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Bemarituzumab

Targeted Therapy for FGFR2b+ Tumors

November 10, 2020

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This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "may," "will," "expect," "plan," "anticipate" and similar expressions (as well as other words or expressions referencing future events or circumstances) are intended to identify forward-looking statements. These forward-looking statements reflect Five Prime's current beliefs and expectations. Each of these forward-looking statements involves risks and uncertainties. Actual results may differ from these forward-looking statements. Forward-looking statements contained in this presentation include statements about (i) the timing of initiation, progress and scope of clinical trials for bemarituzumab; (ii) the potential use of bemarituzumab, including in combination with other products, to treat patients; (iii) the potential development of bemarituzumab in indications in addition to gastric and gastroesophageal cancer; (iv) the timing of the presentation of data for our product candidates; and (v) the extent of protein overexpression and gene amplification in certain patient populations.

Many factors may cause differences between current expectations and actual results, including unexpected safety or efficacy data observed during preclinical or clinical studies, changes in expected or existing competition, failure of our collaborators to support or advance collaborations or product candidates, changes in the regulatory, pricing or reimbursement environment and unexpected litigation or other disputes. In addition, while we expect the COVID-19 pandemic to adversely affect our business operations and financial results, the extent of the impact on our ability to advance our manufacturing, clinical development and regulatory efforts and business and corporate development and other objectives and the value of and market for our common stock will depend on future developments that are highly uncertain, and we cannot predict with confidence the ultimate duration of the pandemic, travel restrictions, quarantines, social distancing and business closure requirements in the U.S. and in other countries and the effectiveness of actions taken globally to contain and treat COVID-19. Other factors that may cause our actual results to differ from current expectations are discussed in Five Prime's filings with the U.S. Securities and Exchange Commission, including the "Risk Factors" sections contained therein. Except as required by law, we assume no obligation to update any forward-looking statements contained herein to reflect any change in expectations, even as new information becomes available.

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Executive Summary: Bemarituzumab Value Proposition

First-in-class antibody

targeting FGFR2b+ advanced gastric and gastroesophageal junction (GC/GEJ) cancers

PFS, OS, ORR statistically significant[1]

FIGHT Phase 2 Results

PFS HR=0.68 (95% CI: 0.44-1.04; p=0.073)

OS HR=0.58 (95% CI: 0.35-0.95; p=0.027)

ORR improved -13.1% (CI: -29.0%, 2.8%; p=0.106)

~30% FGFR2b+

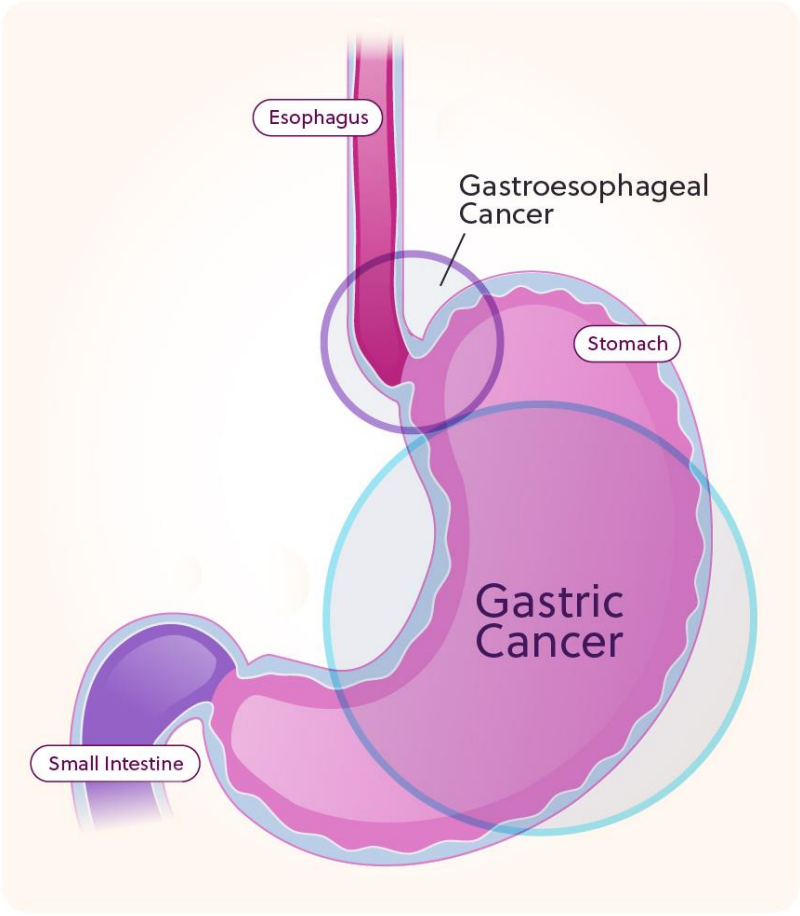
in newly diagnosed/front-line non-HER2+ advanced GC/GEJ cancers

Significant unmet need in gastric

>200,000 patients worldwide[2]

[1]Statistical significance (at 2-sided alpha 0.20) for PFS, OS and ORR was pre-specified and tested sequentially; [2]Company estimates

Gastric Cancer Has Global Impact and a Poor Prognosis



Gastric Cancer Incidence[1]
1 million+ cases globally each year

1M+

3rd

3rd most common cause of cancer death globally[1]
After lung and breast cancer

5th Most Common Cancer[1]
After lung, breast, prostate and colon cancer

5th

Unmet Medical Need

No new FDA approved frontline therapy for 10+ years[2]

Chemotherapy is the standard of care for the ~80-85% of patients whose tumors are HER2-[3]

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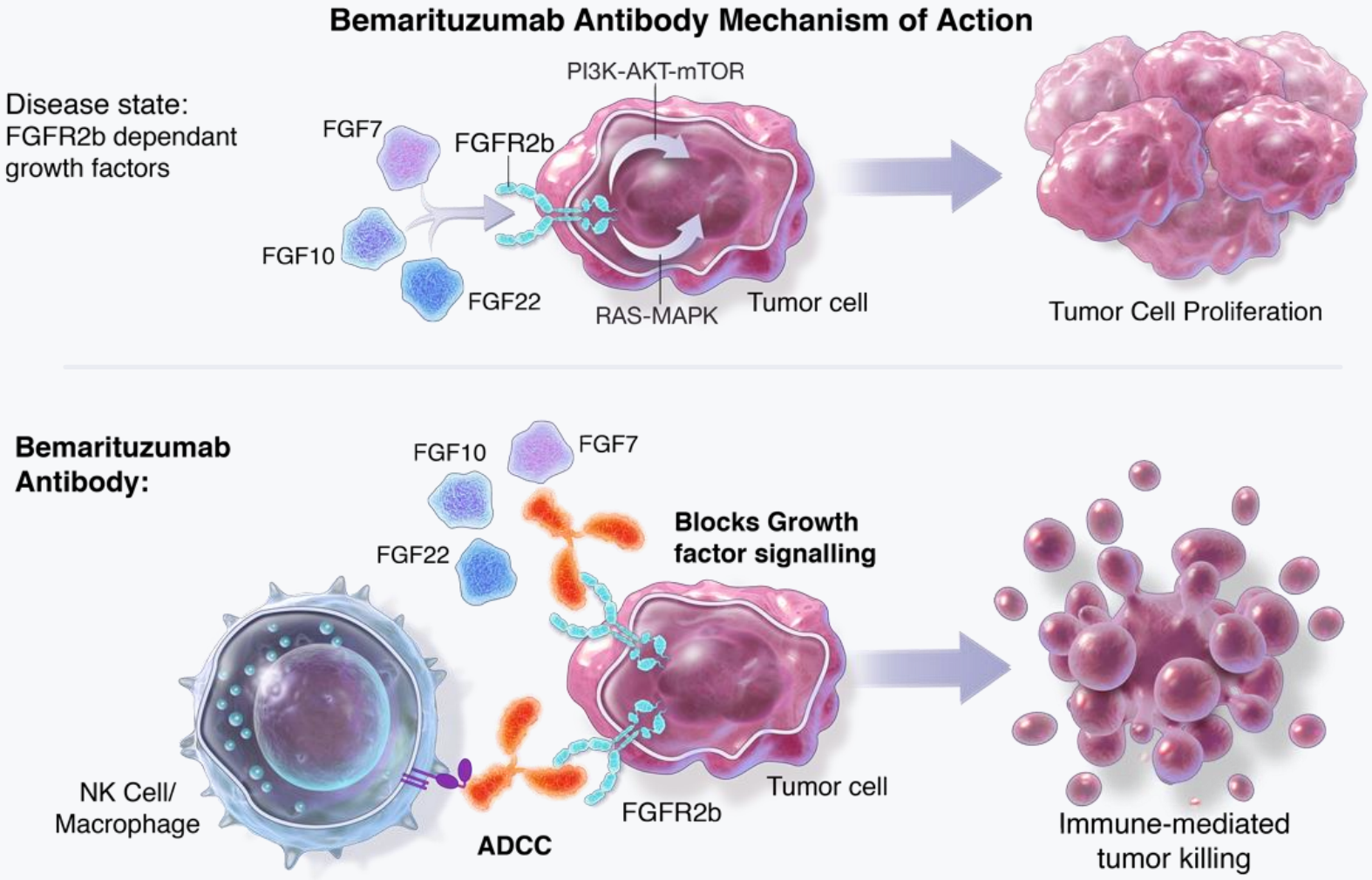
[1]Bray F, Ferlay J, Soerjomataram I, et al: Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2018;68(6):394-424. doi:10.3322/caac.21492 [2]Herceptin approved for HER2-positive metastatic stomach cancer, October 20, 2010 [3]Wagner et. al.

Bemarituzumab (Bema) MoA



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Overview of Bemarituzumab Clinical Development

Study Number of patients	**FGFR2b Selected**	**Objective(s)**	**Results**
Phase 1 Monotherapy (n=79)	Mixed	Tolerability, safety and preliminary efficacy of monotherapy in late-line patients	ORR 18% in late-line FGFR2b+ Gastric / GEJ[1]
Phase 1 Monotherapy in Japan (n=6)	No	Tolerability, safety and PK profile in late-line Japanese patients with GEJ	PK is comparable to non-Japanese patients
Phase 1 Combo (Bema + Chemo) Safety (n=12)	No	Tolerability, safety and PK of bemarituzumab + mFOLFOX6 in any GI cancer Evaluate ability to achieve C_{trough} PK by Day 15 with new dosing schedule (Q2W + a single Day 8 dose)	No evidence of overlapping toxicity or effect on PK All pts achieved target C_{trough} by Day 8
Phase 2 FIGHT Randomized (n=155)	Yes	Evaluate bemarituzumab + mFOLFOX6 vs placebo + mFOLFOX6 in FGFR2b+/non-HER2+ front-line gastric / GEJ cancers	Primary Endpoint: PFS Secondary Endpoints: OS, ORR

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1 Catenacci, et al JCO 2020

FIGHT: Phase 2 Randomized Trial in Frontline FGFR2b+, non HER2+ Gastric/GEJ Cancers

FIGHT Trial Design

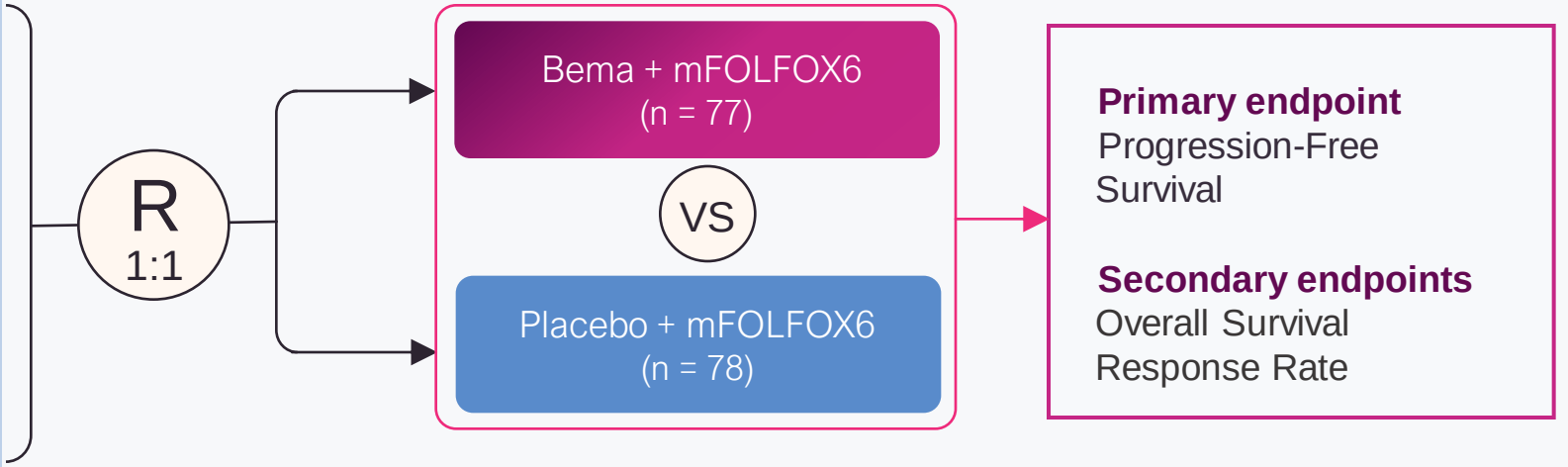
Patients Selected for FGFR2b+ Tumors (~30% of all non-HER2+ Gastric/GEJ Cancer)

Key Eligibility Criteria

- No prior therapy for unresectable locally advanced or metastatic gastric or GEJ adenocarcinoma
- RECIST v1.1 evaluable disease
- FGFR2b overexpression and/or *FGFR2* gene amplification
- Non-HER2+

Stratification Factors

- Geographic region
- Single dose of mFOLFOX during screening
- Prior adjuvant or neo-adjuvant chemotherapy



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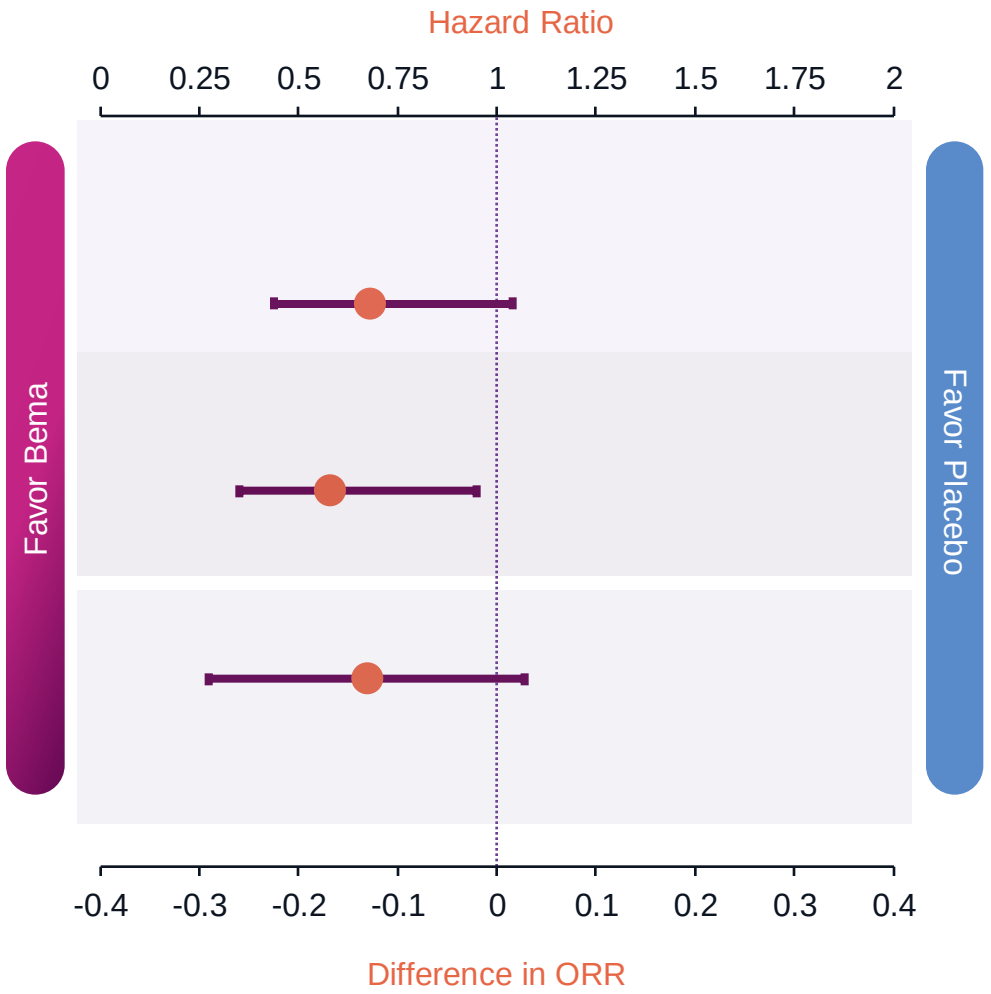
Primary and Secondary Efficacy Endpoints with Statistical Significance[1]

ENDPOINT	MEDIAN PFS/OS (MON) RESPONSE RATE	HR (95% CI) DIFFERENCE IN ORR (95% CI)
PFS	Bema: 9.5 Placebo: 7.4	0.68 (0.44, 1.04) p=0.073
OS	Bema: NR Placebo: 12.9	0.58 (0.35, 0.95) p=0.027
ORR	Bema: 36 (46.8%) Placebo: 26 (33.3%)	-13.1%[2](-29.0%, 2.8%) p=0.106

- All results are primary analysis on ITT
- NR = Not reached



[1]Statistical significance (at 2-sided alpha 0.20) for PFS, OS and ORR was pre-specified and tested sequentially; [2]Difference in ORR is calculated by (Placebo – Bema)

Results from Front-Line Gastric Cancer Trials

Endpoint	**ToGA Trial** (trastuzumab; HER2+) Global including South Korea & Japan	**CheckMate-649 Trial** (nivolumab; CPS ≥5/HER2-) Global not including South Korea or Japan	**FIGHT Trial** (bema; FGFR2b+/non HER2+) Global including South Korea & Japan
Progression-Free Survival (PFS)	**HR = 0.71** 5.5 months to 6.7 months 1.2-month improvement	**HR = 0.68** 6.0 months to 7.7 months 1.7-month improvement	**HR = 0.68** 7.4 months to 9.5 months 2.1-month improvement
Overall Survival (OS)	**HR = 0.74** 11.1 months to 13.8 months 2.7-month improvement	**HR = 0.71** 11.1 months to 14.4 months 3.3-month improvement	**HR = 0.58** 12.9 months to NR
Objective Response Rate (ORR)	35% to 47% **12% improvement**	45% to 60% **15% improvement** (did not use ITT)	33.3% to 46.8% **13.1% improvement**

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Source: GLOBOCAN, World Health Organization, Equity Research

Summary of Treatment-Emergent Adverse Events (TEAEs)

	Bema (N = 76)	Placebo (N = 77)	Total (N = 153)
All TEAE	76 (100.0%)	76 (98.7%)	152 (99.3%)
Grade ≥ 3	63 (82.9%)	57 (74.0%)	120 (78.4%)
Leading to death (Grade 5)	5 (6.6%)	4 (5.2%)	9 (5.9%)
SAE	24 (31.6%)	28 (36.4%)	52 (34.0%)
SAE related to any study drug	11 (14.5%)	15 (19.5%)	26 (17.0%)
Related to any study drug	72 (94.7%)	73 (94.8%)	145 (94.8%)
Related to any study drug with Grade ≥ 3	57 (75.0%)	47 (61.0%)	104 (68.0%)
Leading to any component of mFOLFOX6 discontinuation	35 (46.1%)	28 (36.4%)	63 (41.2%)
Leading to bema/placebo discontinuation	26 (34.2%)	4 (5.2%)	30 (19.6%)
Leading to bema/placebo reduction	9 (11.8%)	7 (9.1%)	16 (10.5%)

- Corneal and stomatitis adverse events were more frequent in the bemarituzumab + mFOLFOX6 arm
- No retinal detachment or hyperphosphatemia were reported in the bemarituzumab + mFOLFOX6 arm

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Summary of FIGHT Phase 2 Top-Line Results

Primary endpoint

Primary endpoint PFS: Bema is ***superior*** to placebo

- HR = 0.68 (95% CI: 0.44, 1.04; p=0.073[1])
- Median PFS (months): 9.5 vs. 7.4

Secondary efficacy endpoints

1st secondary endpoint OS: Bema is ***superior*** to placebo

- HR = 0.58 (95% CI: 0.35, 0.95; p=0.027[1])
- Median OS (months): NR vs. 12.9

2nd secondary endpoint ORR: Bema is ***superior*** to placebo

- Improvement in ORR = 13.1% (p=0.106[1])
- ORR: 46.8% vs. 33.3%

Preliminary Safety Summary:

- Overall incidence of AEs and SAEs were similar in the 2 arms
- Expected: corneal and stomatitis adverse events were more frequent in the bemarituzumab + mFOLFOX6 arm
- No adverse events of retinal detachment or hyperphosphatemia identified in the bemarituzumab + mFOLFOX6 arm

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[1]Statistical significance (at 2-sided alpha 0.20) for PFS, OS and ORR was pre-specified and tested sequentially

Potential Development Opportunity in Other FGFR2b+ Tumors

Tumor Type	Global Prevalence[1]	FGFR2b+ Rate (2+ / 3+ IHC Cutoff) (Study source)	Estimated Global FGFR2b+ Population
NSCLC-Squamous	543,141	31% (Ventana data, n=100)	~150,000
TNBC	825,012	13% (Five Prime data, n=97)	~100,000
Ovarian cancer	762,663	40% (Ventana data, n=25)	~300,000
Pancreatic cancer	282,574	4% (Five Prime data, n=100)	~10,000
Intrahepatic-cholangiocarcinoma	52,576	22% (Ventana data, n=125)	~10,000

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[1]GLOBOCAN, World Health Organization, Equity Research

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