Obseva

nature meets nurture

Focused on unmet needs in women's reproductive health

January 2021

Disclaimer

Matters discussed in this presentation may constitute forward-looking statements. The forward-looking statements contained in this presentation reflect our views as of the date of this presentation about future events and are subject to risks, uncertainties, assumptions, and changes in circumstances that may cause our actual results, performance, or achievements to differ significantly from those expressed or implied in any forward-looking statement. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future events, results, performance, or achievements. Some of the key factors that could cause actual results to differ from our expectations include our plans to develop and potentially commercialize our product candidates; our planned clinical trials and preclinical studies for our product candidates; the timing of and our ability to obtain and maintain regulatory approvals for our product candidates; the extent of clinical trials potentially required for our product candidates; the clinical utility and market acceptance of our product candidates; our commercialization, marketing and manufacturing capabilities and strategy; our intellectual property position; and our ability to identify and in-license additional product candidates. For further information regarding these risks, uncertainties and other factors that could cause our actual results to differ from our expectations, you should read he risk factors set forth in our Annual Report on Form 20-F for the year ended December 31, 2019 filed with the SEC on March 5, 2020 and the risk factors disclosed in the Report on Form 6-K filed with the SEC on November 5, 2020, and our other filings we make with the Securities and Exchange Commission from time to time.

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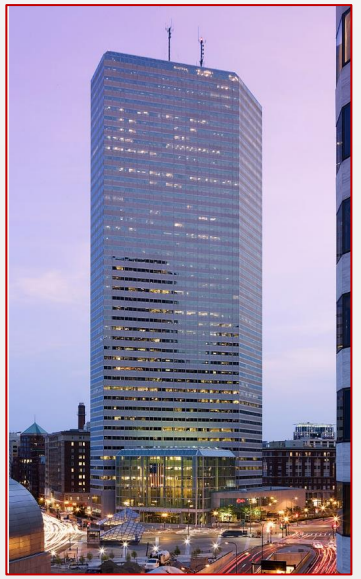
This presentation also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

About ObsEva

ObsEva (NASDAQ: OBSV and SIX: OBSN) is a clinical-stage biopharmaceutical company developing and commercializing novel therapies to improve women's reproductive health.
Through strategic in-licensing and disciplined drug development, ObsEva has established a late-stage clinical pipeline with development programs focused on treating endometriosis, uterine fibroids and preterm labor

- Founded in 2012
- Locations: Geneva , Switzerland and Boston, MA
- Employees: 46 total EU and US
- Listings: NASDAQ (OBSV) and SIX (OBSN)
- Collaborations with Kissei, YuYuan Bioscience, Merck Serono



Seasoned leadership team

Brian O'Callaghan
Chief Executive Officer

- Petra Pharma
- NPS Pharma — The Nexus of Patients and Science™
- Sangart
- Merck Serono
- Covance

Elizabeth Garner MD, MPH
Chief Medical Officer

- Agile Therapeutics
- Merck
- Abbott
- myriad — When Decisions Matter

David Renas
Chief Financial Officer

- Petra Pharma
- Sangart
- DLA Piper
- Deloitte.
- Adkins Black LLP

Fabien de Ladonchamps
Chief Administrative Officer

- addex Therapeutics

Jean-Pierre Gotteland, PhD
Chief Scientific Officer

- Pierre Fabre
- serono — biotech & beyond
- preglem — reproductive medicine

Wim Souverijns, PhD
Chief Commercial Officer

- AMGEN
- Celgene

Board of Directors

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Chairperson

Ernest Loumaye, MD, PhD

Annette Clancy, BSc (Hons)

Barbara Duncan
Audit Committee Chair

James I. Healy, MD, PhD

Ed Mathers

Rafaèle Tordjman, MD, PhD

Jacky Vonderscher, PhD

Investor highlights

1. Pursuing promising large indications for serious conditions that compromise **women's reproductive health and beyond**, with the potential to extend into other indications including prostate cancer

2. Ebopiprant, the **only oral $PGF_{2\alpha}$ receptor antagonist in development, has positive phase 2 data** and favorable safety that support a **Phase 2b dose ranging study** (initiation in EU/Asia planned in 2H:21)

3. Yselty® has potential **best in class efficacy, a favorable tolerability profile, and unique flexible dosing options;** multiple value-generating milestones in the next year, including:
   - Phase 3 uterine fibroids PRIMROSE 76 W data (1Q:21); NDA submission (1H:21); MAA approval for uterine fibroids and regional commercial partnerships pending
   - Phase 3 endometriosis EDELWEISS 3 primary endpoint readout (4Q:21)

4. Strong **global partnerships and collaborations** support ObsEva approach

5. Seasoned **leadership team** with a track record for success to drive meaningful patient data

Product overview

YSELTY® (LINZAGOLIX)

Potential to relieve symptoms of heavy menstrual bleeding due to uterine fibroids and pain associated with endometriosis

EBOPIPRANT (OBE022)

Potential to delay preterm birth to improve newborn health and reduce medical costs

NOLASIBAN

Potential to improve live birth rate following IVF & embryo transfer

Multiple development programs drive value

	Phase 1	Phase 2	Phase 3	Next Milestones
YSELTY® (LINZAGOLIX) Oral GnRH receptor antagonist	Uterine Fibroids – Ph3 PRIMROSE 2 (EU & U.S)			• PRIMROSE 1: 76W data (1Q:21) • NDA submission (2Q:21) • Regional commercial partnerships (1H:21) • MAA for uterine fibroids expected approval (4Q:21)
	Uterine Fibroids – Ph3 PRIMROSE 1 (U.S)			
	Endometriosis – Ph3 EDELWEISS 3 EU & U.S.			• EDELWEISS 3: Primary endpoint readout expected (4Q:21)
EBOPIPRANT Oral $PGF_{2\alpha}$ receptor antagonist	Preterm Labor – Ph2b			• Initiation Phase 2b dose ranging study in EU and Asia (4Q:21)
NOLASIBAN Oral oxytocin receptor antagonist	IVF – Ph1/2 in China			• Nolasiban Phase 1 in China (1H:21)

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EBOPIPRANT

POTENTIAL TO DELAY PRETERM BIRTH TO IMPROVE NEWBORN HEALTH AND REDUCE MEDICAL COSTS

Preterm birth is delivery before 37 weeks of pregnancy

Life altering & costly

$26B/yr
U.S. economic burden

>1
In 10 babies are born preterm

1 million
preterm related deaths in 2015 WW *

LEADING

cause of death
in children
under age 5

Babies surviving early birth face greater likelihood of lifelong disabilities

Preterm birth, a costly burden per baby

$16.9B+ U.S. infant medical costs

$195K+ average cost per U.S. survivor infant born 24-26 weeks

$50K average U.S. cost for a preterm infant

WHO 'Born Too Soon: The Global Action Report on Preterm Birth' (2012); Kissin et al. NEJM, 2014
Behrman et al., National Academies Press, 2007

** WHO: 15 million babies born preterm each year worldwide, and number is rising.*

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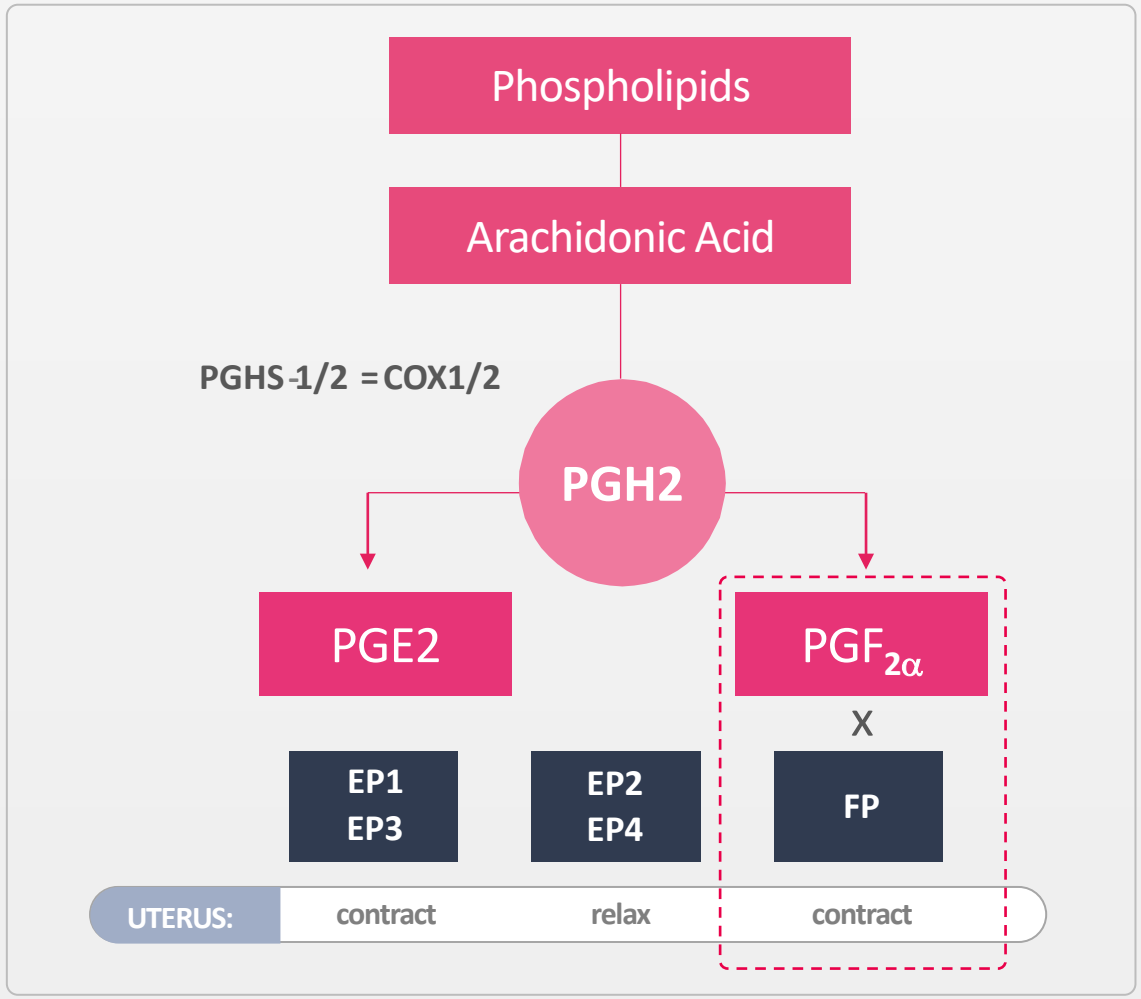
Ebopiprant: an advancement in treatment of preterm labor

Orally active, selective prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) receptor antagonist



ebopiprant

Selectively blocks the $PGF2_{2\alpha}$ receptor

Potential to treat preterm labor with improved safety over non-selective COX *inhibitors (NSAIDS)

*COX: cyclooxygenase

Ebopiprant represents an evolution of therapy for preterm labor (PTL)

- No FDA-approved PTL treatment available in the US*
  - Treatment includes off-label use of COX (non-selective prostaglandin inhibitors), calcium channel blockers, beta-mimetics
  - Current treatments associated with safety issues that limit use

- Atosiban (intravenous oxytocin receptor antagonist) approved in EU and some Asian countries

- Ebopiprant is an oral selective prostaglandin inhibitor
  - Potential for similar efficacy with improved safety

*Makena is a progestin used for the *prevention* of PTL in women with a prior history of preterm birth; it is not approved for the treatment of PTL

Ebopiprant is designed to delay delivery by at least 48 hours

Short-term prolongation of pregnancy *(at least 48 hours)* provides a critical window for impact on neonatal outcomes:

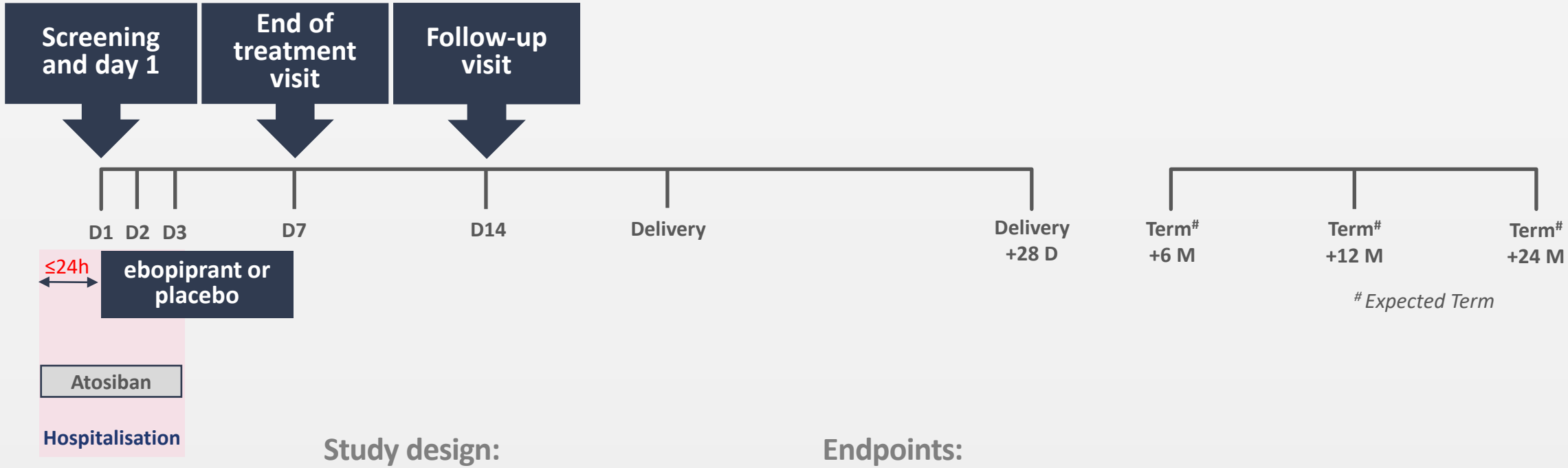
- Allows full effect of corticosteroids on neonatal lung maturity
  - Prematurity associated with respiratory complications due to insufficient lung maturation
  - Corticosteroids used to speed up maturation process
  - Maximum effect occurs ~48+ hours after administration
- Allows patient transfer to centers with NICU*

Ebopiprant Phase 2a PROLONG study

Dosing period and FU visit
- Visits at site -

Maternal and neonatal FU
- Site visits or medical records -

Infant follow-up
- Non-interventional, no site visits -



Study design:
- Double-blind, randomized
- Atosiban + Ebopiprant vs
- Atosiban + Placebo

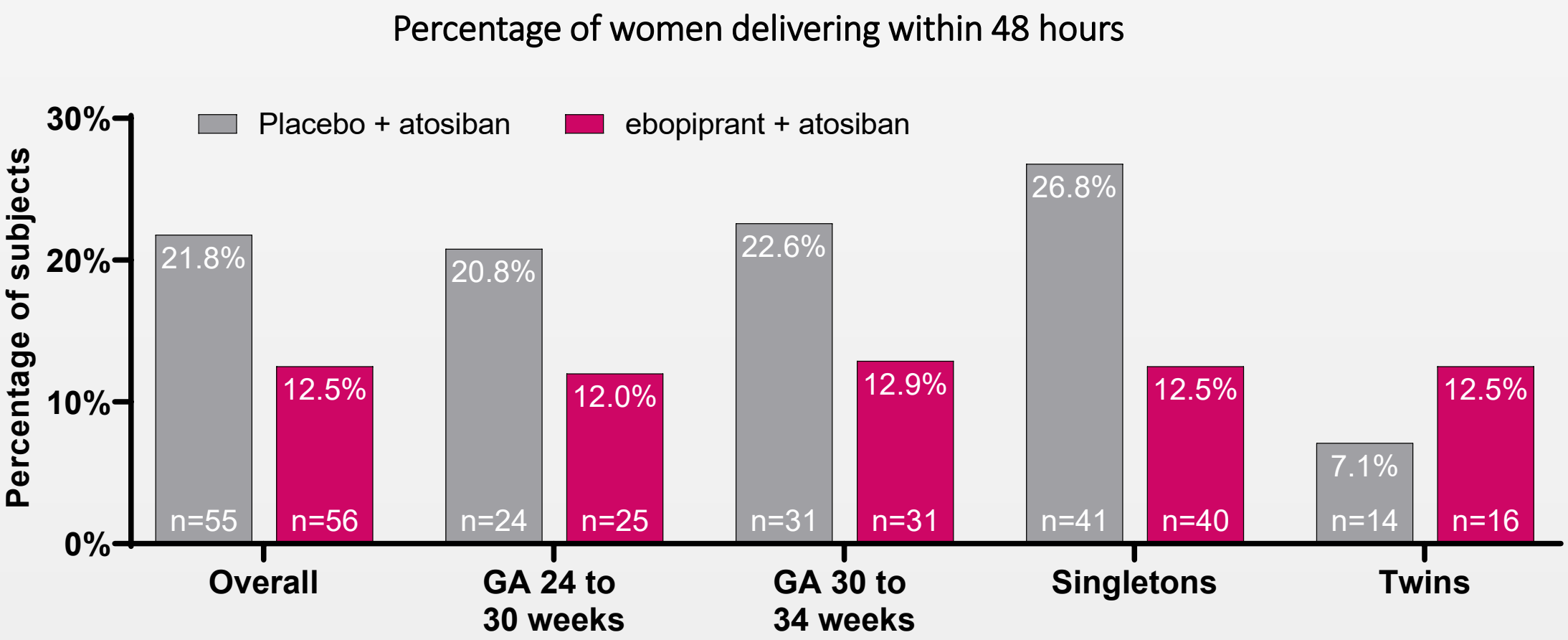
Endpoints:
- Incidence of delivery within 48 hours and 7 days of treatment
- Time to delivery and delivery prior to 37 weeks of gestation
- Maternal, fetal, neonatal safety

Ebopiprant Phase 2a PROLONG study

Demographics and baseline characteristics

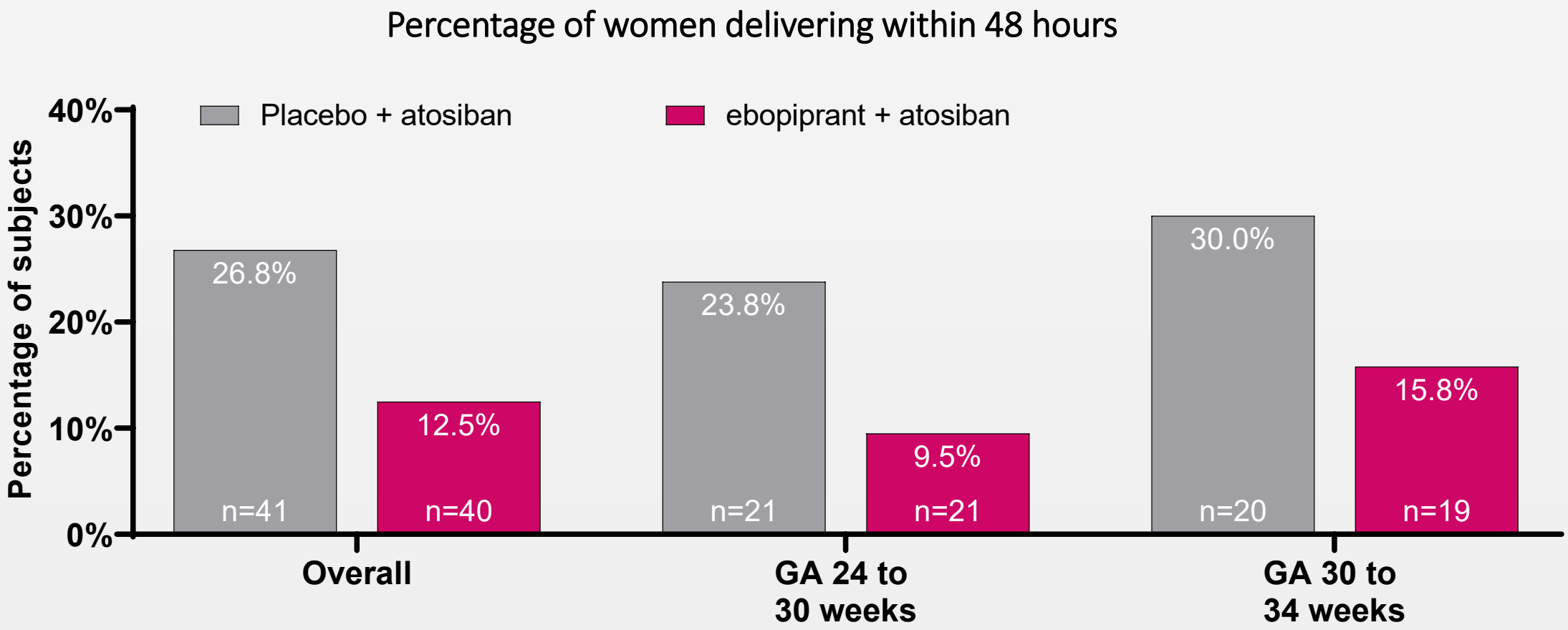
	Atosiban + Placebo	Atosiban + Ebopiprant
	n=55	n=58
Mean age –years (SD)	29.6 (5.1)	29.7 (5.7)
Race		
White – n (%)	39 (70.9%)	42 (72.4%)
Asian – n (%)	16 (29.1%)	14 (24.1%)
Mean (SD) gestational age – weeks	29 (3.0)	30.2 (2.6)
24 to 30 weeks – n (%)	23 (41.8%)	25 (43.1%)
30 to 34 weeks – n (%)	32 (58.2%)	33 (56.9%)
Singleton – n (%)	41 (74.5%)	42 (72.4%)
Twin – n (%)	14 (25.5%	16 (27.6%)
Mean (SD) contractions /30 mins	3.19 (2.93)	3.37 (2.97)

Overall delivery rate within 48 hours reduced by > 50%



OR (90% CI)	0.52 (0.22, 1.23)	1.05 (0.20, 5.43)	0.77 (0.21, 2.89)	0.39 (0.15, 1.04)	2.05 (0.23, 18.1)

Singleton delivery rate within 48 hours reduced by > 50%



OR (90% CI)	0.39 (0.15, 1.04)	0.34 (0.08, 1.49)	0.44 (0.12, 1.62)

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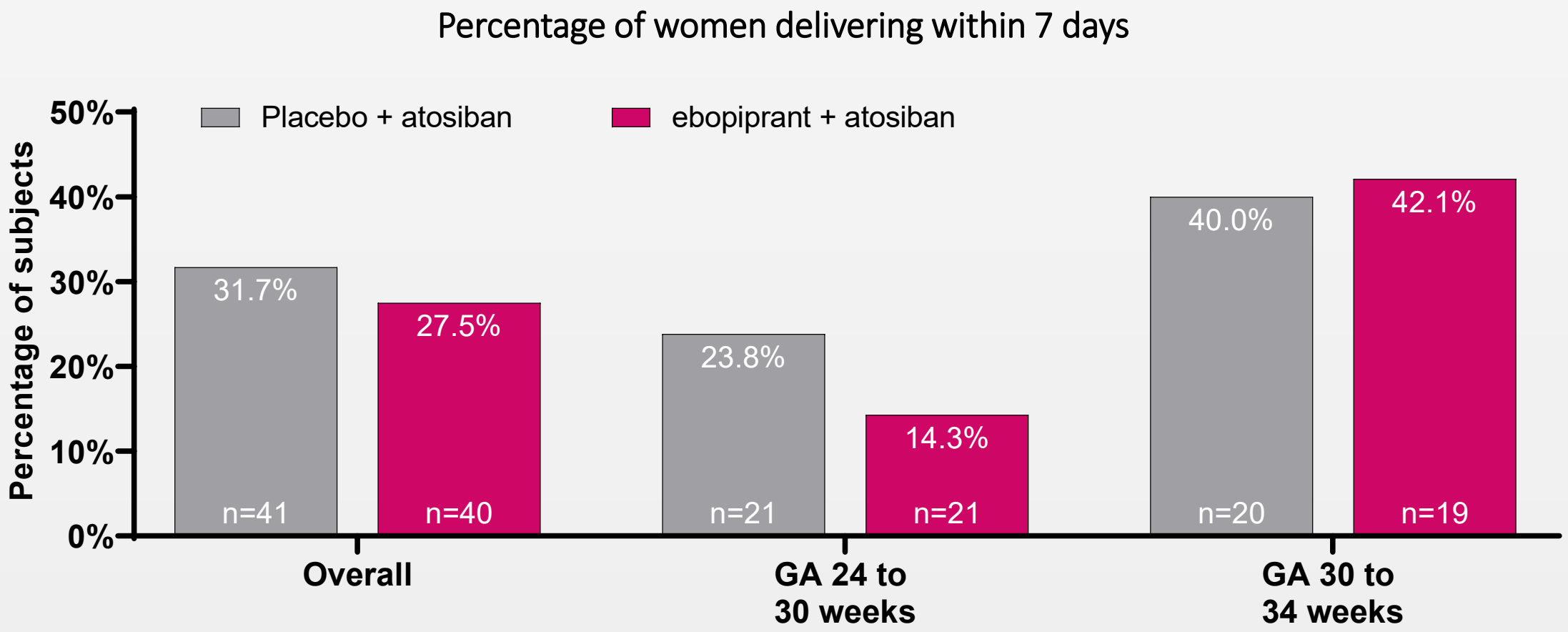
Singleton 24-30wk delivery rate within 7 days reduced by 40%



OR (90% CI)	0.81 (0.36, 1.83)	0.53 (0.14, 2.01)	1.09 (0.37, 3.18)

Ebopiprant Phase 2b dose ranging study

Anticipated initiation 2H:21*

Study Design:

- Global (EU and Asia)
- Dose escalating
- Double-blind, randomized
- Atosiban + Ebopiprant vs
- Atosiban + Placebo

Key Eligibility Criteria:

- Single gestation
- 24-34 weeks
- Confirmed preterm labor
- No contraindication to tocolysis

Endpoints:

- Optimal dose
- Incidence of delivery within 48 hours and 7 days of treatment
- Time to delivery and delivery prior to 37 weeks of gestation
- Maternal, fetal, neonatal safety

*Discussions with FDA on requirements for US clinical development to occur in parallel

Ebopiprant, a potential breakthrough for preterm labor

Enabling administration of critical drugs for neonatal protection

Maternal, fetal and neonatal safety comparable to placebo

Phase 2b study will include higher doses to more fully define ebopiprant potential and the longer-term benefits for babies

Ebopiprant has demonstrated proof of concept in delaying preterm birth, enabling ObsEva to plan its further development

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yselty®
linzagolix

DESIGNED TO TREAT MORE WOMEN SUFFERING FROM UTERINE FIBROIDS

Yselty®, our proposed trade name for linzagolix, is conditionally acceptable for the FDA. Linzagolix has not been approved by FDA for any indication for use. Linzagolix is an investigational drug.

Uterine fibroids

A significant unmet need translating into a multibillion market

$34B/yr

total U.S. costs from direct costs, lost workdays and complications

9 million

women in the U.S. affected by fibroids

70%+

of women have fibroids by age 50

Quality of Life

premenopausal women may experience heavy menstrual bleeding, anemia, bloating, infertility, pain and swelling

600,000

hysterectomies are performed annually in the U.S.

300,000

are because of uterine fibroids

>4 million

women in the U.S. are treated annually for fibroids

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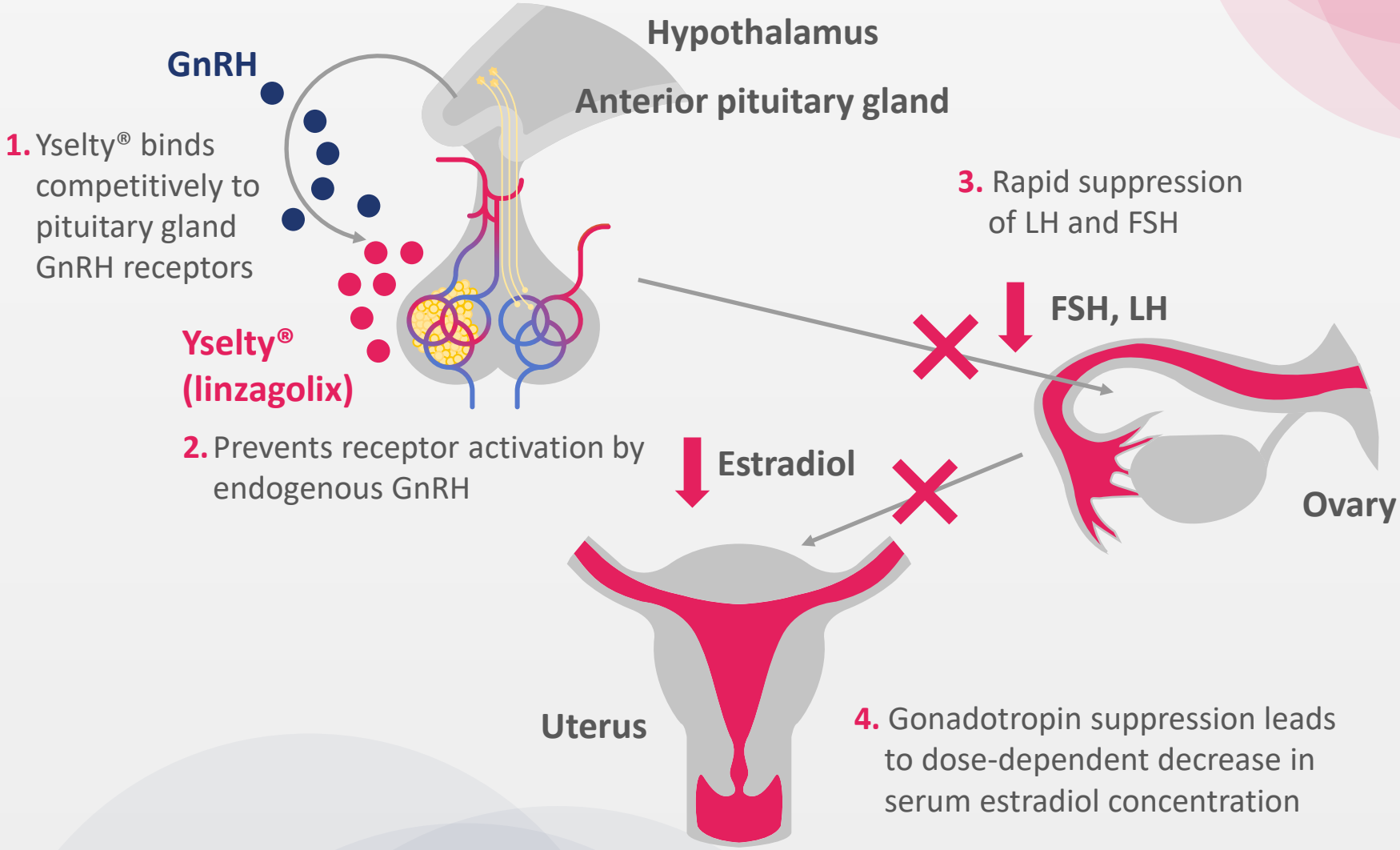
Cardozo et al., Am J Obstet Gynecol 2012; Stewart et al. NEJM, 2015; Flynn et al., Am J Obstet Gynecol 2006; Truven Health, Fibroid Foundation website; Epidemiology of women's health, Jones & Bartlett Learning, Ruby T. Senie, 2014

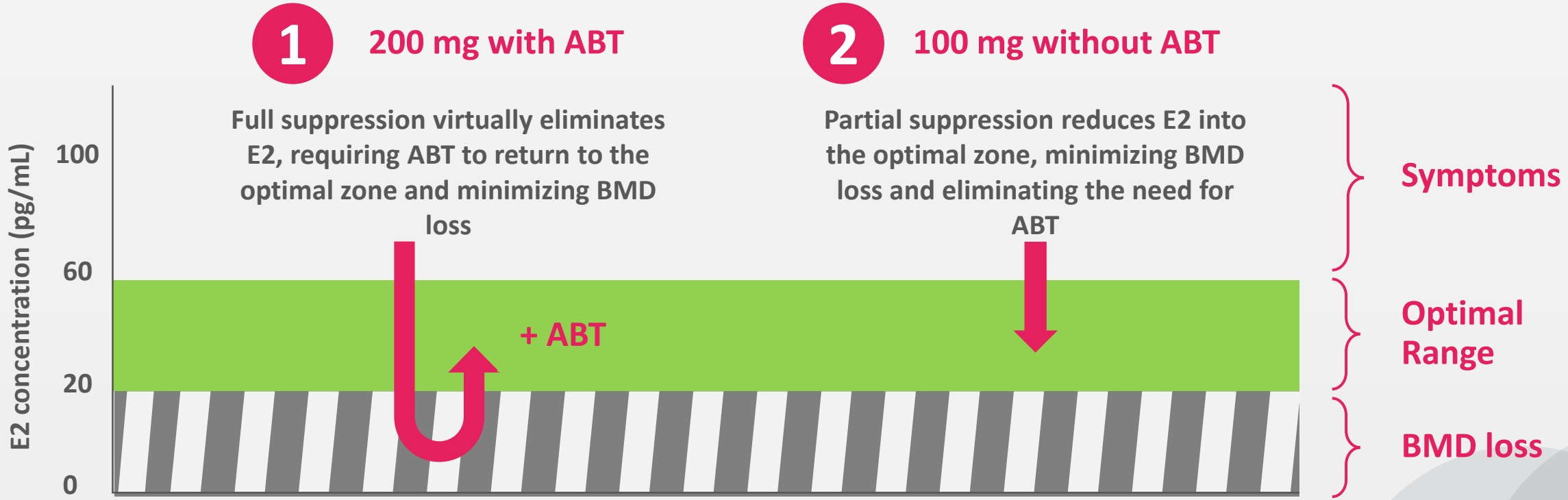
GnRH antagonist mechanism of action



The promise of the GnRH antagonists

Dose dependent reduction of estradiol (E2)

Yselty® is the only GnRH antagonist being developed to provide differentiated options for women suffering from uterine fibroids



ABT = Add Back Therapy (1mg estradiol + 0.5 mg norethindrone acetate)
BMD = Bone Mineral Density

A potential new gold standard treatment for uterine fibroids

Differentiated PK/PD profile

Bioavailability > 80%

Half-life 14-15 hours

No CYP3A4 induction/food effect

1

Reliable absorption

Predictable exposure/effect with each dose

2

Optimal balance for dosing and effectiveness

- Convenient once-daily dosing that fits into women's busy lives
- Blood levels that last long enough to allow flexibility in dosing time

3

"No hassle" administration profile

- Can be taken with or without food
- No relevant interactions with hormonal add-back therapy, oral iron, calcium or other common medications

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Uterine fibroids are ruining lives…

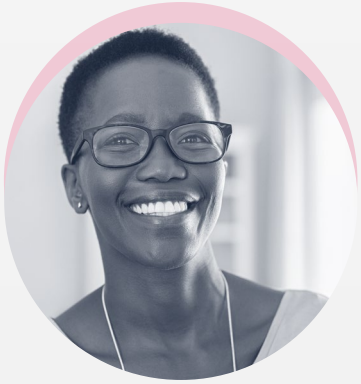
No two women are the same, but millions share a common problem: suffering the daily consequences of uterine fibroids

Yselty® 200 mg once daily with concomitant ABT

For long-term use for women for whom ABT is appropriate

Yselty® 100 mg once daily without ABT

For long-term use for women with a contraindication to or who prefer to avoid ABT



Yselty® 200 mg once daily without ABT

For short-term use (up to 6 months) when rapid reduction in fibroid and uterine volume is desired

…Yselty®, designed to treat more women

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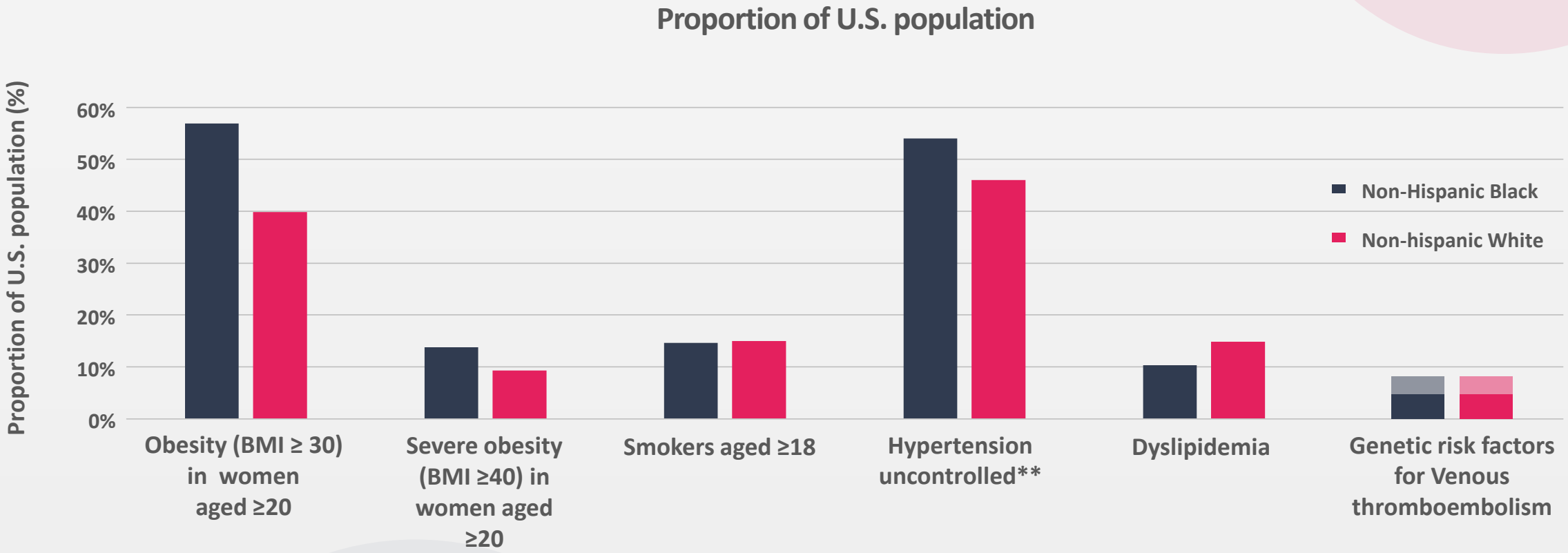
The hypothetical patients represented on this slide are for illustrative purposes only as no strength of linzagolix has been approved nor is there FDA-approved Prescribing Information to guide clinical decisions

Up to 50% of US women suffering from uterine fibroids may have a contraindication to hormonal ABT*

Black women are overrepresented



*U.S. FDA elagolix PI, section 4. Contraindications and section 5.1. Warnings and precautions – thromboembolic disorders and vascular events (see slide 26) ** See slide 27

https://www.cdc.gov/nchs/products/databriefs/db360.htm: 2017-2018; https://www.cdc.gov/nchs/products/databriefs/db360.htm: 2017-2018; https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm#nation; https://www.cdc.gov/2018

** Proportion of individuals with hypertension - Overall population Male vs Female: 47% vs 43%

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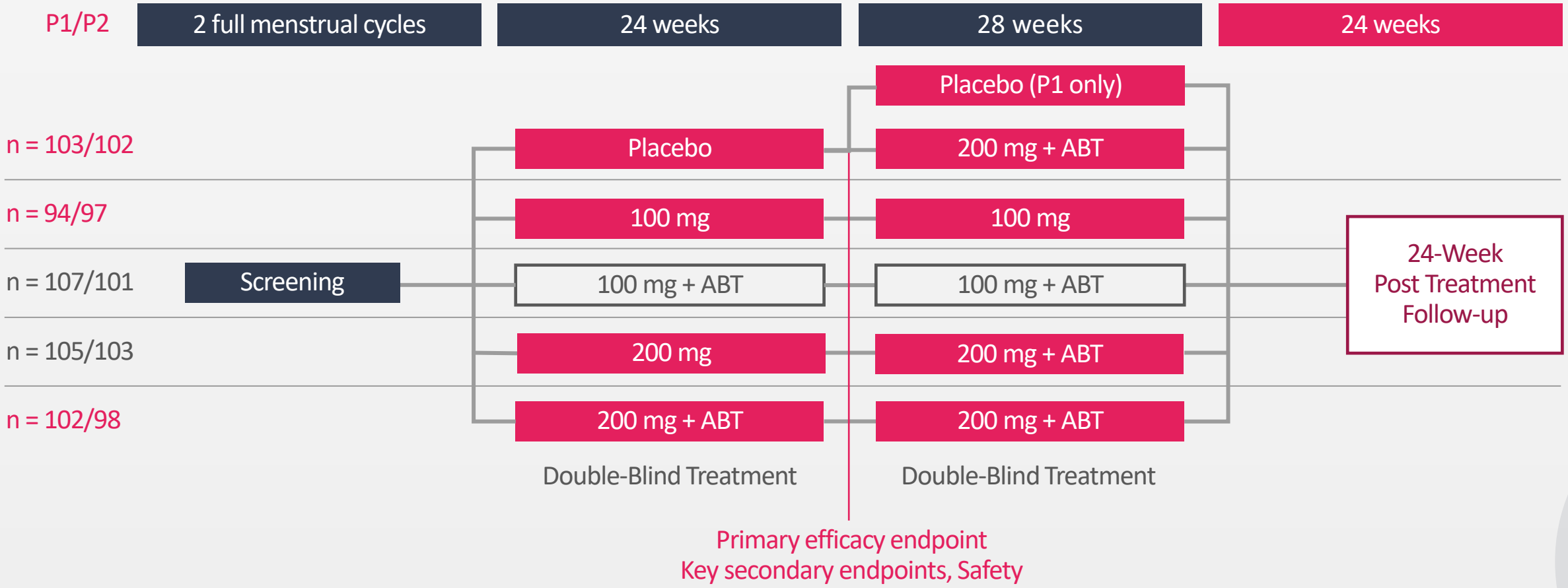
Phase 3 registration studies

PRIMROSE 1 (US) and PRIMROSE 2 (EU/US)



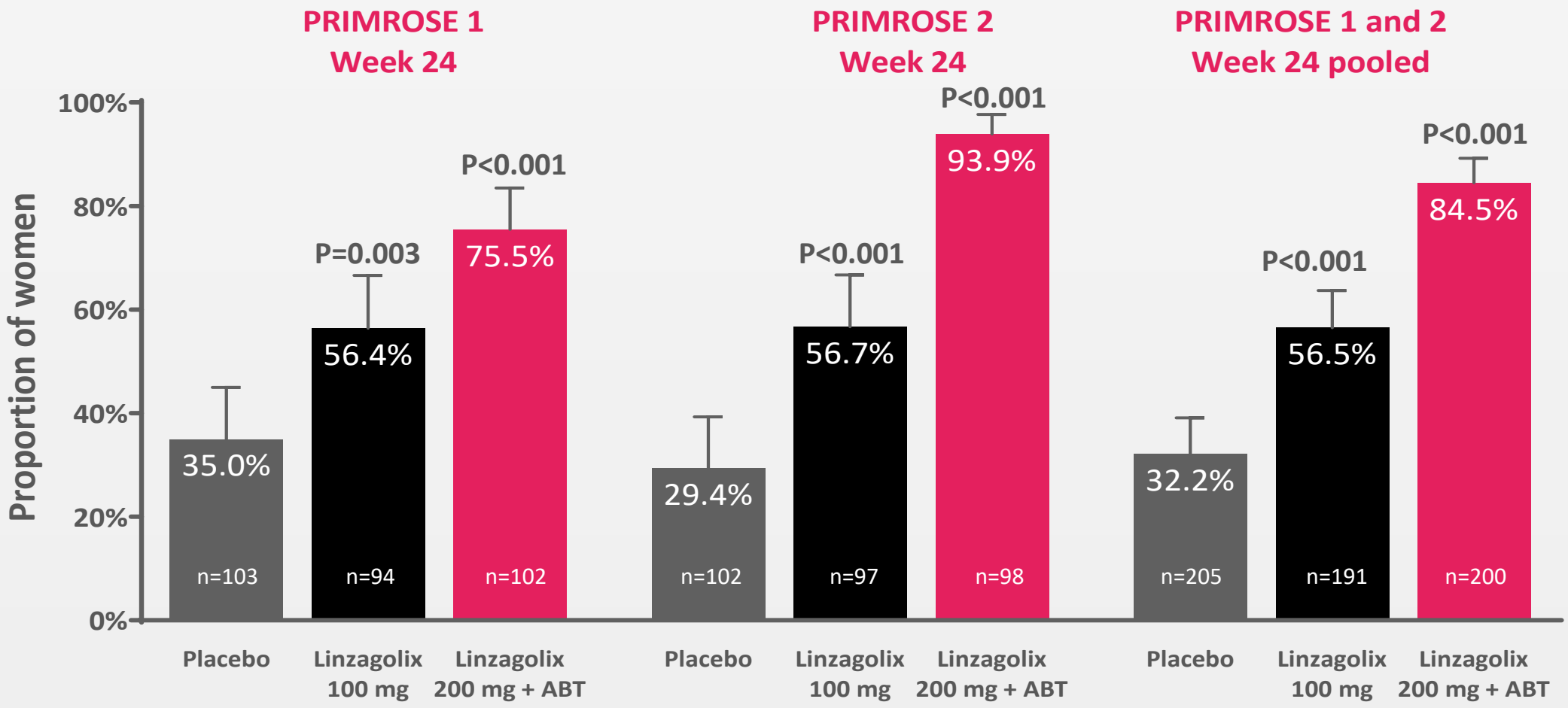
Primary efficacy endpoint is proportion of women with menstrual blood loss ≤ 80 mL (by alkaline hematin method) and ≥ 50% reduction from baseline

Patients in the studies received no Vitamin D or calcium supplementation

ABT = Add Back Therapy (1mg estradiol + 0.5 mg norethindrone acetate)

PRIMROSE 1 and 2 achieved primary endpoint for both doses

Responder* analysis at week 24

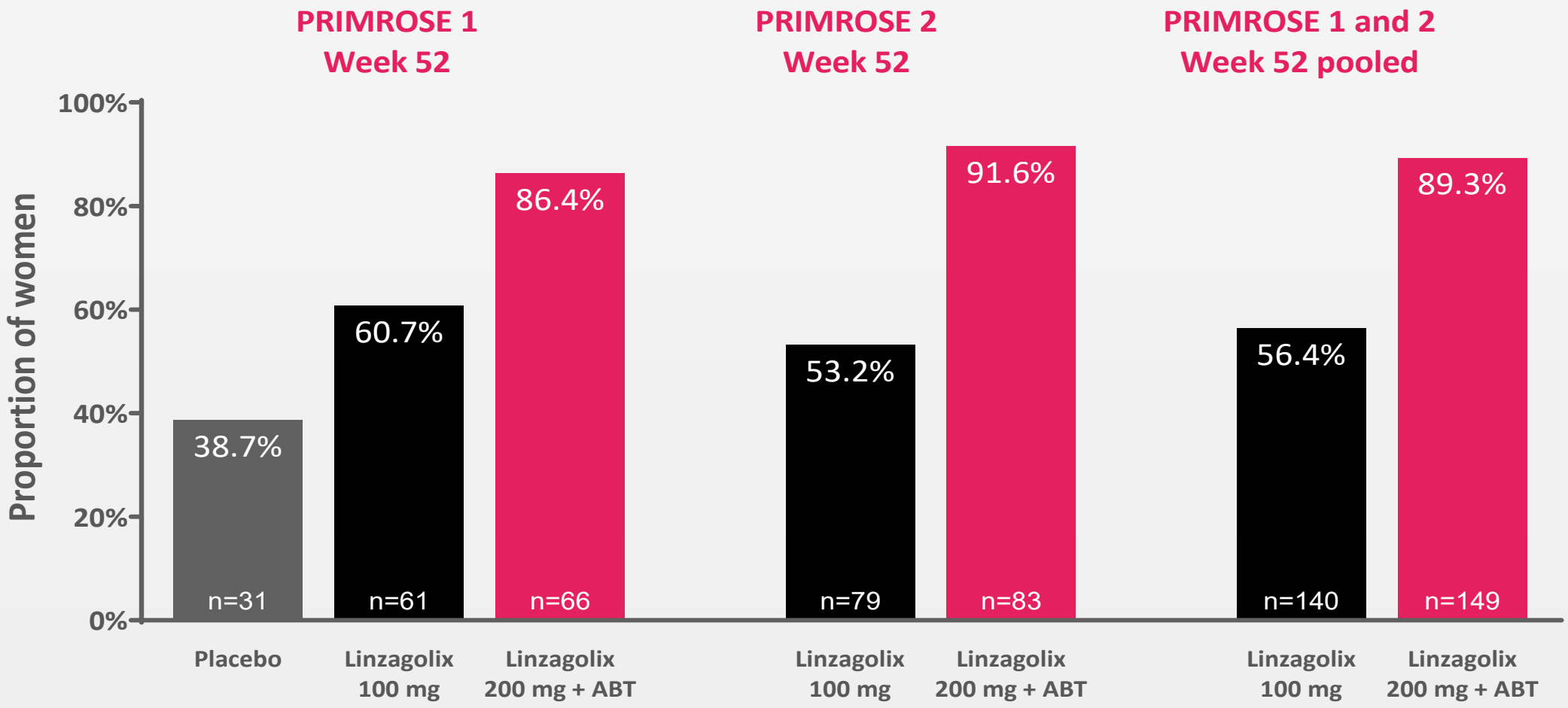


*Proportion of women with menstrual blood loss ≤ 80 mL (by alkaline hematin method) and ≥ 50% reduction from baseline

Error bars are 95% CI

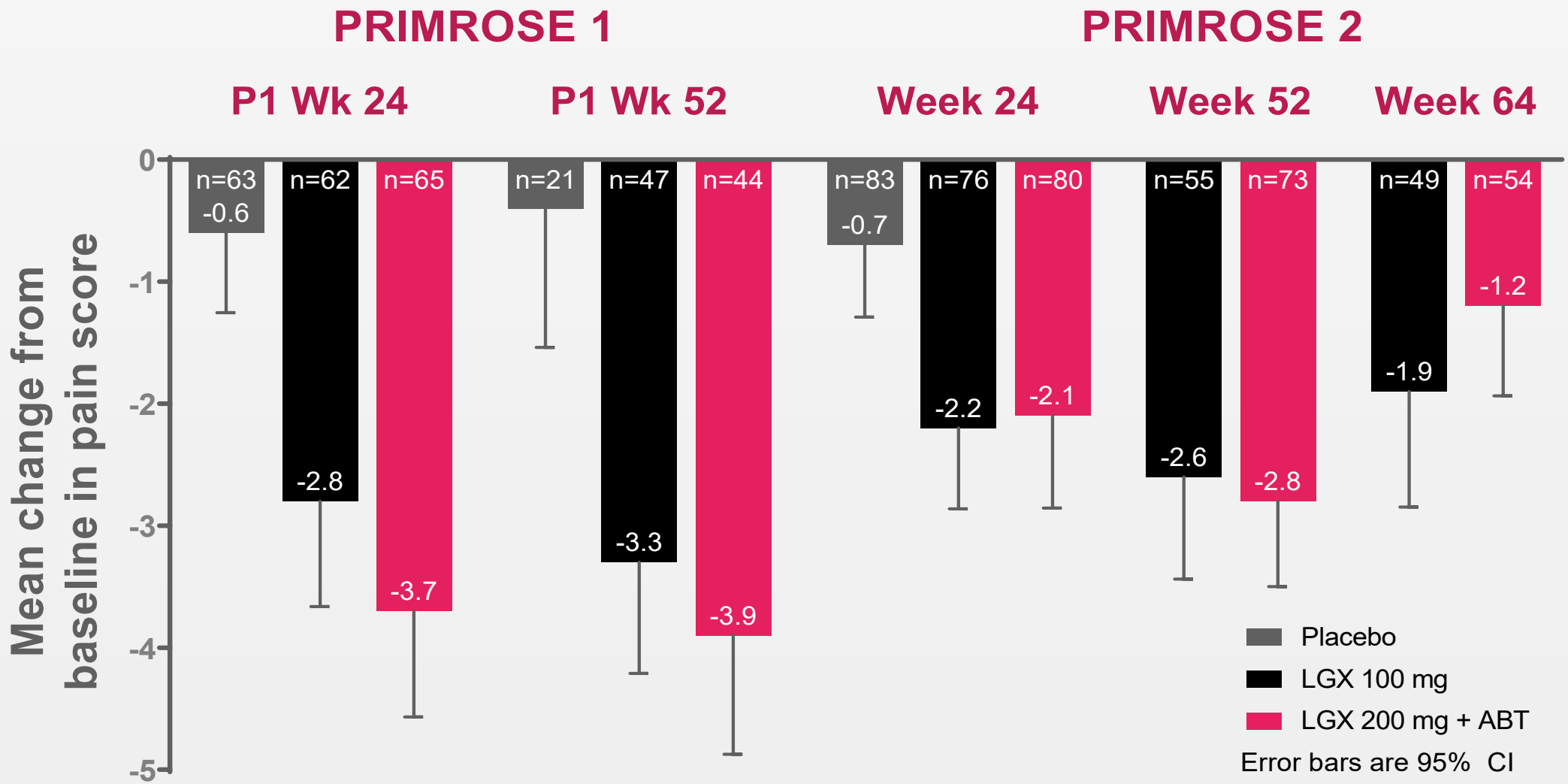
PRIMROSE 1 and 2 achieved sustained reduction in MBL

Responder* analysis at week 52



*Proportion of women with menstrual blood loss ≤ 80 mL (by alkaline hematin method) and ≥ 50% reduction from baseline

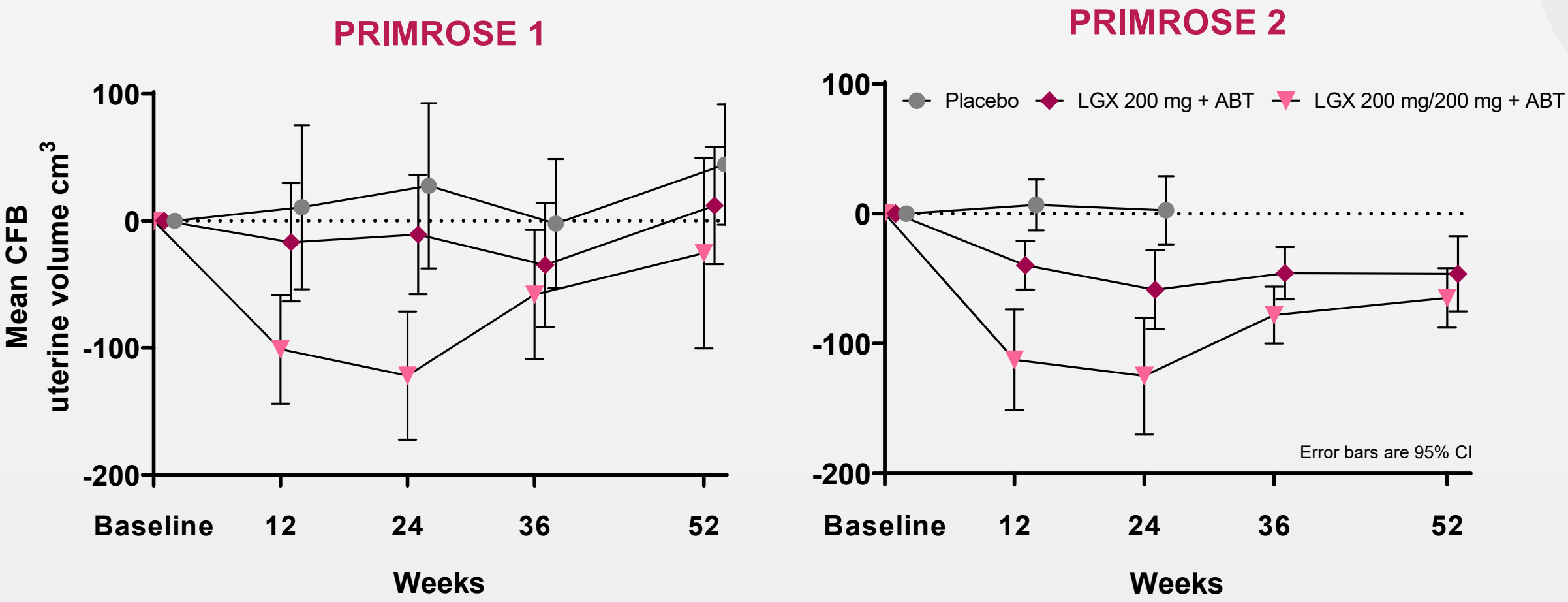
Significant pain reduction maintained at weeks 52 and 64



Pain assessed on Numerical Rating Scale: 0-10

LGX 200 mg without ABT significantly reduces uterine volume

Substantial reduction compared to placebo & LGX 200 mg with ABT at Week 24



24-week efficacy data support Yselty® (linzagolix) as potential best-in-class GnRH antagonist

Caution advised when comparing across clinical trials. Below data are not head-to-head comparison, and no head-to-head trials have been completed, nor are underway

	Yselty® (Linzagolix)			Elagolix			Relugolix		
	PRIMROSE 1	PRIMROSE 2	Pooled Analysis	ELARIS 1	ELARIS 2	Pooled Analysis	LIBERTY 1	LIBERTY 2	Pooled Analysis
Dose Regimen	200mg + ABT Once daily			300 mg + ABT Twice daily			40mg + ABT Once daily		
Mean Age (y)	41.6	43.1		42.6	42.5		41.3	42.1	
Baseline MBL (mL per cycle)	197	212		238	229		229	247	
Responder* Rate (RR) (%)	75.5	93.9	84.7	68.5	76.5	72.2+	73.4	71.2	72.3++
Amenorrhea	✓	✓		✓	✓		✓	✓	
Pain	✓	✓		NR	NR		✓	✓	
Fibroid Volume	✗	✓		NR**	NR**		✗	✗	
Uterine Volume	✗	✓		NR**	NR**		✓	✓	
Menstrual Blood Loss	✓	✓		✓	✓		✓	✓	
Anemia	✓	✓		✓	✓		✓	✓	
Quality of Life	✓	✓		✓	✓		✓	✓	

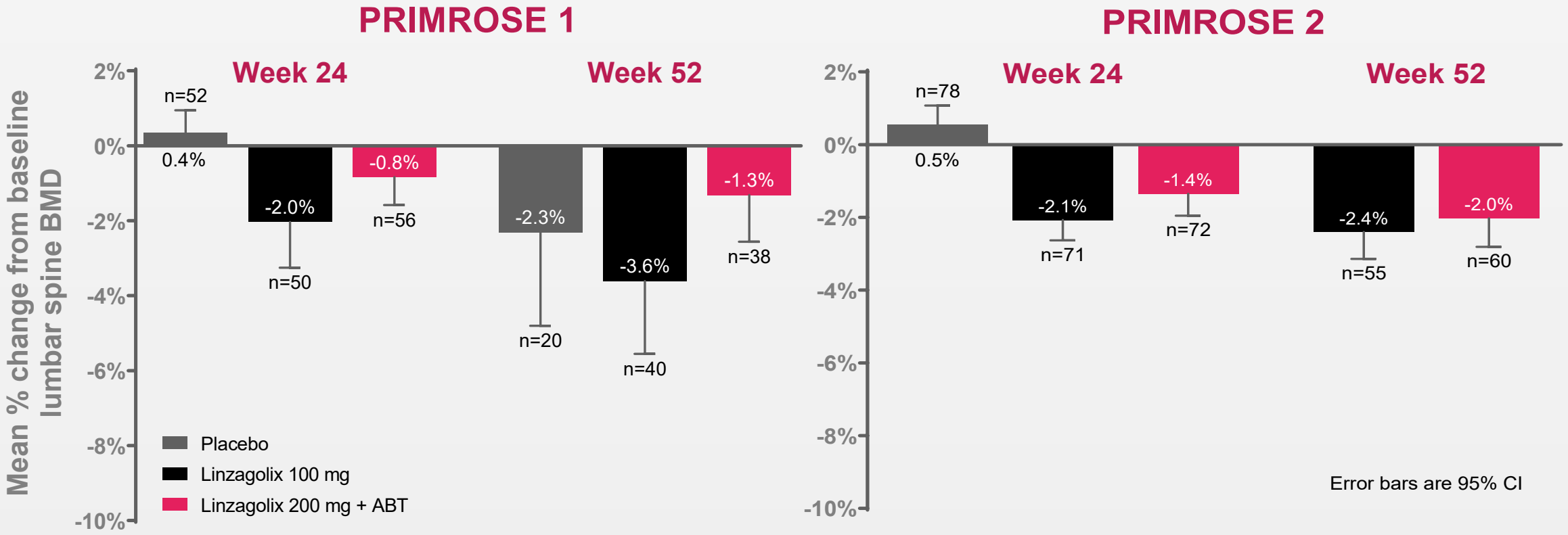
Source: Company information Note: NR = Not reported.

*Primary endpoint: Proportion of women with menstrual blood loss ≤ 80 mL (by alkaline hematin method) and ≥ 50% reduction from baseline ** P-value not reported

+ Simon et al, Obstet Gynecol 135, 1313-1326 2020 ++ Venturella R et al, ESHRE 2020 abstract.

Minimal BMD change with both doses, plateauing after week 24

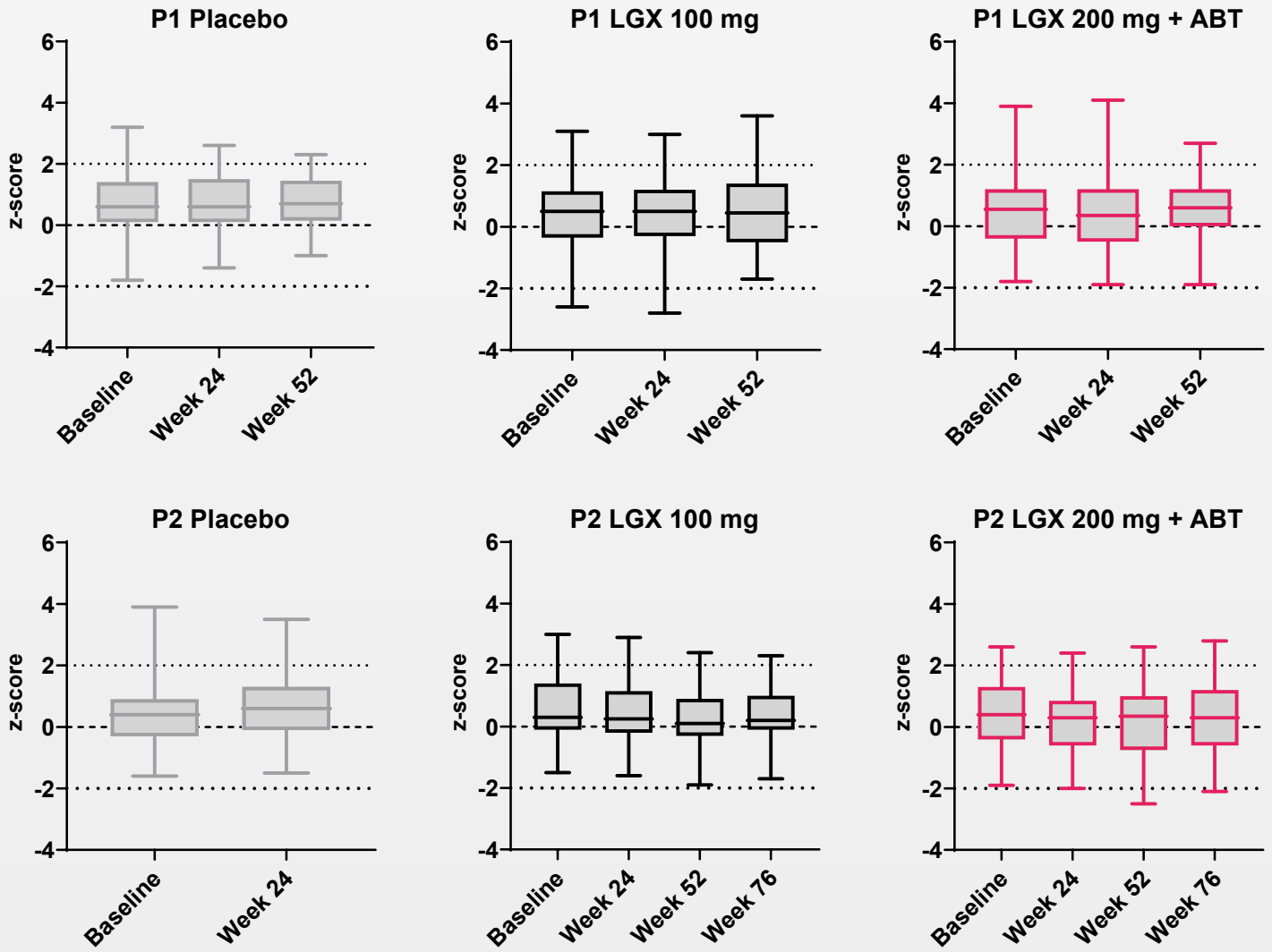
Expected age-related BMD decline observed in placebo arm at Week 52



Recovery at 6 months post-treatment (in subjects with a decrease at Week 52):
Median % BMD increase: LGX 100 mg about 0.8%, LGX 200 mg + ABT about 1.2%

Bone mineral density – no change in z-scores

BMD remains well within age-matched normal ranges during and after treatment for both doses



Z-score compares BMD to the average values of a person of the same age and gender.
A score < -2 is a sign of less bone mass than expected

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Favorable tolerability profile

Summary of adverse events—week 24 to 52

Number (%) of women	PRIMROSE 1			PRIMROSE 2	
	Placebo	Yselty® (Linzagolix) 100 mg	Yselty® (Linzagolix) 200 mg + ABT	Yselty® (Linzagolix) 100 mg	Yselty® (Linzagolix) 200 mg + ABT
	n=31	n=62	n=70	n=79	n=84
Subject with at least one TEAE	12 (38.7)	25 (40.3)	25 (35.7)	22 (27.8)	21 (25.0)
TEAE leading to discontinuation	1 (3.2)	2 (3.2)	1 (1.4)	7 (8.9)	1 (1.2)
SAE related to linzagolix	0	0	0	0	0
Occurrence after week 24 of most frequently reported AEs (> 5%) up to week 24					
Hot flush	0	1 (1.6)	0	2 (2.5)	3 (3.6)
Headache	1 (3.2)	3 (4.8)	0	1 (1.3)	1 (1.2)
Anemia	1 (3.2)	0	0	2 (2.5)	1 (1.2)

No signal related to adverse events of interest*

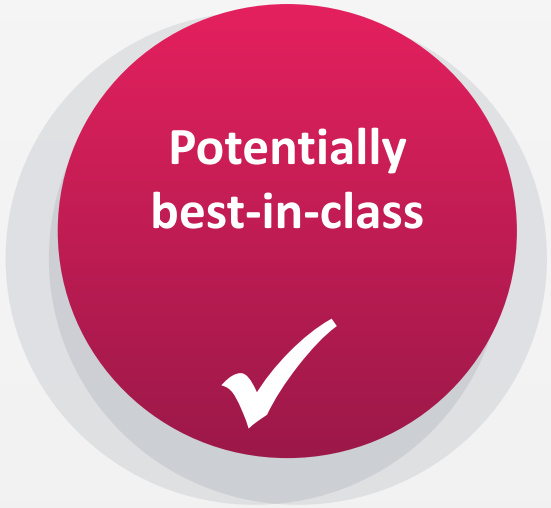
Adverse events of interest/pregnancy – week 24 to 52

Number (%) of women	PRIMROSE 1			PRIMROSE 2	
	Placebo	Yselty® (Linzagolix) 100 mg	Yselty® (Linzagolix) 200 mg + ABT	Yselty® (Linzagolix) 100 mg	Yselty® (Linzagolix) 200 mg + ABT
	n=31	n=62	n=70	n=79	n=84
Suicidal ideation	0	0	0	0	0
Depression; depressed mood	0	0	0	0	0
Anxiety	0	0	0	0	0
Alopecia	0	0	0	0	1 (1.2)
Decreased libido	0	0	0	0	1 (1.2)
Pregnancy	0	0	0	1 (1.3)	0

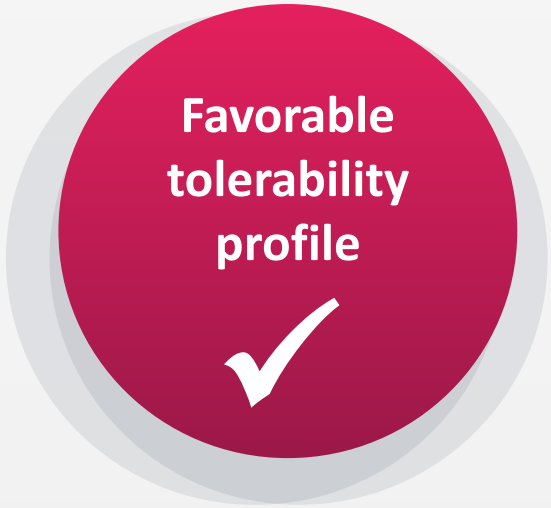
* Adverse events of interest are AEs that are potentially related to suppression of estradiol and have been reported with Oriahnn treatment

Designed to treat more women

Excellent clinical data driving differentiated profile



- Unique PD/PK Profile
- Efficacy sustained up to 52 weeks for all dose regimens
- Potentially best-in-class symptom control for 200 mg with ABT



- No safety signal of concern for any of the Yselty® regimens
- BMD remains within age-matched normal ranges during and after treatment

- Unique low dose option without ABT showing clinically meaningful & sustained efficacy
- Significant uterine volume reduction for 200 mg without ABT

ABT-containing regimens may be contraindicated in up to 50% of US women with uterine fibroids based on the elagolix US label* and analysis of CDC data**

*U.S. FDA elagolix PI, section 4. Contraindications and section 5.1. Warnings and precautions – thromboembolic disorders and vascular events (see slide 26)

** See slide 27

Endometriosis

An emotionally and physically painful condition

$22B/yr
total U.S. costs

176 million
women worldwide suffer from endometriosis

60%+
of women feel symptoms by age 16

Quality of Life

premenopausal women may experience pelvic pain, pain during intercourse and defecation, infertility and emotional distress

Endometriosis affects up to

10%+ in the general population

50%+ in the fertile population

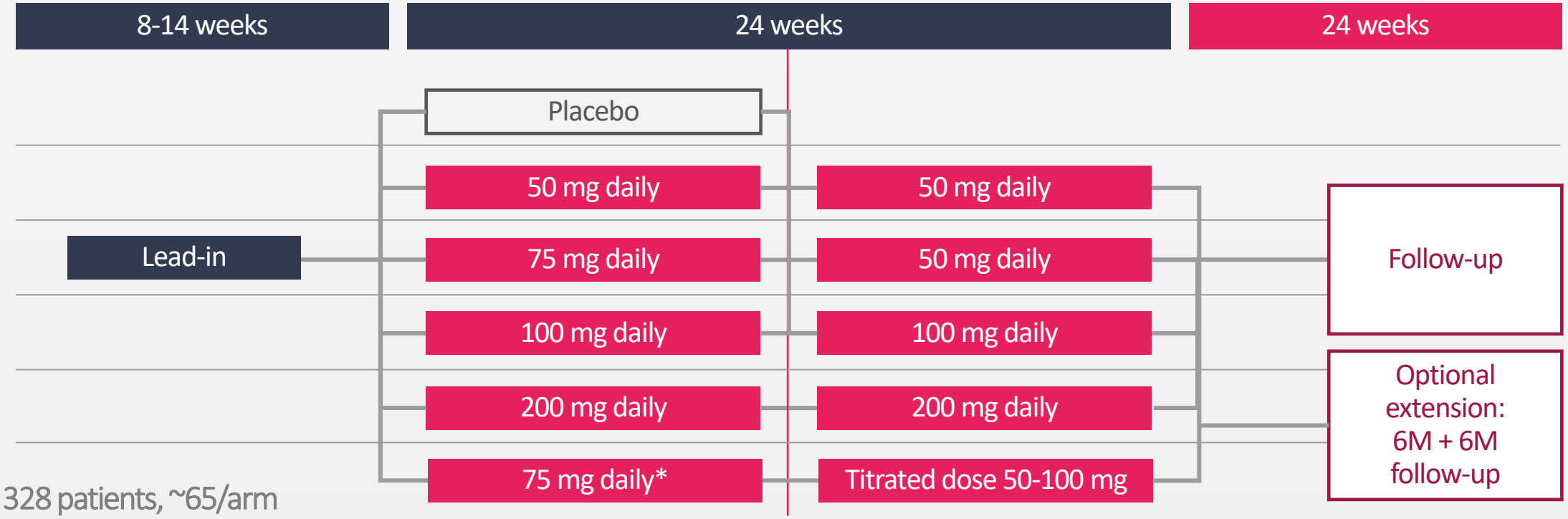
60%+ in patients with chronic pelvic pain

5 million
women in the U.S. are treated annually for endometriosis

Obseva

Cardozo et al., Am J Obstet Gynecol 2012; 2017; Stewart et al. NEJM, 2015; Flynn et al., Am J Obstet Gynecol 2006; Truven Health, Fibroid Foundation website

Phase 2b EDELWEISS in endometriosis



Enrollment 328 patients, ~65/arm
50 sites in U.S. (n=177)
14 sites in EU (n= 151)

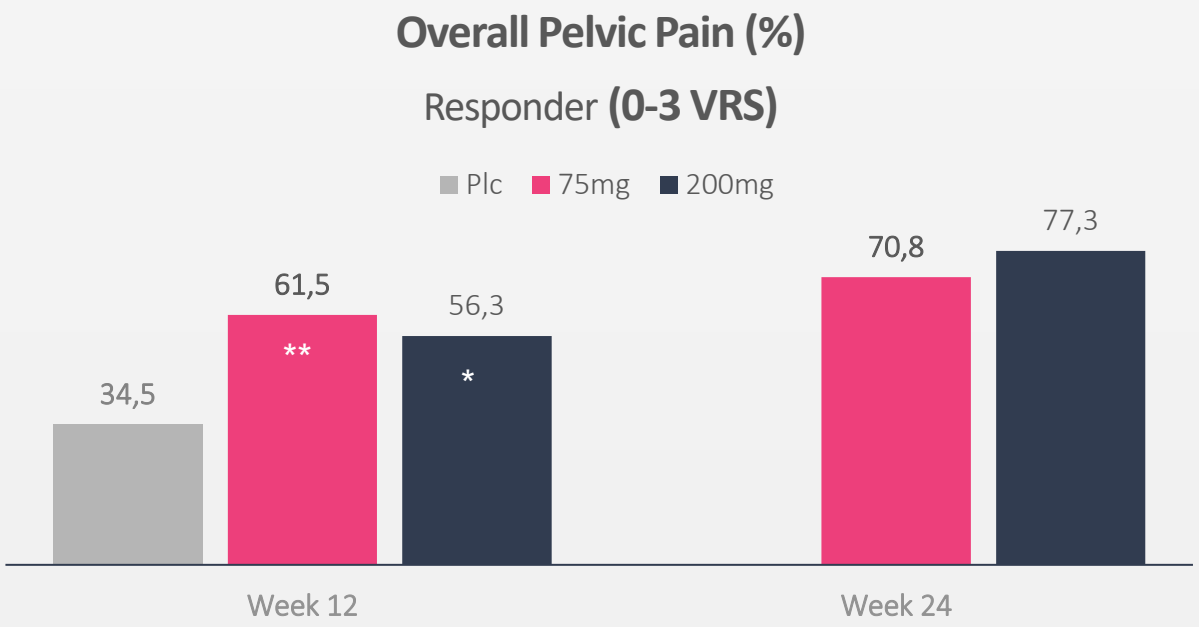
Primary efficacy endpoint: VRS PAIN SCORE RESPONDER RATE
Secondary endpoint: BMD**

Patients were provided with Vitamin D and calcium

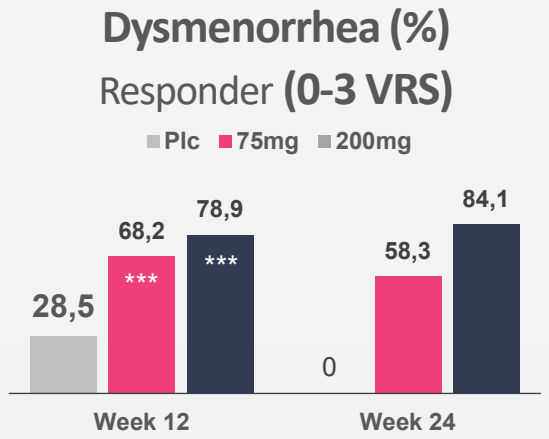
Obseva

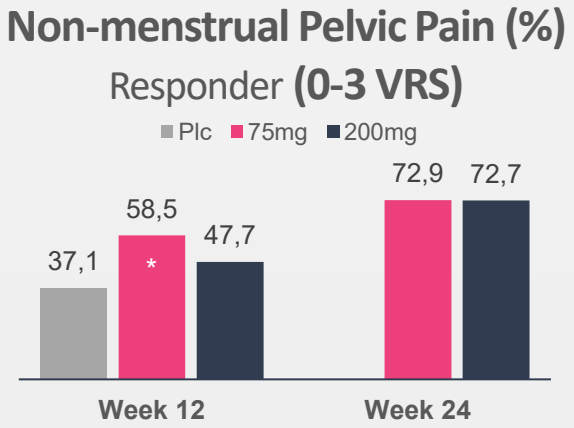
* Titration after 12 weeks based on E2 serum level at weeks 4 and 8
**BMD = bone mineral density

Phase 2b EDELWEISS in endometriosis



Potential point of differentiation as 75mg partial suppression dose is nearly as effective as 200mg full suppression dose

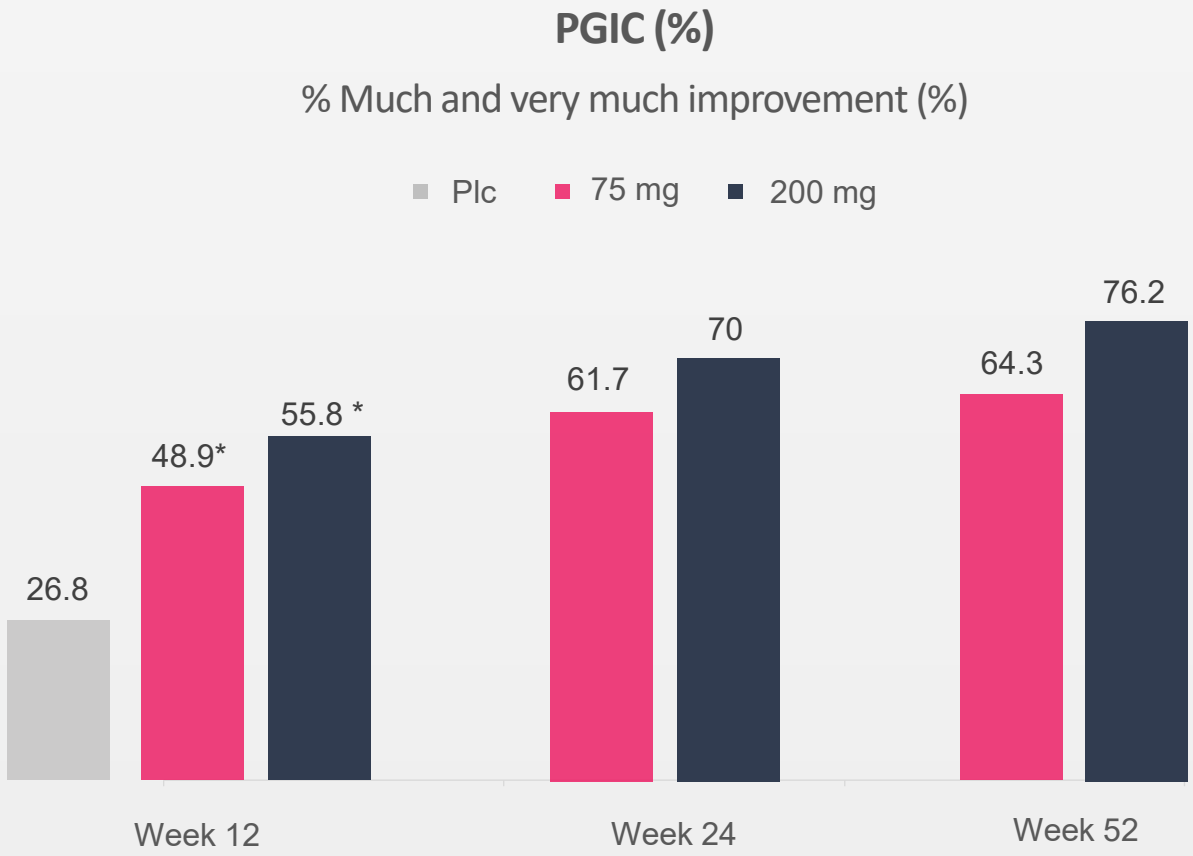




* p value <0.05 ** p value <0.01 *** p value <0.001 for linzagolix doses compared to placebo

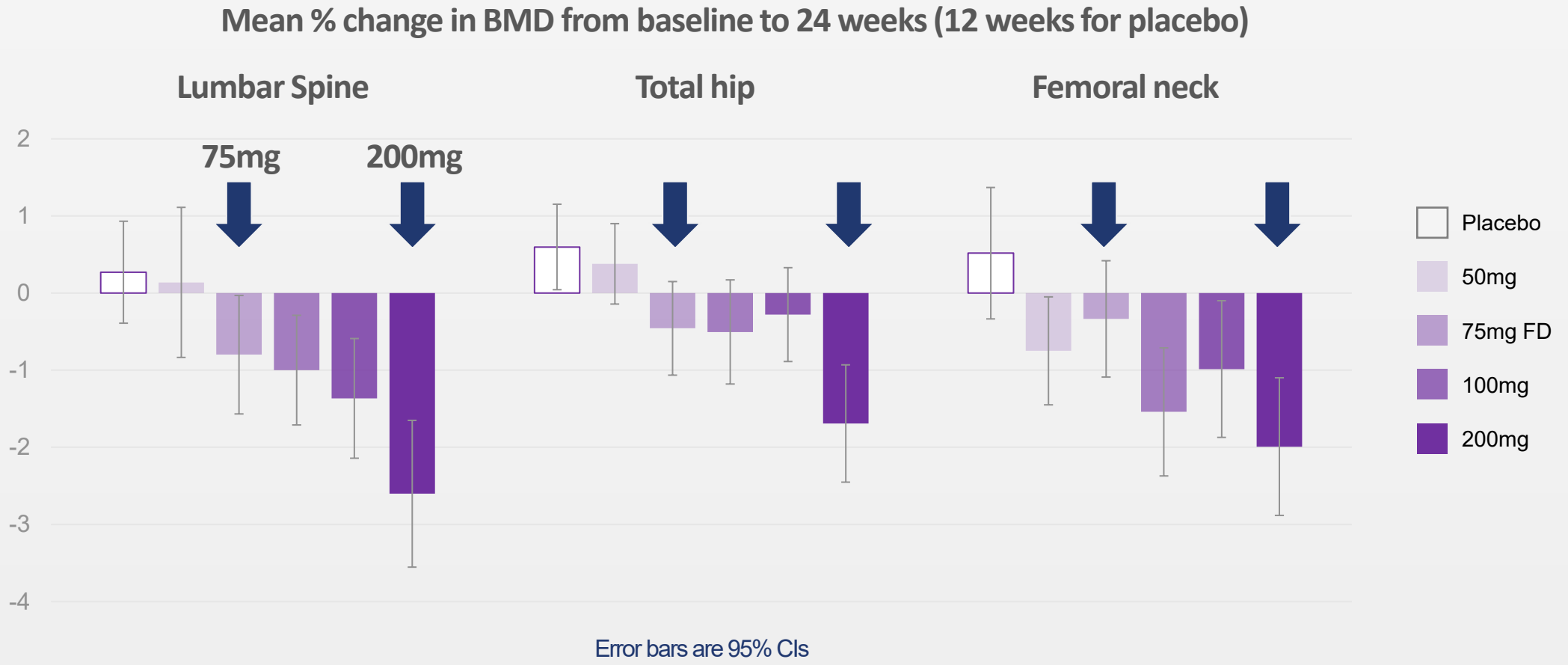
Phase 2b EDELWEISS in endometriosis

Sustained improvement in overall endometriosis symptoms (PGIC)



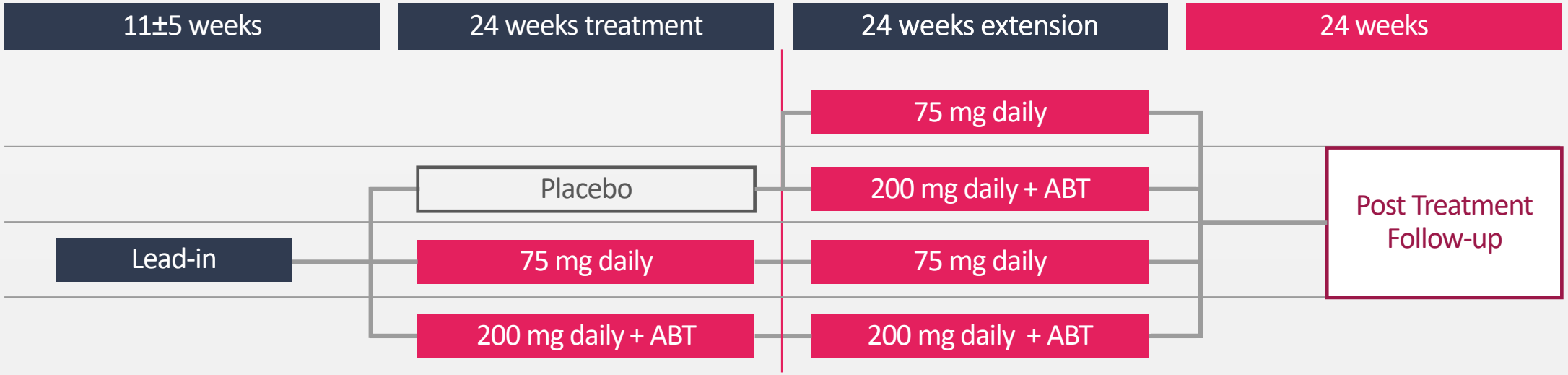
Phase 2b EDELWEISS in endometriosis

75 mg effective without significantly affecting BMD



Error bars are 95% CIs

Phase 3 endometriosis trial
EDELWEISS 3



Co-Primary efficacy endpoint: DYS/NMPP Responder Analysis

Patients are provided with Vitamin D and calcium

Investor highlights

1. Pursuing promising large indications for serious conditions that compromise **women's reproductive health and beyond**, with the potential to extend into other indications including prostate cancer

2. Ebopiprant, the **only oral $PGF_{2\alpha}$ receptor antagonist in development, has positive phase 2 data** and favorable safety that support a **Phase 2b dose ranging study** (initiation in EU/Asia planned in 2H:21)

3. Yselty® has potential **best in class efficacy, a favorable tolerability profile, and unique flexible dosing options;** multiple value-generating milestones in the next year, including:
   - Phase 3 uterine fibroids PRIMROSE 76 W data (1Q:21); NDA submission (1H:21); MAA approval for uterine fibroids and regional commercial partnerships pending
   - Phase 3 endometriosis EDELWEISS 3 primary endpoint readout (4Q:21)

4. Strong **global partnerships and collaborations** support ObsEva approach

5. Seasoned **leadership team** with a track record for success to drive meaningful patient data

Thank you