INTEGRIS-PSC Week 12 Topline Results

40, 80, 160, and 320 mg vs. Placebo

FEBRUARY 5, 2024

Disclaimers

This presentation has been prepared by Pliant Therapeutics, Inc. ("we," "us," "our," "Pliant" or the “Company”). The information set forth herein does not purport to be complete or to contain all of the information you may desire. Statements contained herein are made as of the date of this presentation unless stated otherwise, and this presentation shall not under any circumstances create an implication that the information contained herein is correct as of any time after such date or that information will be updated or revised to reflect information that subsequently becomes available or changes occurring after the date hereof.

This presentation includes forward-looking statements regarding Pliant’s proprietary drug candidates, the timing of the start and conclusion of ongoing or planned clinical trials, including the timing of, and our ability to achieve, anticipated milestones, the sufficiency of our cash, cash equivalents and short-term investments, the timing and outcome of regulatory decisions, future availability of clinical trial data, our collaborations for our product candidates and the maintenance of those collaborations; business and results from operations; and other matters. Actual results could differ materially from those contained in any forward-looking statements as a result of various factors, including without limitation: that Pliant’s drug candidates do not advance in development or result in approved products on a timely or cost effective basis or at all; the cost, timing and results of clinical trials; our ability to manage and mitigate the impact of the ongoing COVID-19 pandemic; that many drug candidates that have completed early-stage trials do not become approved drugs on a timely or cost effective basis or at all; the ability to enroll patients in clinical trials; possible safety and efficacy concerns; regulatory developments; the ability of Pliant to protect its intellectual property rights, and unexpected costs, charges or expenses that reduce cash runway. Pliant’s pipeline programs are in various stages of pre-clinical and clinical development, and the process by which such pre-clinical or clinical therapeutic candidates could potentially lead to an approved therapeutic is long and subject to significant risks and uncertainties. Pliant undertakes no obligation to update forward-looking statements as a result of new information or otherwise. For a discussion of these and other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the section entitled “Risk Factors” and elsewhere in the Company's most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q on file with the Securities and Exchange Commission (the "SEC") and our other filings with the SEC.

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.

This presentation concerns drugs that are under clinical investigation and which have not yet been approved for marketing by the U.S. Food and Drug Administration (the “FDA”). They are currently limited by Federal law to investigational use, and no representation is made as to their safety or effectiveness for the purposes for which they are being investigated.

Today's Speakers

Bernard Coulie, M.D., Ph.D., M.B.A.
President & CEO

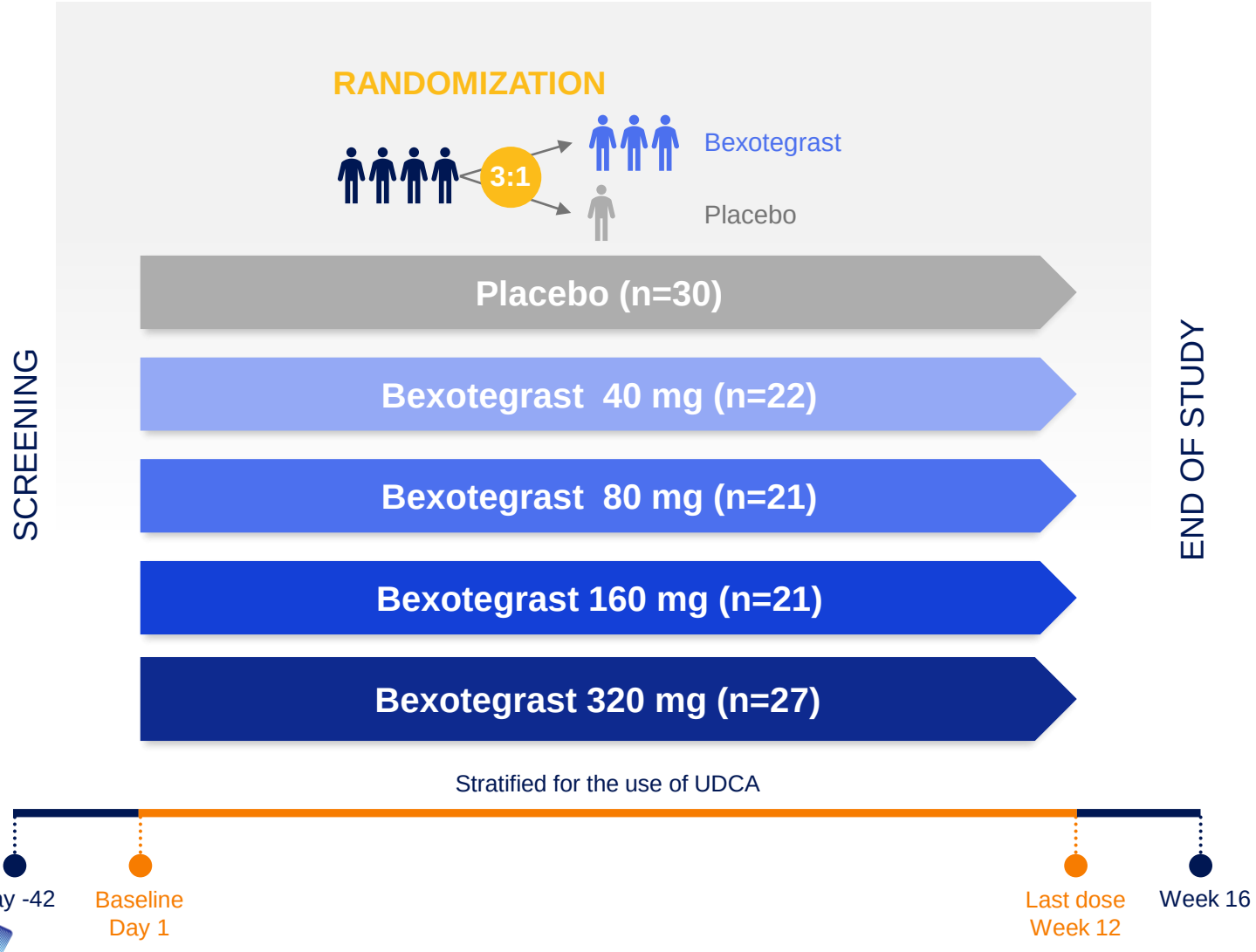
Éric Lefebvre, M.D.
Chief Medical Officer

Gideon Hirshfield, FRCP, Ph.D.
Lily and Terry Horner Chair in Autoimmune Liver Disease, University of Toronto

PLIANT

INTEGRIS-PSC Study Design and Objectives

First PSC Trial Enriched with Participants with Suspected Liver Fibrosis



PRIMARY AND SECONDARY ENDPOINTS

- Safety, tolerability, PK

EXPLORATORY ENDPOINTS

- Changes in liver fibrosis markers, ELF score and PRO-C3
- Changes in liver imaging
- Changes in liver biochemistry

INCLUSION CRITERIA

- At-risk for moderate/severe fibrosis defined by at least one criterion:
  - ELF ≥ 7.7
  - TE ≥ 8 but ≤ 14.4 kPa
  - MRE ≥ 2.4 but ≤ 4.9 kPa
  - Historical biopsy

UDCA = Ursodeoxycholic acid ; TE = Transient elastography; ELF = enhanced liver fibrosis

INTEGRIS-PSC – Key Findings at Week 12

Bexotegrast was Well Tolerated in Participants with PSC

- No safety concerns identified across all dose groups, including the 320 mg dose group
- The most common AEs were observed at lower rates in bexotegrast-treated patients vs. placebo
- No treatment-related SAEs on bexotegrast

Bexotegrast Demonstrated Antifibrotic Activity in a PSC Population with Suspected Liver Fibrosis

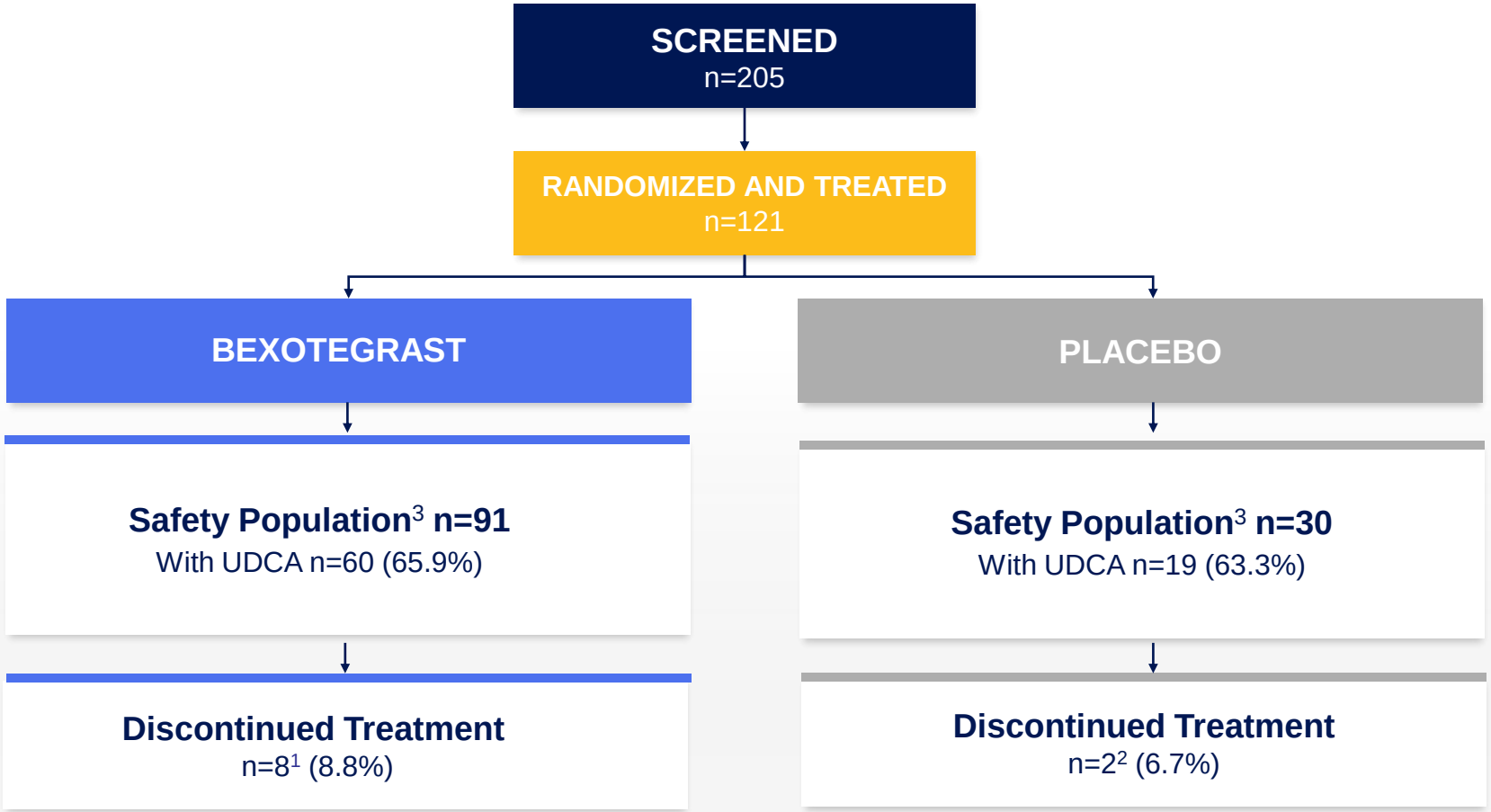
- Reduced liver fibrosis markers ELF and PRO-C3 at all doses relative to placebo over short-term treatment
- Contrast MRI suggested improved hepatocyte function and bile flow at all doses relative to placebo

Additional Findings

- Statistically significant reductions in itch relative to placebo for the 160 mg and 320 mg doses
- ALP remained stable at all doses relative to increases on placebo

PLIANT

INTEGRIS-PSC – Participant Disposition



1 – Adverse Event (n=4; 40 mg, 80 mg, 160 mg, 320 mg) Protocol Deviation (n=1; 40 mg) Withdrawal by subject (n=2, 320 mg) other (n=1 320 mg); 2 – Adverse Event (n=2); 3 – Safety population is the key population for both analysis of safety and efficacy

UDCA = Ursodeoxycholic acid

INTEGRIS-PSC – Baseline Demographics

Characteristic	Bexotegrast 40mg (n=24)*	Bexotegrast 80mg (n=20)*	Bexotegrast 160mg (n=20)*	Bexotegrast 320mg (n=27)	Bexotegrast All (n=91)	Placebo (n=30)
Male sex, n (%)	17 (70.8)	16 (80.0)	14 (70.0)	13 (48.1)	60 (65.9)	24 (80.0)
Age (yr), mean (SD)	46.9 (15.06)	40.5 (15.32)	45.1 (12.65)	47.1 (14.47)	45.2 (14.44)	45.2 (13.75)
Race, n (%)						
White	20 (83.3)	16 (80.0)	18 (90.0)	26 (96.3)	80 (87.9)	25 (83.3)
Black	2 (8.3)	2 (10.0)	1 (5.0)	0	5 (5.5)	2 (6.7)
Asian	2 (8.3)	1 (5.0)	1 (5.0)	1 (3.7)	5 (5.5)	1 (3.8)
Other / Not Reported / Unknown	0	1 (5.0)	0	0	1 (1.1)	2 (6.7)
Time since diagnosis of PSC (yr), mean (SD)	11.1 (8.15)	8.3 (7.97)	7.8 (6.78)	9.7 (11.56)	9.3 (8.89)	9.1 (7.45)
Concomitant UDCA use, n (%)	14 (58.3)	15 (75.0)	13 (65.0)	18 (66.7)	60 (65.9)	19 (63.3)
IBD, n (%)	18 (75.0)	12 (60.0)	11 (55.0)	13 (48.1)	54 (59.3)	17 (56.7)
Ulcerative colitis	11 (45.8)	6 (30.0)	7 (35.0)	6 (22.2)	30 (33.0)	10 (33.3)
Crohn’s disease	6 (25.0)	4 (20.0)	2 (10.0)	8 (29.6)	20 (22.0)	6 (20.0)
IBD Other	3 (12.5)	2 (10.0)	2 (10.0)	0	7 (7.7)	1 (3.3)
Partial Mayo Score, mean (SD)	0.7 (1.08)	1.6 (2.54)	1.1 (1.27)	0.8 (1.17)	1.0 (1.57)	0.5 (1.36)
Itch NRS, mean (SD)	1.8 (2.54)	2.1 (2.63)	1.4 (1.50)	0.9 (1.77)	1.5 (2.15)	1.0 (1.43)

Duration since diagnosis at screening is calculated from the first reported date for preferred terms of PSC.
Partial Mayo score only reported for those with active IBD at Baseline
BMI = Body Mass Index; IBD= inflammatory bowel diseases; NRS= numerical Rating scale;
SD = Standard deviation

* Two participants (80 mg and 160mg) were dispensed incorrect number of tablets and provided incorrect dosing instructions for the full treatment period due to an error at a single site. The participants’ daily dose corresponded to a ≤40 mg dose. These 2 participants are grouped in the 40 mg dose group for all summaries.

INTEGRIS-PSC – Baseline Disease Activity Markers

	Bexotegrast 40mg (n=24)	Bexotegrast 80mg (n=20)	Bexotegrast 160mg (n=20)	Bexotegrast 320mg (n=27)	Bexotegrast All (n=91)	Placebo (n=30)
Liver Biochemistry, mean (SD)						
Alkaline phosphatase (ALP) (U/L)	315.1 (140.26)	199.2 (81.03)	273.8 (165.63)	190.6 (91.29)	243.6 (132.13)	277.4 (215.88)
Alanine aminotransferase (ALT) (U/L)	91.5 (62.08)	67.6 (63.15)	98.4 (73.11)	60.4 (37.76)	78.5 (60.20)	73.1 (59.84)
Aspartate aminotransferase (AST) (U/L)	67.2 (49.34)	46.4 (30.12)	69.0 (39.62)	44.6 (24.69)	56.3 (38.10)	51.6 (37.13)
Total Bilirubin (mg/dL)	0.66 (0.307)	0.79 (0.493)	0.88 (0.396)	0.53 (0.208)	0.70 (0.373)	0.82 (0.373)
Direct bilirubin (mg/dL)	0.27 (0.164)	0.26 (0.188)	0.31 (0.166)	0.16 (0.062)	0.24 (0.156)	0.31 (0.238)
Markers of Fibrosis, mean (SD)						
ELF Score	9.6 (0.77)	9.2 (1.01)	9.4 (0.79)	9.0 (0.84)	9.3 (0.87)	9.3 (1.03)
PRO-C3 (ng/mL)	49.96 (13.844)	48.84 (42.790)	46.12 (11.670)	46.48 (19.536)	47.81 (24.058)	48.50 (24.329)
Transient Elastography (kPa)	10.1 (2.62)	9.1 (2.99)	8.2 (3.16)	8.7 (3.14)	9.0 (3.02)	8.6 (2.8)

ELF: Enhanced Liver Fibrosis; PROC-C3: neo-epitope pro-peptide of type III collagen formation.
PRO-C3 quantified using Roche COBAS platform (assay reports approximately 2x higher concentrations than previous generation PRO-C3 ELISA)

INTEGRIS-PSC – Safety Summary

AE, n (%) of Participants Reporting	Bexotegrast 40mg (n=24)	Bexotegrast 80mg (n=20)	Bexotegrast 160mg (n=20)	Bexotegrast 320mg (n=27)	Bexotegrast All (n=91)	Placebo (n=30)
TEAE	10 (41.7)	16 (80.0)	15 (75.0)	20 (74.1)	61 (67.0)	20 (66.7)
Related to study drug	**1 (4.2)**	**6 (30.0)**	**4 (20.0)**	**0**	**11 (12.1)**	**7 (23.3)**
Serious TEAE	1 (4.2)	1 (5.0)	0	0	2 (2.2)	0
Related to study drug	**0**	**0**	**0**	**0**	**0**	**0**
TEAE of CTCAE Grade 3 or Higher	1 (4.2)	2 (10.0)	1 (5.0)	1 (3.7)	5 (5.5)	3 (10.0)
Related to study drug	**0**	**0**	**0**	**0**	**0**	**2 (6.7)**
TEAE Leading to Interruption of Study Drug	1 (4.2)[1]	0	0	4 (14.8)[5]	5 (5.5)	1 (3.3)[7]
TEAE Leading to Withdrawal of Study Drug	1 (4.2)[2]	1 (5.0)[3]	1 (5.0)[4]	1 (3.7)[6]	4 (4.4)	2 (6.7)[8]
TEAE Leading to Early Termination from Study	0	0	1 (5.0)[4]	0	1 (1.1)	0
TEAE Leading to Death	0	0	0	0	0	0

1 – chills/constipation/fatigue/nausea/pyrexia/vomiting; 2 – COVID-19/dyspnoea/nasal congestion; 3 – Hepatic enzyme increase/Pruritus ; 4 – Fatigue; 5 – fatigue; cough; oropharyngeal pain; increased ALT;
6 – increased ALP, ALT and AST; 7 – abdominal pain upper/fatigue/ocular icterus/pruritus; 8 – cardiomegaly/dyspnoea/malaise; headache

AE = Adverse Event; TEAE = Treatment Emergent Adverse Event; SAE = Serious Adverse Events. Adverse events coded using MedDRA v. 24.0.
TEAE is defined as any AE starting (or worsening) on or after the date of first dose.

PLIANT

INTEGRIS-PSC – Most Frequent TEAEs

TEAE, n (%) of Participants Reporting	Bexotegrast 40mg (n=24)	Bexotegrast 80mg (n=20)	Bexotegrast 160mg (n=20)	Bexotegrast 320mg (n=27)	Bexotegrast All (n=91)	Placebo (n=30)
Most frequent TEAEs (n ≥ 3 in at least one arm)						
Fatigue	3 (12.5)	2 (10.0)	4 (20.0)	3 (11.1)	12 (13.2)	4 (13.3)
Pruritus[1]	2 (8.3)	4 (20.0)	3 (15.0)	2 (7.4)	11 (12.1)	6 (20.0)
Headache	1 (4.2)	2 (10.0)	3 (15.0)	2 (7.4)	8 (8.8)	4 (13.3)
COVID-19	2 (8.3)	1 (5.0)	0	4 (14.8)	7 (7.7)	3 (10.0)
Nausea	1 (4.2)	2 (10.0)	3 (15.0)	1 (3.7)	7 (7.7)	0
Frequent bowel movements	0	3 (15.0)	0	0	3 (3.3)	3 (10.0)
Cholangitis	0	1 (5.0)	1 (5.0)	0	2 (2.2)	4 (13.3)
Pyrexia	1 (4.2)	0	0	0	1 (1.1)	3 (10.0)
Dyspepsia	0	0	0	0	0	3 (10.0)
Ocular icterus	0	0	0	0	0	3 (10.0)

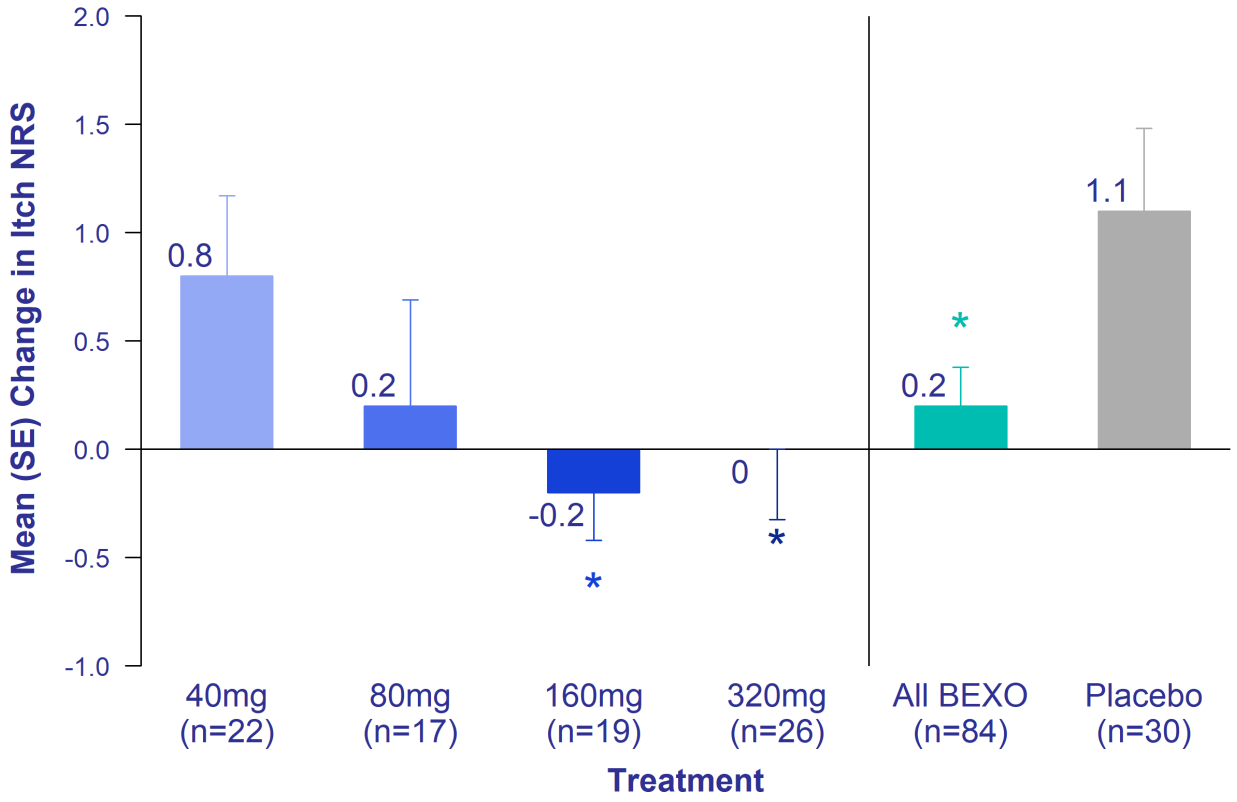
1- Pruritus includes preferred terms for pruritus and cholestatic pruritus

TEAE = Treatment Emergent Adverse Event; Adverse events coded using MedDRA version 24.0.
TEAE is defined as any AE starting (or worsening) on or after the date of first dose

PLIANT

Itch Numerical Rating Scale – Change from Baseline at Week 12

Safety Population



* p < 0.05 vs placebo

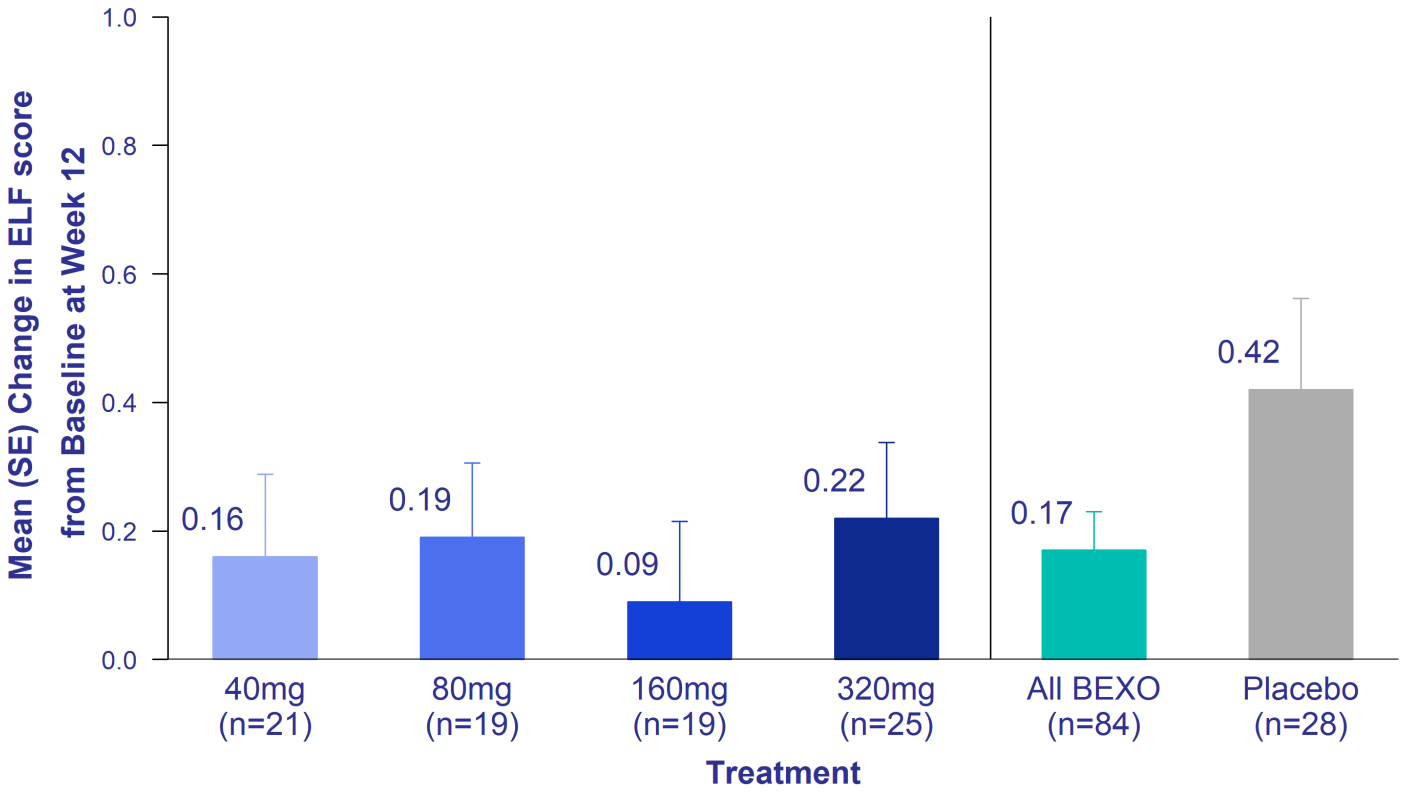
Bexotegrast showed statistically significant reductions in itch relative to placebo for the 160 mg and 320 doses

NRS: Numerical Rating scale; Itch NRS is a patient reported outcome which assesses severity of itch, over the last 24 hours, on a scale of 0 (no itch) to 10 (Worst imaginable itching).

PLIANT

ELF Score – Change from Baseline at Week 12

Safety Population



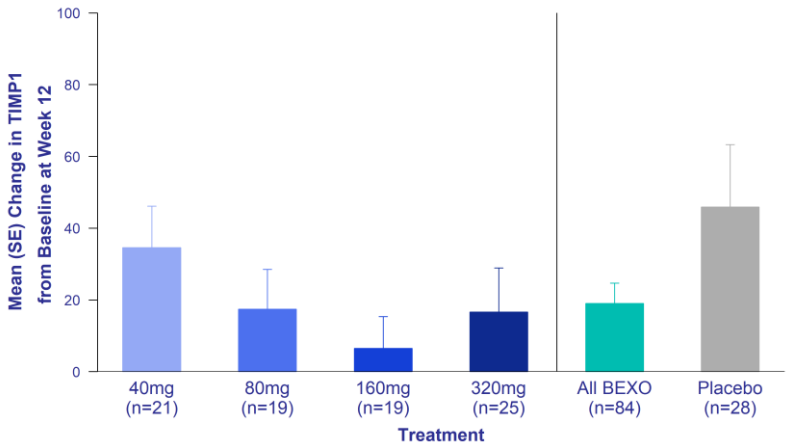
ELF: enhanced liver fibrosis.

Bexotegrast reduced ELF score relative to placebo at all doses

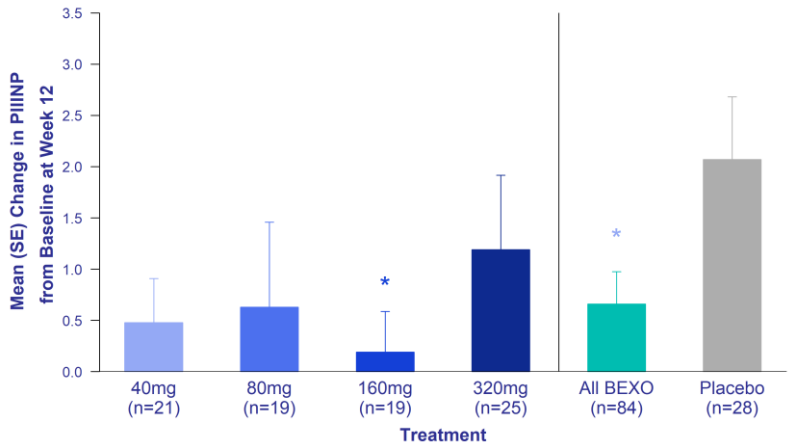
ELF Score Components - Change from Baseline at Week 12

Safety Population

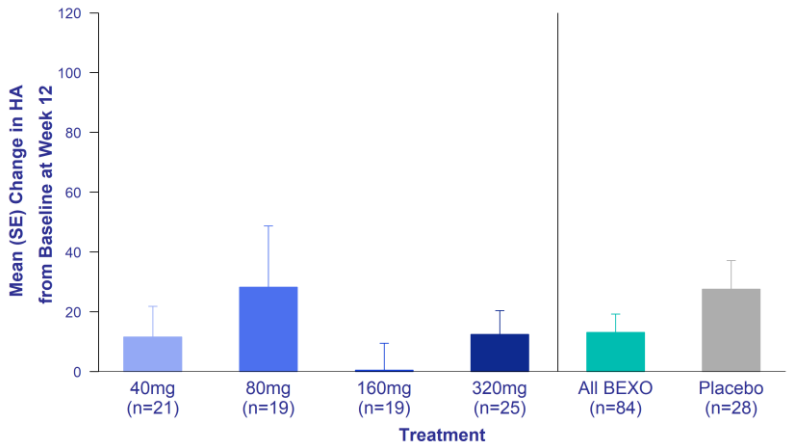
TIMP-1



PIIINP



HA

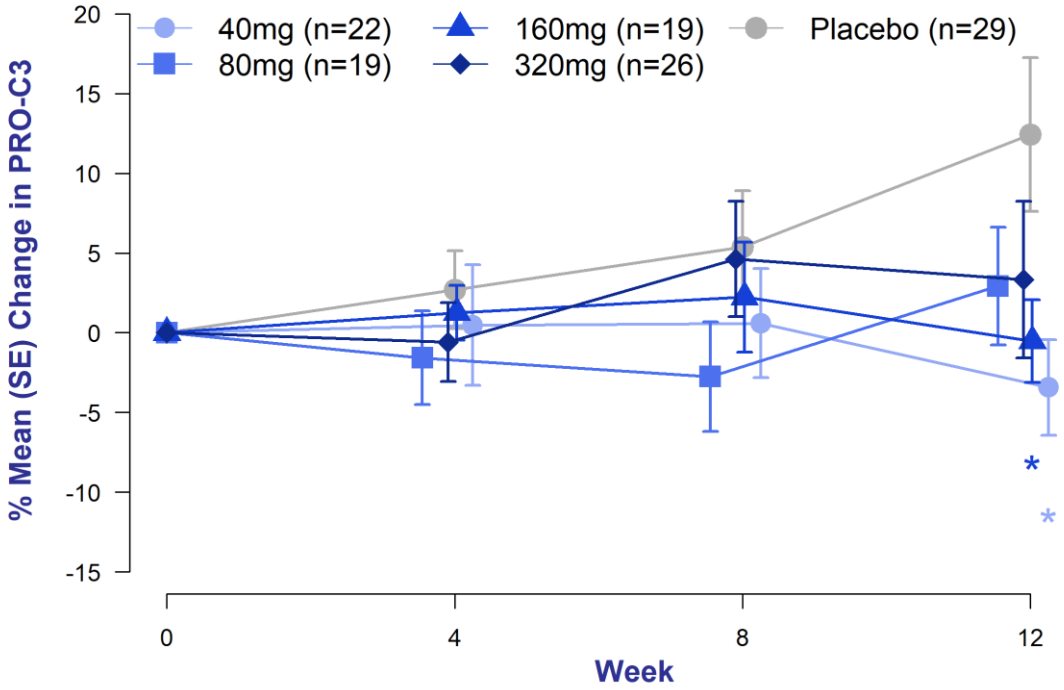


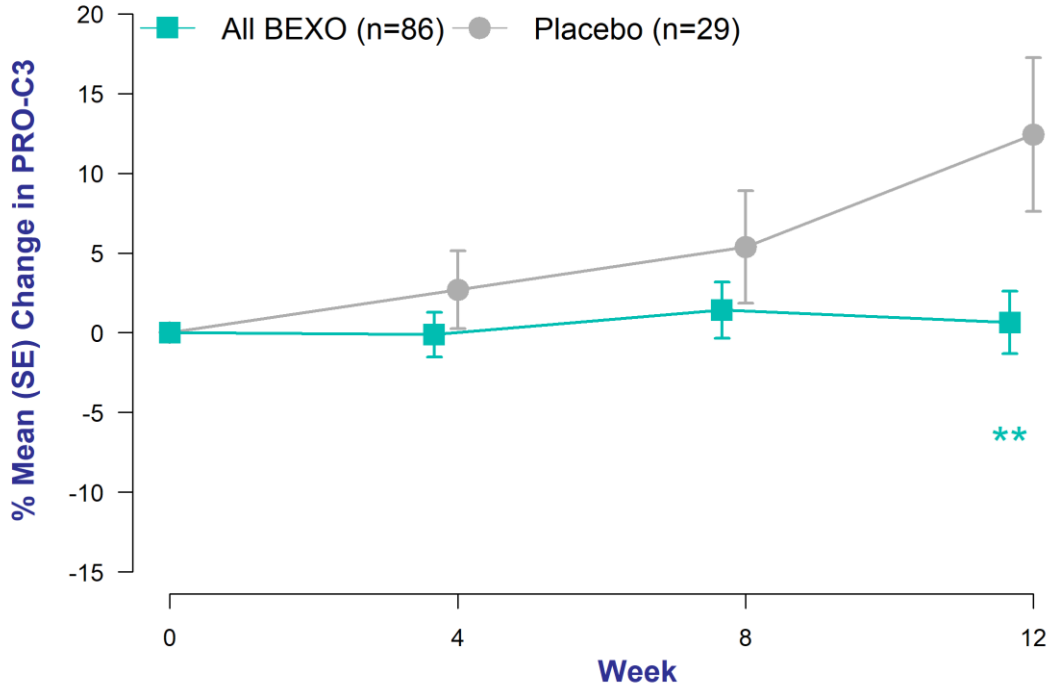
Bexotegrast reduced all components of ELF score compared to placebo

TIMP-1:Tissue inhibitor of metalloproteinases-1; HA: Hyaluronic acid ; PIIINP: Procollagen III, N-terminal propeptide

PRO-C3 – Percent Change from Baseline

Safety Population





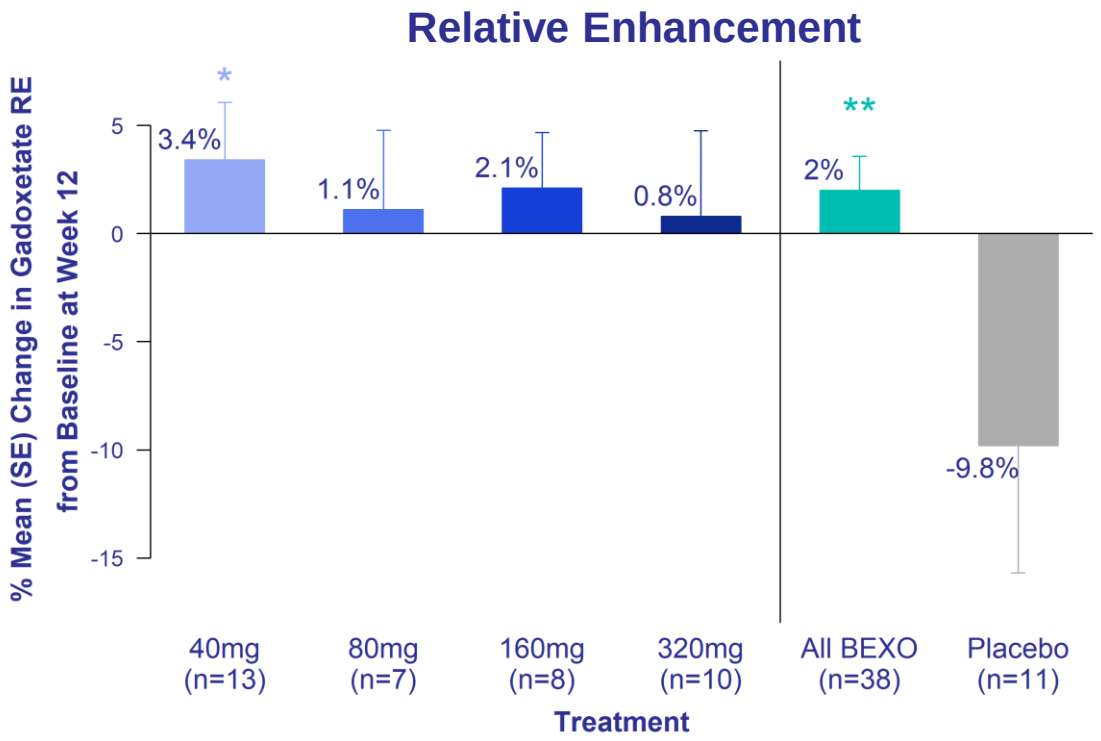
* p < 0.05 vs placebo
** p < 0.01 vs placebo

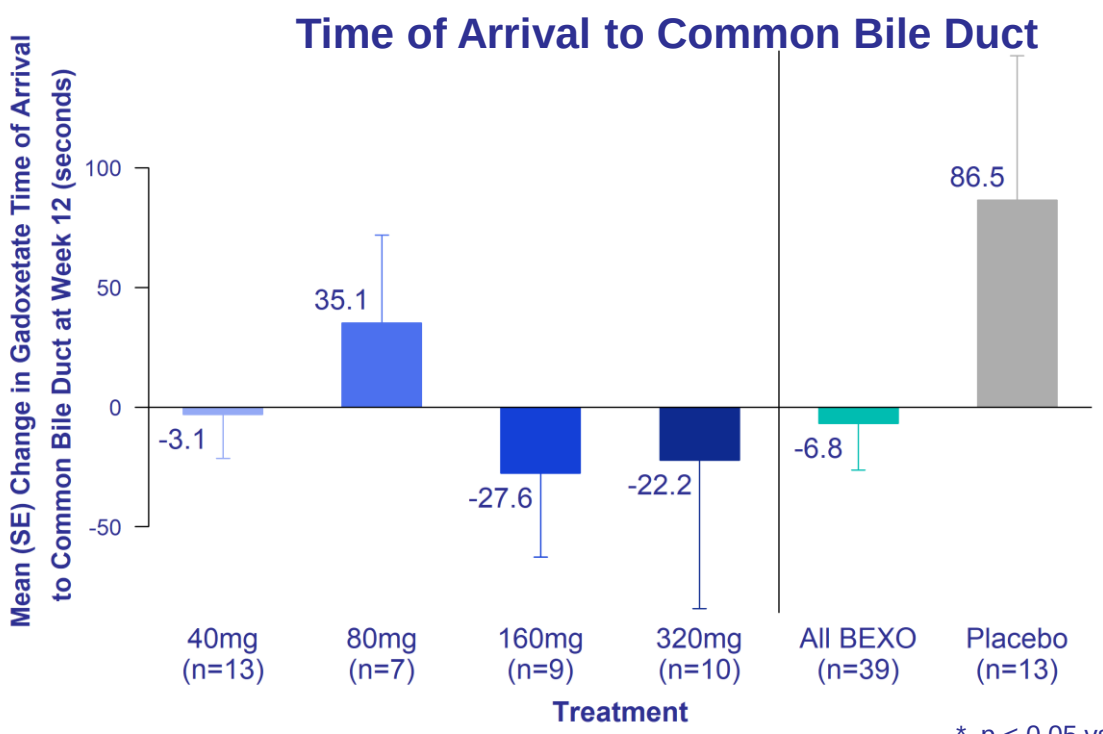
All doses reduced collagen synthesis (PRO-C3) relative to placebo with statistical significance at Week 12 for 40 mg and 160 mg doses

PROC-C3: neo-epitope pro-peptide of type III collagen formation.
Only participates with both a baseline and post baseline are summarized.

MRI Parameters – Change from Baseline at Week 12

Sub-Study Safety Population





* $p < 0.05$ vs placebo
** $p < 0.01$ vs placebo

All doses showed increased relative enhancement compared to placebo, suggesting improved hepatocyte function

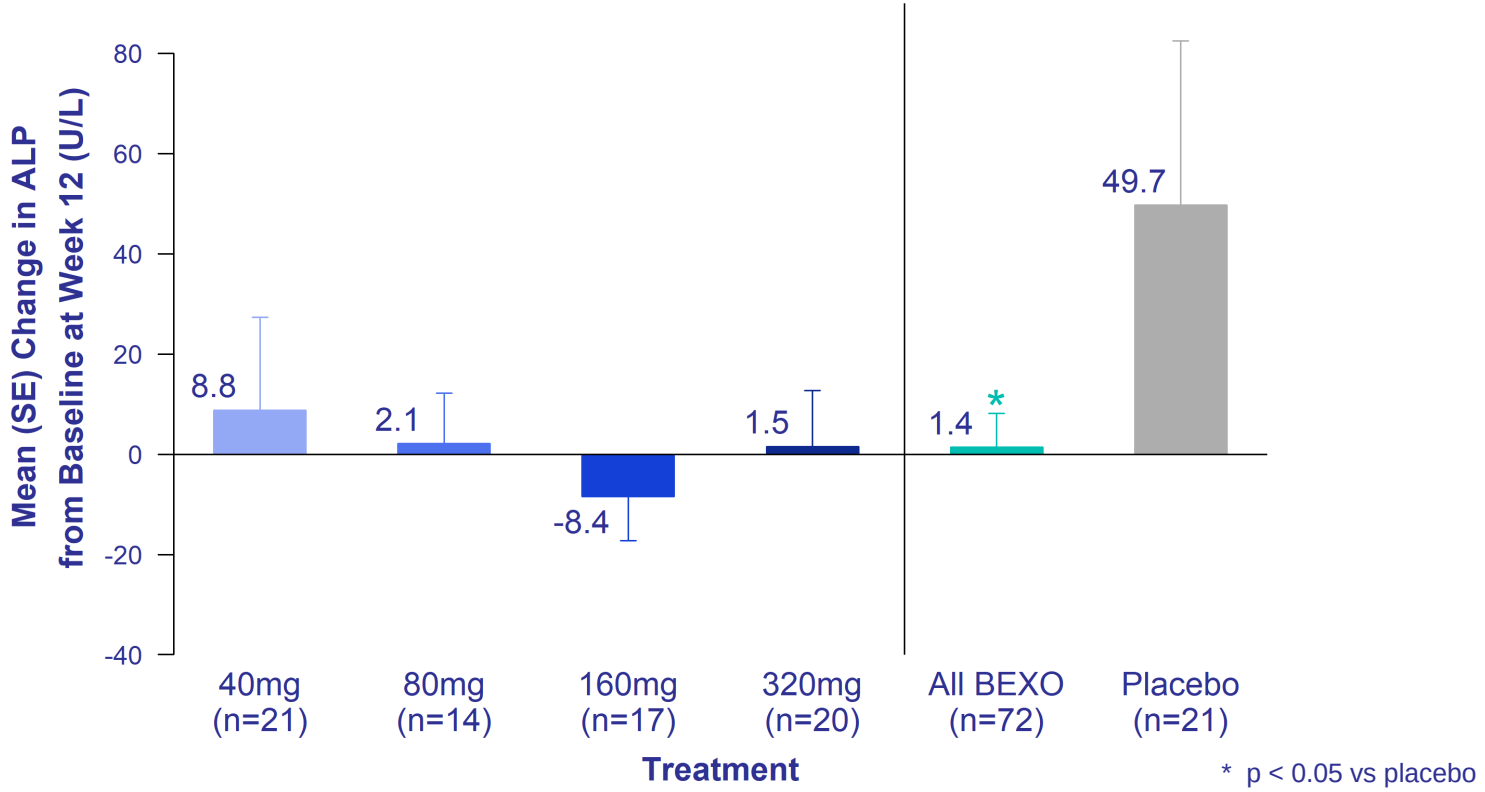
All doses reduced time of arrival to the common bile duct compared to placebo, suggesting improved bile flow

Relative enhancement (RE), using the contrast agent gadoxetate, is a measure of hepatocyte function. Time of arrival of gadoxetate to bile duct is a measure of excretory function.
MRI was an optional sub study to main study.

PLIANT

ALP – Change from Baseline at Week 12

Safety Population – Participants with ALP > ULN at Baseline



Bexotegrast improved ALP relative to placebo at all doses in subgroup with elevated ALP at baseline

ALP -Alkaline phosphatase.

PLIANT

Gideon Hirshfield, FRCP, Ph.D.

Lily and Terry Horner Chair in Autoimmune Liver Disease,
University of Toronto

INTEGRIS-PSC – Summary and Next Steps

- **Bexotegrast continues to demonstrate a favorable safety and tolerability profile in a PSC patient population with suspected moderate to severe liver fibrosis**
- **All bexotegrast doses showed antifibrotic activity (ELF and PRO-C3) over short-term treatment duration**
- **Contrast MRI suggested improved hepatocyte function and bile flow with bexotegrast treatment**
- **All doses displayed improvement in Itch Numerical Rating Scale at Week 12 relative to placebo with statistical significance for the 160 mg and 320 mg doses**
- **Planning for regulatory interactions to discuss path to registration;**
  320 mg 24-week data expected in mid-2024

PLIANT

Question and Answer Session