Corporate Presentation

November, 2018

Forward Looking Statement

This presentation includes forward-looking statements within the meaning of the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. Such statements are subject to a number of risks and uncertainties, the outcome of which could materially and/or adversely affect actual future results and the trading price of CTI BioPharma's securities. Such statements include, but are not limited to, expectations with respect to the timing and planned enrollment of and interim analysis for PAC203, our ability to commence a randomized Phase 3 study of pacritinib in 2019, our ability to interpret clinical trial data and results for PERSIST-2 despite not satisfying the pre-specified minimum evaluable patient goal, expectations with respect to the potential therapeutic utility of pacritinib, statements regarding CTI BioPharma's expectations with respect to the potential of pacritinib to achieve treatment goals, the development of CTI BioPharma and its product and product candidate portfolio, including the advancement of pacritinib and other pipeline programs, CTI BioPharma's ability to achieve its goals in 2018 and beyond, including achieving cost efficiency and year-on-year cost reduction goals, CTI BioPharma's plans to continue advancing the development of its pipeline candidates through strategic product collaborations or cooperative group and investigator-sponsored trials, as well as the identification and acquisition of additional pipeline opportunities. In particular, this presentation addresses top-line results regarding data from CTI BioPharma's Phase 3 trial of pacritinib for the treatment of patients with myelofibrosis whose platelet counts are less than or equal to 100,000 per microliter. Meaningful interpretation of PERSIST-2 may not be possible because the pre-specified minimum evaluable patient goal was not met. Risks that contribute to the uncertain nature of the forward-looking statements include, among others, risks associated with the biopharmaceutical industry in general and with CTI BioPharma and its product and product candidate portfolio in particular including, among others, risks associated with the following: that CTI BioPharma cannot predict or guarantee the outcome of preclinical and clinical studies, the potential failure of pacritinib to prove safe and effective as determined by the FDA and/or the European Medicines Agency, changes to study protocol or design or sample size to address any patient safety, efficacy or other issues raised by the FDA or otherwise, that top-line results observed to date may differ from future results or that different conclusions or considerations may qualify such results once existing data has been more fully evaluated, that CTI BioPharma may not obtain favorable determinations by other regulatory, patent and administrative governmental authorities, that CTI BioPharma may experience delays in the commencement of preclinical and clinical studies, that the costs of developing pacritinib and CTI BioPharma's other product candidates may rise; other risks, including, without limitation, competitive factors, technological developments, that CTI BioPharma may not be able to sustain its current cost controls or further reduce its operating expenses, that CTI BioPharma may not achieve previously announced goals, contractual milestones and objectives as or when projected, that CTI BioPharma's average net operating burn rate may increase, that CTI BioPharma will continue to need to raise capital to fund its operating expenses, but may not be able to raise sufficient amounts to fund its continued operation as well as other risks listed or described from time to time in CTI BioPharma's most recent filings with the Securities Exchange Commission on Forms 10-K, 10-Q and 8-K. Except as required by law, CTI BioPharma does not intend to update any of the statements in this presentation upon further developments.

CTI BioPharma

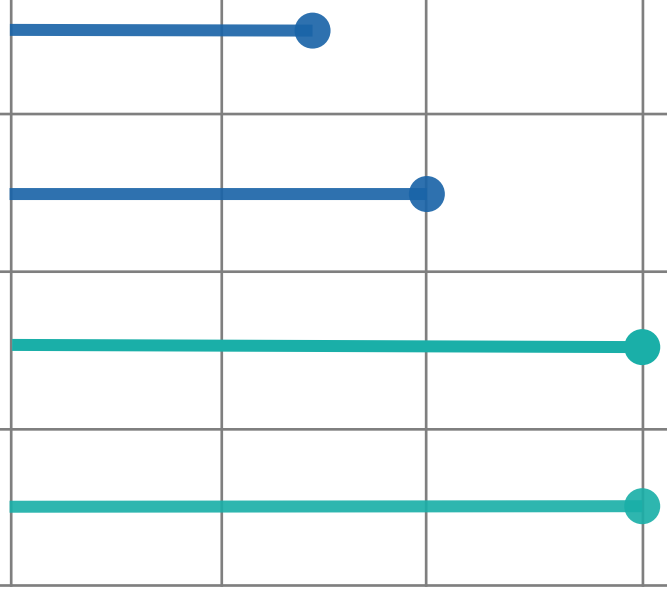
Focused on addressing the unmet needs of myelofibrosis patients

- Development
  - Pacritinib
    - Focused on patients
      - With severe thrombocytopenia
      - Previously treated with ruxolitinib
    - Two Phase 3 myelofibrosis trials completed
    - Randomized phase 2 myelofibrosis trial underway
      - Optimal dose determination due 2Q 2019
      - Topline data 2Q 2019
    - New registrational Phase 3 trial to commence mid-2019

- Corporate
  - Major shareholders include BVF, NEA, Orbimed and Stonepine
  - $80.9MM cash (as of 9/30/18)

Our Pipeline – Hematology Focus

Program	Indication	Phase 1	Phase 2	Phase 3	Approved
Pacritinib	PAC203: Myelofibrosis, patients following ruxolitinib therapy (active)				
	PAC330: Myelofibrosis (platelets ≤50,000/µL) (pending)[1]				
	PERSIST-2: Myelofibrosis (platelets ≤100,000/µL)				
	PERSIST-1: Myelofibrosis (all platelet counts)				

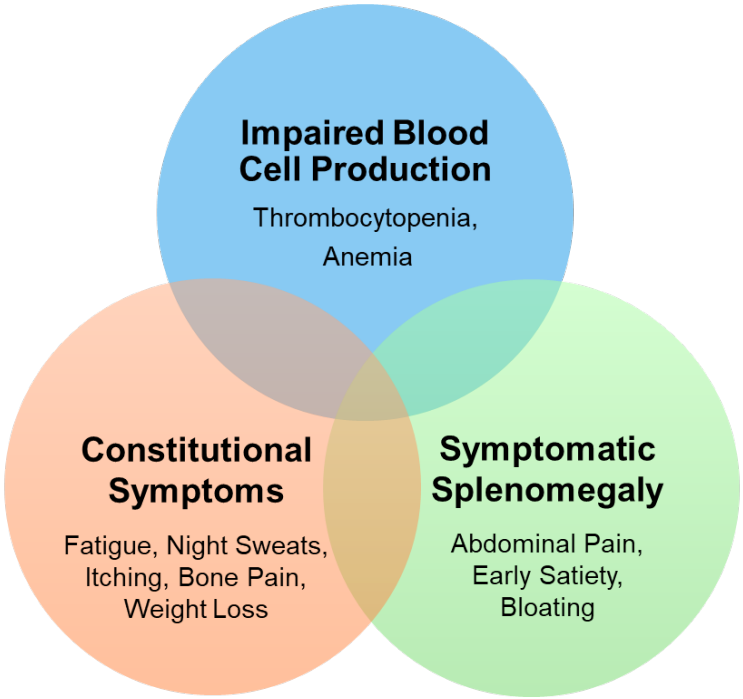


1. Trial design TBD, expected to commence mid-2019

Myelofibrosis and Unmet Medical Needs

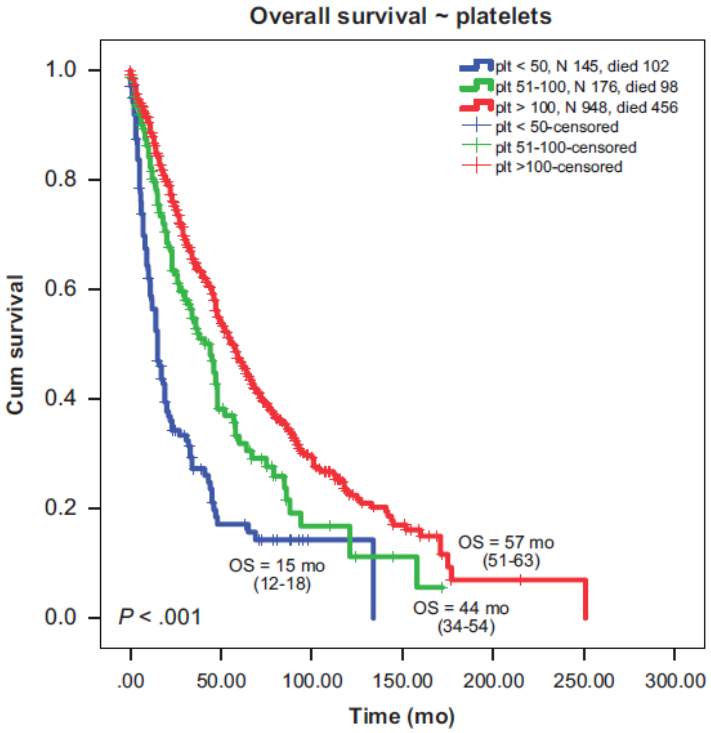
- Malignant bone marrow cancer with median survival 6 years after diagnosis
- Only approved therapy is Jakafi/Jakavi (ruxolitinib)
- Unmet medical needs
  - **Severe thrombocytopenia**
  - **Prior ruxolitinib therapy**

Debilitating Symptoms



Severe Thrombocytopenia

Poor survival with platelet count <50,000/µL

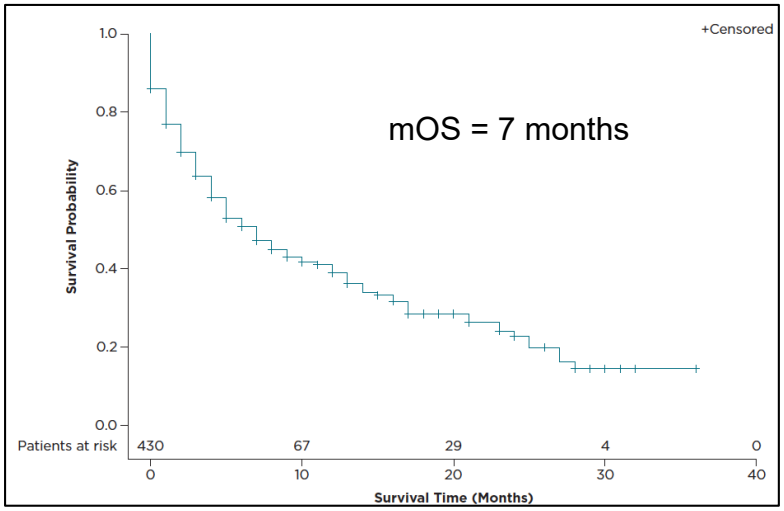


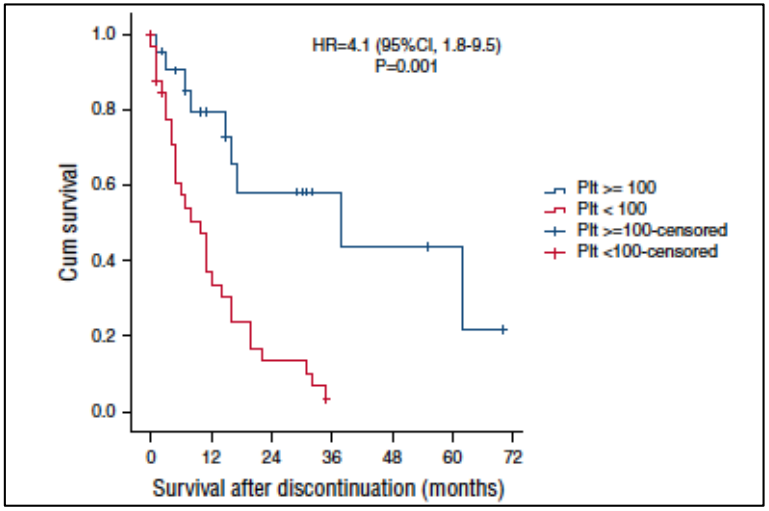
OS is 15 months for patients with platelet count <50,000/µL[1]

1. Masarova et al., Eur J Haematolol. 2017

Prior Ruxolitinib Therapy

Poor survival following ruxolitinib discontinuation[1,2]





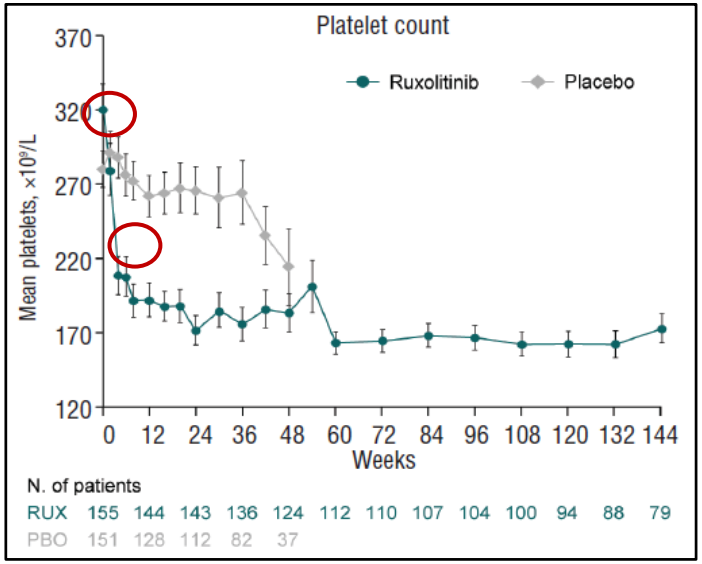
50% of patients discontinue ruxolitinib by 3 years[3,4]

- Majority discontinue due to inability to tolerate an effective dose
- Overall survival is 7-14 months[1,2]
- Shorter OS in thrombocytopenic patients (<100,000/μL)[1]

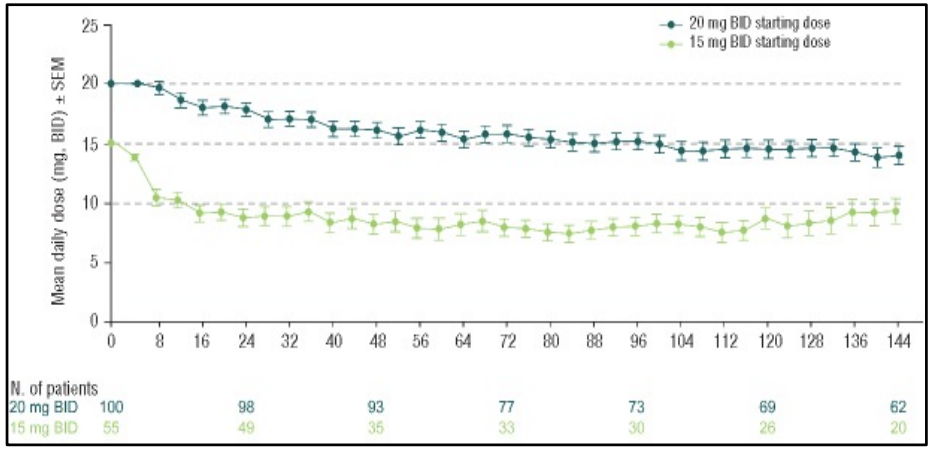
1. Newberry, Blood 2017; 2. Mehra, et al. ASH 2016 poster, Abstract 4769; 3. Cervantes, Blood 2013; 4. Verstovek, Haematologica 2013.

Ruxolitinib and Thrombocytopenia

Significant and rapid decline in platelet counts with ruxolitinib at doses of 15-20mg BID[1]



….associated with dose reductions



….which potentially reduces clinical benefit[2]

1. Verstovsek, et al., Haematologica, 2015 May; 100(4): 479–488; 2. Ruxolinitib NDA Clinical Pharmacology and Biopharmaceutical Review(s), FDA 2011.

Pacritinib: Novel JAK2 inhibitor

Pacritinib has demonstrated clinical activity in multiple trials

- Oral JAK2 inhibitor
- Over 1,200 patients treated in clinical trials
- Orphan drug designation for myelofibrosis in US and EU
- Patent protection until 2029/2030 (plus term extension)
- Completed Phase 3 studies:

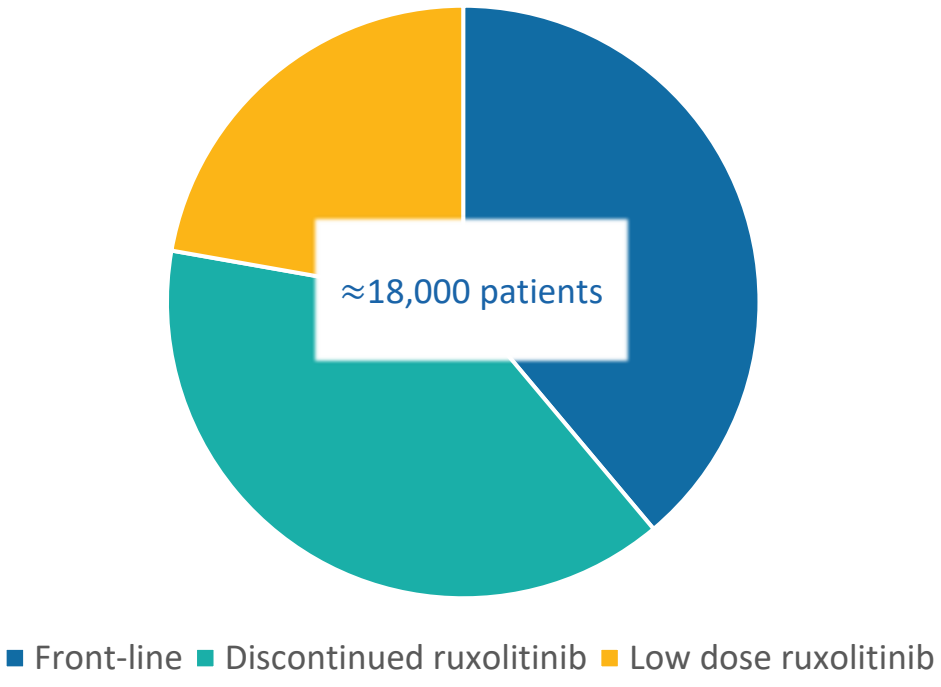
PERSIST-1: 2:1 randomization comparing pacritinib 400 mg QD to BAT, no prior ruxolitinib (n=327)

PERSIST-2: Platelets <100,000 µL, 1:1:1 randomization, comparing pacritinib 200mg BID & 400 mg QD to BAT, prior ruxolitinib allowed (n=311)

Significant Market Opportunity for Pacritinib

Prevalence

Addressable US and EU Market

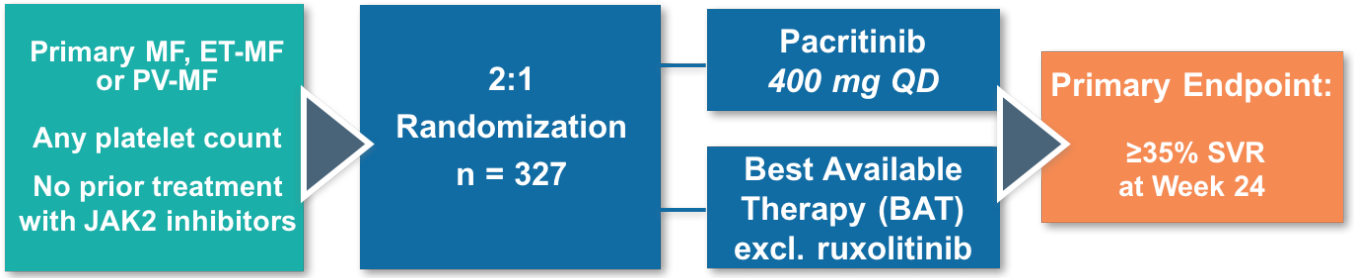


Company estimates based on: 1. July 2018 Kantar Health Myelofibrosis Demand Market Research Global Report 2. SmartAnalyst Quantitative Web survey (N=120); 3. 2015 ZS Pacritinib MD Treatment Flow US/EU5; 4. IMS Jakafi Prescription data Q3 2014; 5. 2017 Kantar Health MF Opportunity Assessment.

Completed Phase 3 Pacritinib Trials

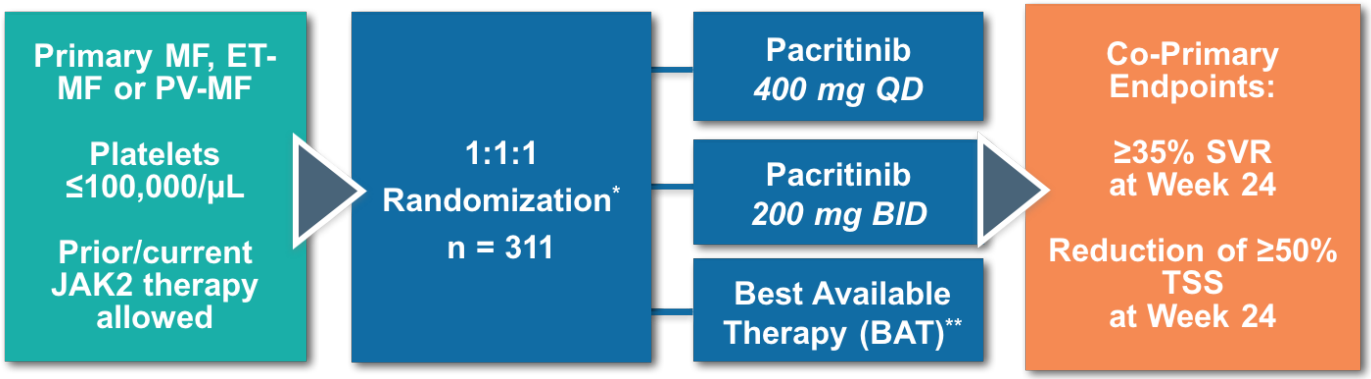
PERSIST-1

1L therapy



PERSIST-2

Thrombocytopenia
1L & 2L therapy



SVR, spleen volume reduction; TSS, total symptom score; *n=211 completed 24 weeks on study; ** BAT may include ruxolitinib; Mesa RA, et al., Lancet Haematology 2017; Mascarenhas J, et al., JAMA Oncology 2018.

PERSIST-1: Efficacy

≥35% SVR at 24 weeks	PAC 400mg QD	BAT	P-value
Overall	19% (N=220)	5% (N=107)	0.0003
Platelets			
≤100,000/µl	17% (N=72)	0% (N=34)	0.0086
≤50,000/µl	23% (N=35)	0% (N=16)	0.045

*SVR, ≥35% spleen value reduction; Mesa RA, et al., Lancet Haematology 2017.

PERSIST-2: Efficacy

Better efficacy with 200 mg BID dosing at 24 wks

Endpoint	Statistics	PAC 200 mg BID (N=74)	PAC 400 mg QD (N=75)	PAC BID+QD (N=149)	BAT (N=72)
≥35% SVR	%	22	15	18	3
	95% CI	12.9-32.7	7.6-24.7	12.3-25.3	0.3-9.7
	P value vs BAT	0.001	0.02	0.001	-
Reduction of ≥50% TSS	%	32	17	25	14
	95% CI	22.0-44.3	9.6-27.8	18.1-32.6	6.9-24.1
	P value vs BAT	0.01	0.65	0.08	-

Persist-2 clinical study report; Mascarenhas J, et al., JAMA Oncology 2018.

PERSIST-2: Efficacy in the Second-line Setting

Clinical benefit patients previously treated in ruxolitinib

Efficacy	PAC 200 mg BID (N=33)	PAC 400 mg QD (N=33)	BAT (N=34)
≥35% SVR (%)	18	6	3
Reduction of ≥50% TSS (%)	30	12	15

SVR, ≥35% spleen volume reduction, TSS, ≥50% reduction in total symptom score at week 24 from baseline; Persist-2 clinical study report.

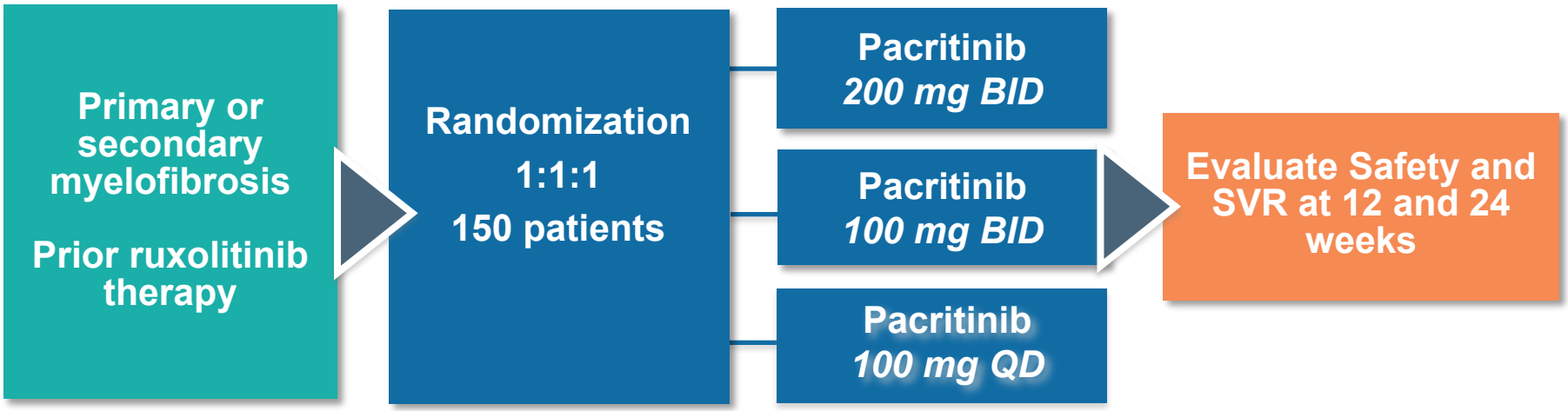
PERSIST-2: Adverse Events (≥15%)

Generally manageable GI toxicity

Adverse Event (%)	PAC 400 mg QD (N=104)	PAC 200 mg BID (N=106)	BAT (N=98)
Diarrhea	67	48	15
Nausea	38	32	11
Thrombocytopenia	33	34	23
Anemia	28	24	15
Vomiting	21	19	5
Fatigue	17	17	16
Peripheral Edema	13	20	15
Dizziness	14	15	5
Abdominal Pain	19	9	19
Pyrexia	11	15	3

Mascarenhas J, et al., JAMA Oncology 2018.

On-going PAC203 Clinical Trial



- Second-line dose ranging study
- No safety concerns during 2nd interim IDMC safety review
- Complete enrollment expected 4Q 2018
- Topline data expected 2Q 2019

SVR, ≥35% spleen volume reduction.

Pacritinib US Regulatory Strategy

New Phase 3 to commence mid-2019

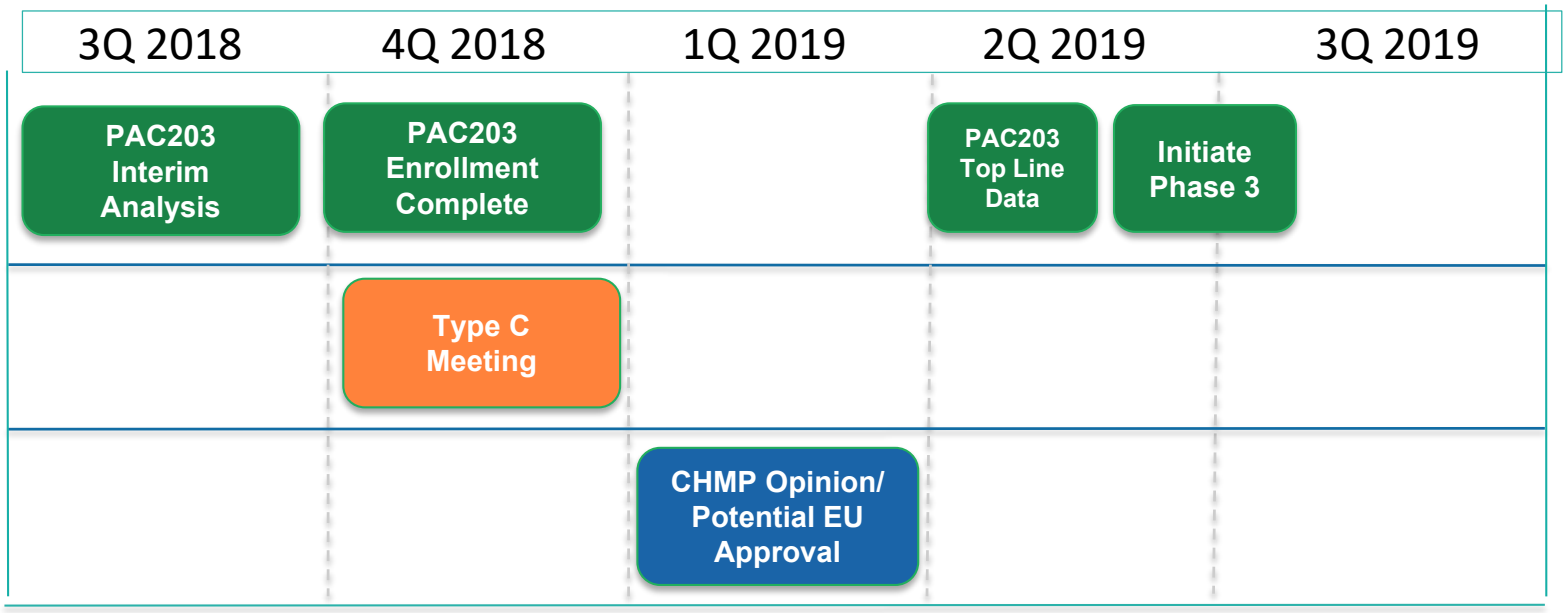
- Pacritinib seeks to address significant unmet medical needs in MF
  - Severe thrombocytopenia (platelet <50,000/μL)
  - Prior exposure to ruxolitinib (Jakafi/Jakavi)
- Determination of optimal dose from PAC203
- Type C meeting before end of 2018
- Registrational Phase 3 to commence mid-2019
  - Severe thrombocytopenia (platelet <50,000/μL)

European Marketing Authorization

CHMP decision expected early 2019

- Second D180 List of Outstanding Issues received
  - Responses due by end of 2018
- Preparations for Oral Explanation to CHMP underway
- CHMP opinion expected in 1Q2019
- Potential EU approval by 1Q 2019

Regulatory Timeline



Financial and Corporate

Financial Overview

CTI BioPharma	
Exchange	NASDAQ: CTIC
Shares Outstanding as of 09/30/18	~58 mm
Cash as of 09/30/18	~$80.9 mm
Debt as of 09/30/18	~$16 mm

Upcoming Milestones

- 4Q 2018
  - Type C pacritinib meeting
  - Complete PAC203 enrollment
- 1Q 2019
  - CHMP opinion on pacritinib MAA
  - Potential EU approval of pacritinib
- 2Q 2019
  - PAC203 top-line data
  - Optimal pacritinib dose determination
- Mid-2019
  - Commence new registrational Phase 3 in MF with severe thrombocytopenia

Contact:
Julia Balanova
Solebury Trout
jbalanova@troutgroup.com