Topline Results Phase 3 MANIFEST-2 Study

Pelabresib in First-Line Myelofibrosis

November 2023

Gail, Living with Myelofibrosis since 2018

Forward-Looking Statements

This communication contains certain forward-looking statements concerning the MorphoSys group of companies, including the expectations regarding Monjuvi's ability to treat patients with relapsed or refractory diffuse large B-cell lymphoma ("DLBCL"), the further clinical development of tafasitamab, including ongoing confirmatory trials, additional interactions with regulatory authorities and expectations regarding future regulatory filings and possible additional approvals for tafasitamab as well as the commercial performance of Monjuvi. The words "anticipate", "believe", "estimate", "expect", "intend", "may", "plan", "predict", "project", "would", "could", "potential", "possible", "hope" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. The forward-looking statements contained herein represent the judgment of MorphoSys as of the date of this release and involve known and unknown risks and uncertainties, which might cause the actual results, financial condition and liquidity, performance or achievements of MorphoSys, or industry results, to be materially different from any historic or future results, financial conditions and liquidity, performance or achievements expressed or implied by such forward-looking statements. In addition, even if MorphoSys' results, performance, financial condition and liquidity, and the development of the industry in which it operates are consistent with such forward-looking statements, they may not be predictive of results or developments in future periods. Among the factors that may result in differences are MorphoSys' expectations regarding risks and uncertainties related to the impact of the COVID-19 pandemic to MorphoSys' business, operations, strategy, goals and anticipated milestones, including its ongoing and planned research activities, ability to conduct ongoing and planned clinical trials, clinical supply of current or future drug candidates, commercial supply of current or future approved products, and launching, marketing and selling current or future approved products, the global collaboration and license agreement for tafasitamab, the further clinical development of tafasitamab, including ongoing confirmatory trials, and MorphoSys' ability to obtain and maintain requisite regulatory approvals and to enroll patients in its planned clinical trials, additional interactions with regulatory authorities and expectations regarding future regulatory filings and possible additional approvals for tafasitamab as well as the commercial performance of Monjuvi, MorphoSys' reliance on collaborations with third parties, estimating the commercial potential of its development programs and other risks indicated in the risk factors included in MorphoSys' Annual Report on Form 20-F and other filings with the U.S. Securities and Exchange Commission. Given these uncertainties, the reader is advised not to place any undue reliance on such forward-looking statements. These forward-looking statements speak only as of the date of publication of this document. MorphoSys expressly disclaims any obligation to update any such forward-looking statements in this document to reflect any change in its expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements, unless specifically required by law or regulation.

The compounds discussed in this slide presentation are investigational products being developed by MorphoSys and its partners and are not currently approved by the U.S. Food and Drug Administration (FDA), European Medicines Agency (EMA) or any other regulatory authority (except for tafasitamab/Monjuvi® and tafasitamab/Minjuvi® in relapsed or refractory DLBCL). The safety and efficacy of these investigational products have not been established and there is no guarantee any investigational product will be approved by regulatory authorities.

Agenda

01 **Opening Remarks**
Jean-Paul Kress, M.D., Chief Executive Officer (CEO)

02 **Phase 3 MANIFEST-2 Study Topline Results**
Tim Demuth, M.D., Ph.D., Chief Research & Development Officer (CR&DO)

03 **Myelofibrosis in Clinical Practice**
John Mascarenhas, M.D., Professor of Medicine and Director of the Adult Leukemia Program at The Tisch Cancer Institute at Mount Sinai, New York

04 **Q&A**
Jean-Paul Kress, M.D., Tim Demuth, M.D., Ph.D., Lucinda Crabtree, Ph.D., John Mascarenhas, M.D.

MANIFEST-2 Study Results Demonstrate Most Impressive Benefits Seen in Clinical Studies of Patients with Myelofibrosis

KEY FINDINGS

- Achieved primary endpoint, nearly doubling SVR35
- Significant improvements in key secondary endpoints (absolute change in TSS and TSS50) for intermediate-risk patients
- Strong positive trend in key secondary endpoints for overall population
- Clinically meaningful anemia improvement
- Safety results consistent with prior trials, no new safety signals

NEXT STEPS

Present detailed findings at 2023 ASH Annual Meeting

Submit for approval in the U.S. and Europe mid-2024

Pelabresib is an investigational medicine that has not yet been approved by any regulatory authorities.

Phase 3 MANIFEST-2 Study:
One of the Largest Myelofibrosis Studies Ever Conducted

430 *JAK-inhibitor-naïve myelofibrosis patients randomized, representative of the disease population and aligned with NCCN criteria*

KEY ENDPOINTS

PRIMARY:
SVR35 at week 24

SECONDARY:
Absolute change in TSS at week 24
TSS50 at week 24
(MFSAF v4.0)

ADDITIONAL ENDPOINTS*

Duration of the splenic response	Duration of the symptom response	Improvement in bone marrow fibrosis
Hemoglobin response	Progression-free survival	Overall survival

SVR35, ≥35% reduction in spleen volume; TSS, total symptom score; TSS50, ≥50% reduction in total symptom score; MFSAF, Myelofibrosis Symptom Assessment Form
*Only includes sample of additional endpoints being assessed in Phase 3 MANIFEST-2 study

Statistically Significant and Clinically Meaningful Improvement in Primary Endpoint: SVR35

POPULATION	SVR35 (Pelabresib + Ruxolitinib)	SVR35 (Ruxolitinib + Placebo)	Difference
All Patients (N = 430)	66%	35%	30.4%* P-value: p<0.001
Intermediate-Risk Patients (N = 400)	66%	36%	29.9%* P-value: p<0.001
High-Risk Patients (N = 30)	64%	25%	39.3% P-value: 0.063

*Difference calculated using Cochran–Mantel–Haenszel (CMH) common risk difference

Strong Positive Trend in Key Secondary Endpoints: Absolute Change in TSS and TSS50

POPULATION	Absolute Change in TSS (Pelabresib + Ruxolitinib)	Absolute Change in TSS (Ruxolitinib + Placebo)	Difference	TSS50 (Pelabresib + Ruxolitinib)	TSS50 (Ruxolitinib + Placebo)	Difference
All Patients (N = 430)	-15.99	-14.05	-1.94* P-value: 0.0545	52%	46%	6.0%*** P-value: 0.216
Intermediate Risk Patients (N = 400)	-15.2	-12.7	-2.4* P-value: <0.02	55%	45%	10.05%*** P-value: <0.05
High-Risk Patients (N = 30)	N/A**	N/A**	N/A**	21%	69%	-47.3% P-value: <0.05

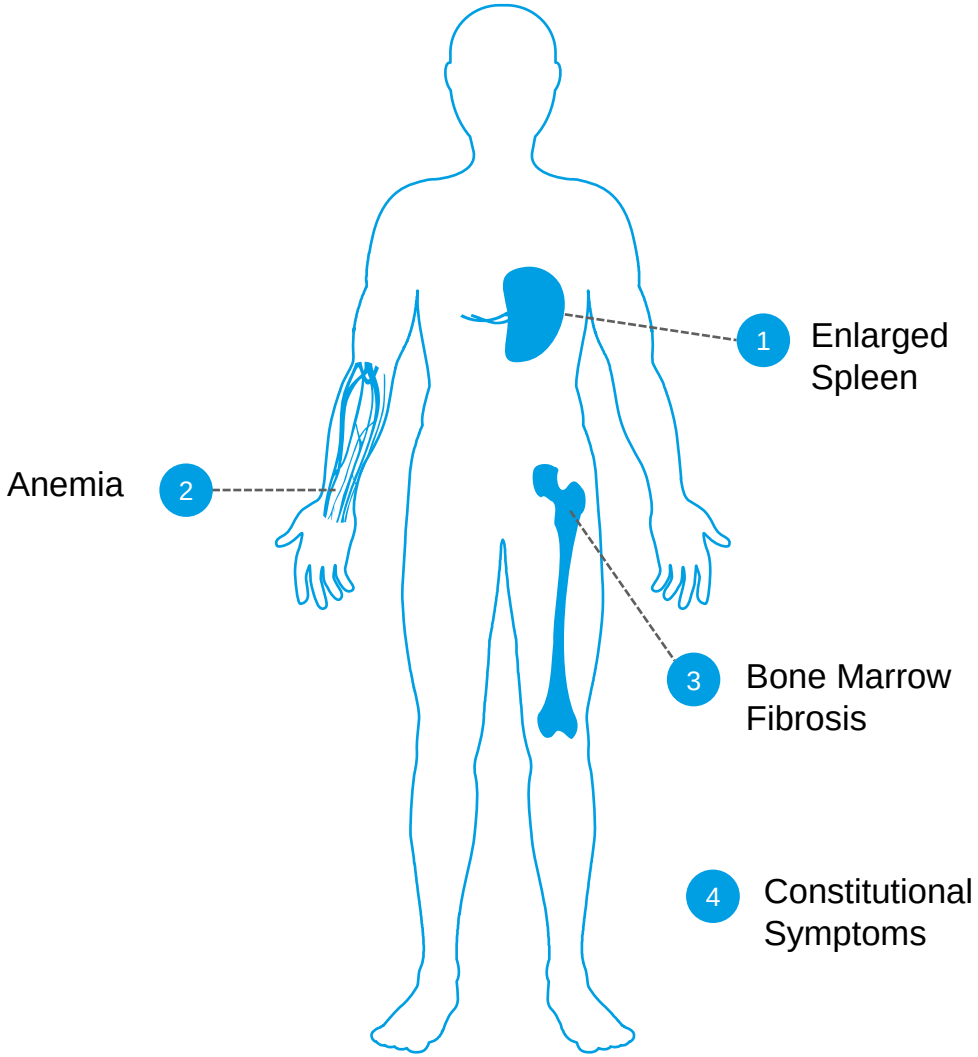
*Least square mean estimate; **No calculation due to missing data rate; ***Difference calculated using Cochran–Mantel–Haenszel (CMH) common risk difference

Myelofibrosis in Clinical Practice

JOHN MASCARENHAS, M.D.

Professor of Medicine and Director of the Adult Leukemia Program
at The Tisch Cancer Institute at Mount Sinai, New York

Myelofibrosis is a Debilitating, Progressive and Often Deadly Blood Cancer, Characterized by Four Hallmarks



DIAGNOSIS (DIPSS)

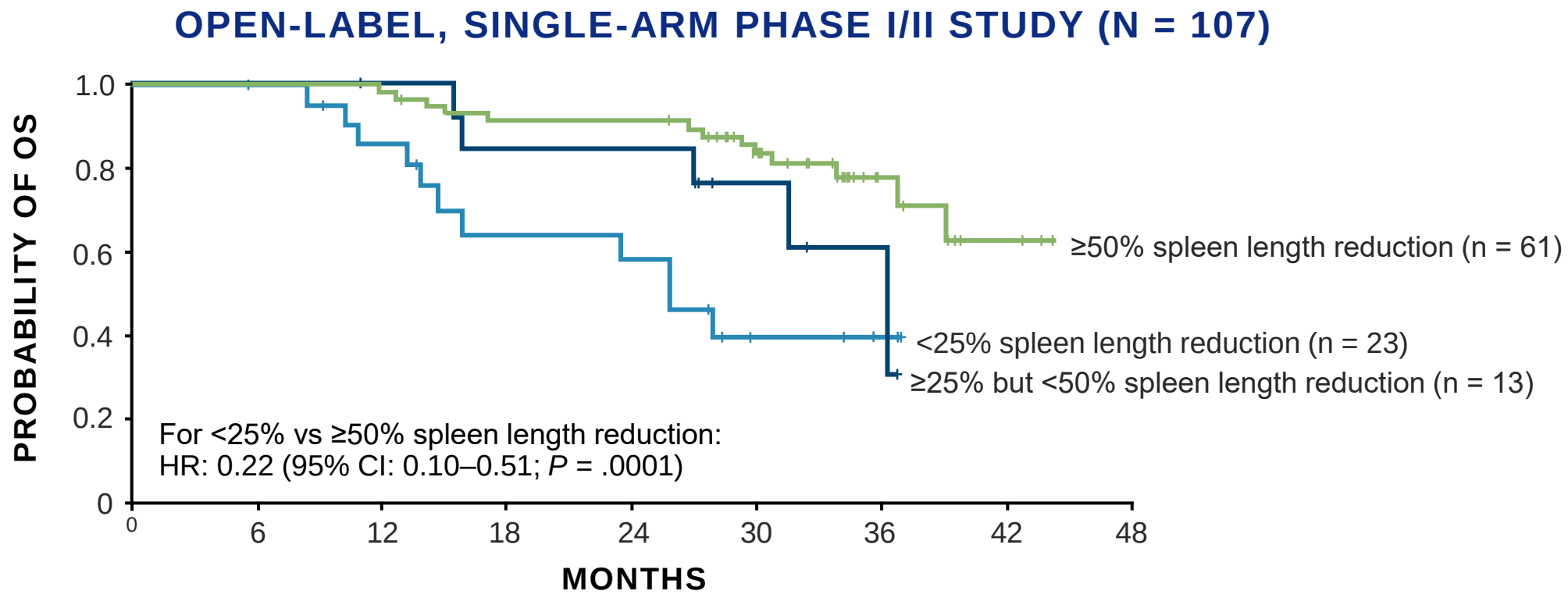
- Intermediate-risk: **~77% – 86%**
- High-risk: **~9% – 11%**

MEDIAN OVERALL SURVIVAL (DIPSS)

- Intermediate-risk: **~4 – 14.2 years**
- High-risk: **~1.5 years**

Passamonti, F et al. Hematological Oncology 2021; Szuber N, et al. Mayo Clinic 2019; Passamonti, F et al. Blood 2010

Survival Improves With Spleen Length Reduction in Patients Receiving Ruxolitinib

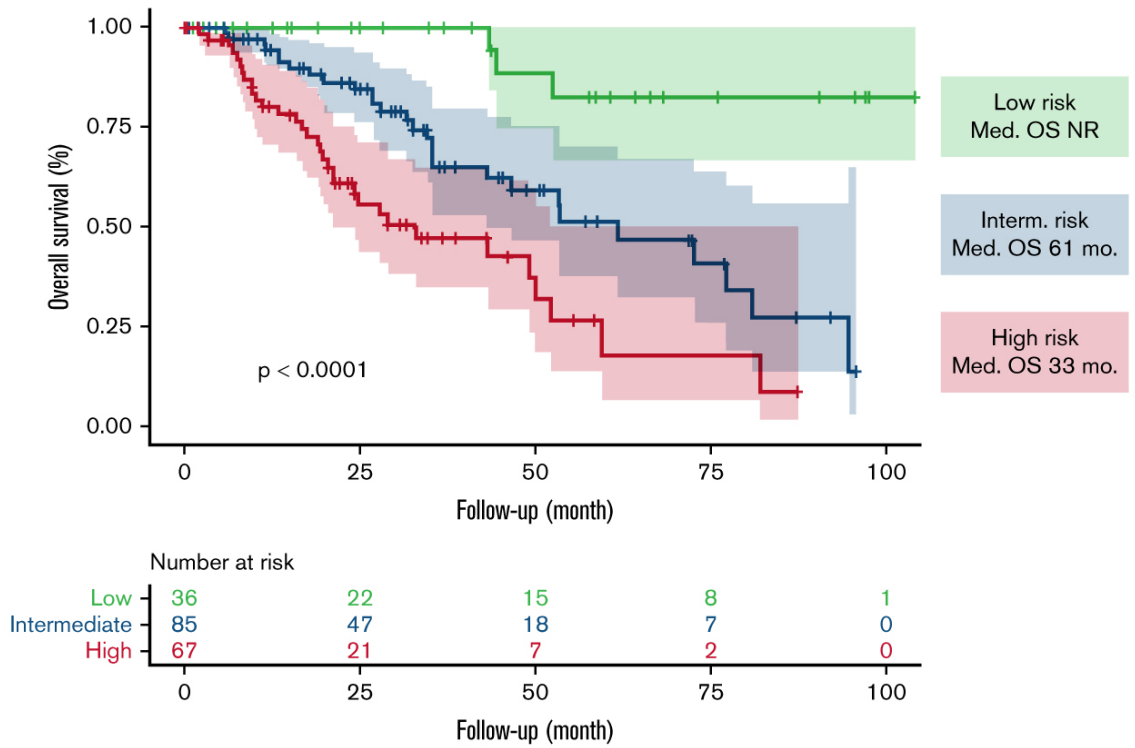


HR, hazard ratio; OS, overall survival. | Verstovsek S, et al. *Blood.* 2012;120:1202-1209.

RR6: Three Factors Predict Survival Benefit

Risk Factors	Multivariate, HR (95% CI); *P*-value
RUX dose below 20 mg BID at baseline, 3 months and 6 months	**HR = 1.79 (1.07-3.00); *P* = 0.03**
Splenomegaly reduction ≤30% by palpation at 3 months and 6 months	**HR = 2.26 (1.40-3.65); *P* = 0.0009**
RBC transfusion need at baseline, 3 months and 6 months	**HR = 2.32 (1.19-4.54); *P* = 0.02**

The RR6 model was validated in another cohort of patients (n = 40; *P* = 0.0276) treated with ruxolitinib at Moffitt Cancer Center



RR6 = response to ruxolitinib after 6 months | Maffioli M. *Blood Adv.* 2022;6 (6):1855-1864.

MANIFEST-2 Provides Valuable Evidence, Cementing Position of Pelabresib and Ruxolitinib Combination Potential

1. **BET inhibition** is **rational** and supported by pre-clinical data

2. **Combination of pelabresib and ruxolitinib** is **clinically active**
   - SVR35 statistically significant and clinically meaningful in overall population
   - Strong numerical improvement in symptom reduction, significant improvement in intermediate-risk patients

3. **Well-tolerated** therapy
   - Safety results consistent with prior trials, no new safety signals

4. **Correlative evidence of biologic disease modification**
   - Hemoglobin level improvement
   - Anemia AE improvement

5. **Paradigm Shift – Combination Therapy**:
   - Support use of combination treatment
   - Start early to prevent patients getting more ill

Pelabresib and Ruxolitinib Combination Therapy: Potential to Shift Treatment Paradigm in Myelofibrosis

Most Impressive Benefits Seen in Myelofibrosis

File for Approval in the U.S. and Ex-U.S.

Multi-Billion Dollar Market Opportunity

04
Q&A

Jean-Paul Kress, M.D.

Tim Demuth, M.D., Ph.D.

Lucinda Crabtree, Ph.D.

John Mascarenhas, M.D.

Thank you!

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