Jefferies Virtual Healthcare Conference

June 2, 2020

NASDAQ: MEIP

Forward-Looking Statements

- This presentation contains, and our officers and representatives may from time to time make, statements that are “forward-looking statements” within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Examples of forward-looking statements include, among others, statements regarding our development strategy; potential advantages of our product candidates; the initiation and completion of preclinical and clinical studies and the reporting of the results thereof; the timing of regulatory submissions and actions; the sufficiency of our existing cash; and all other statements relating to our plans, objectives, expectations and beliefs regarding future performance, operations, financial condition and other future events (including assumptions underlying or relating to any of the foregoing).
- These forward-looking statements rely on a number of assumptions concerning future events and are subject to a number of risks, uncertainties, and other factors, many of which are outside of our control. Important factors that could cause our actual results and financial condition to differ materially from those indicated in forward-looking statements include, among others: uncertainties relating to the initiation and completion of preclinical and clinical studies; whether preclinical and clinical study results will validate and support the safety and efficacy of our product candidates; the outcome of regulatory reviews of our product candidates; varying interpretation of research and development and market data; the impact of the COVID-19 pandemic on our industry and individual companies, including on our counterparties, the supply chain, the execution of our clinical development programs, our access to financing and the allocation of government resources; risks and uncertainties relating to intellectual property and the other factors discussed under the caption “Item 1A. Risk Factors” in our most recent annual report on Form 10-K and our most recent quarterly report on Form 10-Q.
- Any forward-looking statement made by us in this presentation is based only on information currently available to us and speaks only as of the date on which it is made. In addition, we operate in a highly competitive and rapidly changing environment, and new risks may arise. Accordingly, you should not place any reliance on forward-looking statements as a prediction of actual results. We disclaim any intention to, and undertake no obligation to, update or revise any forward-looking statement. You are urged to carefully review and consider the various disclosures in our most recent annual report on Form 10-K, our most recent Form 10-Q and our other public filings with the SEC since the filing of our most recent annual report.

Building a Leading Oncology Franchise

- 4 Clinical-Stage Oncology Programs: Focus On HemOnc

- 2 Candidates in Studies Intended to Support FDA Marketing Approval Applications

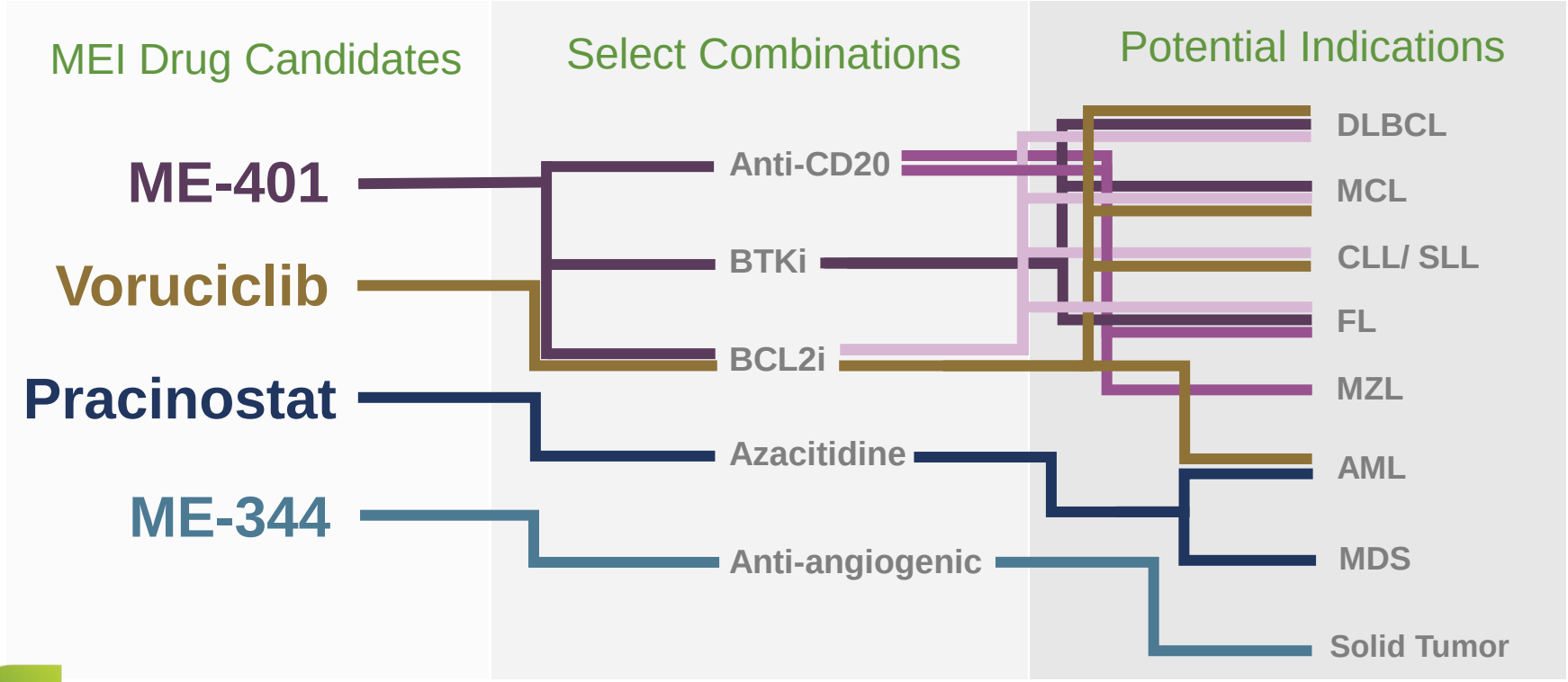
- ME-401: TIDAL Study Supporting Accelerated Approval Submission in r/r Follicular Lymphoma

- $193 Million (Giving Effect to Kyowa Kirin $100M Upfront)
  - $93 Million as of March 31, 2020*
  - Kyowa Kirin Agreement Announced April 2020

* Cash, cash equivalents and short-term investments

Pipeline of Compatibility

Shift Towards Versatile Drugs in Potent Combinations



ME-401 ± Rituximab in Relapsed/Refractory (R/R) B-cell Malignancies

Global License, Development and Commercialization Agreement Optimizes ME-401 Value (April 2020)

$100M
upfront to MEI

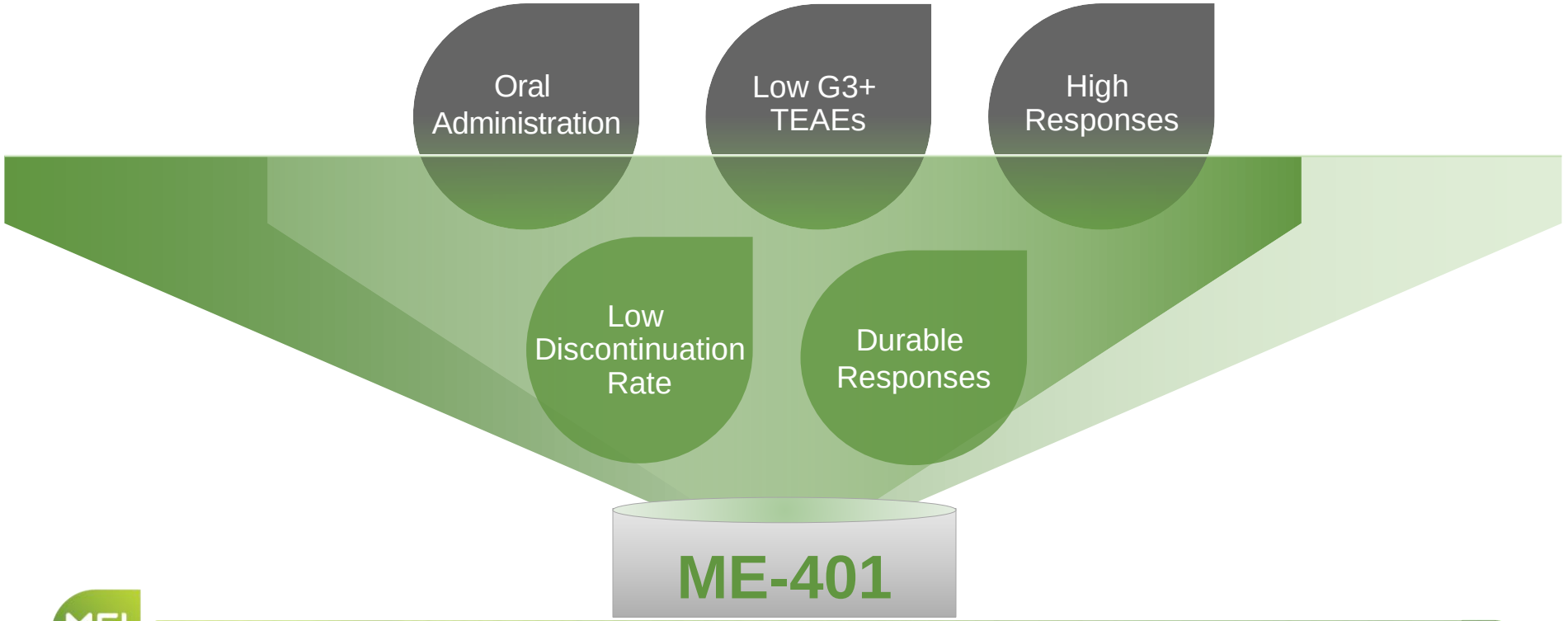
$582M
in potential development, regulatory and commercial milestones

50/50
U.S. co-promote, MEI books U.S. sales

KKC exclusive ex-U.S. rights, MEI to receive escalating tiered royalties starting in teens

- **U.S. COST SHARING**, KKC responsible for incremental ex-U.S. costs
- **AGREED ON BROAD DEVELOPMENT PLAN** for B-cell malignancies

The Time for PI3Kδ Has Come: Targeting a Profile to Meet B-Cell Malignancy Medical Need



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SCIENTIFIC PROGRAM

Tolerability and Durable Responses of the PI3Kδ Inhibitor ME-401 Administered on an Intermittent Schedule in Relapsed/Refractory (R/R) Follicular Lymphoma (FL) and Other B-cell Malignancies

(Abstract # 8016)

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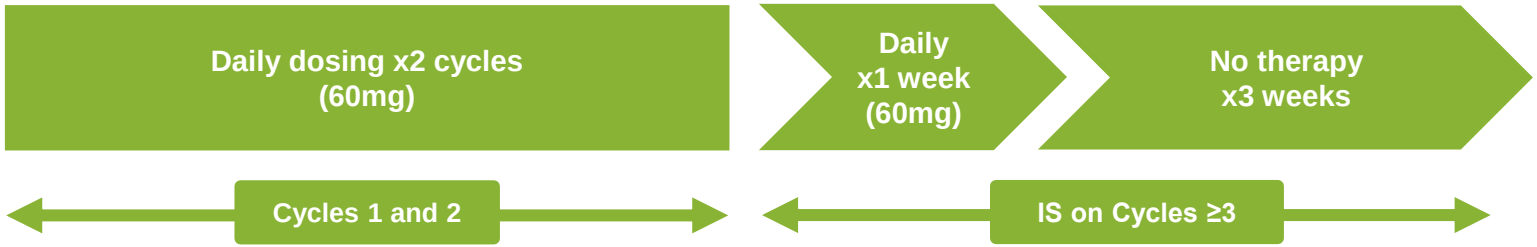
1. Memorial Sloan Kettering Cancer Center, New York, NY; 2. Vanderbilt University Medical Center, Nashville, TN; 3. Cleveland Clinic Taussig Cancer Institute and Case Comprehensive Cancer Center, Cleveland, OH; 4. IOSI-Oncology Institute of Southern Switzerland, Bellinzona, Switzerland; 5. Stony Brook Medical Center, Stony Brook, NY; 6. Massachusetts General Hospital, Boston, MA; 7. University of Wisconsin, Madison, WI; 8. University of Oklahoma Health Sciences Center, Oklahoma City, OK; 9. MEI Pharma, Inc, San Diego, CA; 10. Swedish Cancer Institute, Seattle, WA

Data cutoff: April 13, 2020

ME-401 Phase 1b Study (NCT02914938)

- Phase 1b single arm, dose escalation/expansion study with safety and tolerability endpoints
  - Main Eligibility Criteria: ECOG 0–2, failure of ≥1 prior therapy for B-cell malignancies, measurable disease, no prior PI3K or BTK therapy
- 57 patients treated on Intermittent Schedule (IS) beginning in Cycle 3
- Treatment groups: 60 mg daily as monotherapy / 60 mg in combination with rituximab



Intermittent schedule (IS) being evaluated as a strategy to mitigate delayed immune-related toxicities associated with continuous daily administration of oral PI3K inhibitors

Patient Characteristics

	FL N=36	CLL N=10	MZL N=4	DLBCL N=7	Total N=57
Age					
Median (range), in years	62 (38 -87)	71 (46 -80)	73(70 -94)	69(60 -84)	66 (38 – 94)
≥ 65 years, No. (%)	16 (44%)	8 (80%)	4 (100%)	6 (86%)	34 (60%)
Prior anti-lymphoma therapy					
Median (range)	2 (1, 5)	2(1, 3)	1(1, 1)	2(1, 8)	2 (1 – 8)
≥ 2 prior lines	20 (56%)	5 (50%)	0	6 (86%)	31 (54%)
Prior anti-CD20 antibody	36 (100%)	9 (90%)	4 (100%)	7 (100%)	56 (98%)
Diameter of largest tumor size					
< 5 cm	17 (47%)	6 (60%)	3 (75%)	5 (71%)	31 (54%)
≥ 5 cm	19 (53%)	4 (40%)	1 (25%)	2 (29%)	26 (46%)

Overall Responses: R/R FL

Diagnosis	Evaluable Subjects (N)	ORR N (%)	CR Rate N (%)
FL	36	30 (83%)	8 (22%)
By treatment group			
ME-401 monotherapy	17	13 (76%)	4 (24%)
ME-401 + rituximab	19	17 (89%)	4 (21%)
By prior lines of therapy			
1 prior	16	13 (81%)	3 (19%)
≥ 2 prior	20	17 (85%)	5 (25%)

Response criteria : Lugano

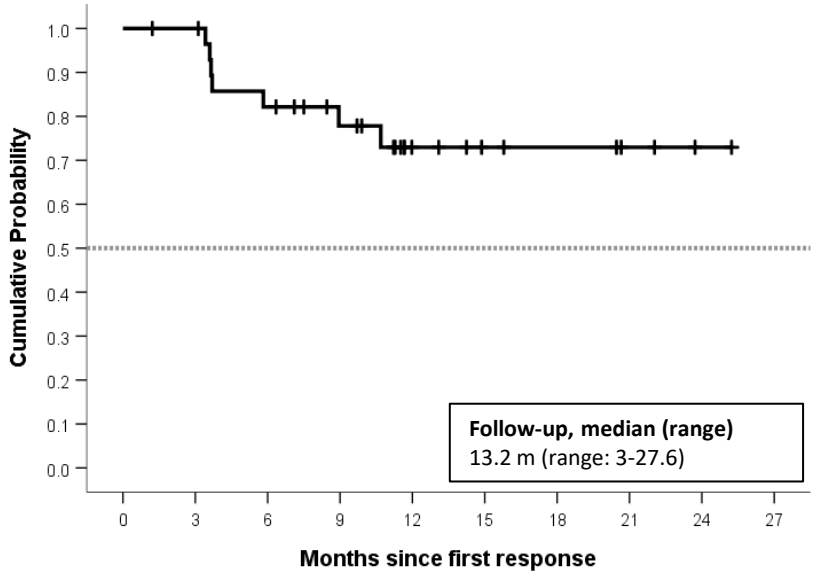
Overall Responses: Other R/R B-Cell Malignancies

Diagnosis	Evaluable Subjects (N)	ORR N (%)	CR Rate N (%)
CLL/SLL	9	8 (89%)	1 (11%)
By treatment group			
ME-401 monotherapy	3	3 (100%)	0
ME-401 + rituximab	6	5 (83%)	1 (17%)
MZL			
ME-401 + rituximab	4	4 (100%)	1 (25%)
DLBCL			
ME-401 + rituximab	6	1 (17%)	1 (17%)

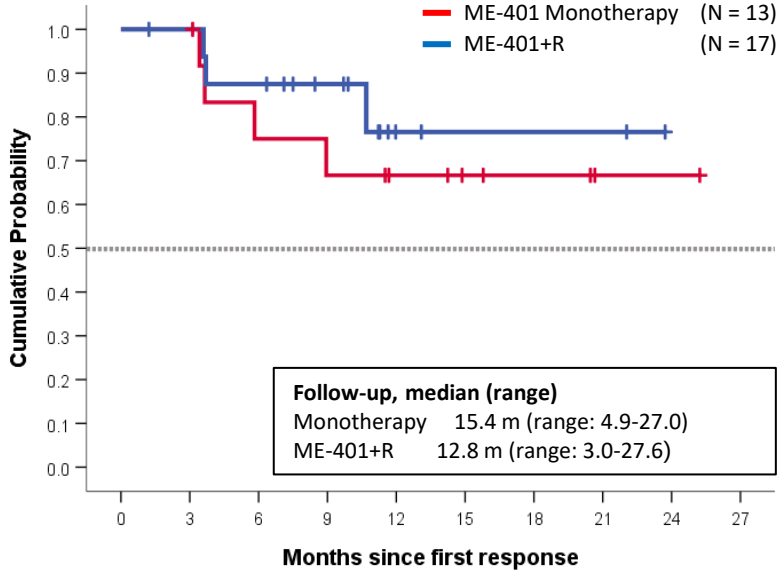
Response criteria : iwCLL

Duration of Response in FL

FL Patients (N = 30)

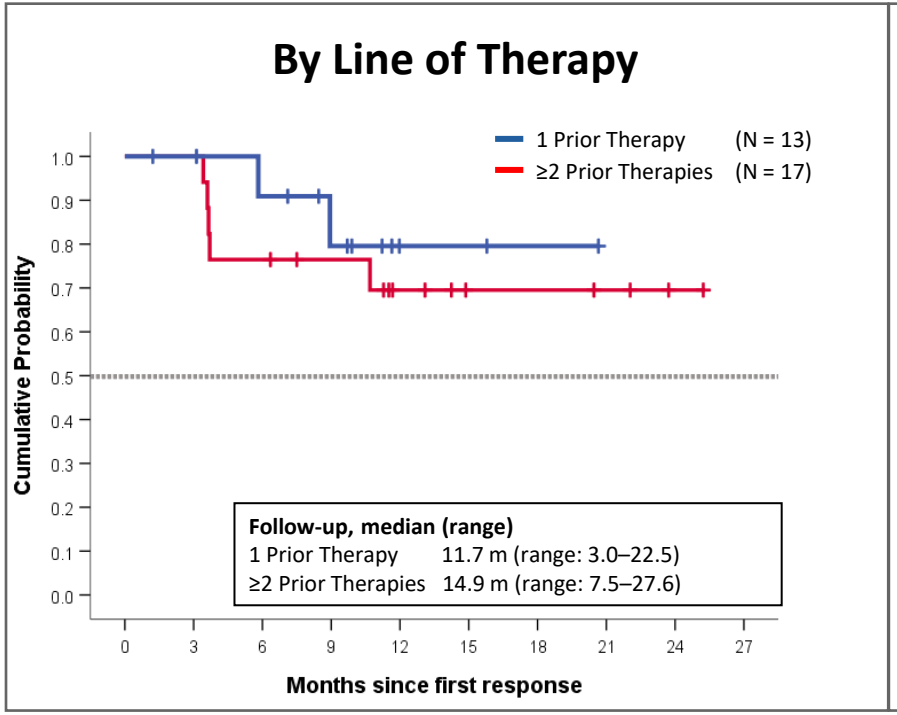


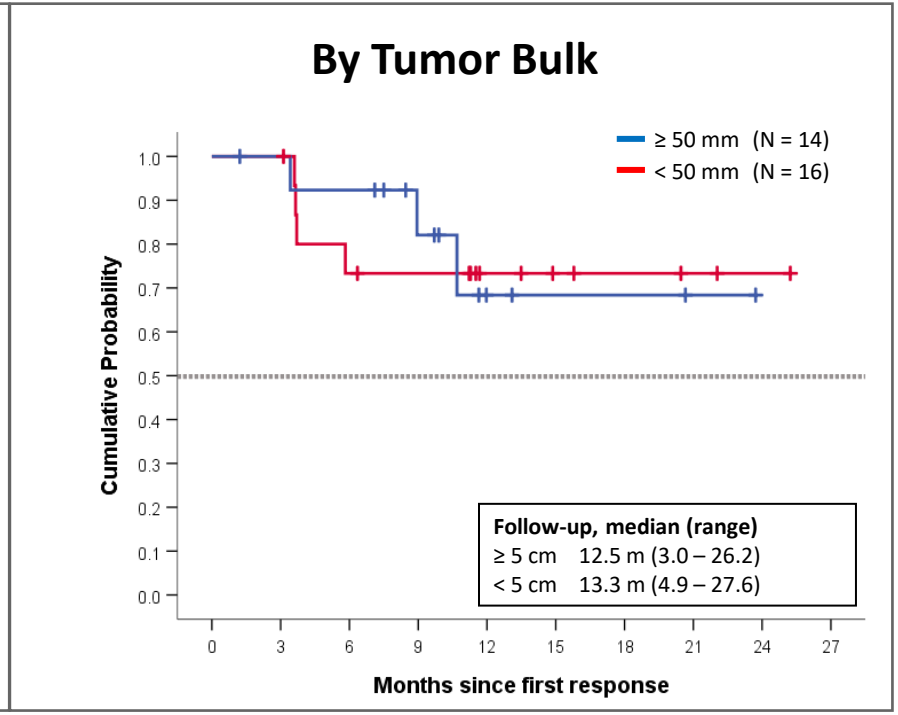
By Treatment Group



Follow-up = Time from first day on study to treatment discontinuation or data cutoff date

Duration of Response in FL





Follow-up = Time from first day on study to treatment discontinuation or data cutoff date

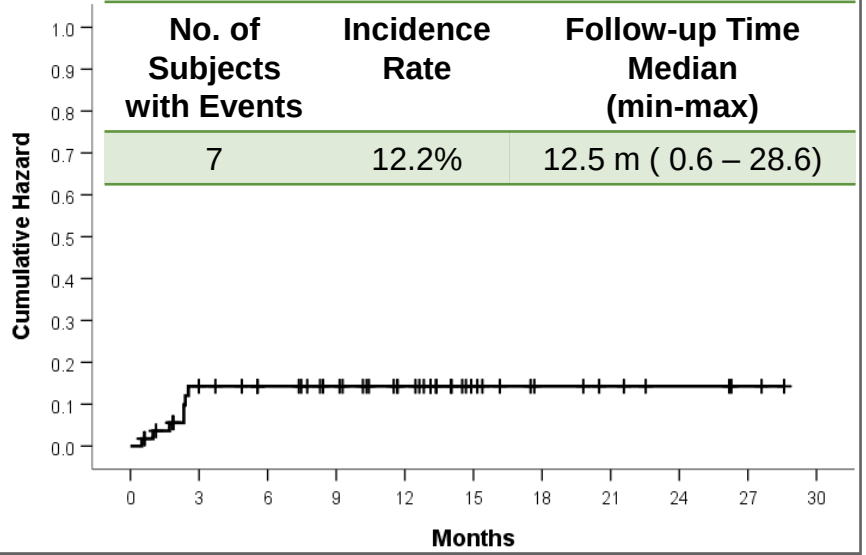
Low Incidence of Adverse Events of Special Interest (AESI): No Increased Toxicity Over Time

Adverse Events of Special Interest (AESI)	Grade ≥ 3
Diarrhea	
Diarrhea	2 (3.5%)
Colitis	2 (3.5%)
Rash, all Types	1 (1.8%)
ALT/AST elevation	1 (1.8%)
Stomatitis	0
Pneumonia / Infectious pneumonitis	0*
Non-infectious pneumonitis	1 (1.8%)

*1 patient with Grade 5 Covid-19 pneumonia in Cycle 15 not included

Time to First Grade ≥ 3 AESI (N=57)

No. of Subjects with Events	Incidence Rate	Follow-up Time Median (min-max)
7	12.2%	12.5 m (0.6 – 28.6)



- All Grade 3 AESI occurred in Cycles 1-3
- No Grade 4 AESI

- Discontinuations due to AEs in 4 patients (7%)

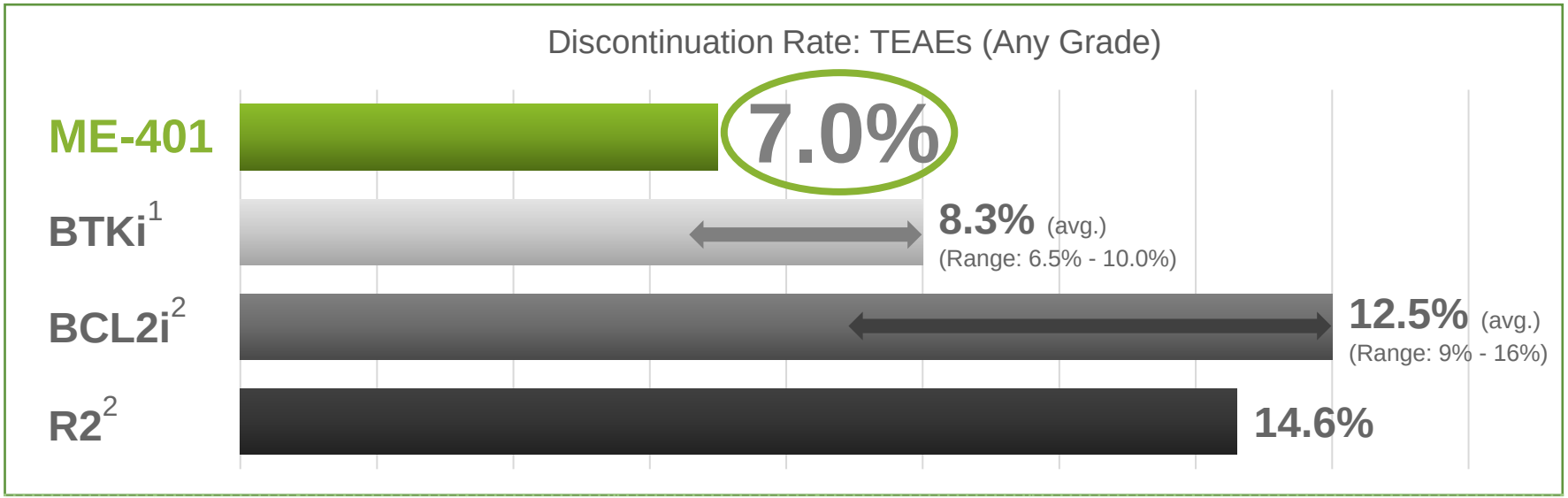
Low Incidence of Grade ≥3 Myelosuppression and AST/ALT Elevation Based on Laboratory Tests

Grade ≥ 3	ME-401 Alone (N=21)	ME-401 + Rituximab (N=36)	Total (N = 57)
Increased Transaminases			
AST	0 (0.0%)	0 (0.0%)	0 (0.0%)
ALT	0 (0.0%)	2 (5.6%)	2 (3.5%)
Hematology			
Neutropenia	3 (14.3%)	8 (22.2%)	11 (19.3%)
Anemia	0 (0.0%)	0 (0.0%)	0 (0.0%)
Thrombocytopenia	0 (0.0%)	2 (5.6%)	2 (3.5%)

Conclusions: ASCO 2020 Data Update

- **ME-401 on IS has a high response rate and is well tolerated in R/R FL and CLL/SLL**
  - ORR = 83% in FL and 89% in CLL/SLL
  - Low incidence of Grade ≥3 AESI
  - No Grade ≥3 AESI reported after Cycle 3
  - Discontinuation rate due to adverse events = 7%
- **Median DOR in FL is not reached with a median follow-up 13.2 months**
  - Durable responses regardless of prior lines of therapy, treatment group (± rituximab) or tumor bulk

ME-401 Emerging Profile: Potential for Broad Acceptance Across B-Cell Malignancies & Supports Combinations with Other Modalities

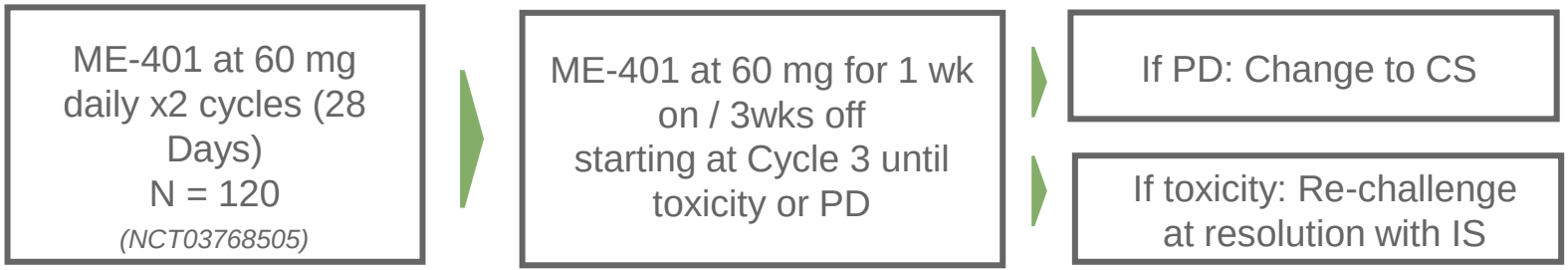


	Diarrhea/ Colitis	Neutropenia	Anemia	Thrombocytopenia	Pneumonia/ Pneumonitis	Hemorrhage	Atrial Fibrillation/Flutter	Secondary Malignancy
ME-401	**7%**	**0%**	**0%**	**0%**	**2%**	**0%**	**0%**	**0%**
BTKi	0.6%-5%	23%-27%	8%-10%	7%-8%	6%-13%	2%-4%	0.6%-4%	9%-12%
BCL2i	3%-4%	45%-62%	8%-18%	20-28%	8%	0%	0%	0%
R2	2.8%	50%	4.5%	2.3%	2.2%	0%	0%	0%

1. Includes the FDA approved BTK inhibitors: IMBRUVICA (ibrutinib), CALQUENCE® (acalabrutinib) and BRUKINSA® (zanubrutinib). Rates of TEAE are from FDA labels and relate to safety databases for IMBRUVICA (n=1,124), CALQUENCE (n=1,029) and BRUKINSA (n=629), across clinical trials evaluating patients with CLL/SLL, MCL, WM, and MZL. 2. Rates of TEAEs are from the FDA label for VENCLEXTA (Venetoclax®) as indicated for the treatment CLL/SLL (n=758). 3. Rates of TEAEs are from the FDA label for Revlimid® (lenalidomide) as indicated for the treatment of follicular lymphoma and marginal zone (AUGMENT trial: n=176).

Note: These data are based on cross-trial comparisons and not based on any head-to-head preclinical studies or clinical trials. As a result, the values shown may not be directly comparable and do not report robust comparative analyses. ME-401 data is from an ongoing Phase 1b study evaluating patients on the intermittent schedule as a monotherapy or in combination with Rituxan® (rituximab). Data cutoff is April 13, 2020

Phase 2 TIDAL Trial to Support Accelerated Approval Marketing Application – The Initial Opportunity in r/r FL



- Histologically confirmed diagnosis of FL, Grade 1, 2, or 3a
- FL, relapsed or refractory to 2 prior systemic therapies including an anti-CD20 antibody and chemotherapy
- No prior therapy with PI3Kδ inhibitors
- No histological transformation to an aggressive lymphoma

Focus on Select B-Cell Malignancy Indications*

>65,000 Addressable Patients Across Multiple Indications

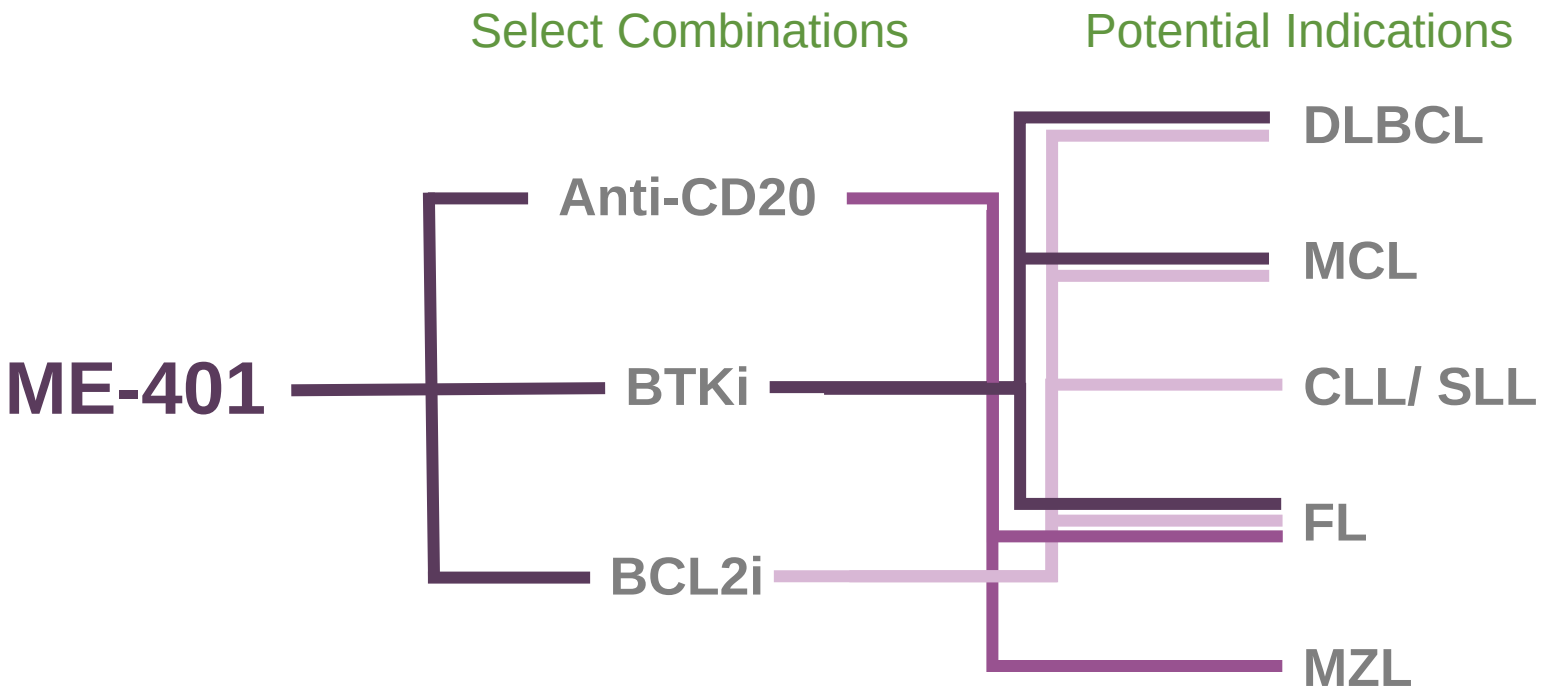
(U.S. Only)

$1B+Markets

Follicular Lymphoma	15,000
Mantle Cell Lymphoma	4,500
DLBCL	22,000
Marginal Zone Lymphoma	6,000
Chronic Lymphocytic Leukemia & Small Lymphocytic Lymphoma	20,000

*U.S. incidence rates: Cancer.net, Cancer.org, Lymphoma.org (accessed on November 6, 2019).

Select Combinatorial Potential of ME-401



ME-401
Conclusion

ME-401: Regaining the Promise of PI3Kδ

Voruciclib: Oral CDK Inhibitor with Potent CDK9 Activity

Voruciclib: Potential to Overcome Venetoclax Resistance

Increased MCL1 is an established venetoclax resistance mechanism[1]

Venetoclax inhibits BCL2 but can lead to stabilization of MCL1

Voruciclib inhibits MCL1 via CDK9 inhibition

- Combination opportunities across multiple indications, including:
  - AML, CLL & DLBCL

[1] *Blood. 2016 Jun 23;127(25):3192-201* [2] *J Clin Oncol. 2017 Mar 10;35(8):826-833;* [3] *Sci Rep. 2017 21:7(1): 18007*

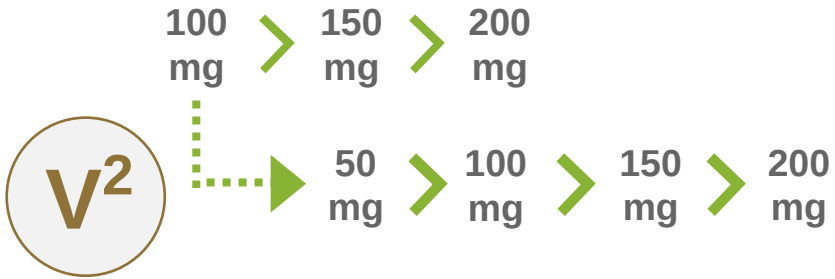
MEI Phase 1 Study: Daily Dosing Design in R/R B-Cell Malignancies and AML

- Study population
  - Relapsed/Refractory B-cell Malignancies
  - AML After Treatment with Standard Therapy
- Dose escalation with standard 3+3 design

- Endpoints
  - Safety and tolerability
  - Pharmacokinetics
  - Biologic correlative studies
    - BH3 profiling, MCL-1 expression (Dana Farber)
    - Molecular mutations analysis (City of Hope)
  - Objective response rates
  - CR/CRi rate

Voruciclib single agent dose escalation

Venetoclax + Voruciclib dose escalation



Pracinostat: Potential Best-in-Class Phase 3 HDAC Inhibitor

Pracinostat in Two Ongoing Studies: AML and MDS

Phase 3

AML

- 75+ w/ newly diagnosed AML
- Unfit for intensive chemo

500 patients:
Pracinostat (60 mg) + Aza
vs. Aza monotherapy

Primary endpoint:
Overall Survival

Phase 2

MDS

- High/Very high risk
- No prior HMA's

≤ 40 patients:
Pracinostat (45 mg) + Aza

Enrollment expansion:
60 pts
Pracinostat + Aza

Primary endpoints:
Overall Response
&
One Year Survival

HELSINN

ASCO 2020: Phase 2 Study in Patients with High/Very-High Risk MDS

- 77%. 1-year OS (median follow-up 17.6 months (range, 15.7–18.8))
- 33% ORR (21/64), all CRs
- 77% (49/64) Clinical Benefit rate*
- 27% (17/64) proceeded to a stem cell transplant
- 11% (7/64) discontinued treatment because AE
- Most common grade ≥3 TEAEs were hematologic:
  - Decreased neutrophil count (50%)
  - Anemia (39%)
  - Febrile neutropenia (34%)
  - Decreased platelet count (33%)
  - Thrombocytopenia (27%)
  - Decreased white blood cell count (20%)

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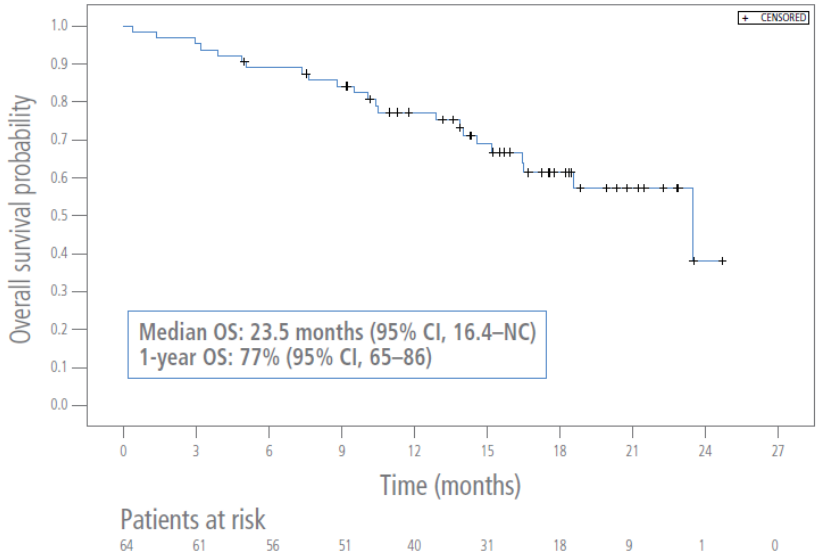
Figure 3. Overall Survival



NC: not computable; **OS:** overall survival.

*Clinical Benefit rate includes CR, mCR plus hematologic improvement [HI], mCR with no HI, or HI with no mCR) was 77% (49/64).

Key Upcoming 12 Month Milestones Across Portfolio

- **ME-401**
  - TIDAL, accelerated approval study in R/R follicular lymphoma, complete enrollment
  - Initiation of new clinical studies to expand into additional indications
  - Initial data, phase 1b study evaluating ME-401 with Brukinsa™ (zanubrutinib) under clinical collaboration with BeiGene
- **Voruciclib**
  - Initial data, Phase 1 monotherapy and +BCL2i data updates
- **Pracinostat**
  - Phase 3 study in AML, complete enrollment
- **ME-344**
  - Institute plan to leverage clinically demonstrated anti-tumor activity in combination with anti-VEGF

MEI pharma

Timing subject to developments related to the COVID-19 pandemic

Jefferies Virtual Healthcare Conference

June 2, 2020

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