Year in Review: Management of Myelofibrosis

A CME/MOC-Accredited Live Webinar

Wednesday, April 30, 2025 5:00 PM – 6:00 PM ET

Faculty Professor Claire Harrison John Mascarenhas, MD



Faculty



Professor Claire Harrison

Professor of Myeloproliferative Neoplasms Guy's and St Thomas' NHS Foundation Trust London, United Kingdom



MODERATOR Neil Love, MD Research To Practice Miami, Florida



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ONCOLOGY TODAY

WITH DR NEIL LOVE

Myelofibrosis — An Interview with Dr Raajit K Rampal on Key Presentations from the 66th American Society of Hematology (ASH) Annual Meeting



DR RAAJIT K RAMPAL MEMORIAL SLOAN KETTERING CANCER CENTER









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Year in Review: Clinical Investigator Perspectives on the Most Relevant New Datasets and Advances in Oncology

Management of Multiple Myeloma

A CME/MOC-Accredited Live Webinar

Thursday, May 8, 2025 5:00 PM – 6:00 PM ET

Faculty Meletios-Athanasios (Thanos) C Dimopoulos, MD Robert Z Orlowski, MD, PhD



Year in Review: Clinical Investigator Perspectives on the Most Relevant New Datasets and Advances in Oncology

Therapeutic Targets Beyond EGFR for Non-Small Cell Lung Cancer

A CME/MOC-Accredited Live Webinar

Thursday, May 15, 2025 5:00 PM – 6:00 PM ET

Faculty Jessica J Lin, MD Joel W Neal, MD, PhD



Practical Perspectives: Experts Review Actual Cases of Patients with Advanced Gastroesophageal Cancers

A CME/MOC-Accredited Live Webinar

Wednesday, May 21, 2025 5:00 PM – 6:00 PM ET

Faculty Zev Wainberg, MD, MSc



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INTRODUCTION:

- The New Trastuzumab?
- Off-the-Shelf Allo T-Reg Cell Infusions?

MODULE 1: Myelofibrosis 2025 — JAK Inhibitors (Ruxolitinib)

MODULE 2: BET Inhibitors — Pelabresib

MODULE 3: Navtemadlin

MODULE 4: Selinexor and Elritercept



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Year in Review

Current Management of Myelofibrosis

Professor Claire Harrison Deputy Chief Medical Officer — Research, Data and Analytics Professor of Myeloproliferative Neoplasms Guy's and St Thomas' NHS Foundation Trust London, United Kingdom



Year in Review Live Webinar | Myelofibrosis Edition



John Mascarenhas, MD Professor of Medicine Icahn School of Medicine at Mount Sinai New York, NY



Professor Claire Harrison

- Palandri F et al. Clinical outcomes of **ruxolitinib treatment in 595 intermediate-1 risk patients** with myelofibrosis: The **RUX-MF Real-World Study**. *Cancer* 2024;130(24):4257-66.
- Breccia M et al. Dosing and clinical outcomes of **ruxolitinib in patients with myelofibrosis in a real-world setting**: Interim results of the **Italian observational study (ROMEI)**. *Cancer* 2025;131(7):e35801.
- Vachhani P et al. Clinical outcomes in patients with myelofibrosis treated with **ruxolitinib and anemia**supporting medications. ASH 2024;Abstract 4546.
- Gupta V et al. Safety and efficacy of fedratinib in patients with myelofibrosis previously treated with ruxolitinib: Primary analysis of FREEDOM trial. *Leuk Lymphoma* 2024;65(9):1314-24.
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Professor Claire Harrison (continued)

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- Gupta V et al. Long-term survival adjusted for treatment crossover in patients (pts) with myelofibrosis (MF) treated with momelotinib (MMB) vs danazol (DAN) in the MOMENTUM trial. ASCO 2024; Abstract 6571.
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John Mascarenhas, MD

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John Mascarenhas, MD (continued)

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- Masarova L et al. A phase lb, open-label study of **add on therapy with CK0804** in participants with myelofibrosis and suboptimal response to ruxolitinib. ASH 2024;Abstract 999.


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New Biology of Myelofibrosis



REVIEW ARTICLE OPEN Bromodomain and extraterminal (BET) proteins: biological functions, diseases and targeted therapy

Zhi-Qiang Wang¹, Zhao-Cong Zhang¹, Yu-Yang Wu², Ya-Nan Pi¹, Sheng-Han Lou³, Tian-Bo Liu¹, Ge Lou^{1⊠} and Chang Yang^{1⊠} Signal Transduct Target Ther 2023;8(1):420.



Mechanism by Which BRD4 Promotes Transcriptional Elongation





Mechanism of Action of BET Inhibitors





Mechanism of Proteolysis Targeting Chimera (PROTAC)





BET Inhibitors May Synergize with a Variety of Antitumor Agents





Wang Z-Q et al. Signal Transduct Target Ther 2023;8(1):420.

BET Inhibitors' Synergism with PI3K and mTOR Inhibitors



BET Inhibitors' Synergism with Lapatinib and AKT Inhibitors





BET Inhibition Resensitizes ER-Positive Breast Cancer Cells to Tamoxifen





Novel Antibody Targeting Calreticulin



INCA033989: Mechanism of Action



Marty C et al. EHA 2024; Abstract P1002.

MYELOID NEOPLASIA

Selective targeting of mutated calreticulin by the monoclonal antibody INCA033989 inhibits oncogenic function of MPN

Edimara S. Reis,¹ Rebecca Buonpane,¹ Hamza Celik,¹ Caroline Marty,²⁻⁴ Angela Lei,¹ Fatoumata Jobe,¹ Mark Rupar,¹ Yue Zhang,¹ Darlise DiMatteo,¹ Rahel Awdew,¹ Bianca L. Ferreira,⁵ Lynn Leffet,¹ Lu Lu,¹ Elodie Rosa,²⁻⁴ Maxime Evrard,²⁻⁴ Gaurang Trivedi,¹ Brittney Wass,¹ April Horsey,¹ Xin He,¹ Maryanne Covington,¹ Alla Volgina,¹ Florence Pasquier,^{2-4,6} Laurence Legros,⁷ Guillemette Fouquet,⁸ William Vainchenker,²⁻⁴ Yan-ou Yang,¹ Breann Barker,¹ Jing Zhou,¹ Shaun Stewart,¹ Ian S. Hitchcock,⁵ Dashyant Dhanak,¹ Ricardo Macarron,¹ Isabelle Plo,²⁻⁴ Horacio Nastri,¹ and Patrick A. Mayes¹

Blood 2024;144(22):2336-48.



Driver Mutations in Myeloproliferative Neoplasms





Novel Regulatory T-Cell Infusion Therapy





A Phase Ib, Open-label Study of Add-On Therapy with CK0804 in Participants with Myelofibrosis and Suboptimal Response to Ruxolitinib

Lucia Masarova, MD, Meixian Huang, Swati Goel, MD, Sharon Bledsoe, Naveen Pemmaraju, MD, Tapan M. Kadia, MD, Prithviraj Bose, MD, Jo Ishizawa, MD, Phd, Guillermo Montalban-bravo, MD, Mi-ae Lyu, Tara Sadeghi, Simrit Parmar, MBBS, Christopher R. Flowers, MD, MS and Hagop M. Kantarjian, MD

Abstract # 999

Phase 1b Study of CK0804: CXCR4 Enriched, Non-HLA matched, Cryopreserved, Multi-Dose, Treg Therapy in MF Patients with Suboptimal Response to Ruxolitinib

Eligible patients

Age > 18 years with PMF/ PPV-MF or PET-MF by IWG MRT criteria.

On ruxolitinib for at least 3 months and stable dose for 8 weeks and presence of:

➤ disease-related symptoms, as determined by a MPN SAF TSS score of ≥10 points

OR

Splenomegaly of ≥5 cm below the costal margin by physical examination or by ultrasound or MRI.

OR

➢ new grade ≥2 anemia or thrombocytopenia or neutropenia

- Primary Objective: Safety of the add-on CK0804 to ruxolitinib
- Secondary Objective: Efficacy of the add-on CK0804 to ruxolitinib
- **Exploratory Objective**: PB and BM immune reconstitution; longitudinal serum biomarker and plasma inflammatory cytokines analysis

Safety Run-In

Every 28 days x 6 infusions of 100 million Tregs per dose; N=9

Expansion Cohort 1

Every 7 days x 4 infusions; then Every 28 days x 5 infusions N=6

> Courtesy of John Mascarenhas, MD Masarova et al.ASH 2024;Abstract 999

Spleen Volume Change (Best); n=6

MPN SAF TSS: Early Satiety; n=6



Maximum SVR = EOC6 in all pt

The Early Satiety subset score

	Mean	95% CI Lower	95% CI Upper
Baseline	4.0	2.0	5.5
C4D1	1.8	0	4.0
EOC6	2.1	0.5	5.0

Masarova et al.ASH 2024; Abstract 999

Courtesy of John Mascarenhas, MD

Reduction of TGF-β Levels Correlates with Clinical Response [n=5]



Masarova et al.ASH 2024; Abstract 999

Selective JAK Inhibitors



Potential Therapeutic Option: Selective Targeting of JAK2V617F





INCB160058 Is a Selective Pseudokinase (JH2)-Binding Inhibitor of JAK2V617F



Image reproduced courtesy of Cell Signaling Technology, Inc (www.cellsignal.com).



INCB160058 Selectively Inhibits Growth of JAK2V617F-Expressing Cells





Summary of Preclinical Findings with INCB160058

- INCB160058 is a potent and selective JAK2 pseudokinase domain binder
- Pseudokinase binding offers a new mechanism of action for selective inhibition of JAK2V617F, with potential to eradicate mutant clones
- INCB160058 inhibits cytokine-independent activity of JAK2V617F while sparing wild-type JAK2
- In vitro, INCB160058 selectively targets JAK2V617F-harboring cell lines as well as myeloproliferative neoplasm patient-derived CD34-positive cells, repressing phosphorylated STAT5 levels and slowing cell growth
- In vivo, INCB160058 maintains its selective nature, reducing human JAK2V617F-derived cell engraftment; erythropoietic cells and proinflammatory cytokines were selectively reduced



Potential of Type II JAK Inhibitors





Mascarenhas J et al. ASH 2024; Abstract 3147.1.

AJ1-11095 Preclinical Data

- <u>AJ1-11095 was designed</u> through computational and structure-based <u>methods to specifically bind the Type II</u> (inactive) conformation of JAK2
- AJ1-11095 is highly selective for JAK2 compared with other JAK family members (JAK1, JAK3, TYK2)
- Cell line experiments and murine models of MPN show potent activity of AJ1-11095 both as initial therapy and post ruxolitinib treatment (ruxolitinib persistence model)
- AJ1-11095 ("095") also induces reduction in the mutant clone in preclinical MPN models





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Dosing and clinical outcomes of ruxolitinib in patients with myelofibrosis in a real-world setting: Interim results of the Italian observational study (ROMEI) Breccia et al

Prospective multicentre study in Italy enrolling MF patients treated with ruxolitinib - 508 patients enrolled

Prior work from this study confirmed in its 24-week findings, the beneficial effect of ruxolitinib in improving symptoms and QOL (primary endpoints) and reducing spleen size. A favorable safety profile was observed, consistent with results from clinical studies. The interim results in the ROMEI study indicated high adherence (60%–75%) to oral ruxolitinib at 24 weeks.

However, one third (25%–40%) of the patients receiving ruxolitinib may be undertreated owing to suboptimal adherence, potentially undermining disease control and survival outcomes.

This paper presents an interim analysis at 12 months based upon outcomes of patients according to starting dose of ruxolitinib. TABLE 1 Distribution of patients according to the expected starting dose group (baseline platelet count).

AsEx – as expected for platelet count n = 174LtEx – less than expected n= 132

As expected (AsEx, N = 174) 50-<75	N (%)
75-<100 10 mg bid (20 mg/day)	8 (4.6)
	5 (2.9)
100-200 15 mg bid (30 mg/day)	24 (13.8)
>200 20 mg bid (40 mg/day)	137 (78.7)
Lower than expected (LtEx; $N = 132$)50-<75<5 mg bid (<10 mg/day)	0
75-<100 <10 mg bid (<20 mg/day)	10 (7.6)
100-200 <15 mg bid (<30 mg/day)	29 (22.0)
>200 <20 mg bid (<40 mg/day)	93 (70.5)

bid, twice daily.

Discussion Question

What is the optimal dosing strategy for initial treatment with ruxolitinib?



Clinical outcomes of ruxolitinib treatment in 595 intermediate-1 risk patients with myelofibrosis: The RUX-MF Real-World Study

Francesca Palandri MD, PhD¹ | Elena M. Elli MD² | Erika Morsia MD³ | Giulia Benevolo MD⁴ | Mario Tiribelli MD⁵ | Eloise Beggiato MD⁶ | Massimiliano Bonifacio MD⁷ | Mirko Farina MD⁸ | Bruno Martino MD⁹ | Giovanni Caocci MD¹⁰ | Novella Pugliese MD¹¹ | Alessia Tieghi MD¹² | Monica Crugnola MD¹³ | Gianni Binotto MD¹⁴ | Francesco Cavazzini MD¹⁵ | Elisabetta Abruzzese MD¹⁶ | Alessandra Iurlo MD¹⁷ | Alessandro Isidori MD¹⁸ | Costanza Bosi MD¹⁹ | Veronica Guglielmana MD² | Marta Venturi MD²⁰ | Alessandra Dedola MD²⁰ | Michele Loffredo MD²⁰ | Gabriele Fontana MD²⁰ | Andrea Duminuco MD²¹ | Alessia Moioli MD⁷ | Luca Tosoni MD⁵ | Emilia Scalzulli MD²² | Daniele Cattaneo MD¹⁷ | Roberto M. Lemoli MD^{23,24} | Daniela Cilloni MD²⁵ | Monica Bocchia MD²⁶ | Fabrizio Pane MD¹¹ | Florian H. Heidel MD²⁷ | Nicola Vianelli MD¹ | Michele Cavo MD^{1,20} | Giuseppe A. Palumbo MD²⁸ | Filippo Branzanti MSc²⁰ | Massimo Breccia MD²² ⁹

Discussion Question

How do you decide when to start ruxolitinib treatment?



LETTER OPEN Myelofibrosis management in routine clinical practice with a focus on patients with cytopenias: recommendations from a global consensus group

Steffen Koschmieder ¹, Prithviraj Bose ², Martin H. Ellis ³, Vikas Gupta ⁴, Jean-Jacques Kiladjian⁵, John Mascarenhas ⁶, Vikram Mathews ⁷, Francesco Passamonti⁸ and Claire Harrison^{9²}

Aims to assess:

- Defining the thresholds for anemia, and when to initiate/ modify treatment
- Defining the threshold for thrombocytopenia and when to initiate/modify treatment
- Defining JAKi failure and what would warrant switching treatment
- How and when to determine prognosis in patients with MF
- Unmet needs in MF clinical trials

Question 8:

What Criteria Should be Used to Define a Patient who is Relapsed, Refractory, or Intolerant to JAK Inhibitor Treatment?

Clinical Recommendation 8

- There are existing criteria for ruxolitinib that are used in clinical trials to determine if a patient is relapsed, refractory, or intolerant to treatment (Table 2)
- However, in clinical practice, it may be difficult to distinguish exactly between ruxolitinib intolerance and relapse, as often these can coexist
- Criteria for other JAK inhibitors are likely to be similar



Table 2: Criteria for Ruxolitinib Failure Used in the Re-analysis of the JAKARTA-2, PAC203, and FREEDOM Trials (Adapted From Bose P, Verstovsek S. Hemasphere. 2020;4:e424)

Relapsed	Ruxolitinib for ≥3 months with spleen regrowth (defined as <10% SVR or <30% decrease in spleen size by palpation from baseline) following an initial response*
Refractory	Ruxolitinib for ≥3 months with <10% SVR or <30% decrease in spleen size by palpation from baseline
Intolerant	Ruxolitinib for ≥28 days complicated by development of RBC transfusion requirement (≥2 units/month for two consecutive months); or Grade ≥3 thrombocytopenia, anemia, hematoma/hemorrhage or other, non-hematologic adverse events while on ruxolitinib

Courtesy of Professor Claire Harrison

*Response to ruxolitinib is defined as \geq 35% reduction in spleen volume from baseline or \geq 50% reduction in spleen size for baseline spleen sizes >10cm below LCM, a non-palpable spleen for baseline spleen sizes between 5–10cm below LCM, or not eligible for spleen response for baseline spleen <5cm below LCM (Harrison CN, et al. Am J Hematol. 2020;95:594–603). JAK, Janus kinase; LCM, left costal margin; RBC, red blood cell; SVR, spleen volume reduction.

Koschmieder Leukemia 2024

Discussion Questions

How do you determine if a patient has relapsed/refractory disease?

What is the optimal way to identify intolerance to JAK inhibitor therapy?



Question 3:

Which Current and Emerging Treatments to Improve Anemia Should be Considered for: • MF-Related Anemia? • Treatment-Related Anemia?

Clinical Recommendation 3

Once other causes such as disease progression have been excluded: for MF-related anemia, JAK inhibition with momelotinib or pacritinib, danazol, luspatercept, ESAs, IMiD[®], or conventional combination therapies, such as JAK inhibition plus ESAs, danazol, luspatercept, or IMiD[®], may overcome the necessity of dose adjustments/interruptions, which may be associated with ruxolitinib or fedratinib*

In the future, novel combination therapies may deliver these benefits

Splenectomy can be considered as a last resort in select cases of refractory disease-related anemia. For treatment-related anemia, consider dose reduction of current therapy for 4–6 weeks.

*Only ruxolitinib, fedratinib, pacritinib, and momelotinib are approved treatments for MF.



All current and emerging treatment options for MF- and treatment-related anemia should be considered



Courtesy of Professor Claire Harrison

ESA, erythropoietin-stimulating agent; Hb, hemoglobin; IMiD, immunomodulatory drugs; JAK, Janus kinase; MF, myelofibrosis.

Koschmieder Leukemia 2024
Question 4:

Aside From Access and Reimbursement, What Factors Guide Selection of JAK Inhibitor Therapy in Patients With MF and Anemia?

Clinical Recommendation 4

• Factors guiding selection of JAK inhibitor monotherapy would include:



• For some agents, consideration of drug-specific adverse events (immunosuppression, skin cancer, infection risk, nutritional status, tolerance of GI toxicity, neurotoxicity, cardiovascular adverse events) is also a factor



Courtesy of Professor Claire Harrison

GI, gastrointestinal; Hb, hemoglobin; JAK, Janus kinase; MF, myelofibrosis.

Clinical Outcomes in Patients with Myelofibrosis Treated with Ruxolitinib and Anemia-Supporting Medications

- The large (N=2233), single-arm, phase 3b, expanded-access JUMP trial evaluated safety and efficacy of ruxolitinib treatment for patients with MF in a setting similar to routine clinical practice.
- This post hoc analysis included patients with BL anemia (hemoglobin [Hb] <12.0 g/dL or Hb <10.0 g/dL) who were not receiving supportive care for anemia at enrollment but initiated an ESA or danazol within 3 months of enrollment and remained on that therapy for ≥3 months. Clinical outcomes evaluated were spleen length response.
- 101 (7.3%) initiated an ESA (n=98) or danazol (n=3) within 3 months of enrollment (52 [6.9%] with Hb<10.0g/dL) and were included in this analysis.
- For the Hb<12.0 g/dL cohort, time from enrollment to first dose of an ESA or danazol was 43.0 (2–91) days.
- For the Hb<10.0 g/dL subgroup, time to first dose of ESA or danazol was 34 (2–90) days.

Courtesy of Professor Claire Harrison

Momelotinib vs. ruxolitinib in myelofibrosis patient subgroups by baseline hemoglobin levels in the SIMPLIFY-1 trial

Vikas Gupta, Stephen Oh, Timothy Devos, Viviane Dubruille, John Catalano, Tim C. P. Somervaille, Uwe Platzbecker, Pilar Giraldo, Hiroshi Kosugi, Tomasz Sacha, Jiri Mayer, Arpad Illes, Catherine Ellis, Zhaohui Wang, Francisco J. Gonzalez Carreras, Bryan Strouse & Ruben Mesa

- Anemia is a key hallmark of MF and often results in poor quality of life and under dosing of ruxolitinib. This is a *post hoc* analysis of the SIMPLIFY-1 study.
- This study was the only trial to perform a head to head analysis of JAK inhibitors.

Momelotinib versus Continued Ruxolitinib or Best Available Therapy in JAK Inhibitor-Experienced Patients with Myelofibrosis and Anemia: Subgroup Analysis of SIMPLIFY-2

Claire N. Harrison[®] · Alessandro M. Vannucchi · Christian Recher · Francesco Passamonti · Aaron T. Gerds · Juan Carlos Hernandez-Boluda · Abdulraheem Yacoub · Shireen Sirhan · Catherine Ellis · Bharat Patel · Bryan Strouse · Uwe Platzbecker

Post hoc analysis of SIMPLIFY 2

The patient subgroups for the present analysis were defined by either:

- Hb of < 100 g/L
- *or* transfusion status, ie <u>all patients who were non-TI</u>.

Transfusion independence is absence of RBC transfusions and no Hb of < 80 g/L in the 12 weeks before randomization.

As few patients received anemia supportive therapies other than RBC transfusions (e.g., ESAs), results in the small subgroup of the overall intent-to-treat (ITT) population who did were also summarized.

Longitudinal Assessment of Transfusion Intensity in Patients With JAK Inhibitor–Naive or –Experienced Myelofibrosis Treated With Momelotinib

 Claire N. Harrison,¹ Ruben Mesa,² Moshe Talpaz,³ Vikas Gupta,⁴ Aaron T. Gerds,⁵ Andrew Perkins,⁶ Yeow Tee Goh,⁷ Maria Laura Fox,⁸ Donal McLornan,⁹ Jeanne Palmer,¹⁰ Lynda Foltz,¹¹ Alessandro Vannucchi,¹² Steffen Koschmieder,¹³ Francesco Passamonti,¹⁴ Sung-Eun Lee,¹⁵ Catherine Ellis,¹⁶ Bryan Strouse,¹⁶ Francisco J. Gonzalez Carreras,¹⁷ Stephen T. Oh¹⁸

- In this descriptive analysis, the impact of momelotinib on RBC transfusion burden over time was further characterized across JAK inhibitor-naive and -experienced patients.
- To further visualize changes to RBC transfusion burden during treatment, patients were arrayed in ordinal bins jointly based on their baseline- and treatment-period intensities of RBC units per 28 days: exactly zero units, >0 to 1 unit, >1 to 2 units, >2 to 3 units, >3 to 4 units, and >4 units.

Discussion Question

How do you choose between JAK inhibitors as initial therapy for patients with anemia?



Discussion Question

How do you determine when to switch from ruxolitinib to momelotinib for patients with anemia?



Discussion Question

If a patient is receiving ruxolitinib and is going to switch to momelotinib, does the ruxolitinib need to be tapered down?



AGENDA

Year in Review: Management of Myelofibrosis

INTRODUCTION:

- The New Trastuzumab?
- Off-the-Shelf Allo T-Reg Cell Infusions?

MODULE 1: Myelofibrosis 2025 — JAK Inhibitors (Ruxolitinib)

MODULE 2: BET Inhibitors — Pelabresib

MODULE 3: Navtemadlin

MODULE 4: Selinexor and Elritercept



Courtesy of John Mascarenhas, MD

Updated Results From the Phase 3 MANIFEST-2 Study of Pelabresib in Combination With Ruxolitinib for Janus Kinase Inhibitor–Naïve Patients With Myelofibrosis

John Mascarenhas,¹ Sebastian Grosicki,² Dominik Chraniuk,³ Elisabetta Abruzzese,⁴ Prithviraj Bose,⁵ Aaron Gerds,⁶ Alessandro M. Vannucchi,⁷ Francesca Palandri,⁸ Sung-Eun Lee,⁹ Vikas Gupta,¹⁰ Alessandro Lucchesi,¹¹ Stephen T. Oh,¹² Andrew T. Kuykendall,¹³ Andrea Patriarca,¹⁴ Alberto Álvarez-Larrán,¹⁵ Ruben Mesa,¹⁶ Jean-Jacques Kiladjian,¹⁷ Moshe Talpaz,¹⁸ Morgan Harris,¹⁹ Sarah-Katharina Kays,²⁰ Tabea Kräft,²⁰ Qing Li,²¹ Anna-Maria Jegg,²⁰ Claire Harrison,²² Raajit K. Rampal²³

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Presentation #658

Safety and Efficacy of Bromodomain and Extra-Terminal Inhibitor INCB057643 in Patients With Relapsed or Refractory Myelofibrosis and Other Advanced Myeloid Neoplasms: A Phase 1 Study

Justin Watts, MD,¹ Anthony M. Hunter, MD,² Alessandro M. Vannucchi, MD,³ Vikas Gupta, MD, FRCP,⁴ Srinivas K. Tantravahi, MD,⁵ Alessandra Iurlo, MD, PhD,⁶ Brandon McMahon, MD,⁷ Francesca Palandri, MD, PhD,⁸ María T. Gómez-Casares, MD,⁹ Junichiro Yuda, MD, PhD,¹⁰ Emma Searle, MD, PhD,^{11,12} Anna B. Halpern, MD,^{13,14} Rosa Ayala Diaz, MD,¹⁵ Akihiro Tomita, MD, PhD,¹⁶ Blanca Xicoy, MD,¹⁷ Prithviraj Bose, MD,¹⁸ Brandi Reeves, MD,¹⁹ Xuejun Chen, PhD,²⁰ Lea Burke, MS,²⁰ Feng Zhou, PhD,²⁰ Fred Zheng, MD,²⁰ Pankit Vachhani, MD²¹

¹Sylvester Comprehensive Cancer Center, University of Miami, Miami, FL, USA; ²Emory University School of Medicine, Atlanta, GA, USA; ³AOU Careggi, University of Florence, Florence, Italy; ⁴Princess Margaret Cancer Centre, Toronto, ON, Canada; ⁵University of Utah Huntsman Cancer Institute, Salt Lake City, UT, USA; ⁶Foundation IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; ⁷University of Colorado Anschutz Medical Campus, Aurora, CO, USA; ⁸IRCCS Azienda Ospedaliero-Universitaria di Bologna, Istituto di Ematologia "Seràgnoli," Bologna, Italy; ⁹Hospital Universitario de Gran Canaria Doctor Negrín, Las Palmas de Gran Canaria, Spain; ¹⁰National Cancer Center Hospital East, Chiba, Japan; ¹¹The Christie Hospital NHS Foundation Trust, Manchester, UK; ¹²University of Manchester, Manchester, UK; ¹³University of Washington, Seattle, WA, USA; ¹⁴Fred Hutchinson Cancer Center, Seattle, WA, USA; ¹⁵Hospital Universitario 12 de Octubre, Madrid, Spain; ¹⁶Fujita Health University School of Medicine, Toyoake, Japan; ¹⁷Hospital Germans Trias I Pujol, Institut Català Oncologia, Josep Carreras Leukemia Research Institute, Universitat Autònoma de Barcelona, Badalona, Spain; ¹⁸The University of Texas MD Anderson Cancer Center, Houston, TX, USA; ¹⁹University of North Carolina School of Medicine, Chapel Hill, NC, USA; ²⁰Incyte Corporation, Wilmington, DE, USA; ²¹O'Neal Comprehensive Cancer Center at UAB, Birmingham, AL, USA

66th American Society of Hematology (ASH) Annual Meeting & Exposition; December 7–10, 2024; San Diego, CA, USA Courtesy of John Mascarenhas, MD

Efficacy – Monotherapy Spleen Volume Response in Individual Patients With MF (n=25)

- Week 24 SVR35 achieved by 3/7 patients receiving INCB057643 ≥10 mg and 3/20 all evaluable patients
- Of 23 evaluable patients, BOR SVR35 achieved by 3 patients; SVR25 achieved by 9 patients



BOR, best overall response; MF, myelofibrosis; SVR35, 35% reduction from baseline in spleen volume.

* Dotted line represents response criteria threshold. [†]7 evaluable patients (4-mg, n=4 and 6-mg, n=3) discontinued from treatment before Week 24; 5 patients were ongoing (6-mg, n=3 and 10-mg, n=2) and not evaluable because they were not followed up long enough and had no Week 24 assessment. [‡] 3 evaluable patients (6-mg n=2 and 10-mg n=1) discontinued from treatment before first postbaseline (Week 12) spleen volume assessment or missed the assessment; 2 patients (6-mg) were not evaluable because they were not followed up long enough to reach the first postbaseline spleen volume assessment

Watts ASH 2024; Abstract 658

Efficacy – Monotherapy Symptom Response in Individual Patients With MF (n=25)

- Week 24 TSS50 achieved by 5/8 evaluable patients receiving INCB057643 ≥10 mg; 7/19 all evaluable patients
- BOR TSS50 achieved by 11/20 evaluable patients



BOR, best overall response; MF, myelofibrosis; MPN, myeloproliferative neoplasm; TSS50, ≥50% reduction from baseline in Myeloproliferative Neoplasm Symptom Assessment Form total symptom score.

* Dotted line represents response criteria threshold. [†] 6 evaluable patients (4-mg, n=3 and 6-mg, n=3) discontinued from treatment before Week 24; 6 patients were not evaluable: 1 (4-mg) was missing baseline data, 4 were ongoing (6-mg, n=3; 10-mg, n=1) but not followed up long enough and had no Week 24 assessment, 1 of which (6-mg) and 1 additional (8-mg) had baseline TSS <5. [‡] 5 patients not evaluable: 2 were ongoing but not followed long enough (6 mg), 2 had baseline TSS <5 (6-mg and 8-mg, n=1 each), and 1 did not have baseline data (4 mg).

Watts ASH 2024; Abstract 658



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Trial Update from IMproveMF, an Ongoing, Open-label, Dose-Escalation and -Expansion Phase 1/1b Trial to Evaluate the Safety, Pharmacokinetics, and Clinical Activity of the Novel Combination of Imetelstat with Ruxolitinib in Patients with Intermediate-1, Intermediate-2, or High-Risk Myelofibrosis

John O. Mascarenhas, MD,¹ Salman Otoukesh, MD,² Terrence Bradley, MD,³ Bart L. Scott, MD,⁴ Habte A. Yimer, MD,⁵ Souria Dougherty, MBA,⁶ Lixian Peng, PhD,⁶ Fei Huang, PhD,⁶ Vivian Rodolf, MD,⁶ Judy Ho, BS,⁶ Tymara Berry, MD,⁶ Andrew T. Kuykendall, MD⁷

¹Tisch Cancer Institute, Icahn School of Medicine at Mount Sinai, New York, NY, USA; ²City of Hope Comprehensive Cancer Center, Duarte, CA, USA; ³University of Miami Sylvester Comprehensive Cancer Center, Miami, FL, USA; ⁴Fred Hutchinson Cancer Center, Seattle, WA, USA; ⁵Texas Oncology/US Oncology Research, Tyler, TX, USA; ⁶Geron Corporation, Foster City, CA, USA; ⁷Moffitt Cancer Center, Tampa, FL, USA

Courtesy of John Mascarenhas, MD

Presentation 998 | Presented at the 66th American Society of Hematology (ASH) Annual Meeting and Exposition; December 7-10, 2024; San Diego, CA, USA

Imetelstat Combined With Ruxolitinib Was Well Tolerated

• No DLTs^a were reported at any imetelstat dose level within the first 28 days of cycle 1

Any-grade TEAEs in ≥15% of patients

Grade 3 TEAEs

Preferred term, n (%)	Total (N=17)	Preferred term, n (%)	Total (N=17)	
Patients with ≥1 TEAE	15 (88)	Patients with ≥1 grade 3 TEAE	8 (47)	
Pain in extremity	7 (41)	Anemia ^d	4 (24)	
Nausea	6 (35)	Neutropenia ^c	3 (18)	
ALT increased	5 (29)	Leukopenia ^e	2 (12)	
Anemia	5 (29)	Abdominal pain	1 (6)	
Thrombocytopenia ^b	4 (24)	Fatigue	1 (6)	
Fatigue	4 (24)	Pneumonia ^f	1 (6)	
AST increased	3 (18)	Epistaxis ^f	1 (6)	
Neutropenia ^c	3 (18)	 No grade 4 or 5 events were reported 		

ALT, a lanine a minotransferase; AST, aspartate a minotransferase; DLT, dose-limiting toxicity; SAE, serious adverse event; TEAE, treatment-emergent adverse event.

^aToxicities determined by the investigator to be possibly, probably, or definitely related to imetelstat treatment, and not attributable to the underlying disease, or toxicities with ruxolitinib increasing in grade and/or clinically significant from before imetelstat initiation. ^bCombined term includes decreased platelet count. ^cCombined term includes decreased neutrophil count. ^dOne was a SAE considered related to study treatments and resulted in dose reduction to 6.0 mg/kg. ^eCombined term includes decreased white blood cell count. ^fSAE considered to be related to underlying disease and resolved without dose modification.





Imetelstat Versus Best Available Therapy in Patients with Intermediate-2 or High-Risk Myelofibrosis Relapsed or Refractory to Janus Kinase Inhibitor in IMpactMF, a Randomized, Open-label, Phase 3 Trial

John O. Mascarenhas, MD,¹ Claire Harrison, MD,² Prithviraj Bose, MD,³ Jean-Jacques Kiladjian, MD, PhD,⁴ Alessandro Lucchesi, MD, PhD,⁵ Alessandro M. Vannucchi, MD,⁶ Tymara Berry, MD,⁷ Jennifer Riggs, MPH,⁷ Lixian Peng, PhD,⁷ Fei Huang, PhD,⁷ Ying Wan, MD, PhD,⁷ Vivian Rodolf, MD,⁷ Judy Ho, BS,⁷ Shyamala Navada, MD,⁷ Rami S. Komrokji, MD⁸

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Courtesy of John Mascarenhas, MD

Poster 1808.1 | Presented at the 66th American Society of Hematology (ASH) Annual Meeting and Exposition; December 7-10, 2024; San Diego, CA, USA

IMpactMF Phase 3 Study Design



- An interim analysis is planned when ~35% of the planned enrolled patients have died (early 2026)
- The final analysis is planned when >50% of the planned enrolled patients have died (early 2027)

BAT, best available therapy; HMA, hypomethylating agent; HR, high risk; INT, intermediate; IV, intravenous; JAKi, Janus kinase inhibitor; MF, myelofibrosis; PD, progressive disease; R/R, relapsed or refractory. ^aHematopoietic stem cell transplantation or splenectomy are not to be permitted as BAT. ^bMust demonstrate ≥25% increase in spleen volume from baseline during the study or a palpable increase in splenomegaly after 6 months of BAT.



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Courtesy of John Mascarenhas, MD

Mascarenhas ASH 2024; Abstract 1808.1

Study End Points

PRIMARY END POINT

Overall survival

SECONDARY END POINTS

- Symptom response rate at week 24 (≥50% reduction in TSS measured by MFSAF v4.0)
- PFS
- Spleen response rate at week 24 (≥35% spleen volume reduction by MRI or CT)
- Complete remission, partial remission, clinical improvement, spleen response, symptom response, and anemia response per modified 2013 IWG-MRT criteria
- Time to and duration of responses
- Reduction in the degree of bone marrow fibrosis
- Safety
- PK and immunogenicity of imetelstat
- PROs as measured by the EORTC QLQ-C30 and EuroQol-EQ-5D (EQ-5D-5L) questionnaires

EXPLORATORY END POINTS

- Association between baseline cytogenetic and mutational status and clinical responses; change in mutant allele burden (molecular response)
- Correlation between baseline TA, TL, or hTERT and OS, symptom response, or spleen response

BAT, best available therapy; CT, computed tomography; EORTC QLQ-C30, European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 items; hTERT, human telomerase reverse transcriptase; IWG-MRT, International Working Group-Myeloproliferative Neoplasms Research and Treatment; MFSAF, Myelofibrosis Symptom Assessment Form; MRI, magnetic resonance imaging; OS, overall survival; PFS, progression-free survival; PK, pharmacokinetics; PRO, patient-reported outcome; TA, telomerase activity; TL, telomere length; TSS, Total Symptom Score.



Courtesy of John Mascarenhas, MD

Mascarenhas ASH 2024; Abstract 1808.1

AGENDA

Year in Review: Management of Myelofibrosis

INTRODUCTION:

- The New Trastuzumab?
- Off-the-Shelf Allo T-Reg Cell Infusions?

MODULE 1: Myelofibrosis 2025 — JAK Inhibitors (Ruxolitinib)

MODULE 2: BET Inhibitors — Pelabresib

MODULE 3: Navtemadlin

MODULE 4: Selinexor and Elritercept



Abstract #1000

9 December 2024

Results from the Randomized, Multicenter, Global Phase 3 Study BOREAS: Navtemadlin Versus Best Available Therapy in JAK Inhibitor Relapsed/Refractory Myelofibrosis

John O. Mascarenhas, MD¹; Viola Maria Popov, MD, PhD, MSc²; Sanjay Mohan, MD³; Zübeyde Nur Özkurt, Prof.⁴; Jean-Jacques Kiladjian, MD, PhD⁵; Haifa Kathrin Al-Ali⁶; Andrew Charles Perkins, MBBS, PhD⁷; Zhuying Huang, PhD⁸; Hope Qamoos, NP⁸; Jesse McGreivy, MD⁸; Wayne Rothbaum, MA⁸; Srdan Verstovsek, MD, PhD⁸ and Maciej Kaźmierczak, MD, PhD⁹

¹Tisch Cancer Institute, Icahn School of Medicine at Mount Sinai, New York, NY. ²Colentina Clinical Hospital Bucharest, Hematology Department, Pitesti, Arges, Romania. ³The Vanderbilt Clinic, Nashville, TN. ⁴Gazi University, Faculty of Medicine, Department of Hematology, Ankara, Turkey. ⁵Hopital Saint-Louis, Paris, France. ⁶University Hospital Halle, Halle (Saale), Germany. ⁷The Alfred Hospital and Monash University, Melbourne, Australia. ⁸Kartos Therapeutics, Inc., Redwood City, CA. ⁹University of Medical Sciences, Poznan, Poland.

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Courtesy of John Mascarenhas, MD

Mascarenhas et al. ASH 2024; Abstract 1000

SVR35 at Week 24 (ITT Population)

Spleen Volume Reduction by Central Review MRI/CT - Baseline to Week 24



Note: Navtemadlin dosed at 240 mg QD (Days 1-7/28-day cycle). ITT is all randomized subjects. Figure represents subjects with baseline and Week 24 data. Navtemadlin vs BAT, p=0.0815. SVR25: Navtemadlin, 27% (33/123); BAT, 10% (6/60). BAT SVR35 responders received hydroxyurea (2) and lenalidomide (1). Abbreviations: BAT, best available therapy; CT, computed tomography; ITT, intention-to-treat; MRI, magnetic resonance imaging; SVR35, spleen volume reduction ≥ 35%.

Courtesy of John Mascarenhas, MD



TSS50 at Week 24 (ITT Population)

Total Symptom Score Reduction by MFSAF v4.0 - Baseline to Week 24



Data cut-off: 30 Sep 2024

Note: Navtemadlin dosed at 240 mg QD (Days 1-7/28-day cycle). ITT is all randomized subjects. Figure represents subjects with baseline and Week 24 data. Navtemadlin vs BAT, p=0.0507. Week 24 TSS assessment includes Week 23 scores for subjects who stopped TSS at the start of Week 24 (n=2). Abbreviations: BAT, best available therapy; ITT, intention-to-treat; MFSAF, myelofibrosis symptom assessment form; TSS, total symptom score; TSS 50, total symptom score reduction \geq 50%.



Treatment-Emergent Adverse Events

	Navtemadlin n = 123 ¹		Best Available Therapy n = 57 ^{1,2}	
Preferred Term, n (%)	All Grade	Grade 3/4	All Grade	Grade 3/4
TEAE Occurring in ≥ 10% ¹				
Thrombocytopenia ³	57 (46)	45 (37)	18 (32)	14 (25)
Nausea	52 (42)	5 (4)	3 (5)	-
Diarrhea	50 (41)	7 (6)	9 (16)	1 (2)
Anemia	44 (36)	35 (29)	16 (28)	16 (28)
Neutropenia ⁴	37 (30)	31 (25)	10 (18)	7 (12)
Constipation	25 (20)	1 (1)	2 (4)	
Vomiting	31 (25)	3 (2)	1 (2)	<u>-</u>
Decreased Appetite	22 (18)	, - 1	4 (7)	1 (2)
Fatigue	19 (15)	4 (3)	7 (12)	2 (4)
Peripheral Edema	15 (12)	-	7 (12)	1 (2)
Asthenia	16 (13)	2 (2)	5 (9)	1 (2)
Abdominal Pain, Upper	13 (11)	2 (2)	1 (2)	—
Pruritus	7 (6)	24	6 (11)	- 0 3

Median time on study, months (range): Navtemadlin 15.6 (0.23, 39.9); BAT 6.5 (0.03, 30.5)





Data cut-off: 30 Sep 2024.

Note: Navtemadlin dosed at 240 mg QD (Days 1-7/28-day cycle).

¹Safety dataset is all subjects who received ≥ 1 dose of study treatment. ²One subject randomized to BAT, first cycle was navtemadlin. ³Combined terms: thrombocytopenia and platelet count decrease. ⁴Combined terms: neutropenia and neutrophil count decrease. Abbreviations: BAT, best available therapy; BL, baseline; C, cycle; D, day, QD, once daily; TEAE, treatment-emergent adverse event.



Mascarenhas et al. ASH 2024; Abstract 1000

Navtemadlin in Suboptimal Responders to Ruxolitinib

A Phase 3 Randomized, Double-Blind, Add-On Study Evaluating the Safety and Efficacy of Navtemadlin and Ruxolitinib vs Placebo and Ruxolitinib in JAK Inhibitor-Naïve Patients With Myelofibrosis Who Have a Suboptimal Response to Ruxolitinib Treatment



• Platelet count ≥ 100 x 10⁹/L

Note: Navtemadlin dosed at 240 mg QD (Days 1-7/28-day cycle). Target enrollment from 220 sites across 19 countries.

¹Stable ruxolitinib is ≥5 mg BID that does not require treatment hold or dose adjustment during the eight weeks prior to add-on navtemadlin or placebo. Abbreviations: BID, twice daily; Int, intermediate; IPSS, International Prognostic Scoring System; JAK, Janus kinase; MF, myelofibrosis; TSS, total symptom score; WHO, World Health Organization; WT, wild-type.



AGENDA

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The Efficacy and Safety of Selinexor in Combination with Ruxolitinib in Ruxolitinib-Treated Myelofibrosis Patients: the Interim Analysis of a Prospective, Open-Label, Multicenter, Parallel-Cohort, Phase 2 Study

Minghui Duan, Lan Ma , Qiuling Wu, Hong Liang, Wei Wang, Shaoling Wu, Lijun Mu, Hai Lin, Hebing Zhou, Hong-Xia Shi, MD, Jinghua Wang, Hongmei Jing

Hematological Improvement and Other Clinical Benefits of Elritercept as Monotherapy and in Combination with Ruxolitinib in Participants with Myelofibrosis from the Ongoing Phase 2 RESTORE Trial

Claire Harrison, MD, FRCP, FRCPath

Professor of Myeloproliferative Neoplasms and Deputy Chief Medical Officer (Research, Data, and Analytics) of the Guy's and St. Thomas' NHS Foundation Trust, UK



Year in Review: Clinical Investigator Perspectives on the Most Relevant New Datasets and Advances in Oncology

Management of Multiple Myeloma

A CME/MOC-Accredited Live Webinar

Thursday, May 8, 2025 5:00 PM – 6:00 PM ET

Faculty Meletios-Athanasios (Thanos) C Dimopoulos, MD Robert Z Orlowski, MD, PhD

> Moderator Neil Love, MD



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