BIORA™ Therapeutics

CORPORATE PRESENTATION

September 2022

FORWARD-LOOKING STATEMENTS

This presentation contains “forward-looking statements” within the meaning of the federal securities laws, which statements are subject to substantial risks and uncertainties and are based on estimates and assumptions. All statements, other than statements of historical fact included in this presentation, including statements concerning our plans, objectives, goals, strategies, future events, plans or intentions relating to product candidates, estimates of market size, the anticipated timing, design and conduct of our planned pre-clinical and clinical trials, the anticipated timing for pre-clinical and clinical data, the development of our product candidates, the potential clinical benefits of our product candidates, including efficacy and safety benefits, the potential benefits of strategic partnerships and licensing arrangements and our intent to enter into any strategic partnerships or licensing arrangements, the timing and likelihood of success, plans and objectives of management for future operations and future results of anticipated product development efforts, are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as “may,” “might,” “will,” “objective,” “intend,” “should,” “could,” “can,” “would,” “expect,” “believe,” “design,” “estimate,” “predict,” “potential,” “plan” or the negative of these terms, and similar expressions intended to identify forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that could cause our actual results to differ materially from the forward-looking statements expressed or implied in this presentation, including difficulties in managing changes to our organization due to our strategic transformation; competition from third parties with respect to our product candidates; risks related to the supply and manufacturing of and complexity of components in our devices; whether we will be able to develop our precision medicine products, and, if developed, that such product candidates will be authorized for marketing by regulatory authorities, or will be commercially successful; and those described in “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, and elsewhere in such filing and in other subsequent disclosure documents, including our Quarterly Reports on Form 10-Q, filed with the U.S. Securities and Exchange Commission.

We cannot assure you that we will realize the results, benefits or developments that we expect or anticipate or, even if substantially realized, that they will result in the consequences or affect us or our business in the way expected. Forward-looking statements are not historical facts and reflect our current views with respect to future events. Given the significant uncertainties, you should evaluate all forward-looking statements made in this presentation in the context of these risks and uncertainties and not place undue reliance on these forward-looking statements as predictions of future events. All forward-looking statements in this presentation apply only as of the date made and are expressly qualified in their entirety by the cautionary statements included in this presentation. We disclaim any intent to publicly update or revise any forward-looking statements to reflect subsequent events or circumstances, except as required by law.

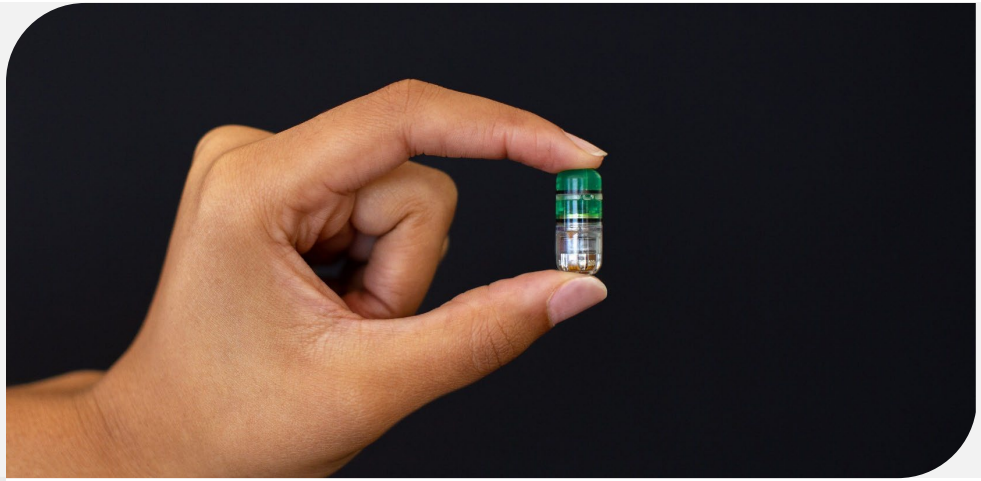
Industry and Market Data: We obtained the industry, market, and competitive position data used throughout this presentation from our own internal estimates and research, as well as from industry and general publications, and research, surveys, and studies conducted by third parties. Internal estimates are derived from publicly available information released by industry analysts and third-party sources, our internal research and our industry experience, and are based on assumptions made by us based on such data and our knowledge of the industry and market, which we believe to be reasonable. In addition, while we believe the industry, market, and competitive position data included in this prospectus is reliable and based on reasonable assumptions, we have not independently verified any third-party information, and all such data involve risks and uncertainties and are subject to change based on various factors. These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

Our mission is to reimagine therapeutics and their delivery

Innovating smart capsule technologies to deliver the right dose to the right place, safely

TARGETED ORAL DELIVERY OF BIOTHERAPEUTICS

Treatment at the site of disease in the GI tract could improve outcomes for patients with inflammatory bowel disease



SYSTEMIC ORAL DELIVERY OF BIOTHERAPEUTICS

Ingestible technology designed to enable needle-free, systemic delivery of large molecules for improved management of chronic diseases

THERAPEUTIC PIPELINE

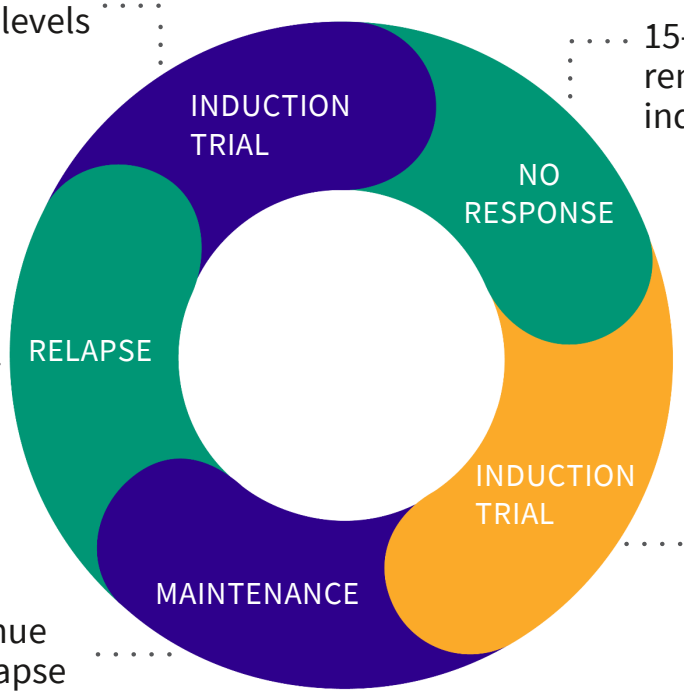
	PROGRAM	INDICATION	DESIGN/FEASIBILITY	PRECLINICAL	CLINICAL
TARGETED THERAPEUTICS	**DDS** Device	--			
	PGN-600 Tofacitinib + Device	UC			
	PGN-001 Adalimumab + Device	UC			
SYSTEMIC THERAPEUTICS	**OBDS** Device	--			
	PGN-OB2 GLP-1 agonist + Device	Diabetes			
	PGN-OB1 Adalimumab variant + Device	Autoimmune			
	Ionis Collaboration Antisense therapy + Device	Undisclosed			
	Large Pharma 1 Collaboration Undisclosed drug + Device	Undisclosed			
	Large Pharma 2 Collaboration Undisclosed drug + Device	Undisclosed			

TARGETED THERAPEUTICS

Despite therapeutics targeting different pathways, few patients achieve long-term remission

UC TREATMENT CYCLE

Treatment begins with 2-3 months of drug therapy to reach therapeutic levels



15-30% of patients achieve remission of symptoms after induction with any drug therapy[1,2]

60% of patients in remission relapse within 12 months[2]

Patients undergo induction (2-3 months) with different drug

Efficacy rate decreases with successive rounds of therapy[1]

Patients in remission continue drug therapy to prevent relapse

ABOUT ULCERATIVE COLITIS

- Inflammatory bowel disease (IBD) includes Crohn's disease and ulcerative colitis (UC)
- UC causes inflammation and damage to the large intestine
- About 1 million people in the U.S. are affected with UC, and ~40,000 cases are diagnosed each year[3]

1. Alsoud D, Verstockt B, Fiocchi C, Vermeire S. Breaking the therapeutic ceiling in drug development in ulcerative colitis. Lancet Gastroenterol Hepatol. 2021;6(7):589-595.
2. Hirten RP, Sands BE. New Therapeutics for Ulcerative Colitis. Annu Rev Med. 2021;72:199-213.
3. Shivashankar R, Tremaine WJ, Harmsen WS, Loftus EV Jr. Incidence and Prevalence of Crohn's Disease and Ulcerative Colitis in Olmsted County, Minnesota From 1970 Through 2010. Clin Gastroenterol Hepatol. 2017;15(6):857-863.

TARGETED THERAPEUTICS

Targeted delivery could enable rapid induction and improve patient response

THERAPEUTIC CHALLENGES	POTENTIAL SOLUTION
1 Difficulty of achieving sufficient drug levels at site of disease	Targeted delivery is designed to increase drug levels at the site of disease, which is correlated with improved outcomes[1]
2 Systemic toxicity issues may limit daily dosage of UC drugs	Reduced systemic uptake is designed to reduce toxicity and adverse events
3 Combination therapy is limited by toxicity	Reduced toxicity could enable combination therapy[2]

Research in partnership with: CROHN'S & COLITIS FOUNDATION

1. Verstockt B, Alsoud D, van Oostrom J, et al. Tofacitinib tissue exposure correlates with endoscopic outcome. Poster presented at: *17th Congress of the European Crohn's and Colitis Organisation* (ECCO), February 18, 2022, virtual.
2. van Oostrom J, Verstockt B, Hanzel J, et al. Pharmacokinetic stratification of cytokine profiles during anti-TNF induction treatment in moderate-to-severe ulcerative colitis. Poster presented at: *17th Congress of the European Crohn's and Colitis Organisation* (ECCO), February 18, 2022, virtual.

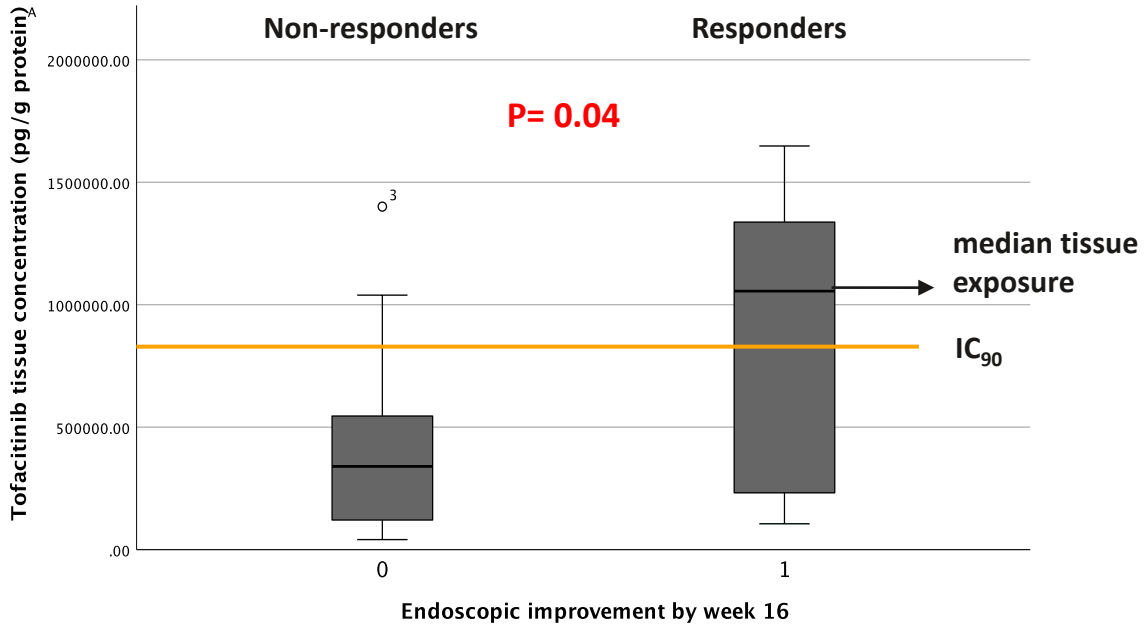
Tissue drug concentration correlates with endoscopic outcomes in UC

30 consecutive UC patients with active endoscopic disease initiated treatment with tofacitinib and prospectively monitored

RESULTS

- Tofacitinib tissue exposure at the end of induction was associated with endoscopic improvement by week 16 (p=0.04)
- In responders (n=14), median tofacitinib tissue exposure exceeded IC_{90}

TOFACITINIB TISSUE EXPOSURE EXCEEDED IC_{90} IN RESPONDERS



Research presented at ECCO 2022 and DDW 2022 in collaboration with:

KU LEUVEN · IBD Leuven · Amsterdam UMC University Medical Centers

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BIORA Therapeutics

TARGETED THERAPEUTICS

Needle-free, oral drug delivery to the colon

ORAL ADMINISTRATION

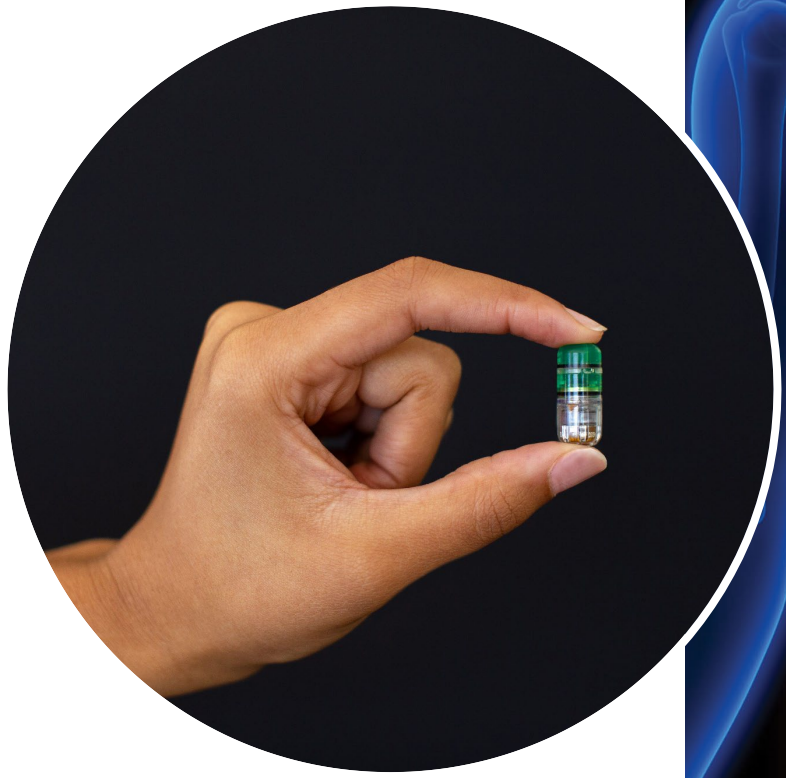
- Convenient oral capsule the size of a fish oil pill

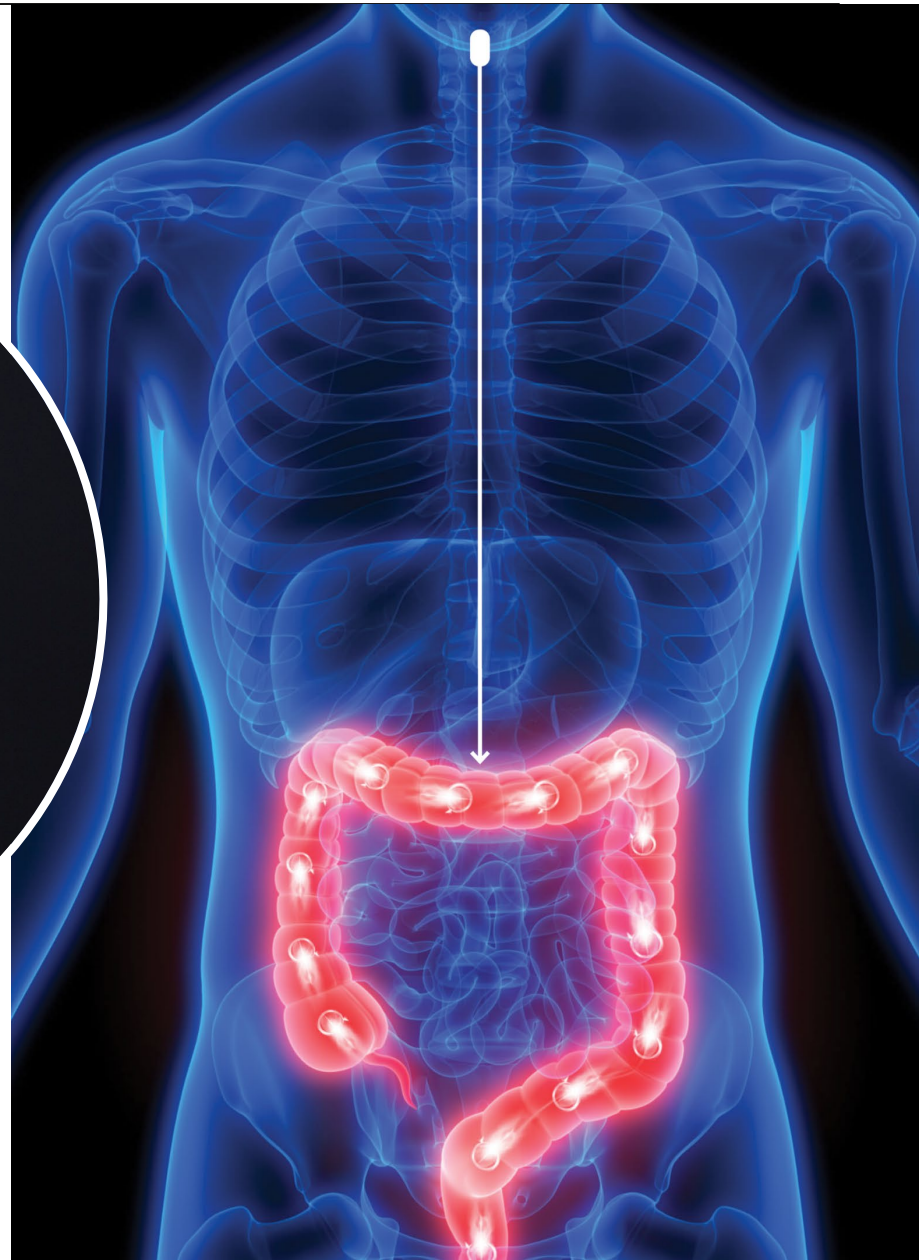
AUTONOMOUS LOCATION

- Proprietary autolocation in the GI tract for accurate drug delivery regardless of fasted or fed state[1]

TARGETED DRUG DELIVERY

- Method designed to coat the length of the colon with liquid formulation, minimizing systemic uptake

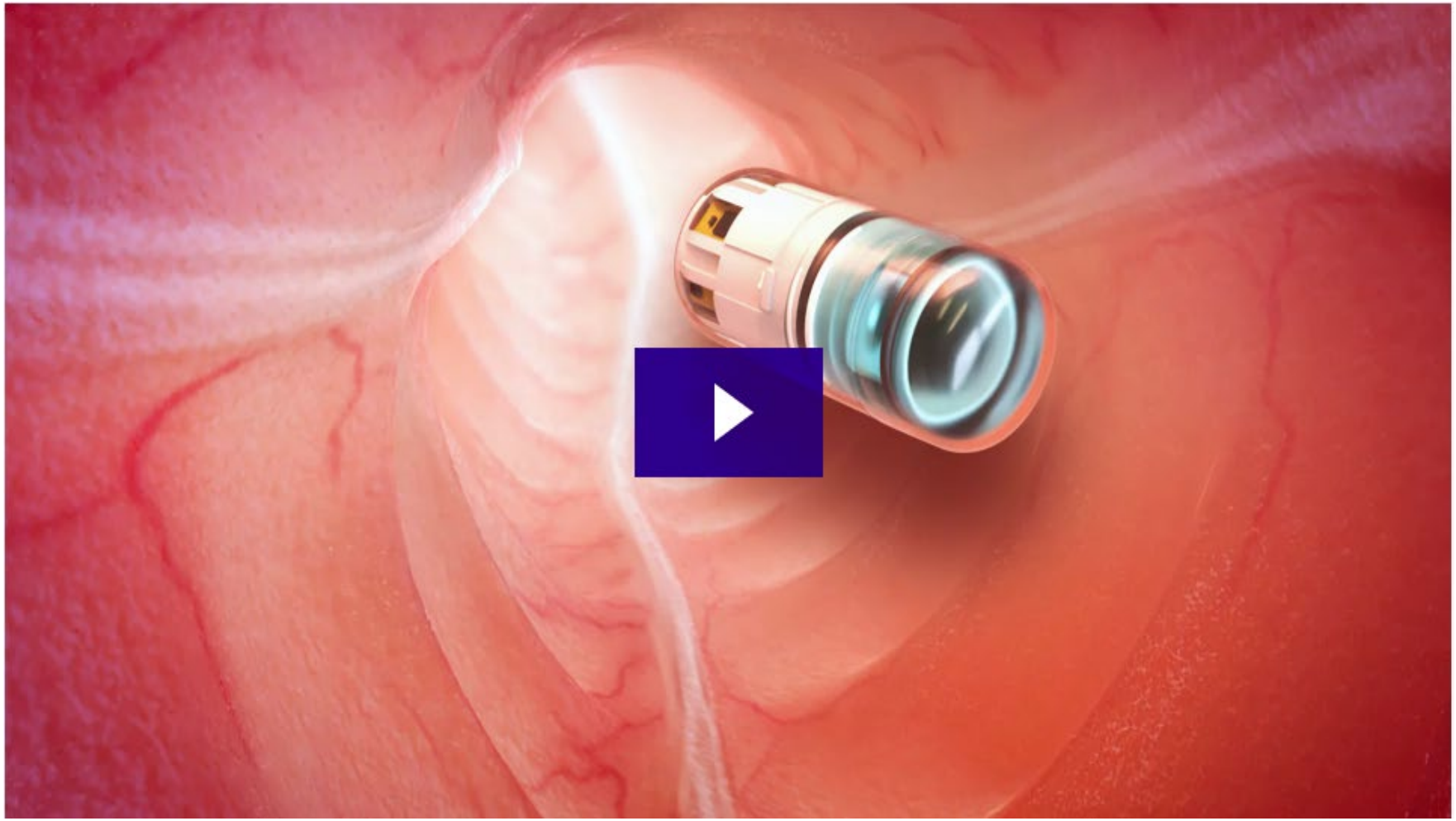




1. Biora Therapeutics internal data

TARGETED THERAPEUTICS

Autonomous location and delivery to the colon



SCAN ME

https://biora.wistia.com/medias/r65935rbqs

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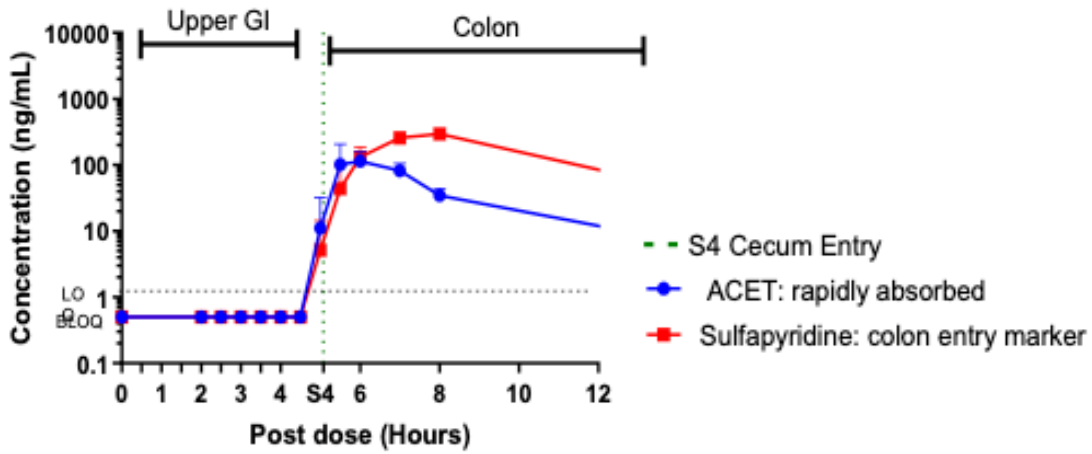
TARGETED THERAPEUTICS

Demonstrated accurate localization and delivery to colon

ACCURATE DELIVERY TO COLON IN CANINES

Pharmacokinetic data from two marker drugs administered in canine model



- Successful delivery to colon via DDS
- No early release of drug
- No drug absorption in upper GI tract

ACCURATE LOCALIZATION AND DELIVERY TO HUMAN COLON

Clinical device validation for localization and delivery function using scintigraphic imaging in normal, healthy volunteers

- Achieved distribution across the entire colon

Biora Therapeutics internal data

BIORA Therapeutics

TARGETED THERAPEUTICS

Three successful human studies show device functions with and without food, and in active UC patients

PM-601 Device Function Study in Healthy Volunteers – Fasted State	PM-611 Device Function Study in Healthy Volunteers – Fasted and Fed	PM-602 Device Function Study in Patients with Active UC
• 83% of devices accurately identified entry into the colon (10/12) • **Achieved distribution of payload across the entire colon** • No early deployment before colon detection • Presenting data at upcoming conference	• 100% of analyzed devices indicated entry to the colon, activation, and deployment, **and were unaffected by food** (39/39) • No failure modes observed in the analyzed devices • No serious adverse events reported	• 100% of devices accurately identified entry into the colon, triggered release of a liquid payload, and achieved distribution across the entire colon (7/7) • **Device was well tolerated and performed as intended in active ulcerative colitis patients** • Presenting data at upcoming conference

Biora Therapeutics internal data

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Reduced systemic uptake, better PK effect and coverage

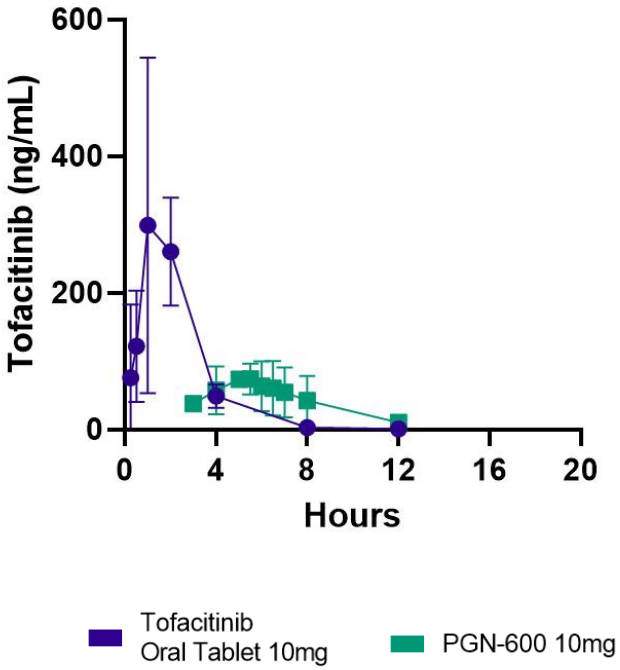
TARGETED THERAPEUTICS

Non-GLP tox study; 7 days/QD in canine model compared PGN-600 (tofacitinib 10mg liquid formulation delivered via DDS capsule) vs. standard oral tablet (tofacitinib 10mg)

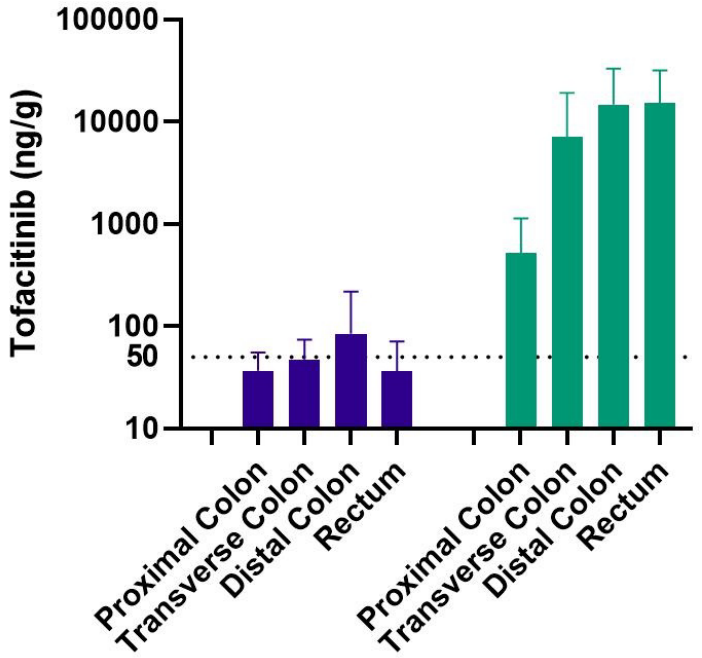
RESULTS

- Reduced drug levels in blood vs. standard oral tablet
- Tissue drug levels at average ~100X higher along the length of the colon vs. standard oral tablet
- Data suggest that a dose lower than the standard 10mg tofacitinib may provide increased tissue levels while reducing systemic exposure

PLASMA LEVEL CMAX 5X LOWER



COLON TISSUE COVERAGE ~100X HIGHER



Biora Therapeutics internal data

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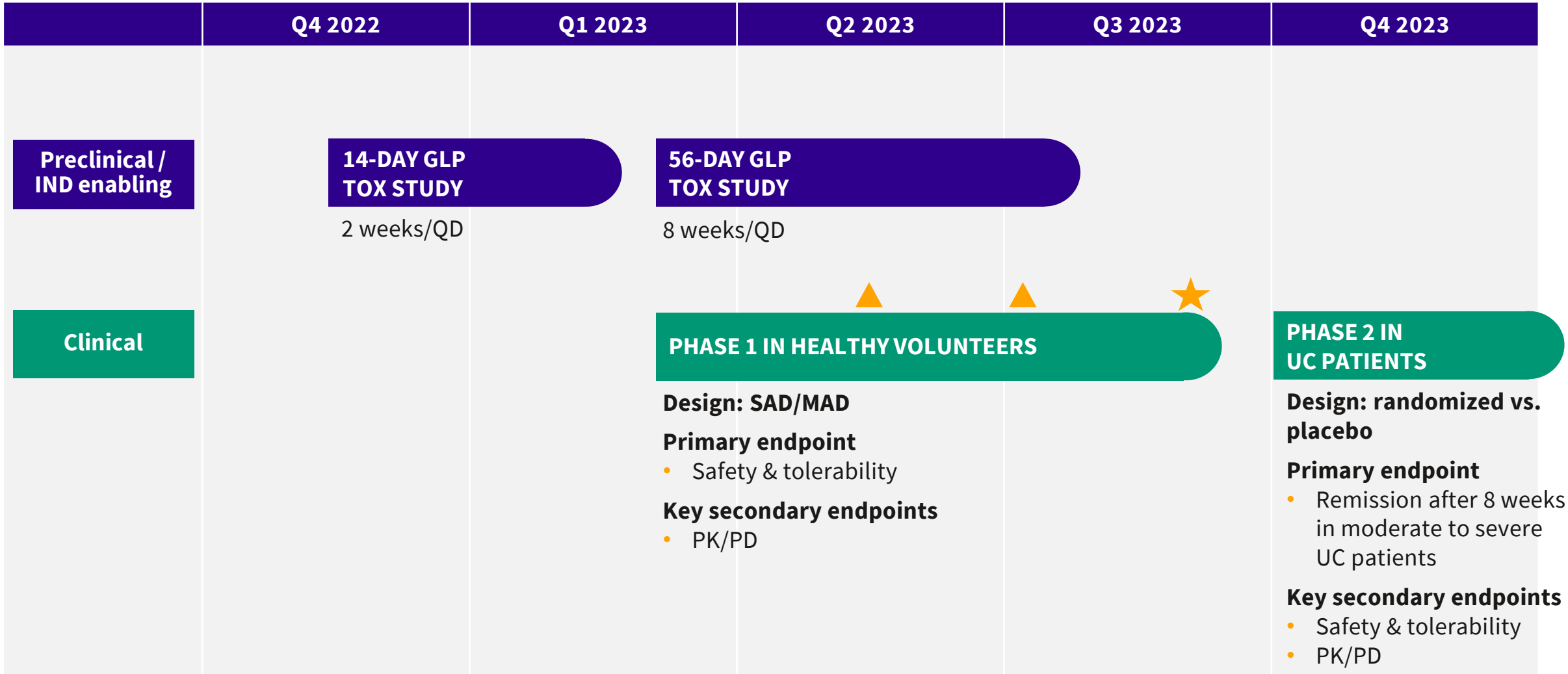
PGN-600 (TOFACITINIB + DDS DEVICE)

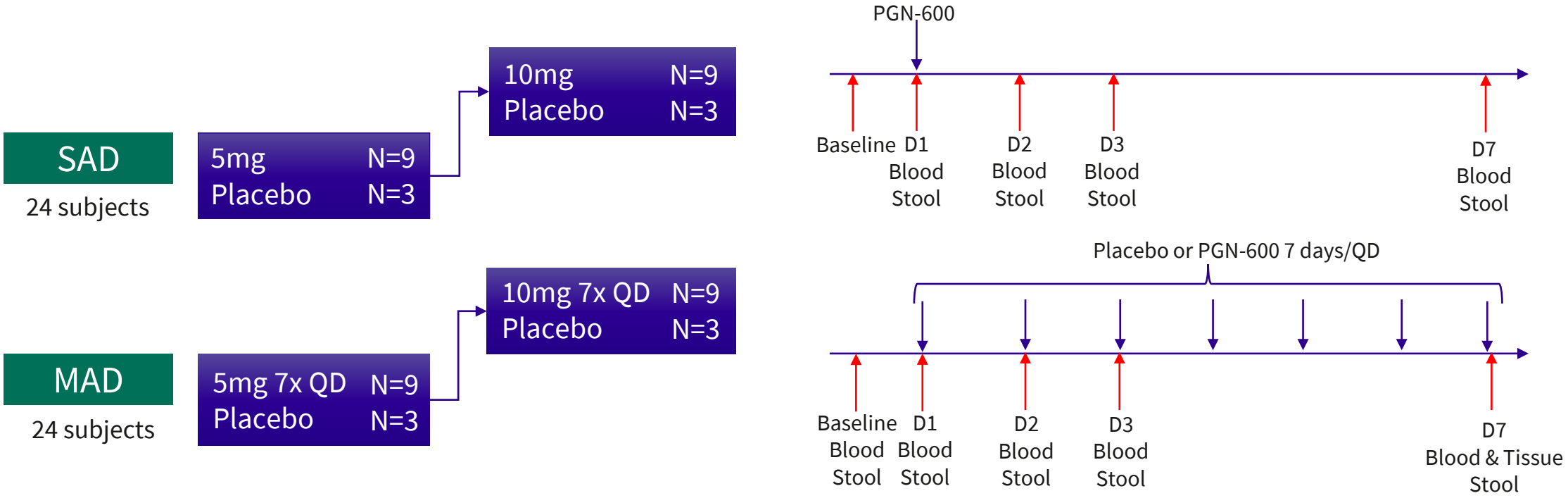
Clinical Development Plan

TARGETED THERAPEUTICS



TARGETED THERAPEUTICS

Evaluate safety, tolerability, pharmacokinetics and pharmacodynamics of PGN-600 in healthy volunteers



PATIENT POPULATION	Normal healthy volunteers Total of 48 subjects (24 SAD and 24 MAD subjects)
STUDY DESIGN	Randomized, double-blind (participant and site), placebo-controlled study to evaluate the safety, tolerability, and PK/PD of SAD and MAD doses of PGN-600 in healthy subjects
OBJECTIVES	Demonstrate safety and tolerability of PGN-600, assess PK and PD effects of tofacitinib released from PGN-600 over 8 days in NHV in blood and in tissue.

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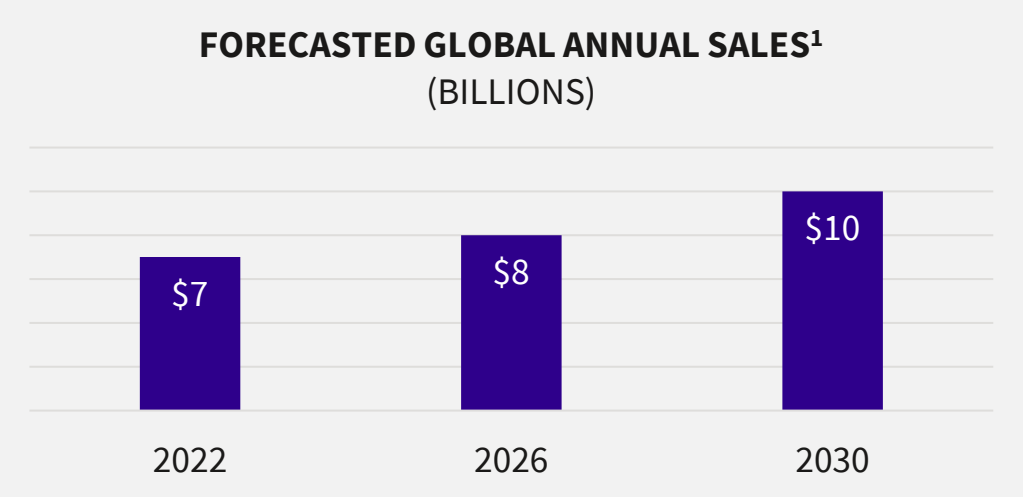
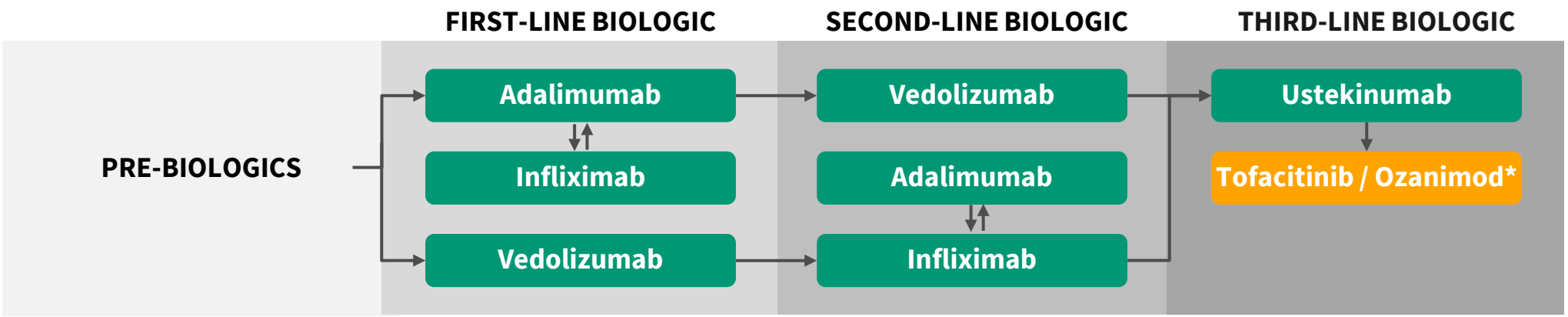
TARGETED THERAPEUTICS

Potential for market-leading efficacy in tofacitinib creates sizeable opportunity

- Global annual sales forecast for ulcerative colitis therapeutics:
  - $7 billion in 2022[1]
- >10 FDA-approved drugs for UC





1. Source: Evaluate Pharma; GlobalData

*Non-biologic drug therapies

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SYSTEMIC THERAPEUTICS

UNMET NEED

Needles are associated with poor disease management

38% of diabetics miss 4+ injections per week[1]

42% of patients fail to maintain diabetes treatment due to injection concerns when using an injectable GLP-1 agonist[2]

71% higher discontinuation rate for diabetes patients initiating treatment with an injectable GLP-1 agonist vs. those starting oral therapy[2]

1. Frost & Sullivan research commissioned by Rani Therapeutics Holdings, Inc. https://ir.ranitherapeutics.com/static-files/b1f080bf-a860-4136-87cb-d6f7c49c1502
2. Spain CV, Wright JJ, Hahn RM, Wivel A, Martin AA. Self-reported Barriers to Adherence and Persistence to Treatment With Injectable Medications for Type 2 Diabetes. Clin Ther. 2016;38(7):1653-1664.e1. doi:10.1016/j.clinthera.2016.05.009

Needle-free, oral delivery to small intestine

SYSTEMIC THERAPEUTICS

ORAL CAPSULE

- Convenient oral capsule the size of a multivitamin for ease of swallowing

PRECISE DELIVERY

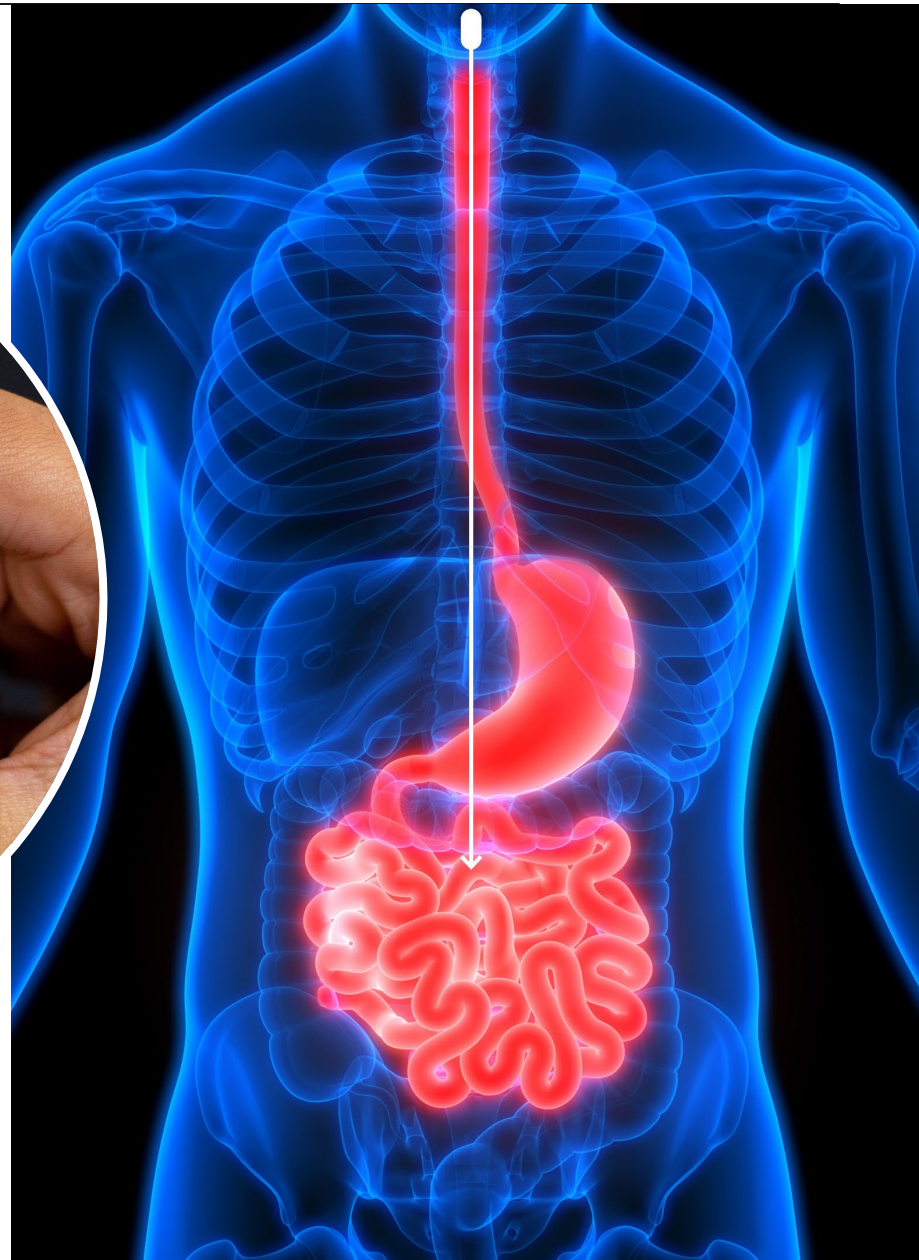
- Enteric trigger for precise timing of drug delivery to the small intestine

NEEDLE-FREE ADMINISTRATION

- Liquid jet injection to the small intestine to maximize systemic uptake

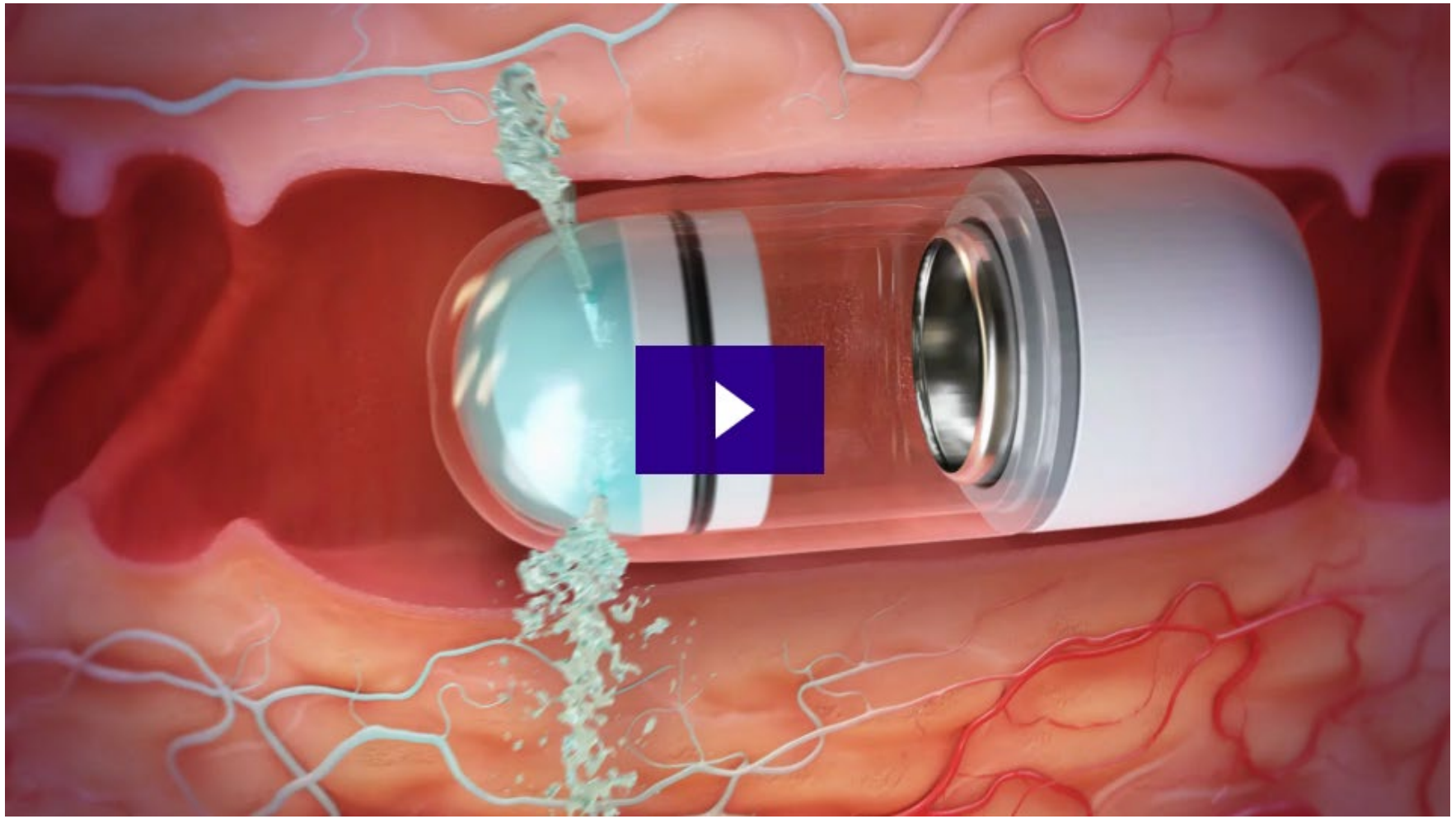
RESEARCH COLLABORATIONS

- IONIS
- Large Pharma 1
- Large Pharma 2



Liquid jet delivery to the small intestine

SYSTEMIC THERAPEUTICS



SCAN ME

https://biora.wistia.com/medias/embr15eh3a

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SYSTEMIC THERAPEUTICS

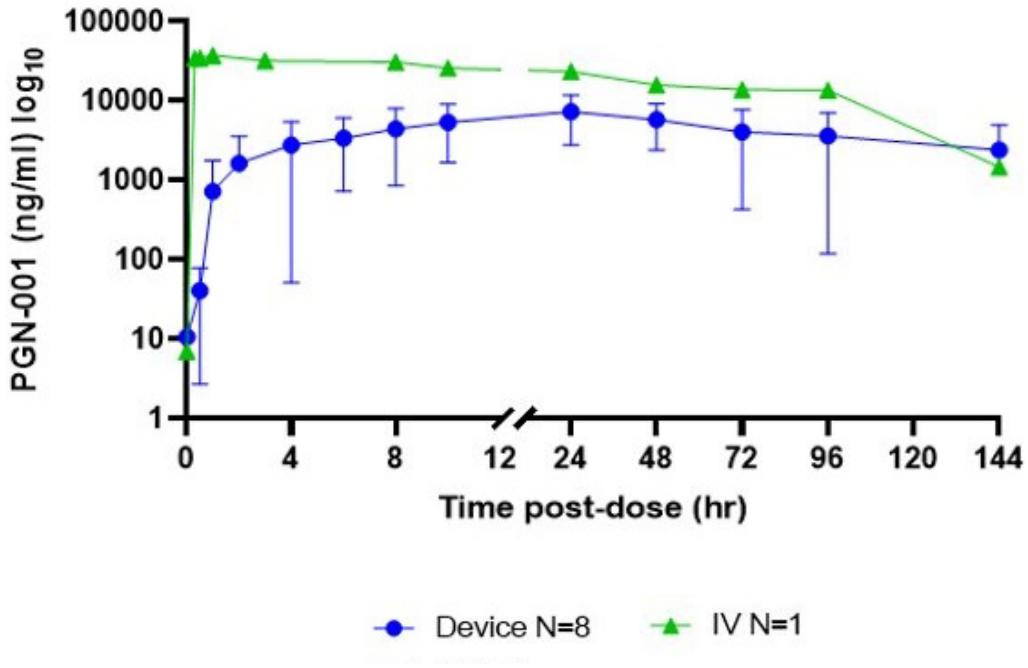
Excellent systemic uptake for orally delivered large molecules demonstrated in animal models

Multiple studies in swine model with endoscopically placed, autonomous device compared to IV administration

RESULTS

- In multiple studies in swine model, an average of ~22% bioavailability was observed in animals where drug was detected in blood[1]
- Achieved up to 67% bioavailability for a variant of adalimumab[1]
  - *For comparison, commercially available oral large molecules achieve 1% or less bioavailability*
- Precise and reliable release of payload in small intestine demonstrated in canine studies
- No issues observed with safety or tolerability of the device

BIOAVAILABILITY COMPARABLE TO IV



1. Biora Therapeutics internal data

See also Lee SN, Stork C, Smith J, et al. Assessing the performance of an oral biotherapeutic delivery system (OBDS) using intra-duodenal endoscopy delivery in Yucatan minipigs. Poster presented at: *Controlled Release Society Annual Meeting*, July 13-14, 2022, Montreal, Canada.
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DEVELOPMENT TIMELINE

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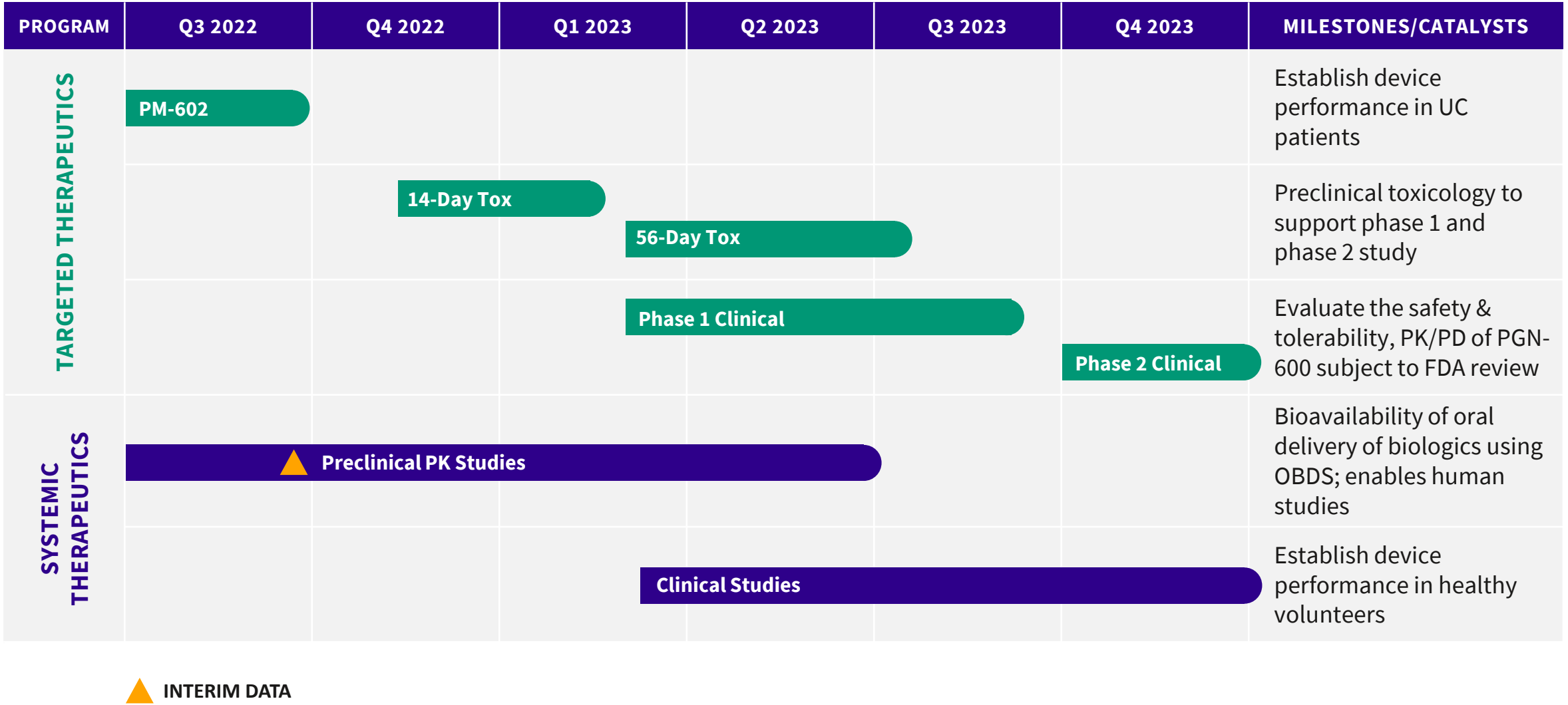

APPENDIX

TARGETED THERAPEUTICS PUBLICATIONS

bioratherapeutics.com/publications

TARGETED THERAPEUTICS

1. **Development of targeted therapeutic antibodies for the treatment of inflammatory bowel disease: A proof of concept**. Presented at DDW 2019.
2. **A comparison of systemic versus targeted anti-TNFα antibody in treatment of colitis induced by adoptive transfer of CD44-/CD62L+ T-cells into RAG2-/- mice recipients**. Presented at DDW 2019.
3. **Targeted delivery of soluble tofacitinib citrate to the site of inflammation to improve efficacy and safety**. Presented at DDW 2021.
4. **Development of a novel drug delivery system for treatment of Ulcerative Colitis**. Presented at DDW 2021.
5. **Development of a Novel Drug Delivery System to Deliver Drugs Directly to the Colonic Mucosa, Resulting in Improved Efficacy and Reduced Systemic Exposure for the Treatment of Ulcerative Colitis**. *Crohn's & Colitis 360.* 2021, 3, 1–5.
6. **Tofacitinib tissue exposure correlates with endoscopic outcome**. Presented at ECCO 2022 and DDW 2022.
7. **Pharmacokinetic stratification of cytokine profiles during anti-TNF induction treatment in moderate-to-severe UC**. Presented at ECCO 2022 and DDW 2022.

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BIORA Therapeutics

Diverse patent portfolio with 82 distinct patent families[1]

DEVICES
37 patent families covering:

- Device designs, materials, components & manufacturing
- GI localization
- Devices for targeted delivery to GI tract
- Devices for targeted GI sampling systems
- Devices for jet delivery into GI tissue

THERAPEUTICS
28 patent families covering:

- Treatment via ingestible device
- GI delivery PK/PD profiles
- GI delivery dosing regimens
- GI delivery drug combinations
- Liquid drug formulations

SAMPLING & DIAGNOSTICS
17 patent families covering:

- GI sample preservation
- GI analyte detection & quantification systems
- Complementary diagnostic markers
- Protein and nucleic acid markers & assays

1. Approximately **170 issued patents and 170 pending applications** in major countries and regions around the world


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Therapeutics