
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, DC 20549

FORM 8-K

**Current Report Pursuant
to Section 13 or 15(d) of the
Securities Exchange Act of 1934**

Date of Report (Date of earliest event Reported): **January 11, 2021**

THERAVANCE BIOPHARMA, INC.

(Exact Name of Registrant as Specified in its Charter)

Cayman Islands
(State or Other Jurisdiction of
Incorporation)

001-36033
(Commission File Number)

Not Applicable
(I.R.S. Employer Identification
Number)

**PO Box 309
Ugland House, South Church Street
George Town, Grand Cayman, Cayman Islands KY1-1104
(650) 808-6000**

(Addresses, including zip code, and telephone numbers, including area code, of principal executive offices)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

| Title of each class | Trading Symbol(s) | Name of each exchange on which registered |
|------------------------------------|----------------------|--|
| Ordinary Share \$0.00001 Par Value | TBPH | NASDAQ Global Market |

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 7.01. Regulation FD Disclosure.

The information in this Current Report (including Exhibits 99.1 and 99.2) is being furnished and shall not be deemed “filed” for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that Section. The information in this Current Report (including Exhibits 99.1 and 99.2) shall not be incorporated by reference into any registration statement or other document pursuant to the Securities Act of 1933, as amended, except as shall be expressly set forth by specific reference in such filing.

Members of the Theravance Biopharma, Inc. management team will be presenting at the 39th Annual J.P. Morgan Healthcare Conference on January 13, 2021 and from January 11-14, 2021 conducting one-on-one meetings with analysts and investors during the conference using a slide presentation which is being furnished pursuant to Regulation FD as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference. Additionally, a copy of an Appendix of additional materials is furnished as Exhibit 99.2 to this Current Report and is incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

[99.1](#) [Slide deck entitled JP Morgan Healthcare Conference](#)

[99.2](#) [Slide deck entitled JP Morgan 2021 Appendix](#)

104 Cover Page Interactive Data File (cover page XBRL tags embedded within the Inline XBRL document)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

THERAVANCE BIOPHARMA, INC.

Date: January 11, 2021

By: /s/ Andrew Hindman

Andrew Hindman

Senior Vice President and Chief Financial Officer



Medicines That Make a Difference®

JP Morgan Healthcare Conference

January 13, 2021

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Forward-looking statements

Under the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995, the company cautions investors that any forward-looking statements or projections made by the company are subject to risks and uncertainties that may cause actual results to differ materially from the forward-looking statements or projections.

Examples of forward-looking statements in this presentation may include the Company's strategies, plans and objectives, the Company's regulatory strategies and timing of clinical studies (including the data therefrom), the potential characteristics, benefits and mechanisms of action of the Company's product and product candidates, the potential that the Company's research programs will progress product candidates into the clinic, the Company's expectations for product candidates through development, the Company's expectations regarding its allocation of resources, potential regulatory approval and commercialization (including their differentiation from other products or potential products), product sales or profit share revenue and the Company's expectations for its 2020 operating loss, excluding share-based compensation and other financial results.

The company's forward-looking statements are based on the estimates and assumptions of management as of the date of this presentation and are subject to risks and uncertainties that may cause the actual results to be materially different than those projected, such as risks related to the impacts on the COVID-19 global pandemic on our business, delays or difficulties in commencing, enrolling or completing clinical studies, the potential that results from clinical or non-clinical studies indicate the Company's compounds or product candidates are unsafe or ineffective, risks that product candidates do not obtain approval from regulatory authorities, the feasibility of undertaking future clinical trials for our product candidates based on policies and feedback from regulatory authorities, dependence on third parties to conduct clinical studies, delays or failure to achieve and maintain regulatory approvals for product candidates, risks of collaborating with or relying on third parties to discover, develop, manufacture and commercialize products, and risks associated with establishing and maintaining sales, marketing and distribution capabilities with appropriate technical expertise and supporting infrastructure, current and potential future disagreements with Innoviva, Inc. and TRC LLC, the uncertainty of arbitration and litigation and the possibility that an arbitration award or litigation result could be adverse to the Company.

Other risks affecting Theravance Biopharma are in the company's Form 10-Q filed with the SEC on November 9, 2020, and other periodic reports filed with the SEC.

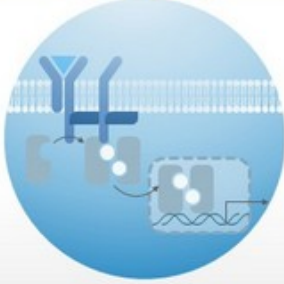
The background of the slide is a blue gradient with a pattern of white molecular structures, including spheres and connecting lines, representing chemical molecules. A large, semi-transparent white arrow points from the left towards the right, passing behind the text.

Our science

Organ-selective molecules
designed to optimize therapeutic index

Theravance Biopharma difference: Targeting disease with organ selective medicines

Pathway



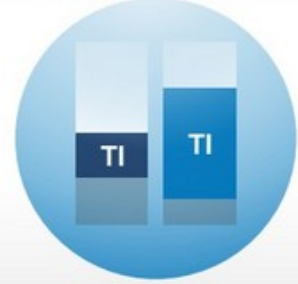
Target disease biology

Disease



Optimize effect in the organ
where the disease is active

Therapeutic Index



Expand TI with the goal of
maximizing efficacy and
limiting systemic side effects

Pioneering a new generation of small molecule drugs
designed to better meet patient needs

2021: Three Areas for Transformational Impact



Key programs supported by proven development and commercial expertise

| | Program | Indication | Research | Phase 1 | Phase 2 | Phase 3 | Filed | Marketed | Collaborator |
|--------------------|-----------------------------------|----------------------------------|------------|---------|---------|---------|-------|----------|-----------------------|
| Organ-Selective | Amprexetine (TD-9855) NRI | Symptomatic nOH | Phase 3 | | | | | | Wholly-owned |
| | Izencitinib (TD-1473) GI JAKi | UC | Phase 2b/3 | | | | | | Janssen Biotech, Inc. |
| | | CD | Phase 2 | | | | | | |
| | TD-5202 Irreversible JAK3i | Inflammatory intestinal diseases | Phase 1 | | | | | | |
| | YUPELRI® (revedfenacin) LAMA | COPD | Marketed | | | | | | VIATRIS™ |
| | TD-0903 Inhaled JAKi | COVID-19 | Phase 2 | | | | | | |
| | TD-8236 Inhaled JAKi | Asthma | Phase 2 | | | | | | Wholly-owned |
| Inhaled ALK5i | Idiopathic pulmonary fibrosis | Phase 1 | | | | | | | |
| | Program | Indication | Research | Phase 1 | Phase 2 | Phase 3 | Filed | Marketed | Rights |
| Economic Interests | TRELEGY ¹ FF/JMEC/M | COPD | Marketed | | | | | | GSK & Innoviva, Inc. |
| | | Asthma | Marketed | | | | | | |
| | Skin-selective JAKi | Dermatological diseases | Research | | | | | | Pfizer |

2021: Three Areas for Transformational Impact



Development Pipeline
Amprexetine
Izencitinib
TD-0903

Changing Financial Profile

YUPELRI® (revefenacin) inhalation solution

FDA-approved for the maintenance treatment of COPD

First and only once-daily, nebulized maintenance medicine for COPD



Once-daily LAMAs are first-line therapy for moderate-to-severe COPD¹

9% of COPD patients (~800,000) use nebulizers for ongoing maintenance therapy; 41% use nebulizers at least occasionally for bronchodilator therapy²

TBPH and VTRS worldwide strategic collaboration to develop and commercialize nebulized YUPELRI® (revefenacin)



Companies co-promote under US profit/loss share

YUPELRI® hospital sales and community TRx trends

Continued growth through Q1'20 across both the hospital and retail channels;
Signs of recovery to initial growth trajectory leading into 2021



Most patients that receive YUPELRI® in the hospital are discharged with an Rx¹

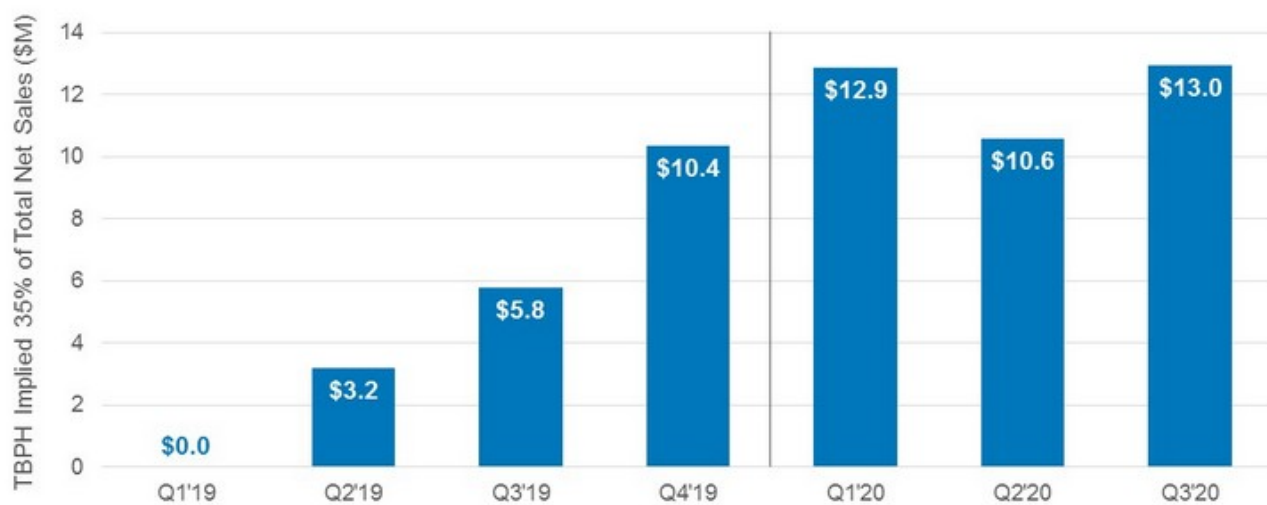
*Q4'20 through 12/18/2020

TRx volume represents retail only which is typically 33% of Retail + DME

**Community LA-NEB Market Share includes Retail + DME / Med B FFS

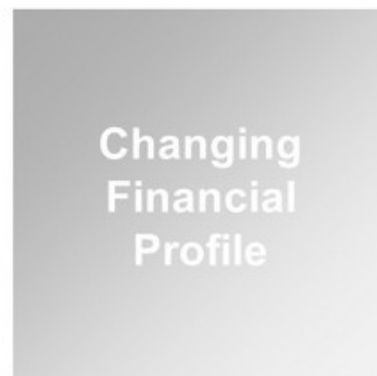
TBPH implied 35% of YUPELRI® US net sales by quarter

Growth in net sales through Q1'20 and recovery in Q3'20 driven by volume



TBPH implied 35% of YUPELRI US net sales represents TBPH's split of the combined TBPH and VIATRIS net revenue


2021: Three Areas for Transformational Impact





Amprexetine (TD-9855)

Once-daily norepinephrine reuptake inhibitor to treat symptomatic neurogenic orthostatic hypotension



Reduced quality of life, significant caregiver burden and limited therapeutic options for symptomatic nOH patients



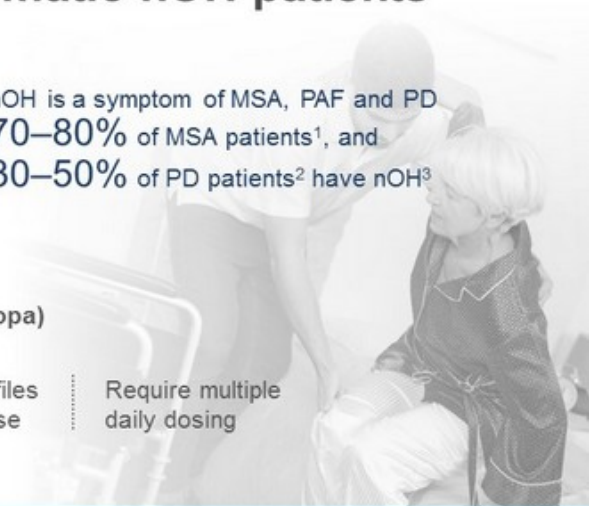
~350K US patients **~700K** APAC patients **~700K** EU patients

nOH is a symptom of MSA, PAF and PD
70–80% of MSA patients¹, and
30–50% of PD patients² have nOH³



Current treatments (midodrine, fludrocortisone, droxidopa) have significant limitations

| | | | |
|-----------------------------------|---------------------------------|--------------------------------|-------------------------------|
| Subset of patients do not respond | None demonstrate durable effect | Safety profiles that limit use | Require multiple daily dosing |
|-----------------------------------|---------------------------------|--------------------------------|-------------------------------|



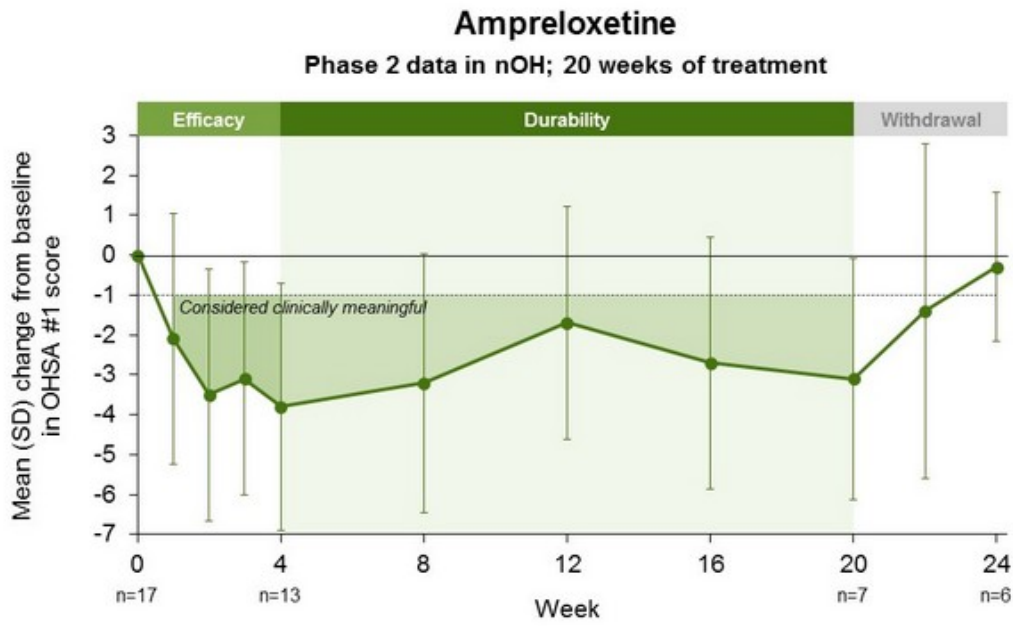
Amprexetine

Designed to reduce symptoms of nOH by prolonging the effect of endogenous norepinephrine with the potential to provide a meaningful and durable symptom improvement to underserved patients



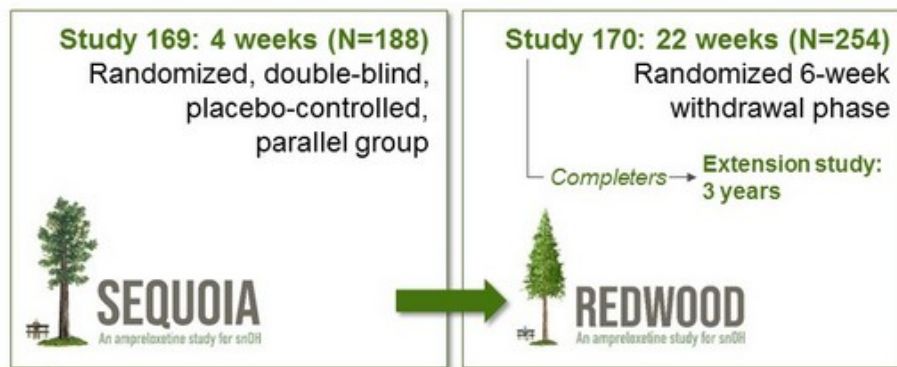
1. Mathias C, et al. J Neurool 1999;246:893-8.
2. Ha AD, et al. Parkinsonism Relat Disord 2011;17:625-8.
3. Not all patients are treated with prescription medication.
APAC, Asian and Pacific; MSA, multiple system atrophy; PAF, pure autonomic failure; PD, Parkinson's Disease; nOH, neurogenic orthostatic hypotension

Ampreloxetine: Potential to provide meaningful and durable symptom improvement to underserved patients



Amprexetine: Potential to provide meaningful and durable symptom improvement to underserved patients

Phase 3 Registrational Program



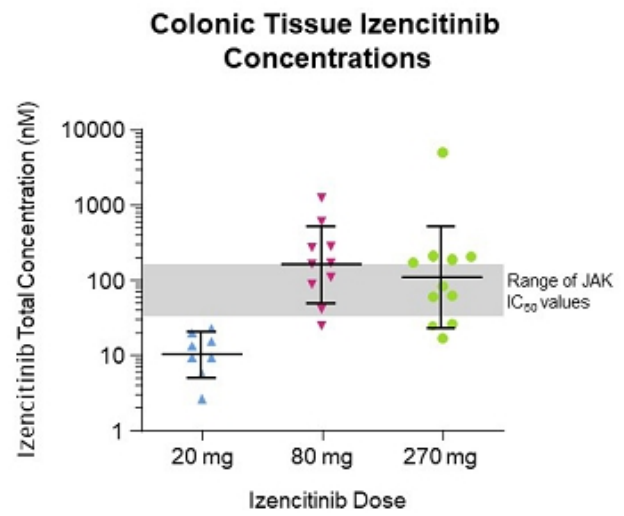
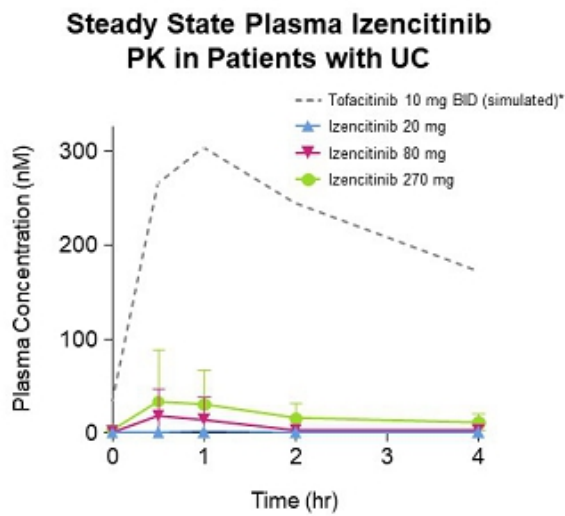
✓ Phase 3 registrational program ongoing;
4-week efficacy data expected Q3 2021



Izencitinib (TD-1473/JNJ-8398)

Oral gut-selective pan-JAK inhibitor to treat
inflammatory bowel diseases

Izencitinib results in low systemic exposures but high colonic concentrations above JAK inhibition levels



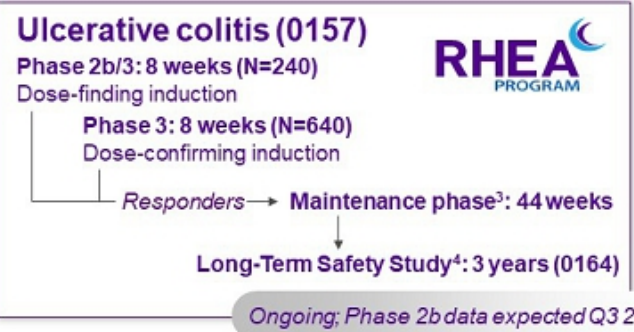
- ▶ >10-fold lower systemic exposure with izencitinib vs 10 mg BID tofacitinib (based upon published data)
- ▶ Tissue exposures at 80 and 270 mg of izencitinib within the range of cellular JAK IC₅₀ values

Pre-clinical and Phase 1b results led to late stage IBD studies with izencitinib

Favorable data from this innovative exploratory Phase 1b study¹

- ▶ Confirmed gut selectivity
 - High colonic concentration with low systemic drug exposures, consistent with pre-clinical data
 - For the goal of maximized therapeutic index
- ▶ Demonstrated numerically higher rates of clinical outcomes with reductions in biomarkers after only 4 weeks of treatment
 - Numerical improvements in rectal bleeding and mucosal healing
- ▶ Led to decision to proceed with development of izencitinib

Global collaboration with **Janssen Biotech, Inc.** leverages joint development expertise with the potential for up to a total of \$1B in milestone payments to **TBPH** plus profit-share in US (33% TBPH, 67% Janssen) and double-digit royalties to TBPH ex-US²





TD-0903 Program

Nebulized lung-selective pan-JAK inhibitor to treat:

- ▶ Acute hyperinflammation of the lung in COVID-19
- ▶ Chronic inflammation for the prevention of lung transplant rejection

TD-0903: Lung-selective inhaled pan-JAKi

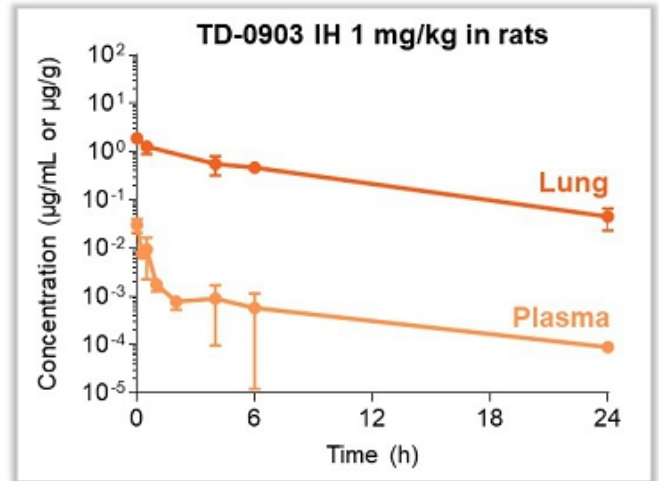
Aiming for maximal anti-inflammatory activity in pulmonary tissue while minimizing systemic exposure

- ▶ High affinity for JAK1, JAK2, JAK3, and Tyk2 kinase domains
- ▶ High potency for inhibition of cytokine-induced activation of JAK-STAT signaling pathways
 - *In vitro*: human epithelial and immune cells
 - *In vivo*: murine inhalation cytokine-challenge models
- ▶ Lung-selective design
 - High lung to plasma ratios
 - Rapid systemic clearance with no evidence of systemic immunosuppression
 - PK/PD modeling supports extended duration of action

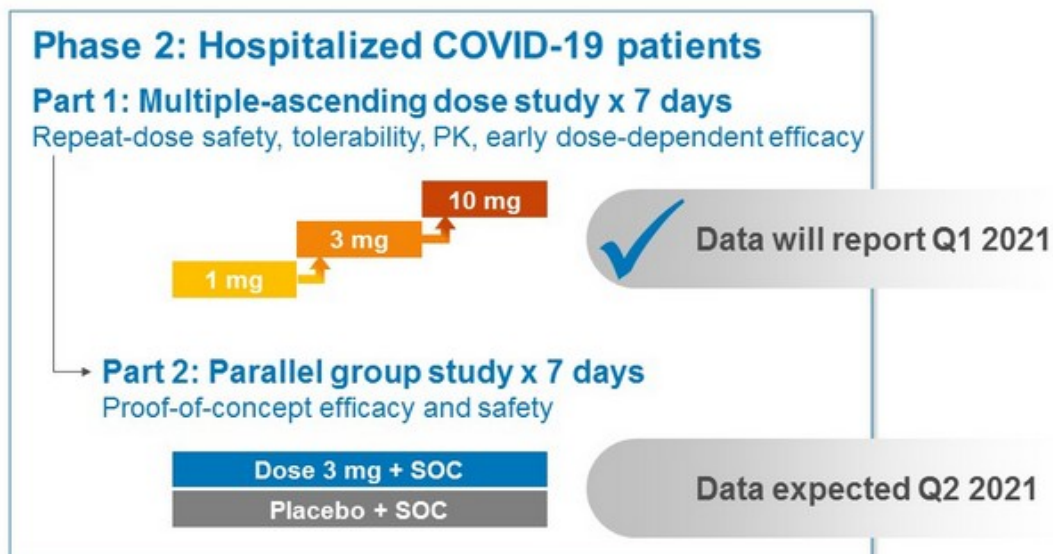
JAK
Kinase domain

Lung epithelial

Immune cells



TD-0903: Development plan designed to progress rapidly



2021: Three Areas for Transformational Impact



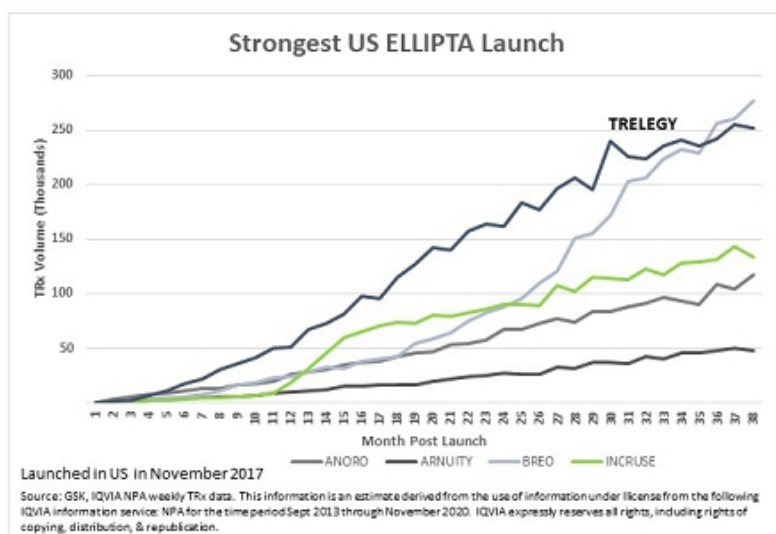
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Economic interest

GSK's TRELEGY ELLIPTA (FF/UMEC/VI):
First and only once-daily single inhaler triple therapy

Economic interest in GSK's TRELEGY

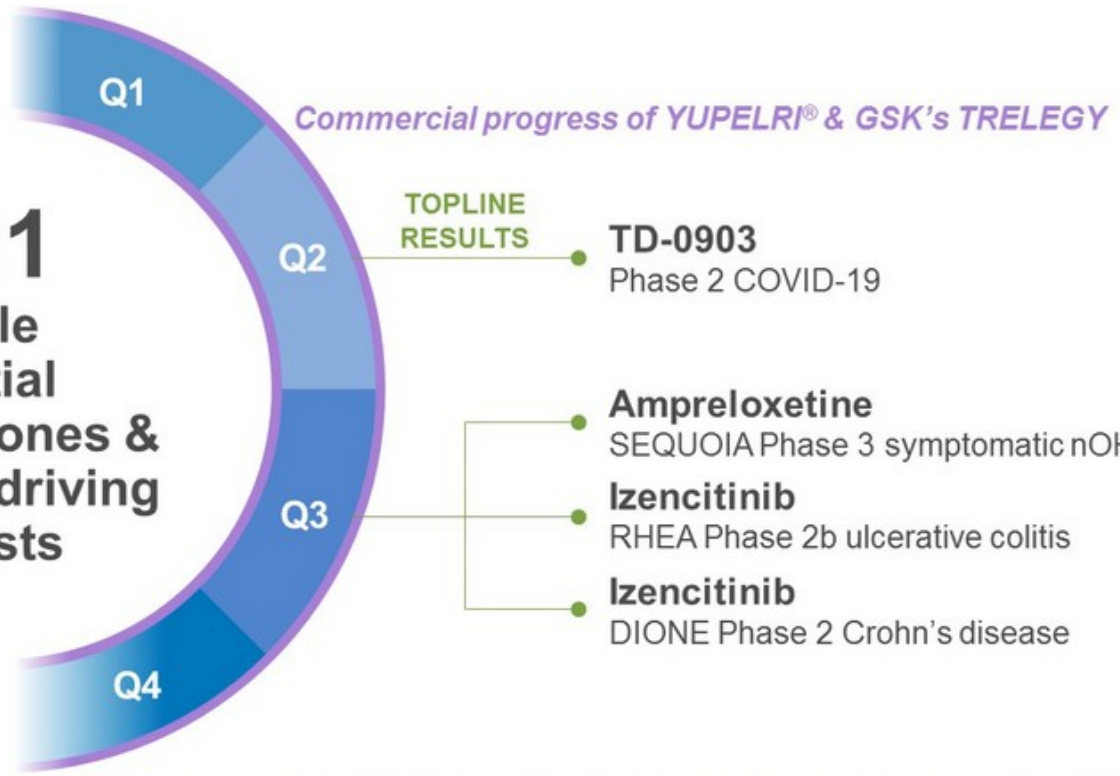
Upward-tiering royalties of ~5.5–8.5% of worldwide net sales¹



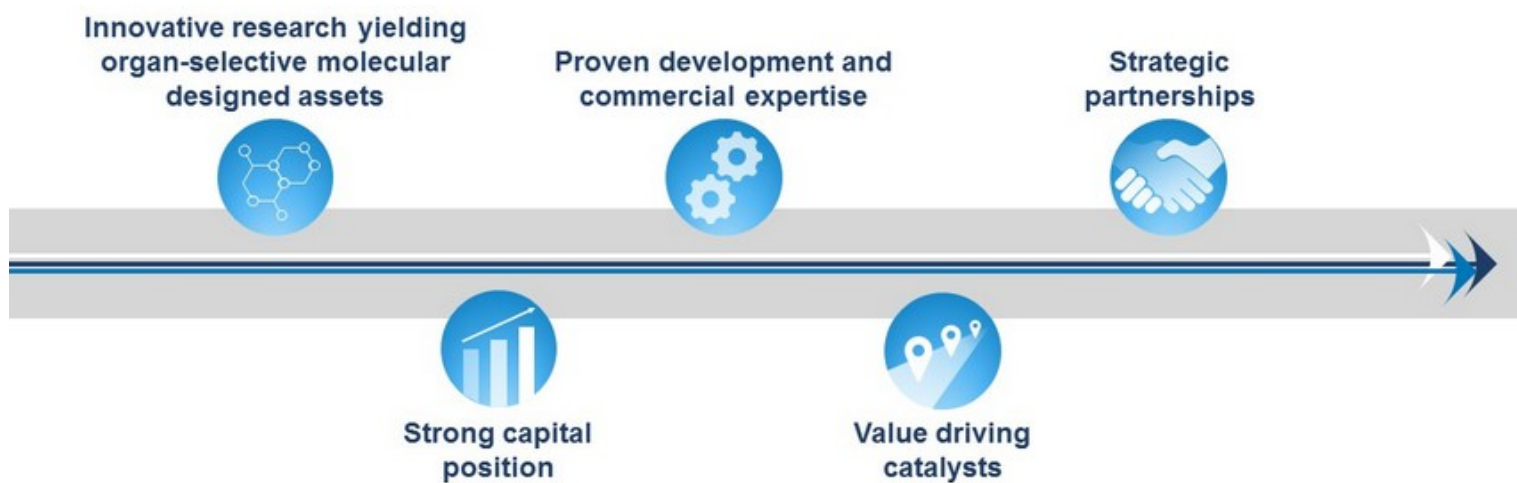
TRELEGY

- ✓ Q3 net sales of £194MM (or \$252MM)
- ✓ Sales up 45% year-over-year
- ✓ US asthma indication approved September 9, 2020, and launched 3rd Q
 - ▶ Results from the CAPTAIN study published in *The Lancet Respiratory Medicine*

2021 Multiple potential milestones & value-driving catalysts



Creating transformational value for stakeholders



WE ARE THINKING OF YOUR NEXT BREATH

Theravance Biopharma is working toward
the day when we can all breathe easier.

Theravance
Biopharma 
Medicines That Make a Difference®



About YUPELRI® (revefenacin) inhalation solution

YUPELRI® (revefenacin) inhalation solution is a once-daily nebulized LAMA approved for the maintenance treatment of COPD in the US.

Market research by Theravance Biopharma indicates approximately 9% of the treated COPD patients in the US use nebulizers for ongoing maintenance therapy.¹ LAMAs are a cornerstone of maintenance therapy for COPD and YUPELRI® is positioned as the first once-daily single-agent bronchodilator product for COPD patients who require, or prefer, nebulized therapy. YUPELRI®'s stability in both metered dose inhaler and dry powder device formulations suggest that this LAMA could also serve as a foundation for novel handheld combination products.

YUPELRI® (revefenacin) inhalation solution

YUPELRI® inhalation solution is indicated for the maintenance treatment of patients with chronic obstructive pulmonary disease (COPD).

Important Safety Information (US)

YUPELRI is contraindicated in patients with hypersensitivity to revefenacin or any component of this product.

YUPELRI should not be initiated in patients during acutely deteriorating or potentially life-threatening episodes of COPD, or for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. Acute symptoms should be treated with an inhaled short-acting beta2-agonist.

As with other inhaled medicines, YUPELRI can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with YUPELRI, it should be treated immediately with an inhaled, short-acting bronchodilator. YUPELRI should be discontinued immediately and alternative therapy should be instituted.

YUPELRI should be used with caution in patients with narrow-angle glaucoma. Patients should be instructed to immediately consult their healthcare provider if they develop any signs and symptoms of acute narrow-angle glaucoma, including eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema.

Worsening of urinary retention may occur. Use with caution in patients with prostatic hyperplasia or bladder-neck obstruction and instruct patients to contact a healthcare provider immediately if symptoms occur.

Immediate hypersensitivity reactions may occur after administration of YUPELRI. If a reaction occurs, YUPELRI should be stopped at once and alternative treatments considered.

The most common adverse reactions occurring in clinical trials at an incidence greater than or equal to 2% in the YUPELRI group, and higher than placebo, included cough, nasopharyngitis, upper respiratory infection, headache and back pain.

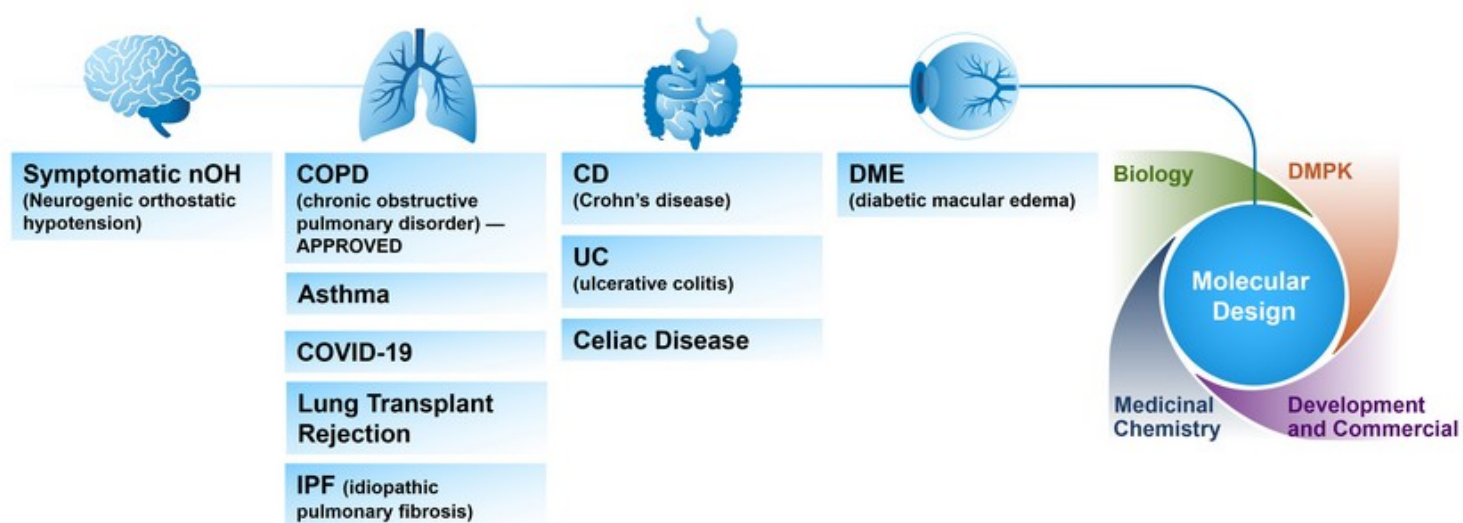
Coadministration of anticholinergic medicines or OATP1B1 and OATP1B3 inhibitors with YUPELRI is not recommended.

YUPELRI is not recommended in patients with any degree of hepatic impairment.



**JP Morgan 2021
APPENDIX**

Research and development portfolio of designed molecules: brain, lung, GI and eye





YUPELRI® (revefenacin) inhalation solution

First and only once-daily, nebulized
maintenance medicine for COPD



YUPELRI® launch metrics

Strong customer acceptance and market uptake

✓ FORMULARY¹

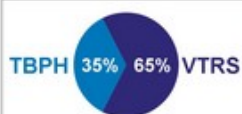
- 191 wins
(equates to 363 accounts)
- 78% of formulary accounts ordering
- 100% medical support requests fulfilled <30 days

✓ PATIENT

- Field force continues hybrid approach to customer interactions (live and virtual)
- ~50,000 patients² prescribed (through Q3 2020)

✓ ACCESS

- 100% Medicare Part B³
- 74% of commercial payer lives covered (comprises ~8% of the YUPELRI® business)



- ▶ Theravance Biopharma's implied 35% share of Net Sales during Q3 2020 was \$13M
- ▶ Increased market share and achieved quarter-over-quarter Net Sales growth of 22%

Key Success Drivers for YUPELRI®

Launch to Date

- ▶ Established Nebulized LAMA Market Leader
- ▶ Continued growth of hospital accounts with YUPELRI® on formulary
- ▶ Successful partnership with VIATRIS leading to continued growth in Community and overall brand
- ▶ Strong access with payers / Medicare Part B
- ▶ 18% higher refill rate over 12 months vs. Nebulized LABA average¹

2021 and Beyond


- ▶ Expected growth of hospital account formularies as well as overall prescriber base
- ▶ Further communication of GOLD guidelines recognizing LAMAs as foundational therapy for the majority of patients with COPD, especially as Nebulized LABAs reach LOE
- ▶ Continued momentum with an alternative therapy to handhelds and short-acting agents used for maintenance therapy



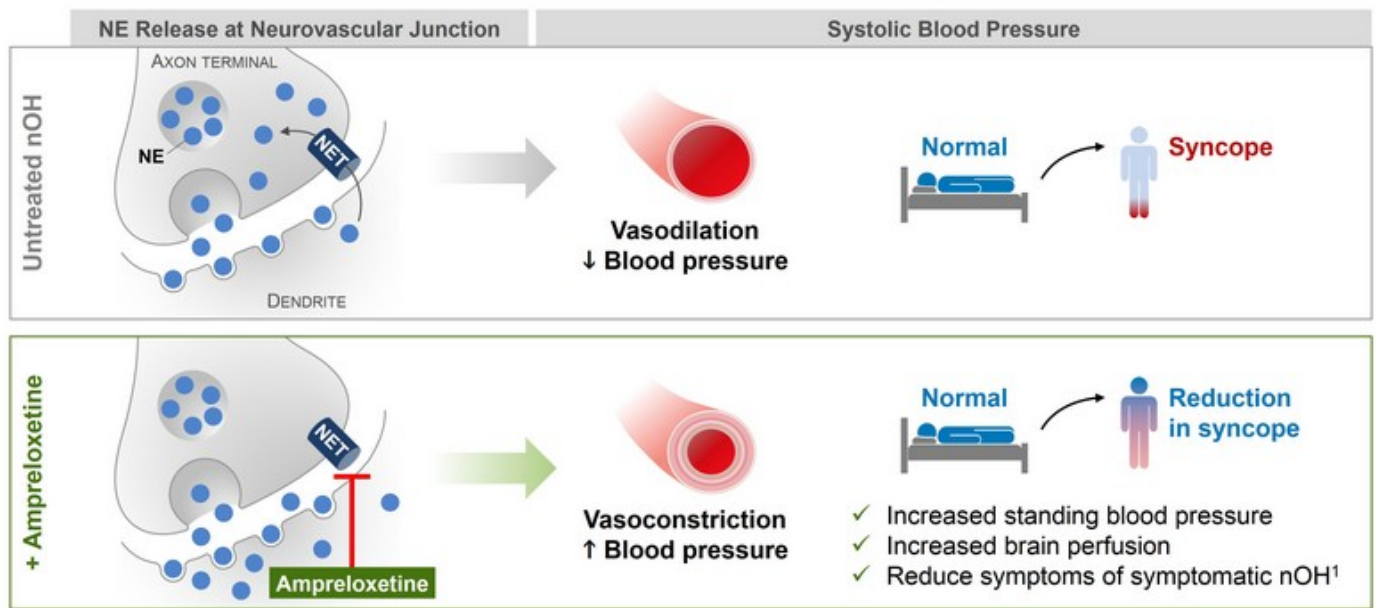


Ampreloxetine (TD-9855)

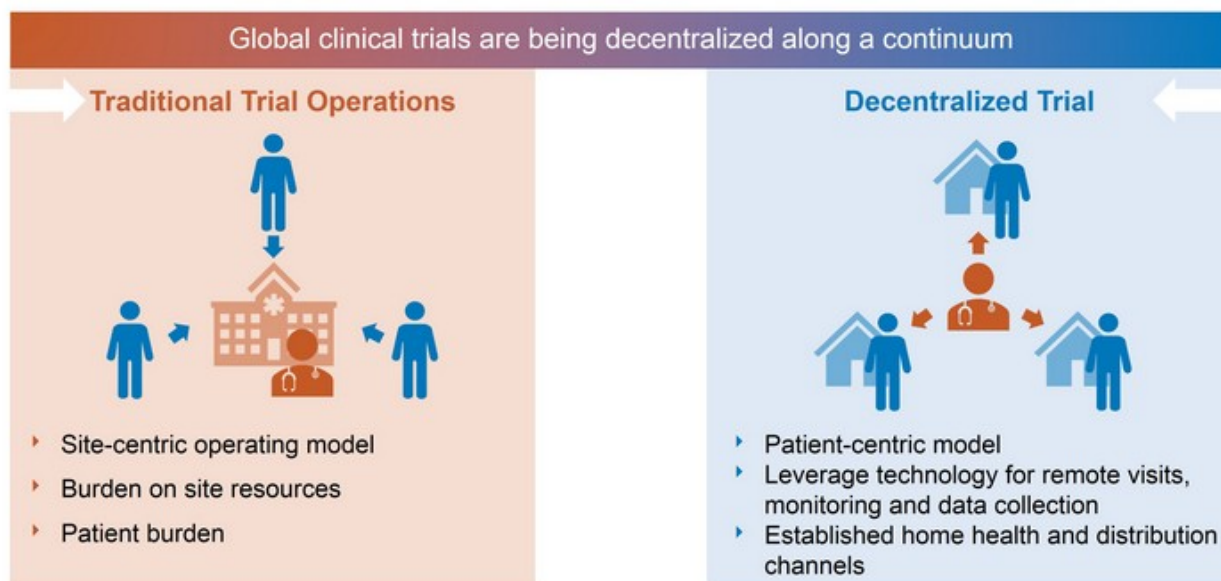
Once-daily norepinephrine reuptake inhibitor to treat symptomatic neurogenic orthostatic hypotension



Designed to reduce symptoms of nOH by prolonging the effect of endogenous norepinephrine



Decentralized trials move activities from the clinic to home



Amprelosetine: has the potential to transform Theravance Biopharma into an independent commercial biopharma

Established disease, targeted market

Established nOH treatment paradigm

nOH is included in medical treatment guidelines for PD and MSA patients; once diagnosed, patients get on drug treatment quickly

Specialist networks in place

A concentrated group of neurologists and cardiologists treat patients with nOH; 'at risk' patients already identified and managed by specialty institutions

An urgency to treat

Physicians report high urgency to treat snOH due to the high impact on patients' QoL, high risk of injury from falls and caregiver burden

A strong value proposition

Manageable opportunity

TBPH's infrastructure capable of commercializing amprelosetine in the US with limited and targeted additions to current resources

Understanding of current access barriers

Meaningful value proposition will drive patient access; Amprelosetine has the potential to improve the durability of treatment effect and thereby reduce costly events associated with nOH

Established patient advocacy

Strong message from Parkinson's and MSA advocacy groups that patients need new therapies to better manage nOH



Izencitinib (TD-1473) (JNJ-8398)

Oral gut-selective pan-JAK inhibitor to treat
inflammatory bowel diseases

Need for new medicines to treat Inflammatory Bowel Disease



6.8M global cases, 2017¹

1.6M current US patients²

Current US patients **780K** CD cases³
907K UC cases⁴

\$16B global IBD treatment market, 2018⁵

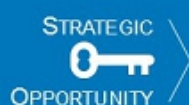
\$31B US disease burden²



Standard of care:

Biologics have become the mainstay of treatment in moderate-to-severe patients

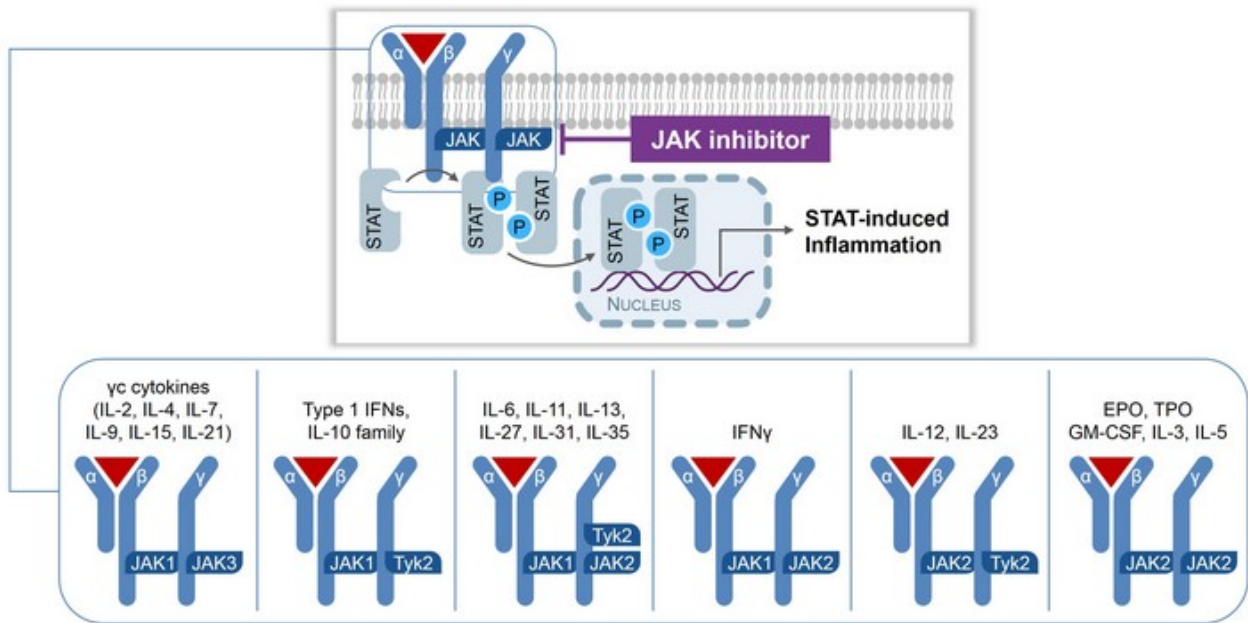
Steroids, immunosuppressants, and TNF inhibitors associated with side effects that further decrease HRQoL



Izencitinib

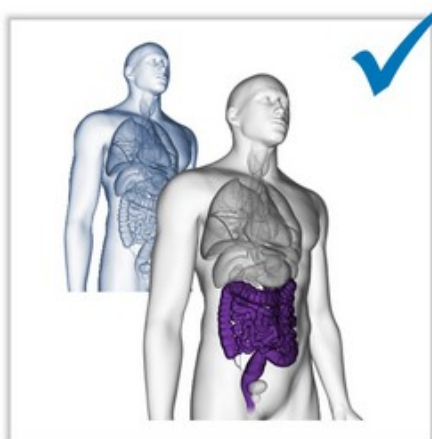
Gut-selective agent: if used earlier in the course of disease, has potential to be a new cost-effective therapy option that reduces associated disease management costs and improves patient HRQoL

JAK-STAT pathway: orchestrating signaling of multiple pro-inflammatory cytokines

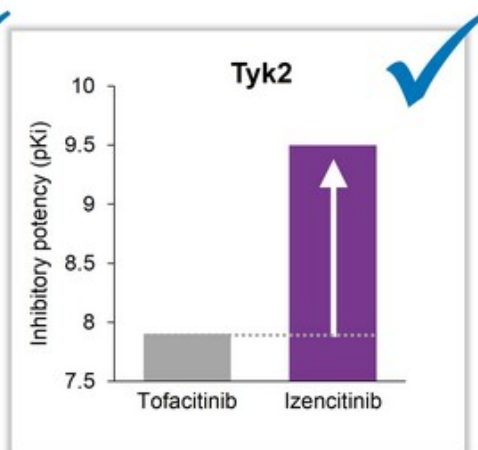


Izencitinib is an oral, gut-selective pan-JAK inhibitor

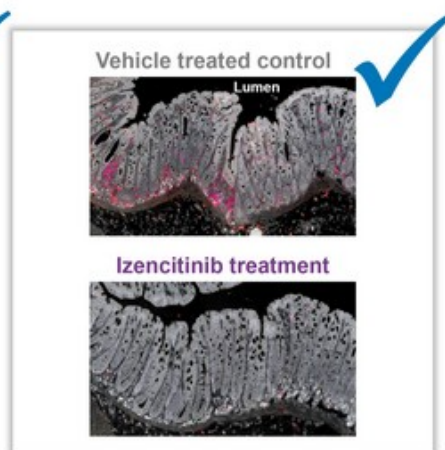
Preclinical data package for Izencitinib represents a potential breakthrough approach to the treatment of IBD



Gut selectivity

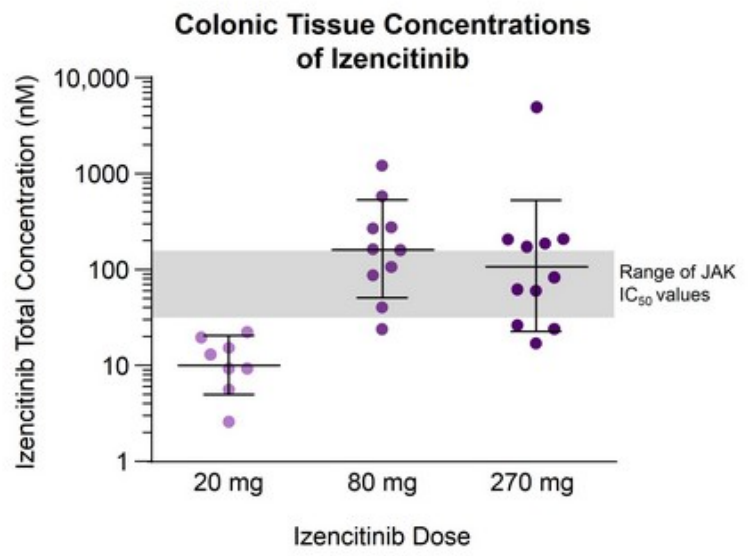
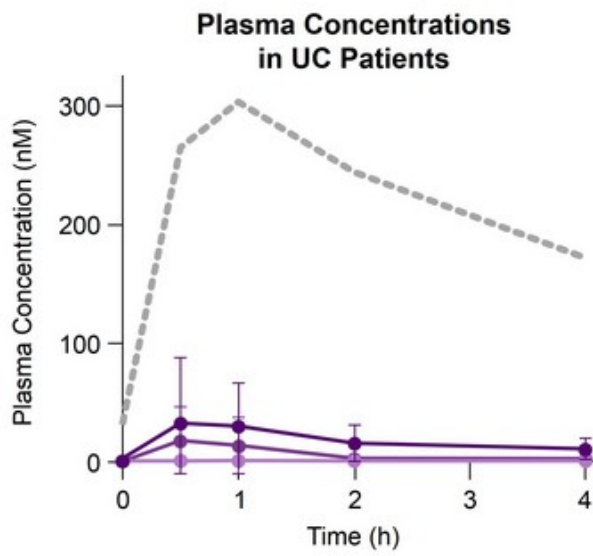


Potent inhibition of Tyk2



Anti-inflammatory activity in disease model

Systemic exposures low; tissue concentrations at or above JAK inhibition levels



--- Tofacitinib 10 mg BID* ● Izencitinib 20 mg ● Izencitinib 80 mg ● Izencitinib 270 mg

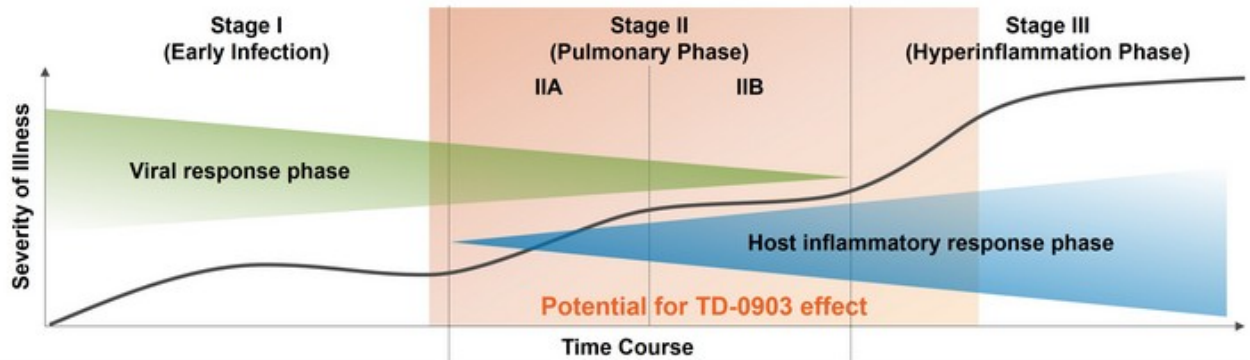


TD-0903 Program

Nebulized lung-selective pan-JAK inhibitor to treat:

- ▶ Acute hyperinflammation of the lung in COVID-19
- ▶ Chronic inflammation for the prevention of lung transplant rejection

Host inflammatory response to COVID-19 drives ALI and ARDS



| | Time Course | | |
|-------------------|--|---|--|
| Clinical symptoms | Mild constitutional symptoms Fever >99.6°F Dry cough, diarrhea, headache | Shortness of breath Hypoxia ($\text{PaO}_2/\text{FiO}_2 \leq 300$ mmHg) | ARDS SIRS/shock Cardiac failure |
| Clinical signs | Lymphopenia, increased prothrombin time, increased D-Dimer and LDH (mild) | Abnormal chest imaging Transaminitis Low normal procalcitonin | Elevated inflammatory markers (CRP, LDH, IL-6, D-dimer, ferritin) Troponin, NT-proBNP elevation |

TD-0903: Development plan designed to progress rapidly

Phase 1: Healthy volunteers

Single ascending dose: Single-dose safety, tolerability, PK → Multiple ascending dose x 7 days: Repeat-dose safety, tolerability, PK



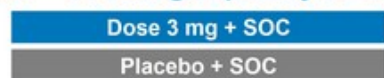
Phase 2: Hospitalized COVID-19 patients

Part 1 — Multiple-ascending dose study x 7 days: Repeat-dose safety, tolerability, PK, early dose-dependent efficacy



Complete

Part 2 — Parallel group study x 7 days: Proof of concept efficacy and safety



Ongoing

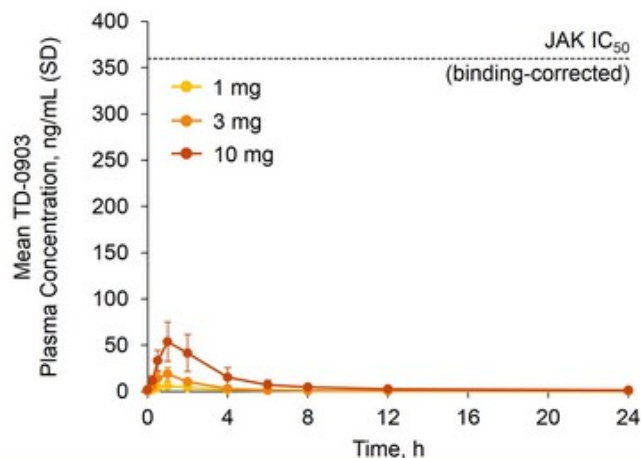
TD-0903 Phase 1 supports initiation of Phase 2 in COVID-19

Nebulized lung-selective pan-JAK inhibitor to treat acute hyperinflammation of the lung in COVID-19

Safety and Tolerability

- ▶ TD-0903 was well tolerated as single daily doses across a dose range from 1 mg to 10 mg for 7 days in healthy subjects
- ▶ Adverse events were assessed to be mild or moderate in severity, and none led to discontinuation of study treatment
- ▶ No clinically relevant changes in laboratory parameters, vital signs, or ECGs

Systemic Pharmacokinetics



Favorable safety and tolerability profile and PK below levels anticipated to exert systemic effects

First-in-disease opportunity for the prevention of lung transplant rejection



Lung transplants have the poorest prognosis of all solid organ transplants
 COPD, IPF, and CF top 3 diagnoses driving need for lung transplantation

6,240

lung transplants worldwide, 2019¹

2,714

lung transplants per year in US²

15%

CAGR since 1988²

~50%

mortality at 6 years post transplant³

\$3.5B

medical/productivity costs (2015–2025)⁴



No FDA-approved therapies to prevent lung transplant rejection or CLAD

Current standard of care: triple immunosuppression therapy

- ▶ Calcineurin inhibitors (tacrolimus)
- ▶ Corticosteroids
- ▶ Anti-proliferative agents (MMF)
- ▶ IL-2 mAb induction therapy (basiliximab)



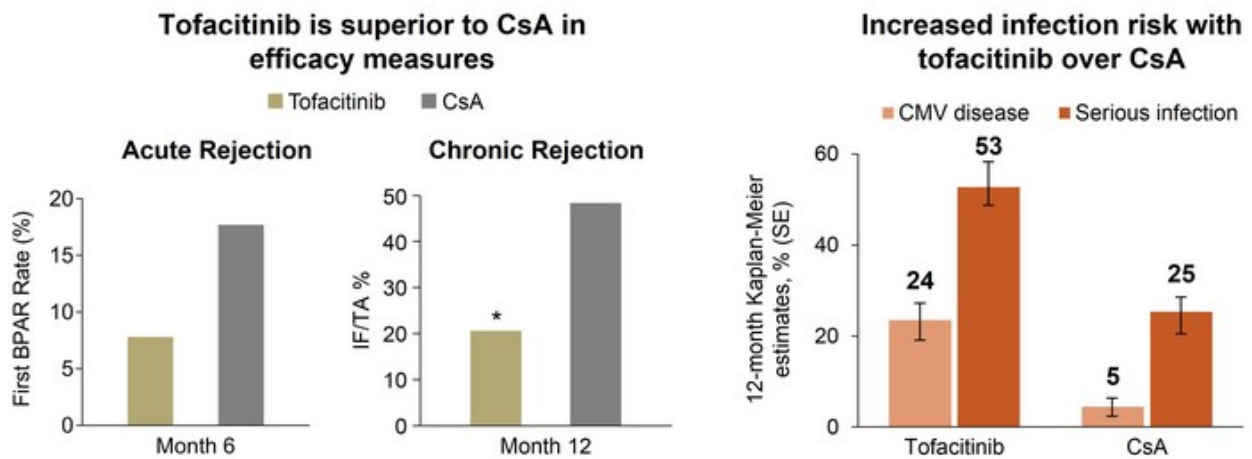
TD-0903

Potential first approved therapy specifically to prevent acute lung transplant rejection and development of CLAD

Use following lung transplantation could potentially improve patient morbidity and mortality risk, and reduce need for re-transplantation

Pan-JAK inhibitors can prevent transplant rejections

Noninferiority trial of tofacitinib vs cyclosporine (CsA) in kidney transplant recipients¹



- ▶ JAK inhibition was superior to cyclosporine in prevention of acute and chronic rejections
- ▶ Serious infections increased with systemic JAK inhibitors including CMV



TD-8236

Potential first inhaled JAKi for asthma

High medical and economic burden in uncontrolled asthma



339M
cases worldwide¹

25M
US cases
8% of adults
8% of children²



Healthcare utilization³

~\$58B US medical costs⁴
~\$15B US asthma market (October 2020)⁵



ICS + LABA (often fail to control disease)
Approved biologics (affect subsets of patients)

- XOLAIR (omalizumab)
- NUCALA (mepolizumab)
- CINQAIR (reslizumab)
- FASENRA (benralizumab)
- DUPIXENT (dupilumab)

Step-up for severe asthma: LTRAs, tiotropium, OCS, biologics

JAK/STAT cytokines implicated in moderate-to-severe asthma

| T2-high | T2-low |
|--------------|--------------------|
| IL-4 | IL-23/IL-12 |
| IL-13 | IL-6 |
| IL-5 | IL-27 |
| TSLP | IFN-γ |

Bold: biologics in development or approved.



TD-8236

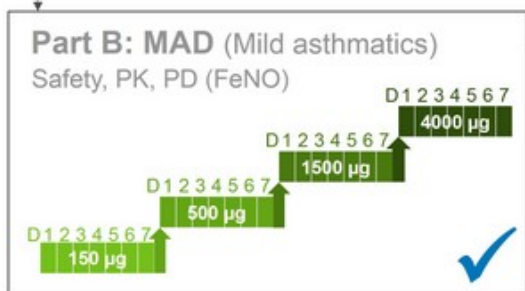
Potential to transform the treatment of respiratory inflammation by treating moderate-to-severe asthma regardless of T2 phenotype, including patients who remain symptomatic despite compliance on high-dose ICS



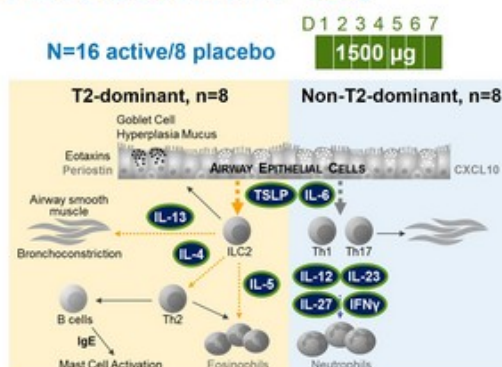
*Asthma that requires high-dosage ICS + LABAs to prevent the disease from being uncontrolled) or asthma that remains uncontrolled despite treatment.
1. World Health Organization; 2. <https://www.aafa.org/asthma-facts/>; 3. Sadatsafavi, M., et al. Can Respir J 2010;17:74-80. 4. Nurmagambetov, T., et al. The economic burden of asthma in the United States, 2008-2013. Ann Am Thorac Soc. 2018; 15(3):348-356 5. TBPH estimate based on multiple data sources.

TD-8236: Phase 1 clinical trial design

Parts A & B completed September 2019; Part C enrollment completed — data reported in Q4 2020



Part C: MoA Biomarkers (Moderate-to-severe asthmatics + ICS)



- ▶ Goal: build confidence in compound, MoA and dose in early-development
- ▶ Endpoints: FeNO; pSTAT1 and pSTAT6 in bronchoalveolar lavage fluid; cytokines; epithelial gene expression

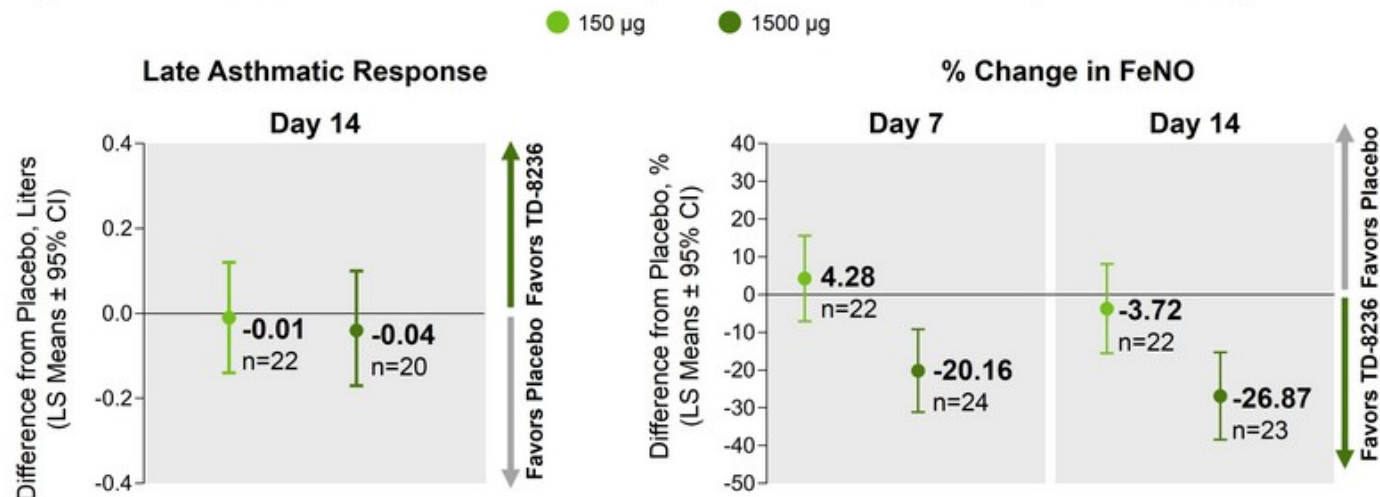
TD-8236: Positive Phase 1 trial in healthy subjects and patients with mild and moderate-to-severe asthma

| Phase 1 Profile | Healthy Volunteer Single Dose (Part A) | Mild Asthma Multiple Dose (Part B) | Moderate-to-Severe Asthma [+ ICS] Multiple Dose (Part C) |
|---|--|------------------------------------|--|
| Generally well tolerated | ✓ | ✓ | ✓ |
| Minimal systemic exposure | ✓ | ✓ | ✓ |
| PK and PD profile consistent with once-daily dosing | ✓ | ✓ | ✓ |
| Biologic activity in lungs of patients with asthma | | ✓ ↓ FeNO | ✓ ↓ FeNO, pSTAT1, pSTAT6 |

- ▶ Biomarkers of JAK target engagement (pSTAT1 and pSTAT6) significantly reduced in lungs of T2 high and T2 low moderate/severe asthmatics on top of inhaled corticosteroids
- ▶ Ongoing analysis of effect of TD-8236 on additional biomarkers including cytokines and gene expression

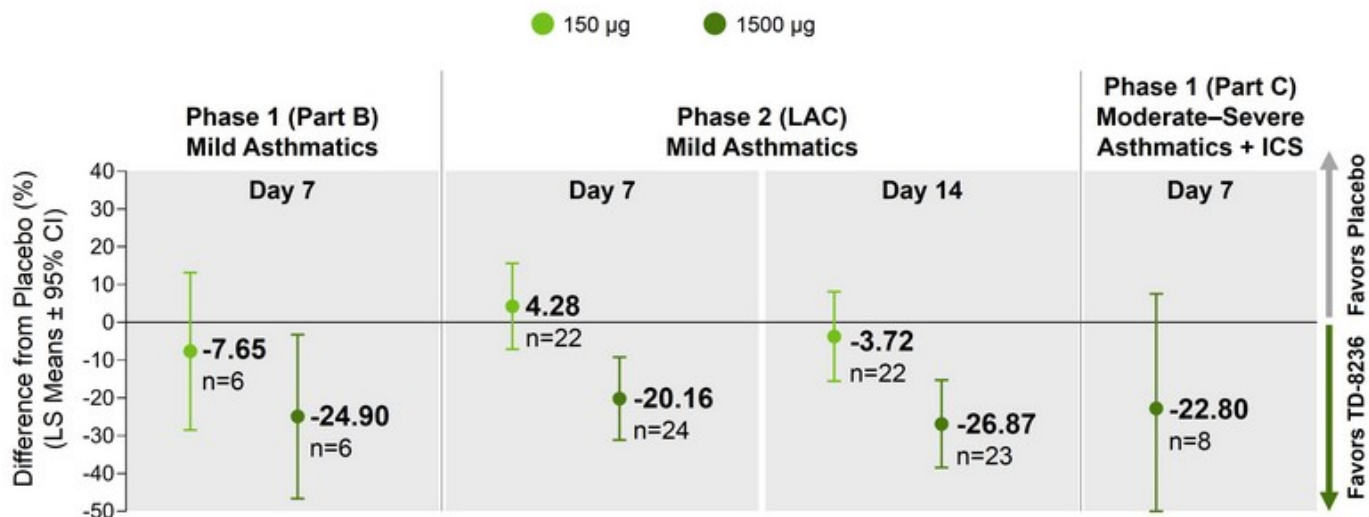
No impact of TD-8236 on the Late Asthmatic Response (LAR)

Significant reductions in inflammation marker (FeNO) and favorable safety and tolerability



- TD-8236 was generally well tolerated as a single-daily dose administered for 14 consecutive days

TD-8236 FeNO reductions consistent across Phase 1 and 2



- ▶ FeNO reductions observed in moderate-to-severe asthmatics taking inhaled corticosteroids



TD-5202

Organ-gut selective irreversible JAK3 inhibitor
to treat inflammatory intestinal diseases



Celiac disease has no current treatments and serious health consequences



1%

Global prevalence¹

3.3M

US patients^{2,3}

4–4.5x

increase in US over past 50 y⁴

>2x

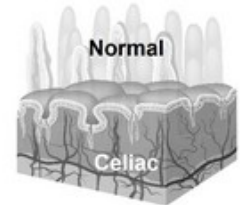
higher healthcare costs than controls⁵



No approved treatment

Only available intervention is strict life-long gluten-free diet

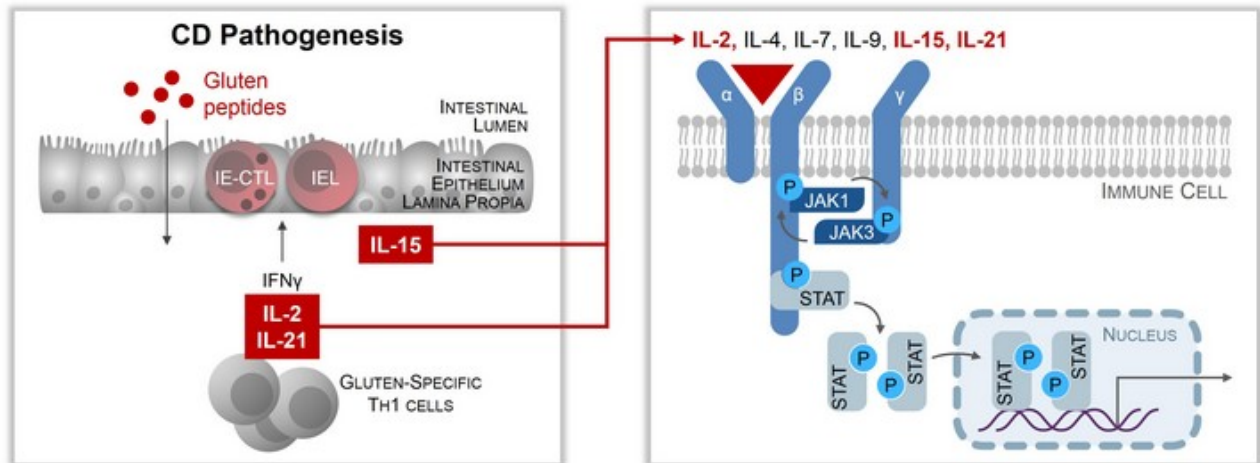
30% of diagnosed patients are poorly controlled despite best dietary efforts⁶



TD-5202

Organ-gut selective irreversible JAK3 inhibitor: potential to deliver significant value for both patients and payers

JAK3-dependent cytokines play central role in pathogenesis of celiac disease



- ▶ Proof-of-relevance from recent positive Phase 2 data with systemic JAK3 inhibitor in alopecia areata, another T-cell mediated disease
- ▶ Localized JAK3 inhibition has the potential to avoid systemic immunosuppression (genetic JAK3 deficiency leads to severe immunodeficiency)

TD-5202 First-in-human overall results summary

TD-5202: generally well-tolerated (single dose ≤ 2000 mg, multiple doses ≤ 1000 mg BID) for 10 consecutive days in healthy subjects



- ▶ No serious or severe AEs were reported
- ▶ All treatment-emergent AEs in TD-5202-treated subjects were mild in severity



- ▶ No clinically significant changes from baseline in vital signs and ECG assessments
- ▶ No clinically significant changes in chemistry or hematology parameters
 - No changes in NK cell count



- ▶ Systemic exposures were dose proportional from 100 to 1000 mg BID
- ▶ Low steady-state systemic exposures: mean $C_{max,ss}$ ~11-fold below the protein-adjusted JAK IC_{50} at the highest tested dose (1000 mg BID), consistent with a gut-selective approach



Inhaled ALK5i

Potential best-in-disease therapy for the treatment of idiopathic pulmonary fibrosis (IPF)

Idiopathic pulmonary fibrosis (IPF) remains a fatal chronic lung disease with limited treatment options



140,000

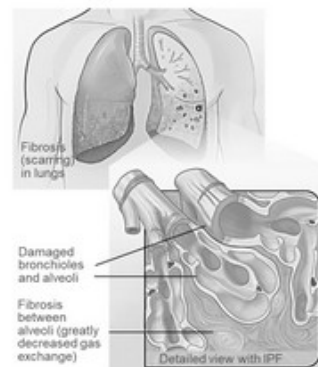
US prevalence;
currently orphan disease^{1,2}



Profound dyspnea, unrelenting cough,
impairment of activities of daily living

Mortality with IPF remains high

Lungs with IPF³



Limited treatment options

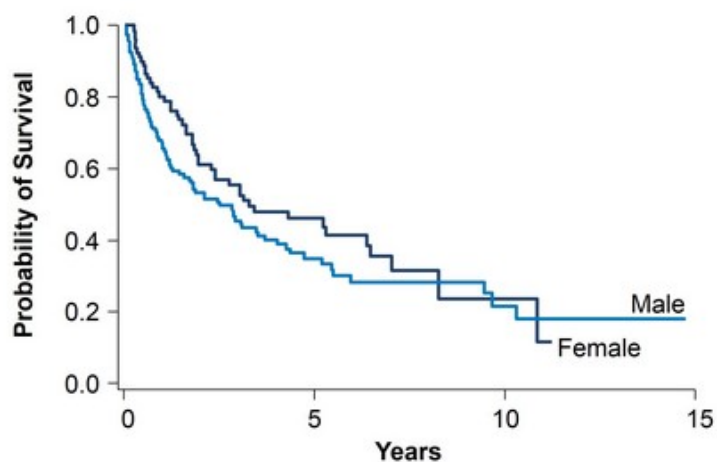
2 currently approved therapies, with modest efficacy and poor tolerability



Inhaled ALK5i

Potential first-in-class inhaled ALK5 inhibitor anti-fibrotic agent for IPF
Despite treatment with the current SoC, IPF patients continue to experience disease progression and exacerbation

Significant opportunity remains for effective IPF treatments

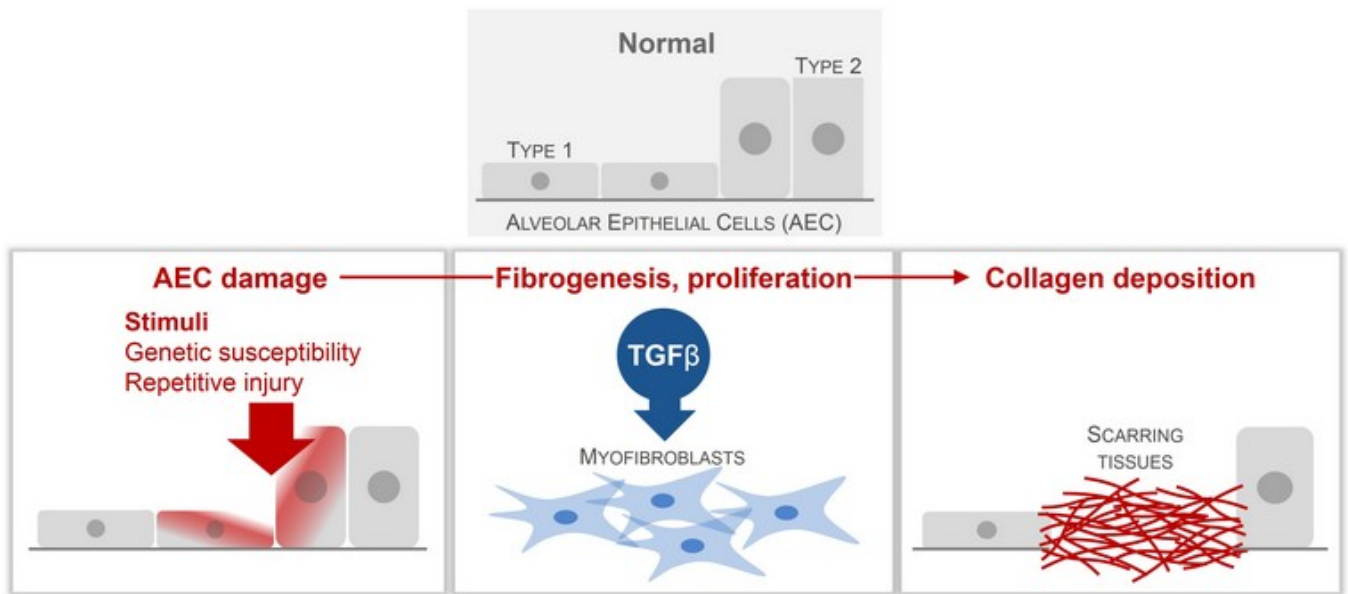


- ▶ Mortality with IPF remains high
 - <50% alive 3 years after diagnosis¹

Goal  To arrest disease progression with improved tolerability

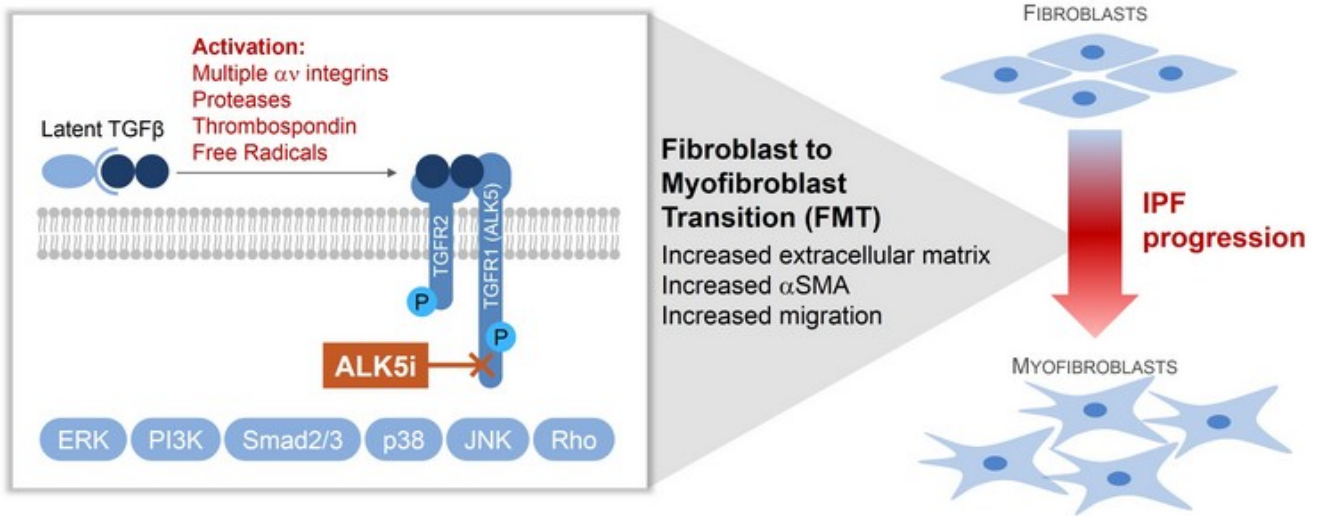
Targeting the TGF β pathway

A core signaling pathway that drives fibrosis

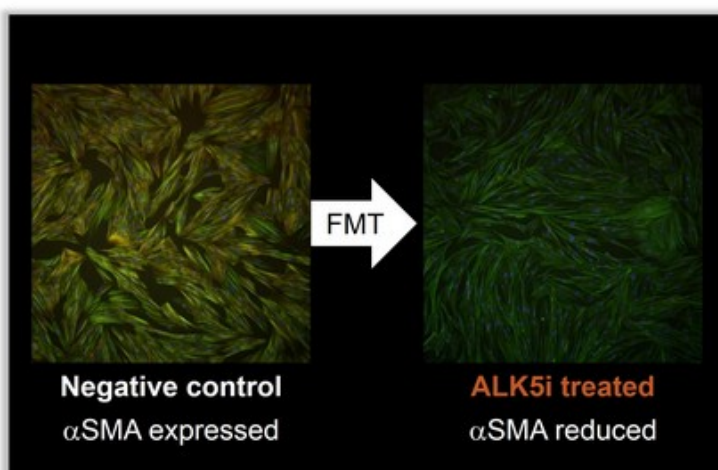
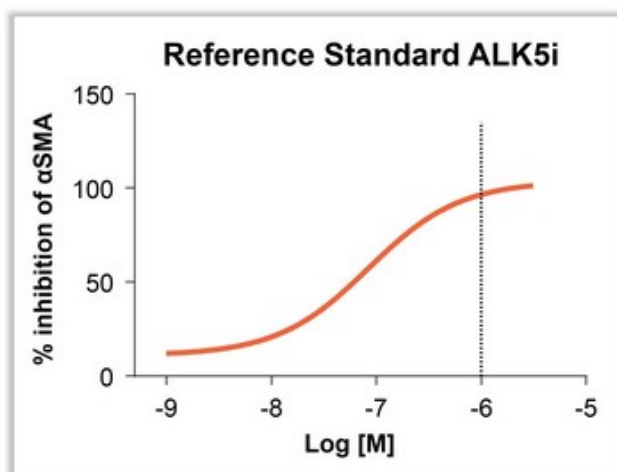


Selectively targeting the TGFβ pathway through ALK5 inhibition

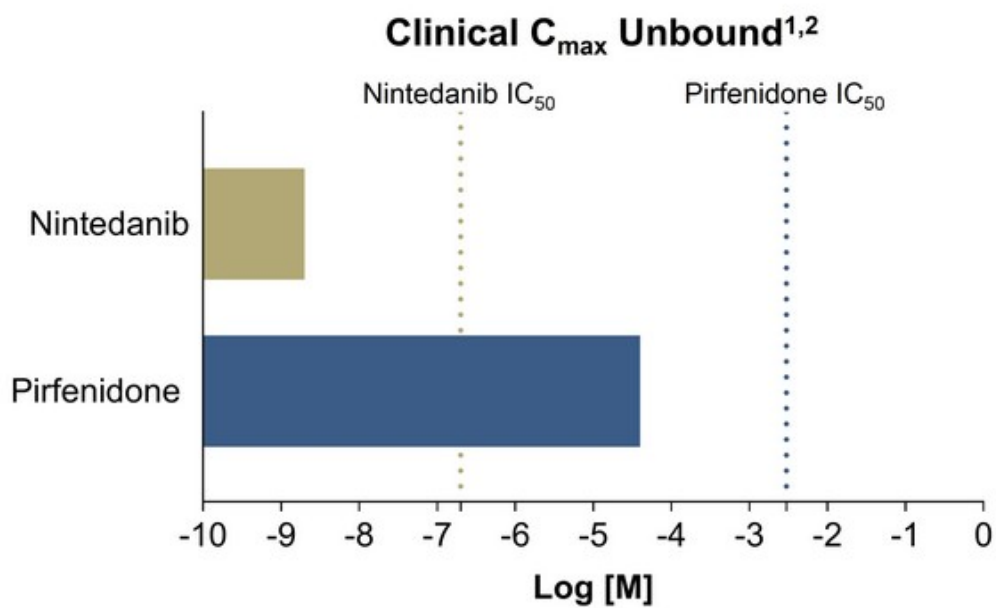
Inhibiting a core signaling pathway that drives fibrosis regardless of activation mechanism



ALK5 inhibition directly interrupts FMT¹ in IPF

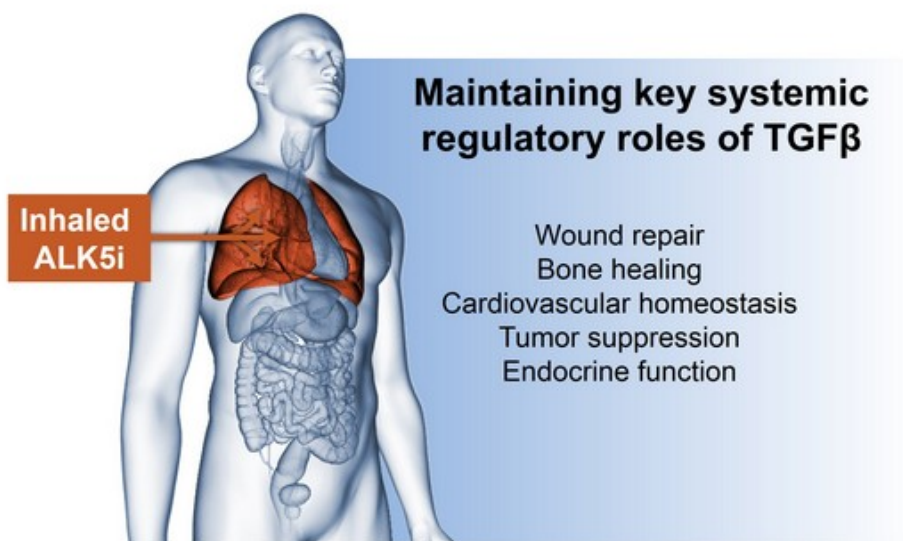


Current treatment options have no effect on FMT at clinically relevant concentrations



Lung selectivity avoids unwanted systemic side effects

Minimizing systemic inhibition of a cytokine essential for homeostasis





Ocular JAKi

Potential best-in-disease, pan-JAK inhibitor with long-acting ocular anti-inflammatory activity

Diabetic macular edema causes blindness in diabetics



2.7 million
US prevalence¹

#1 cause of
blindness in
diabetes²

140% higher direct and indirect
healthcare costs
in patients with DME vs
diabetics without ocular disease³



- 1st — **Anti-VEGF treatments** Most patients have suboptimal response
- 2nd — **Intraocular steroids** Side effects limit utility

Nonpharmacological treatments (e.g. laser coagulation) limited efficacy and significant adverse events

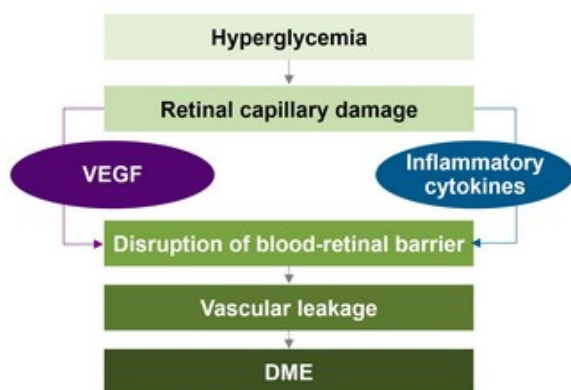
Normal vision Vision with DME



**Ocular
JAKi**

Potential to offer an alternative treatment for DME patients who are not optimally responding to treatment with VEGFi

Inflammation, not just VEGF, is a key driver of DME



Current Pharmacological Treatments

Intraocular anti-VEGF agents

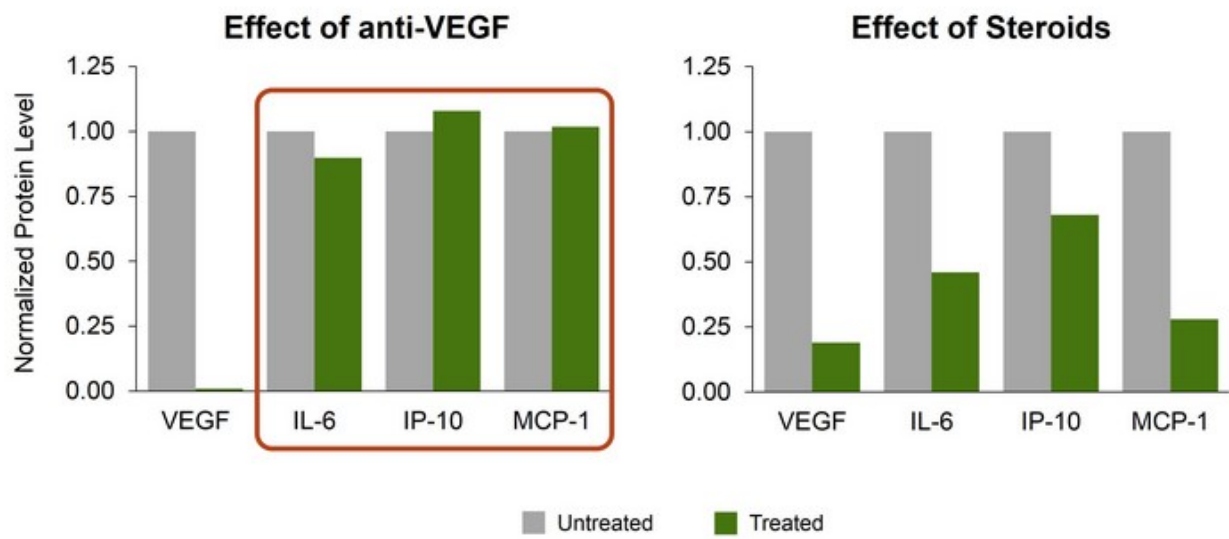
- ▶ One third do not respond to anti-VEGF while another third have a suboptimal response¹
- ▶ Require frequent intravitreal injections

Intraocular steroids

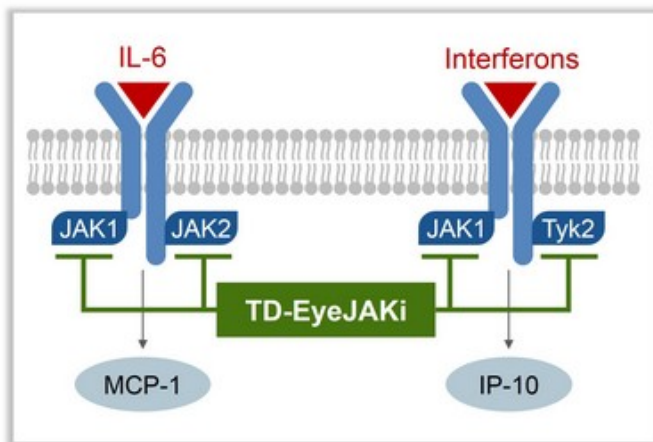
- ▶ High frequency of formation of cataracts and glaucoma

Need for broad, sustained release, anti-inflammatory with a safer side-effect profile

Unmet need for an anti-inflammatory drug: opportunity for eye-selective JAK inhibition



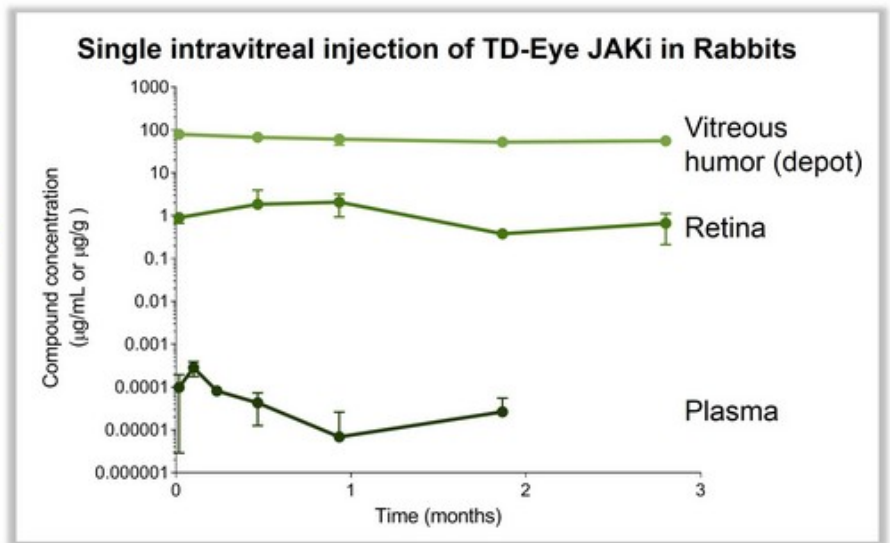
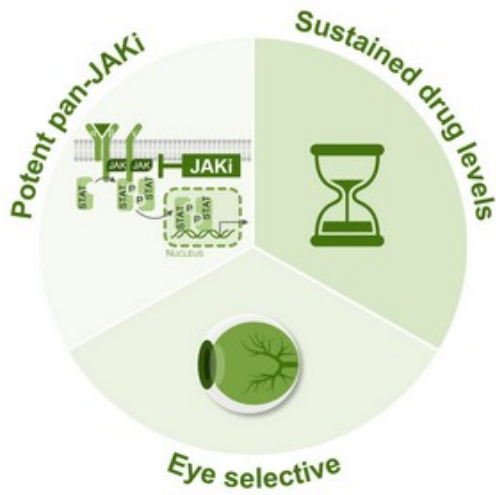
Ocular pan-JAK inhibition has the potential to address key disease pathways in DME



TD-EyeJAKi inhibits key DME inflammatory pathways:

- ▶ IL-6 and interferon signaling pathways in human primary cells
- ▶ IL-6 induced pSTAT3 and interferon-induced IP-10 in the back of the eye *in vivo*

A pan-JAK inhibitor designed for eye selectivity with projected dosing interval of at least three months



About YUPELRI® (revefenacin) inhalation solution

YUPELRI® (revefenacin) inhalation solution is a once-daily nebulized LAMA approved for the maintenance treatment of COPD in the US.

Market research by Theravance Biopharma indicates approximately 9% of the treated COPD patients in the US use nebulizers for ongoing maintenance therapy.¹ LAMAs are a cornerstone of maintenance therapy for COPD and YUPELRI® is positioned as the first once-daily single-agent bronchodilator product for COPD patients who require, or prefer, nebulized therapy. YUPELRI®'s stability in both metered dose inhaler and dry powder device formulations suggest that this LAMA could also serve as a foundation for novel handheld combination products.

YUPELRI[®] (revefenacin) inhalation solution

YUPELRI[®] inhalation solution is indicated for the maintenance treatment of patients with chronic obstructive pulmonary disease (COPD).

Important Safety Information (US)

YUPELRI is contraindicated in patients with hypersensitivity to revefenacin or any component of this product.

YUPELRI should not be initiated in patients during acutely deteriorating or potentially life-threatening episodes of COPD, or for the relief of acute symptoms, i.e., as rescue therapy for the treatment of acute episodes of bronchospasm. Acute symptoms should be treated with an inhaled short-acting beta2-agonist.

As with other inhaled medicines, YUPELRI can produce paradoxical bronchospasm that may be life-threatening. If paradoxical bronchospasm occurs following dosing with YUPELRI, it should be treated immediately with an inhaled, short-acting bronchodilator. YUPELRI should be discontinued immediately and alternative therapy should be instituted.

YUPELRI should be used with caution in patients with narrow-angle glaucoma. Patients should be instructed to immediately consult their healthcare provider if they develop any signs and symptoms of acute narrow-angle glaucoma, including eye pain or discomfort, blurred vision, visual halos or colored images in association with red eyes from conjunctival congestion and corneal edema.

Worsening of urinary retention may occur. Use with caution in patients with prostatic hyperplasia or bladder-neck obstruction and instruct patients to contact a healthcare provider immediately if symptoms occur.

Immediate hypersensitivity reactions may occur after administration of YUPELRI. If a reaction occurs, YUPELRI should be stopped at once and alternative treatments considered.

The most common adverse reactions occurring in clinical trials at an incidence greater than or equal to 2% in the YUPELRI group, and higher than placebo, included cough, nasopharyngitis, upper respiratory infection, headache and back pain.

Coadministration of anticholinergic medicines or OATP1B1 and OATP1B3 inhibitors with YUPELRI is not recommended.

YUPELRI is not recommended in patients with any degree of hepatic impairment.