continuing as per protocol
- More mature data expected at future medical conference in 2019
- Fast Track designation by FDA for treatment of lower risk MDS patients

IMerge Part 1
Results presented at ASH 2018

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ClinicalTrials.gov
(NCT02598661)

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Patient Baseline Characteristics (n=38)	
Median age (range), years	71.5 (46-83)
Male, n (%)	25 (66)
ECOG PS 0-1, n (%)	34 (89)
IPSS risk, n (%)	
Low	24 (63)
Intermediate-1	14 (37)
Baseline median (range) RBC transfusion burden, units/8 weeks	8 (4–14)
WHO 2001 category, n (%)	
RARS or RCMD-RS	27 (71)
All others	11 (29)
Prior ESA use, n (%)	34 (89)
sEPO > 500 mU/mL, n (%)	12[a] (32)

[a] Of the 37 patients with sEPO (serum erythropoietin) levels reported.

- Clinical cut-off: October 26, 2018
- Median follow up: 29.1 mos for initial 13-patient cohort; 8.7 mos for expanded 25-patient cohort
- Median number of treatment cycles: 8.0 (range: 1–34) cycles
- Mean dose intensity was 6.9 mg/kg/cycle

ASH 2018 Presentation: Steensma D, et.al.

IMerge Part 1
Efficacy results presented at ASH 2018

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Key Efficacy Outcomes	n=38
Rate of 8-week RBC-TI, n (%)	14 (37)
Rate of 24-week RBC-TI, n (%)	10 (26)
Median time to onset of RBC-TI (range), weeks	8.1 (0.1-33.1)
Median duration of RBC-TI (range), weeks	NE (17.0-NE)
Rate of transfusion reduction (HI-E), n (%)	27 (71)
Mean relative reduction of RBC transfusion burden from baseline, %	-68

Similar 8-wk RBC-TI rates observed across MDS subgroups:

- RARS/RCMD-RS (n=27): 37%
- Other (n=11): 36%
- EPO ≤ 500 mU/mL (n=25): 40%
- EPO > 500 mU/mL (n=12): 33%

Among the patients achieving durable TI, all showed a hemoglobin rise of ≥ 3.0 g/dL compared to baseline during the transfusion-free interval

- Geron believes these data indicate potential disease-modifying activity

EPO, erythropoietin; RARS, refractory anemia with ringed sideroblasts; RCMD-RS, refractory cytopenia with multilineage dysplasia and ringed sideroblasts; RS, ring sideroblast; TI, transfusion independence; NE, not evaluable.

ASH 2018 Presentation: Steensma D, et.al.

IMerge Part 1
Safety results presented at ASH 2018

IMerge
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(NCT02598661)

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Most Common Treatment-Emergent Adverse Events (TEAE)^	Patients ≥ 1 TEAE	
	Grade 1-2	Grade ≥ 3
Neutropenia	1	21
Thrombocytopenia	2	23
Anemia	2	7
Leukopenia	0	7
AST increased	3	3
ALT increased	5	2
Headache	5	1
Bronchitis	4	2
Nasopharyngitis	6	0
Diarrhea	6	0
Peripheral edema	6	0
Back pain	4	2

^: As reported by investigator

Occurrence and Reversibility of Cytopenias	All events* n=38	Recovered in < 4wks of patients with an event*
Neutrophils, n (%)		
Grade 3	10 (26)	8 (80)
Grade 4	12 (32)	12 (100)
Platelets, n (%)		
Grade 3	14 (37)	13 (93)
Grade 4	10 (26)	9 (90)

*: As reported by lab values

ASH 2018 Presentation: Steensma D, et.al.

Lower Risk MDS Trials

Targeting different disease burdened patient populations

IMerge Part 1 – Phase 2		MEDALIST* – Phase 3	
Imetelstat		**Luspatercept**	**Placebo**
38	**No. of patients**	153	76
Non-del(5q), lenalidomide/HMA naive	**Target patient population**	Non-del(5q), lenalidomide/HMA naïve	
RS+ and RS-	**MDS subtype** **Ring-sideroblasts (RS)**	RS+ only	
8 (4-14)	**Median baseline transfusion burden** **# units/8 weeks (range)**	5 (1-20) 29% < 4 units	
14 (36.8%)	**8-week RBC-TI rate, n (%)**	58 (37.9%)	10 (13.2%)
27 (71.1%)	**Rate of transfusion reduction (HI-E), n (%)**	81 (52.9%)	9 (11.8%)
10 (26.3%)	**24-week RBC-TI rate, n (%)**	Not assessed	
14/38 (36.8%)	**8-week RBC-TI rate, n (%)** **Baseline transfusion burden ≥4 units/8 weeks**	21/107 (19.6%)	2/56 (3.6%)

IMerge is focused on high transfusion burden patients and open to all MDS subtypes

ASH 2018 Presentation: Imetelstat Treatment Leads to Durable Transfusion Independence (TI) in RBC Transfusion-Dependent (TD), Non-Del(5q) Lower Risk MDS Relapsed/Refractory to Erythropoiesis-Stimulating Agent (ESA) Who Are Lenalidomide (LEN) and HMA Naïve; Steensma D, et.al.

* MEDALIST sponsor – Celgene/Acceleron. ASH 2018 Presentation: The Medalist Trial: Results of a Phase 3, Randomized, Double-Blind, Placebo-Controlled Study of Luspatercept to Treat Anemia in Patients with Very Low-, Low-, or Intermediate-Risk Myelodysplastic Syndromes (MDS) with Ring Sideroblasts (RS) Who Require Red Blood Cell (RBC) Transfusions

IMerge: Planned Phase 3 Trial in MDS

IMerge
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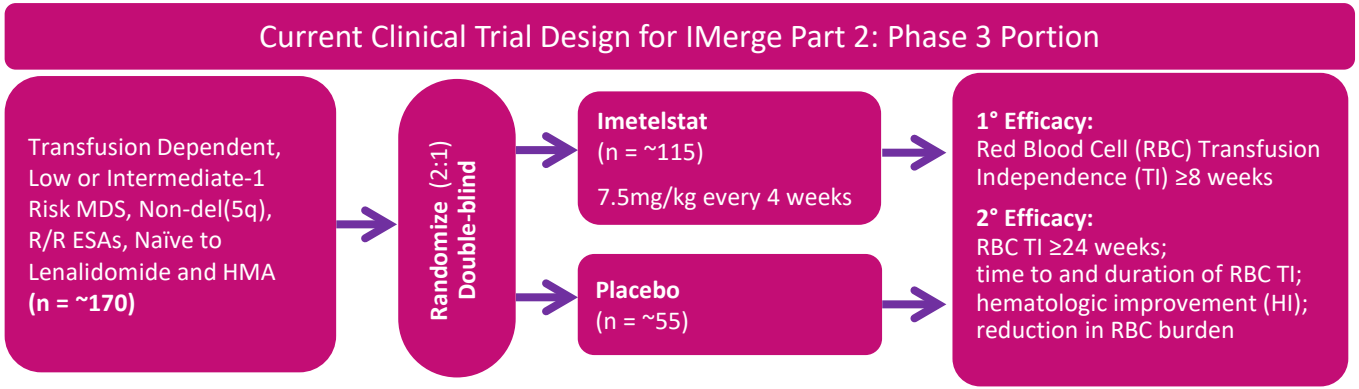
Data from Part 1 for target patient population support moving forward with Part 2
Patient screening and enrollment planned to begin mid-year 2019*



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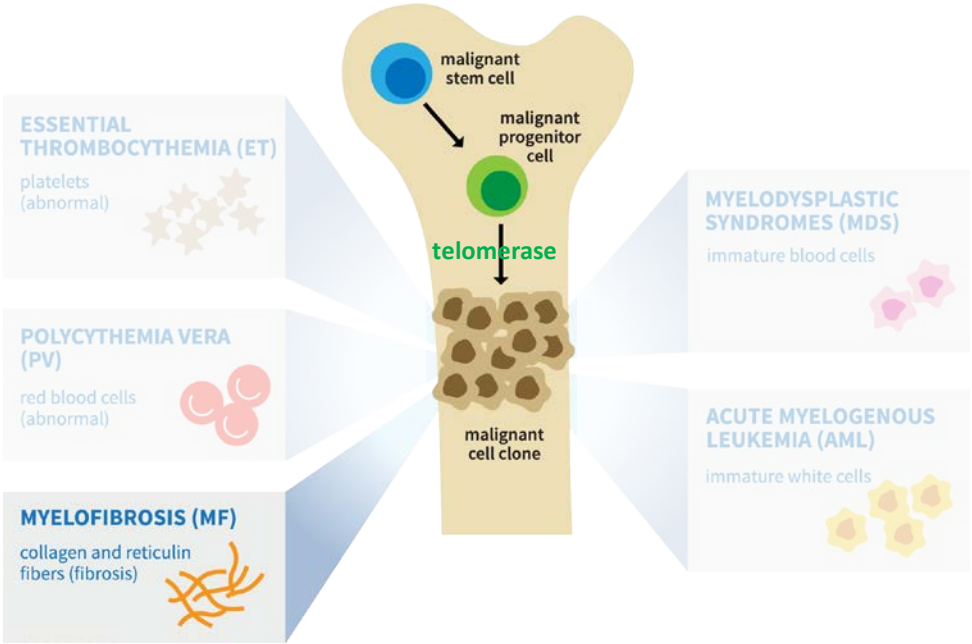
- **ESA R/R** following ≥8 weeks of weekly epoetin alfa 40,000 U or darbepoetin alfa 150 mcg (or equivalent) or serum erythropoietin (sEPO) >500 mU/mL
- Supportive care permitted in both arms: RBC transfusions, myeloid growth factors per investigator discretion as clinically needed and local guidelines

*Timing dependent upon transfer of imetelstat investigational new drug (IND) sponsorship from Janssen to Geron.

Myelofibrosis

Myelofibrosis (MF)
Disease characteristics

- **Malignant clonal proliferation** and atypical megakaryocytic hyperplasia leads to bone marrow fibrosis and impaired hematopoiesis
  - **Fibrosis** thought to be induced by inflammatory cytokines produced by megakaryocytes originating from the malignant progenitor cell clone
  - **Constitutional symptoms** (e.g., fever, weight loss, night sweats, pruritus) present in approximately 35% of patients also thought to be due to cytokines produced by malignant megakaryocytes
  - Impaired bone marrow hematopoiesis shifts blood production to spleen and liver (palpable **splenomegaly** in approximately 80% of patients)
- **Serious and life-threatening** illness
  - Leukemic transformation to AML (blast-phase MF)
  - Thrombohemorrhagic complications associated with dysfunctional hematopoiesis
  - Median survival: ~1-3 years for intermediate-2 or high-risk disease



Tefferi, JCO 2005; 23:8520-8530
Tefferi, Mayo Clin Proc 2012; 87:25-33
Gangat et al, JCO 2011; 29:392-397

MF Patient Population in the U.S.

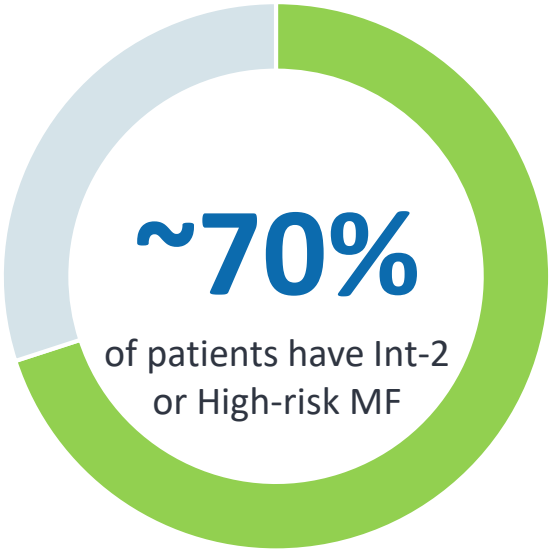
No approved drug for patients relapsed/refractory to ruxolitinib

13,000

MF patients in the U.S.

3,000

Cases diagnosed annually in the U.S.



U.S. revenue potential for imetelstat in Int-2 or High-risk MF, relapsed/refractory to JAKi could exceed $500M

Mehta et al, Leuk Lymphoma 2014; 55:595-600
Gangat et al, JCO 2011; 29:392-397
Geron Proprietary Market Research

Treatment Landscape for Int-2/High-Risk MF

Potential for meaningful survival in poor-prognosis patients

Ruxolitinib

- Primarily for symptoms or splenomegaly
- Oral JAK1/JAK2 inhibitor
- Only approved product for MF in U.S./Europe
- Stay on drug as long as tolerated
- Conventional drugs viewed as ineffective, especially in advanced disease

75%

5-year ruxolitinib discontinuation rate

Primary reasons:

- Suboptimal response
- Loss of therapeutic effect

After discontinuation of ruxolitinib

Median Overall Survival is ~14-16 months

Investigational Agent: imetelstat

IMbark Phase 2 Trial
Median Overall Survival of 29.9 months

Harrison et al, ASH 2015; Gupta et al, ASCO 2016
Kuykendall et al, Ann Hematol 2018; 97:435-441
ASH 2018 Presentation: Mascarenhas J, et al.

Newberry et al, Blood 2017; 130:1125-1131
Spiegel et al, Blood Advances 2017; 1:1729-1738

IMbark Phase 2 Trial

Rigorously defined relapsed/refractory MF patients

IMbark

ClincialTrials.gov
(NCT02426086)

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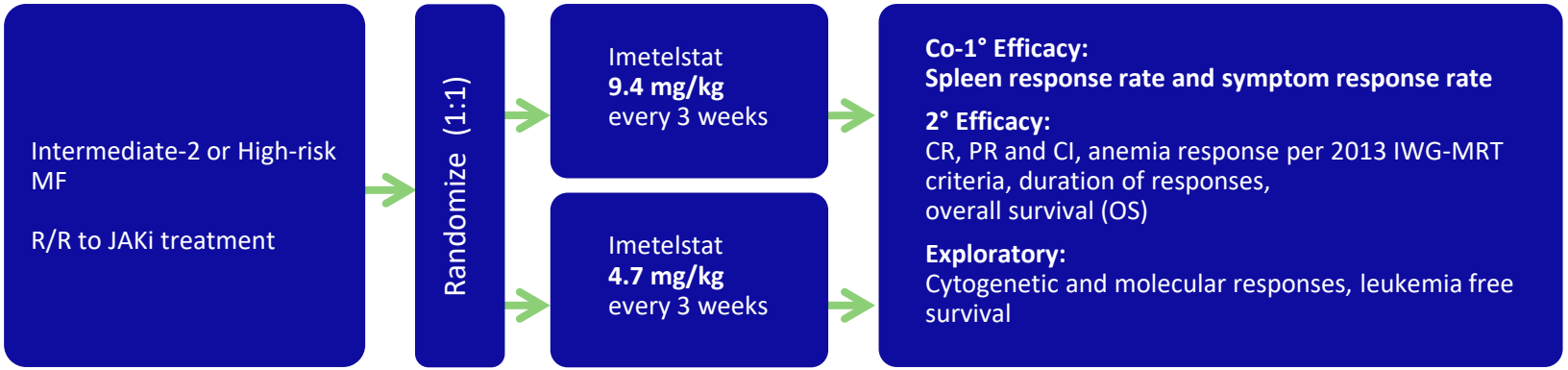
Trial Population:

- Patients with Intermediate-2 or High-risk MF
- Relapsed or refractory to JAKi defined as documented progressive disease during or after JAKi:
  - Patients must have worsening of splenomegaly-related abdominal pain at any time after the start of JAKi therapy and EITHER:
    - No reduction in spleen volume or size after 12 weeks of JAKi therapy, OR
    - Worsening splenomegaly* at any time after the start of JAKi therapy documented by:
      - Increase in spleen volume from nadir by 25% measured by MRI or CT, or
      - Increase in spleen size by palpation
- Active symptoms of MF
- Baseline measurable splenomegaly (palpable spleen ≥ 5 cm below LCM or ≥ 450 cm^3 by MRI)



* Adapted from IWG-MRT response criteria definition of progressive disease

ASH 2018 Presentation: Mascarenhas J, et al.

IMbark Results Presented at ASH 2018

Primary endpoints

IMbark
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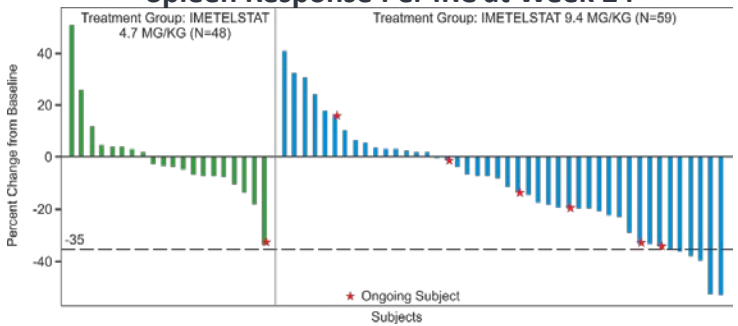
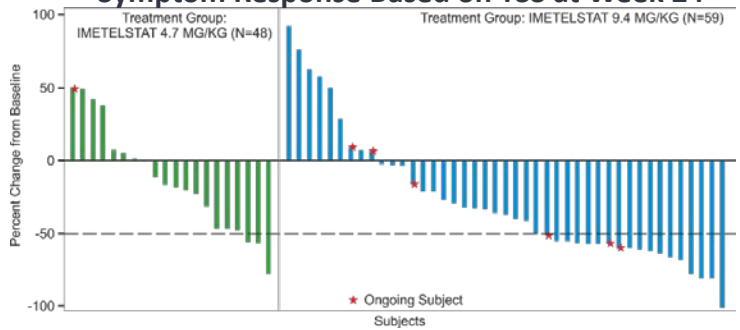
Spleen Response Per IRC at Week 24



	4.7 mg/kg (n=48)	9.4 mg/kg (n=59)
Spleen response, n (%)	0 (0)	6 (10)

Symptom Response Based on TSS at Week 24



	4.7 mg/kg (n=48)	9.4 mg/kg (n=59)
Symptom response, n (%)	3 (6)	19 (32)

Spleen response: proportion of patients who achieve a ≥35% reduction in spleen volume assessed by imaging at 24 weeks in comparison to baseline

Symptom response: proportion of patients who achieve a ≥50% reduction in Total Symptom Score at 24 weeks in comparison to baseline

Safety profile consistent with previous imetelstat clinical trials in hematologic myeloid malignancies

Clinical cutoff:

- Apr 26, 2018 – Primary analysis of efficacy and safety, with a median follow-up: 22.6 (0.2-27.4) mos
- 7 patients in active treatment
- 50 patients in follow up for survival data

Median treatment duration: 26.9 (0.1-118.1) weeks

- Median duration on treatment was 33.3 weeks on the 9.4 mg/kg arm and 23.9 weeks on the 4.7 mg/kg arm

ASH 2018 Presentation: Mascarenhas J, et al.

IMbark Results Presented at ASH 2018

Data suggest meaningful improvement in survival

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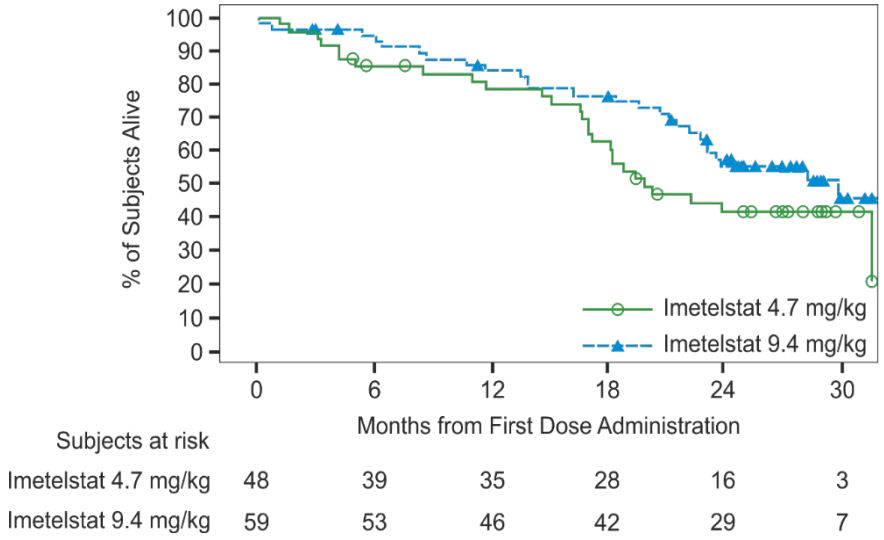

Subjects at risk						
Imetelstat 4.7 mg/kg	48	39	35	28	16	3
Imetelstat 9.4 mg/kg	59	53	46	42	29	7

Clinical cut-off (10/22/2018):

- Median follow-up: 27.4 (0.2-33.0) mos

Median survival:

- **19.9 months (95% CI, 17.1, NE) in 4.7 mg/kg**
- **29.9 months (95% CI, 22.8, NE) in 9.4 mg/kg**

Sensitivity analyses conducted indicate that the improvement in OS for the 9.4 mg/kg arm does not appear to be due to post-imetelstat interventions with JAK inhibitors or stem cell transplantation.

ASH 2018 Presentation: Mascarenhas J, et al.

Potential Late-Stage Development in MF

Next steps

IMbark

ClincialTrials.gov (NCT02426086)

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Encouraging data	Meaningful survival outcome in relapsed/refractory MF patients with median overall survival of 29.9 months
Considerations for decision	• Assessment of what would be required to achieve clinical and regulatory success • This includes cost and duration of any potential clinical trials
Next steps	• Conduct discussions with key opinion leaders • Initiate discussions with regulatory authorities once the IND has been transferred back to Geron
Timing	Outline decision by the end of the third quarter

Development Plans

2019 Development Plans

Complete transition of imetelstat development program

- ❑ Transfer IND sponsorship by the end of the second quarter (on track)
- ❑ Actively recruit hematology-oncology research and development expertise throughout 2019
  - ☑ Chief Medical Officer
  - ☑ Vice President, Pharmacovigilance and Safety
  - ❑ Senior Leadership in Regulatory Affairs, Manufacturing, Clinical Sciences/Operations, Clinical Development, Quality

MDS Development

- ❑ Commence screening and enrollment for Phase 3 portion of IMerge by mid-year
- ❑ Present more mature data from the Phase 2 portion of IMerge in 2019

Decision on MF Development

- ☑ Initiate discussions with MF KOLs in the first quarter
- ❑ Initiate discussions with regulatory authorities
- ❑ Outline decision regarding potential late-stage development by the end of the third quarter

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Thank you

If you have any questions, please contact us:
investor@geron.com