

Corporate Presentation

April 2021



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This presentation includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties as well as our own estimates of potential market opportunities. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We believe that these third-party sources and estimates are reliable but have not independently verified them. Our estimates of the potential market opportunities for our product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research and other surveys, which may be based on a small sample size and may fail to accurately reflect market opportunities. While we believe that our internal assumptions are reasonable, no independent source has verified such assumptions. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of important factors that could cause results to differ materially from those expressed in the estimates made by third parties and by us.

Investment Highlights

Demonstrated Efficacy and Safety

- Efficacy data in over 400 patients with pruritic conditions
- Safety data in more than 800 subjects dosed with long-term safety data (6 and 12 months) in pruritic patients

Late-Stage Programs

- Ph2b/3 Pruritus in Prurigo Nodularis (PN) topline Q4 2021
- Ph2 Chronic Cough in Idiopathic Pulmonary Fibrosis (IPF)

Attractive Markets

- Lead oral compound in trials for both indications
- PN estimated to be \$3B+ global category in 2031¹
- IPF estimated to be ~\$4B global category in 2028²

Indication Expansion Opportunities

- Mechanism enables broad use in chronic pruritic and cough conditions
- Mechanism enables broad use in other neurologically mediated conditions

Strong IP

- 18 issued patents with issued protection through at least 2032 and additional applications extending to 2041

Broad Applications for Mechanism of Action of HADUVIO™

Haduvio™ targets the endogenous opioid system to treat serious neurologically mediated conditions

Haduvio™ has a dual mechanism of action that affects both mu and kappa opioid receptors:

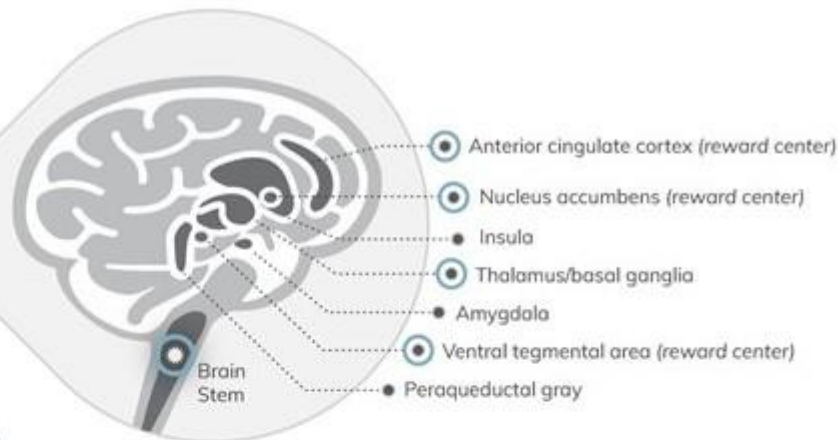
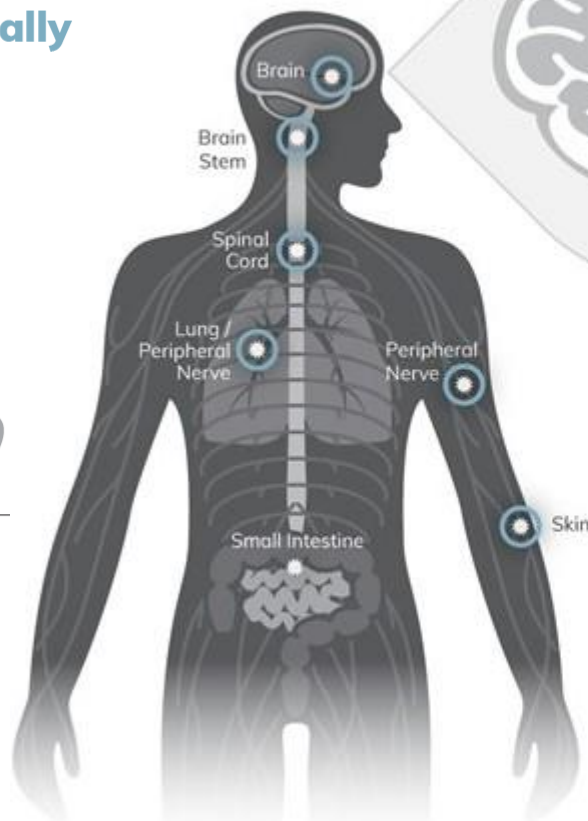


Mu-antagonists bind to the mu receptor with higher binding affinity and effectively block the receptor providing pharmacologic activity.

Kappa-agonists relieve pain and itch without producing significant mu-agonist mediated effects.

Dynamic interchange between the two receptors

Opioid receptors exist throughout the body



Chronic Pruritus

- Reward parts of brain
- Spinal cord
- Skin
- Peripheral skin nerves

Both mu antagonists and kappa agonists have shown pharmacological activity in reducing pruritus

Chronic Cough

- Brain stem
- Lung
- Peripheral lung nerves

Opioid receptors are believed to play an important role in the modulation of respiration and cough

Levodopa Induced Dyskinesia (LID)

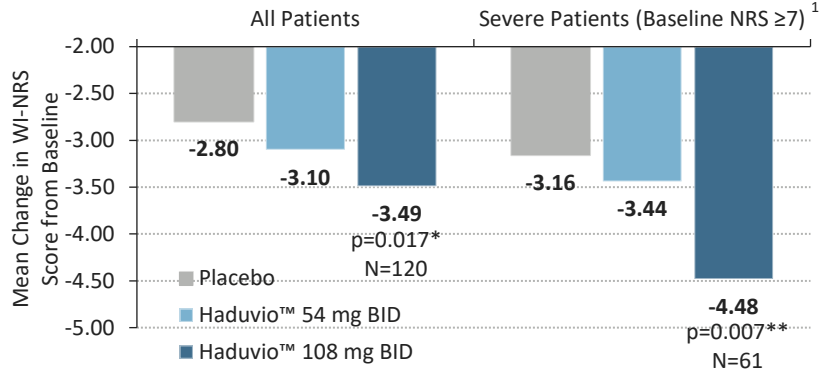
- Thalamus/basal ganglia

Pharmacologic intervention of both mu and kappa receptors has potential to impact the generation of LID

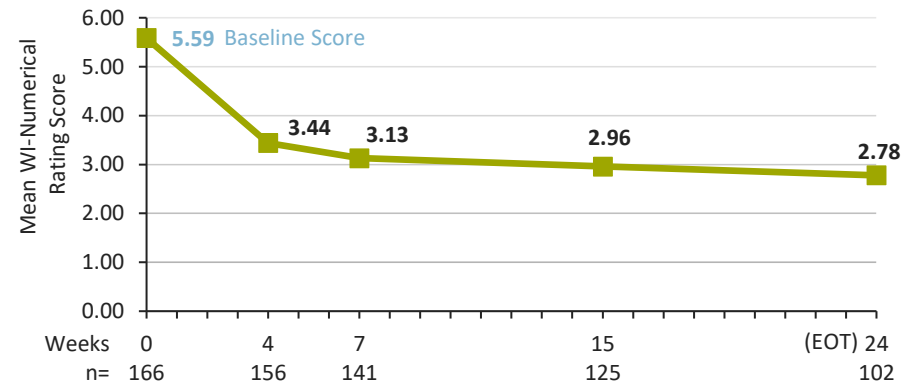
HADUVIO™ Demonstrated Proven Durable Results in Itch Across Multiple Studies and Endpoints

Uremic Pruritus

Uremic Pruritus Phase 2b/3 Primary Endpoint:
All Patients and Severe Patients (n=373)

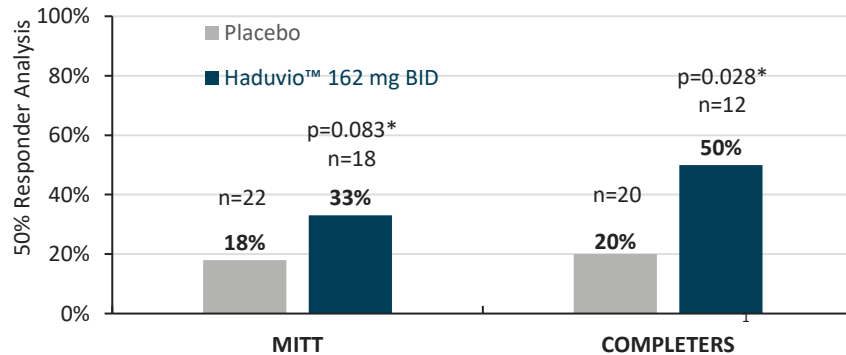


Uremic Pruritus Open Label Extension Study (n=166)

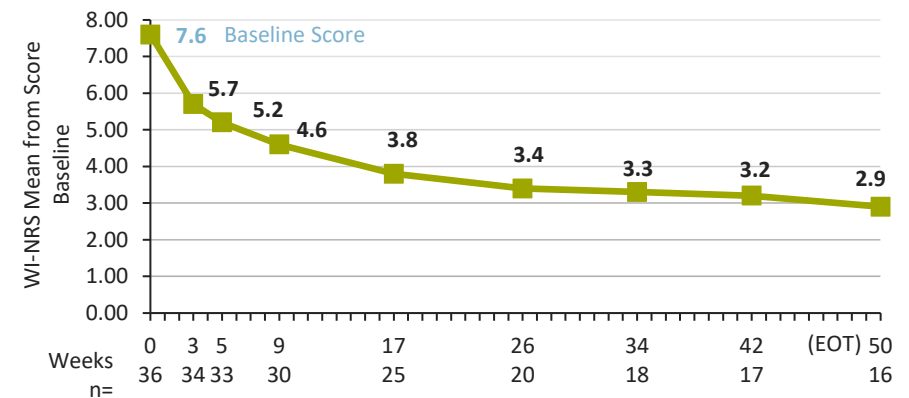


Prurigo Nodularis

50% Responder Analysis (Equiv. to a 4-point Analysis)
WI-NRS (Blinded 10 weeks)



PN: Open Label Extension Mean Change in WI-NRS (n=36)



Over 400 subjects studied with moderate to severe pruritus

All p-values compare treatment group to placebo. Only the UP data was powered for statistical significance.

¹ Post-hoc analysis of severe patients.

HADUVIO™ is Advancing Two Late-Stage Clinical Programs with Near-Term Readouts



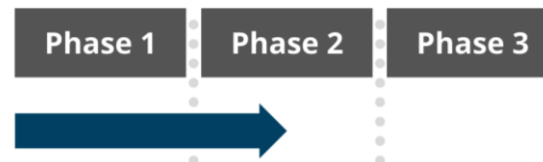
Chronic Pruritus in Patients with Prurigo Nodularis



- More than 65% enrolled
- Enrollment completion expected – Q3 2021
- Topline data expected – Q4 2021



Chronic Cough in Patients with IPF



- Study is open for enrollment in the UK
- Seeking regulatory approval to add study sites in Germany

Substantial Unmet Needs with No Approved Therapies

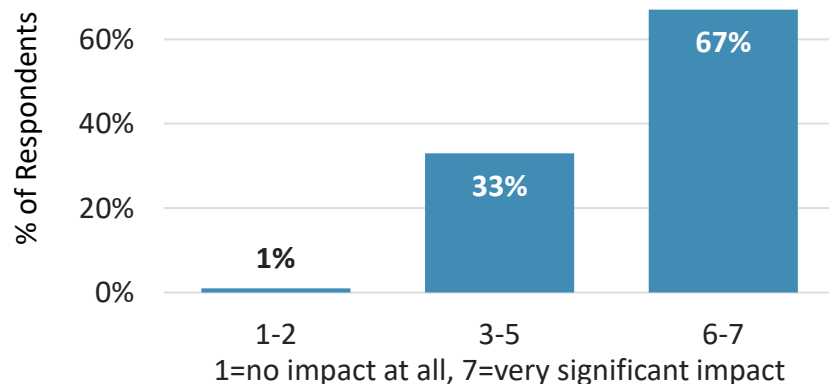
¹ Our prurigo nodularis program consists of our ongoing Phase 2b/3 clinical trial and an additional Phase 3 clinical trial that we plan to conduct.

Attractive Categories for Lead Indications

Pruritus Associated with Prurigo Nodularis

- ✓ No approved therapies
- ✓ No oral option available
- ✓ High unmet need
- ✓ PN is a serious, potentially debilitating, chronic skin condition^{1,2}

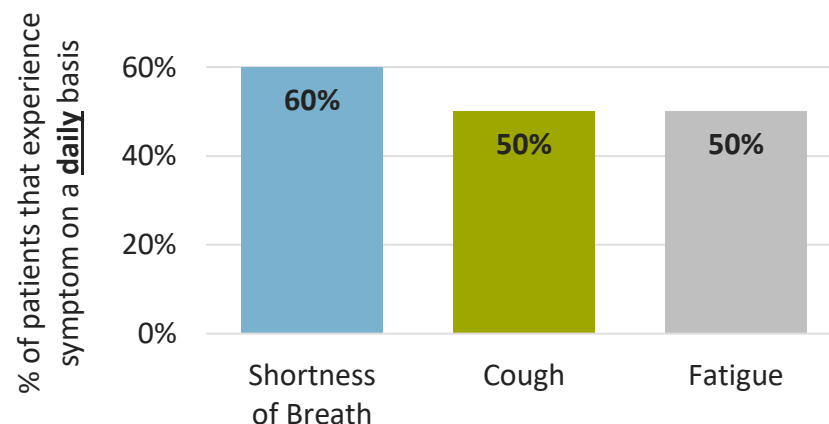
Dermatologist View on PN Impact on QoL³ (N=126)



Chronic Cough in Idiopathic Pulmonary Fibrosis

- ✓ No approved therapies
- ✓ No oral option available
- ✓ High unmet need
- ✓ IPF is a life-threatening, debilitating disease³

Most Bothersome Daily IPF Symptom⁴



Chronic Pruritus in Prurigo Nodularis



Opportunity to be the First and Only Oral Therapy in Prurigo Nodularis



PN: \$3B Global Market in 2031		
US	300,000	Current Prevalence ^(1,2,3,4,)
	40-50%	Uncontrolled ⁽⁵⁾
Ex-US	430,000	Current Prevalence ⁽⁶⁾
	40-50%	Uncontrolled ⁽⁷⁾

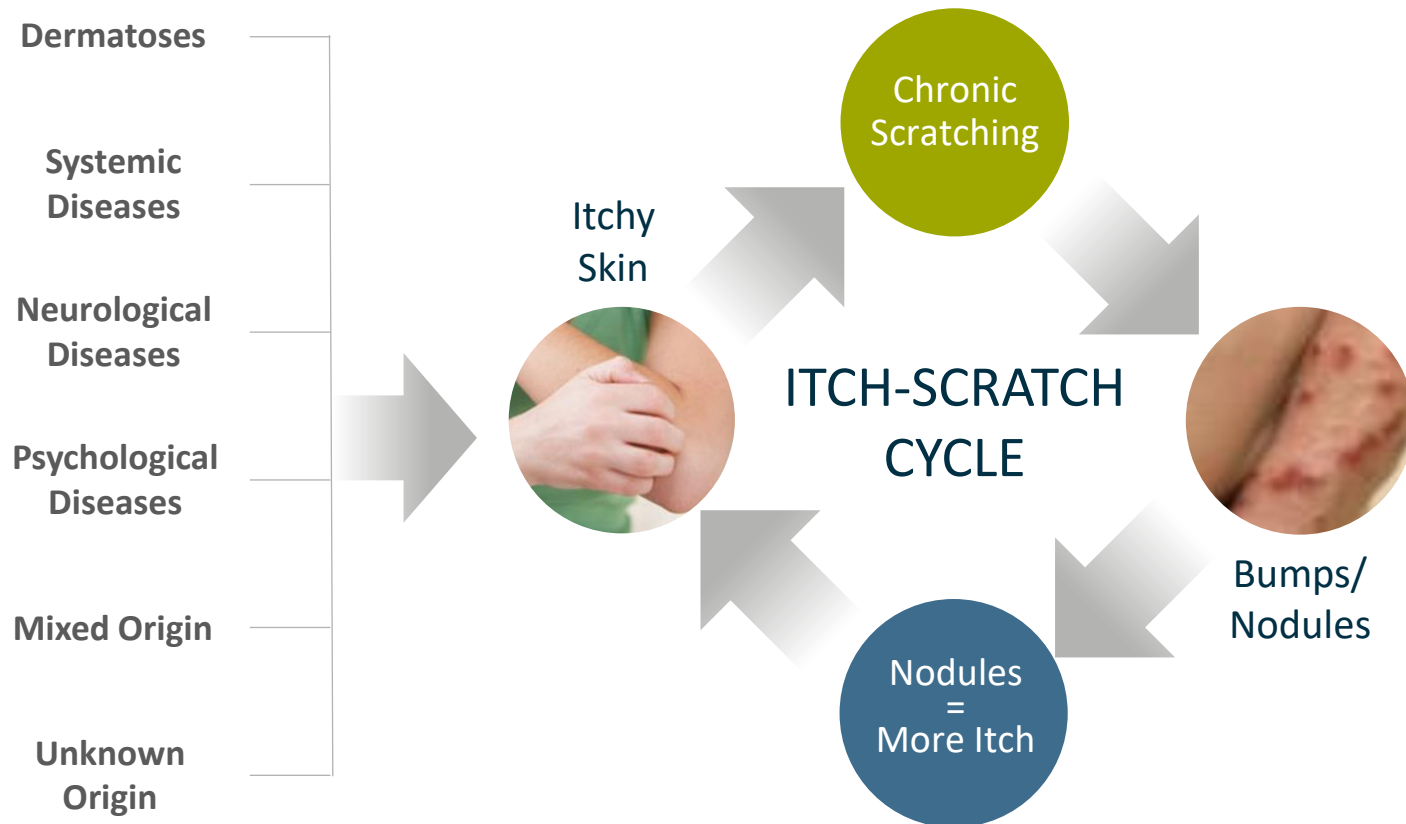
- Current off-label treatments for itch lack efficacy and/or have an unfavorable AE profile
- Oral therapy enables opportunity to be used at different stages of therapy
- Phase 2 results:
 - 58% of patients completing ≥ 6 months of HADUVIO showed lesion healing
 - QoL (ItchyQoL) improved at every visit throughout 50 weeks of HADUVIO therapy

**Market shares calculated as a percent of the uncontrolled population

¹Huang AH JID 2020 ²Stander S JAAD 2020 ³Iking A JEADV 2013 ⁴Pereira M JEADV 2018 ⁵Trevi Data on file ⁶Prurigo Nodularis - Market Insights, Epidemiology and Market Forecast. ⁷Weisshaar E Acta Derm Venereol 2012

Prurigo Nodularis Itch Scratch Cycle

Many underlying etiologies of itch, but initial scratching may create an itch-scratch cycle resulting from central and/or peripheral nervous tissue changes^{1,2,3,4}



Nalbuphine Impacts the Neuro-Inflammatory Axis for Potential Broad Utility in Pruritus

Neuronal Axis

Central (Brain, Brain Stem, Spinal Cord)

- Central suppression of itch¹
- Reduction of cough reflex²

Peripheral (Peripheral Nerve, Skin, Lung)

- Type C fibers in periphery³

Neuronal Sensitization⁴



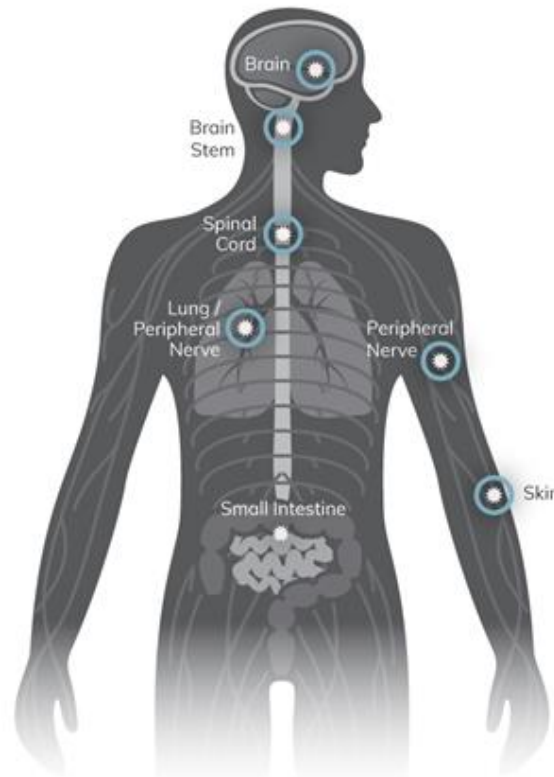
Inflammatory Axis

Peripheral (Skin)

- Reduces IL-31⁵
- Pro IL-10⁵
- Reduces Sub P⁶

Peripheral (Lung)⁷

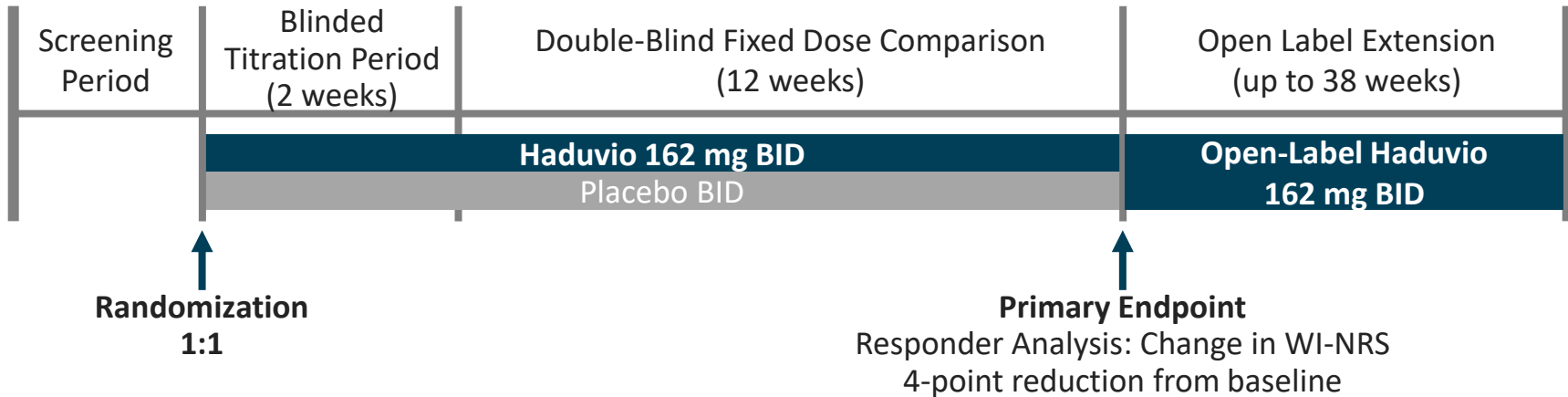
- Reduces TNF- α
- Reduces IL-6
- Reduces IL-10



¹Schmelz et al. Derm Ther 2005 ²Wang J et al. Ther Clin Risk Manag ³Metze et al. JAAD 1999 ⁴Hope-Gill BD et al. Am J Resp Crit Care Med 2003 ⁵Inan et al. Eur J Pharmacol 2019 ⁶Kuraishi et al. 1995, Andoh et al. J Pharmacol Exp Ther 1998 ⁷Zhang Y et al. Exper Ther Med 2017

Phase 2b/3 PRISM Trial Design (N=360)

Trial to Complete Enrollment in Q3 2021 and Topline Data Q4 2021



Trial Status:

- 60+ Sites
- >65% enrolled as of March 2021

Inclusion Criteria:

- Worst-Itch Numerical Rating Score (WI-NRS) ≥ 7
- 10+ pruriginous nodules
- PN present on 2 separate body parts

Primary Efficacy Endpoint (responder analysis):

- Change in WI-NRS
- Responder = 4-point reduction from baseline

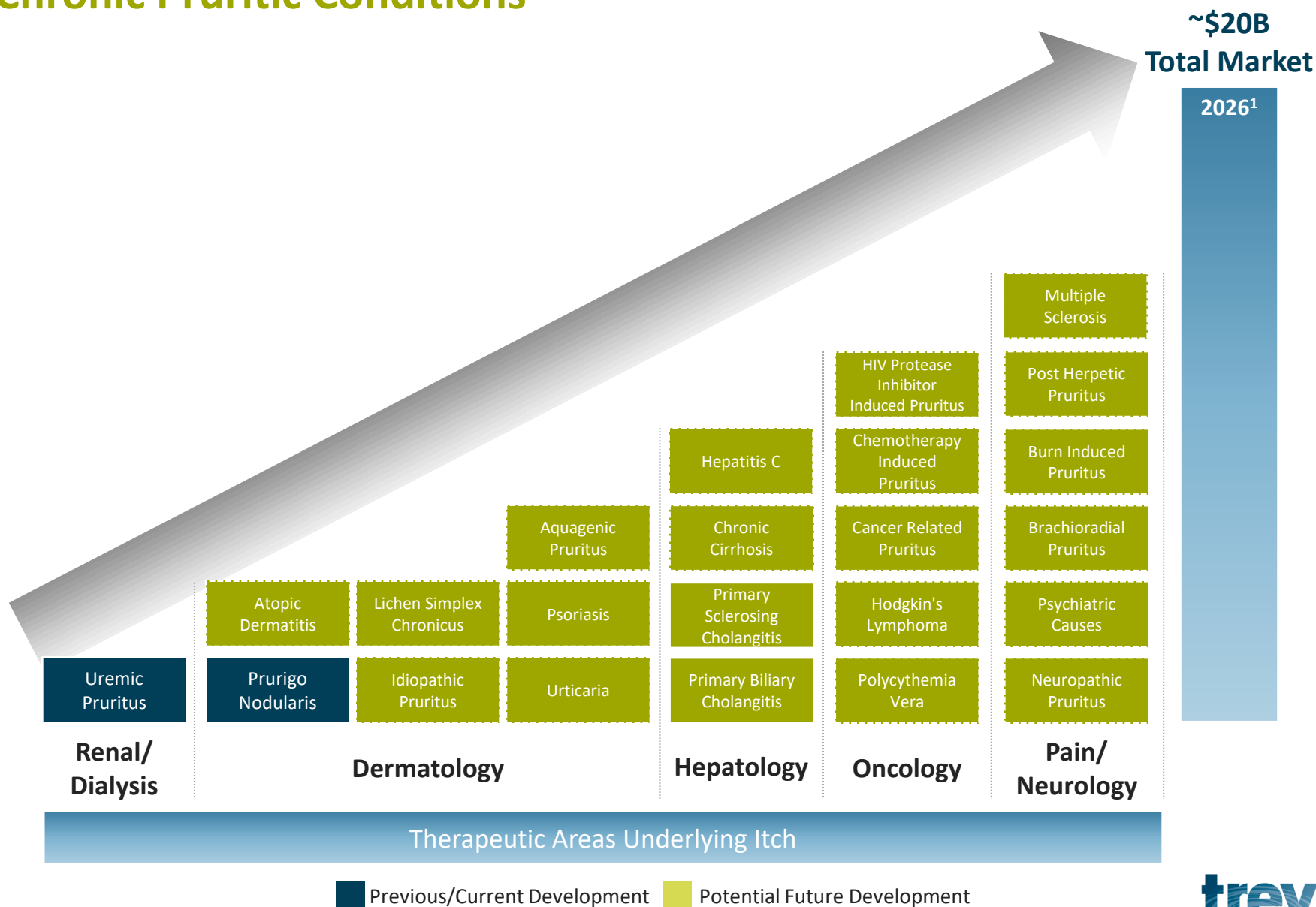
Key Secondary Endpoints (change from baseline):

- QoL (ItchyQoL)
- Skin lesions
- Sleep disturbances

Open Label Extension:

- >95% of eligible subjects have continued into the open label extension
- Long-term safety
- Durability of effect
- Lesion healing

Market Opportunity of a Broad Array of Chronic Pruritic Conditions



Chronic Cough in Idiopathic Pulmonary Fibrosis



Opportunity to be First in Class for Chronic Cough in Idiopathic Pulmonary Fibrosis (IPF)



IPF: \$4B Global Market in 2028

US	101,000	Current Prevalence ⁽⁴⁾
	40-50%	Uncontrolled ⁽⁵⁾

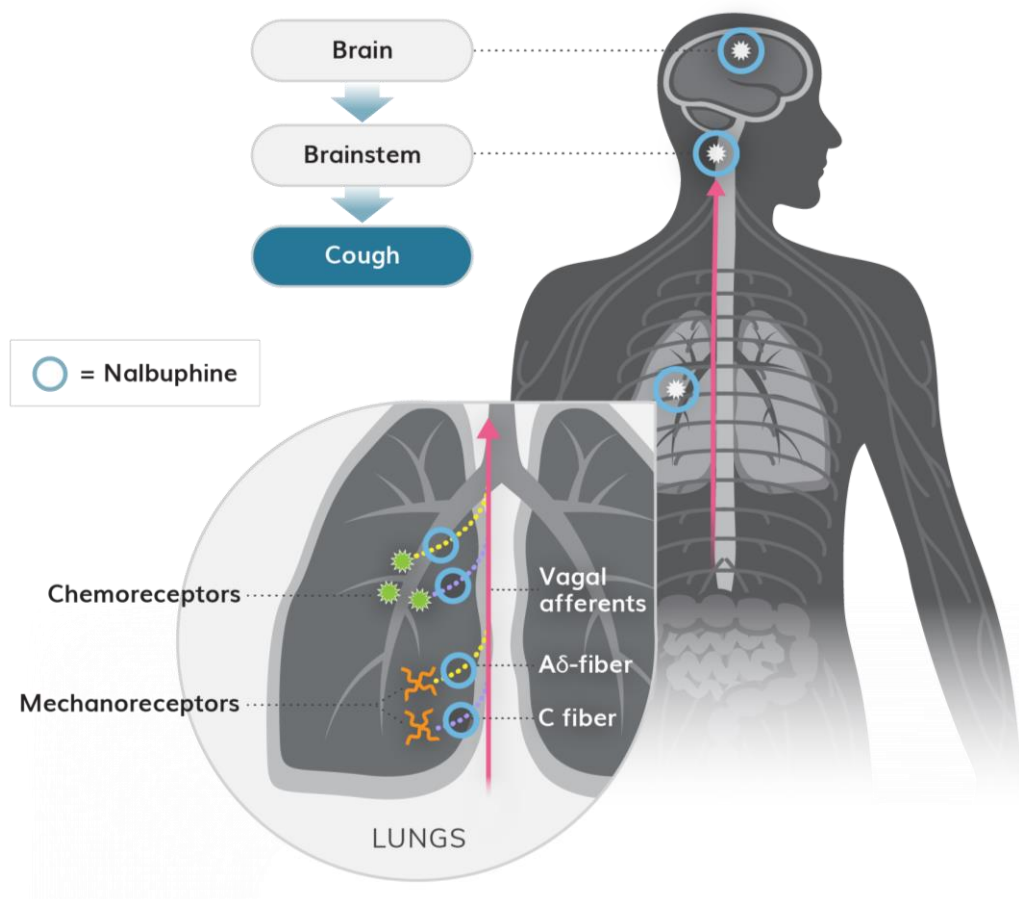
EX-US	1,000,000+	Current Prevalence ^(6,7)
	40-50%	Uncontrolled ⁽⁵⁾

- 70% to 85% of IPF patients are reported to suffer from chronic cough¹
- Cough is one of the most bothersome symptoms of IPF²
 - ≥75% of IPF patients report cough as being one of their most significant symptoms²
- Current IPF therapies have not been shown to reverse disease progression nor labeled to reduce cough frequency/severity

****Market shares calculated as a percent of the uncontrolled population**

¹Ryerson CJ et al. Respirology 2011 ²Voice of the Patient – IPF Patient-focused Drug Development Initiative, 2015 ³Wang J et al. Ther Clin Risk Manag. 2020 ⁴Martinez FJ Nat Rev Dis Primers 2017 ⁵Trevi Data on file ⁶Nalysnyk Eur Respir Rev 2012 ⁷Meltzer EB ORJD 2008

Nalbuphine ER has the Potential to Work at Multiple Pathways in IPF Chronic Cough



Mu, kappa and delta receptors found in the respiratory regions of the brain stem, lung and peripheral lung nerves

Endogenous opioids are believed to play an important role in modulating respiration (Lally, 2008)

- **Nalbuphine prevented sufentanil-induced cough during anesthesia induction** (Wang et al, 2020)

Chronic Cough in IPF Recruiting in the UK and Planning for Expansion into Germany: Phase 2 Trial (N=44 Completers)



2 Double-Blind Crossover Treatment Periods, Each Followed by a Washout Period

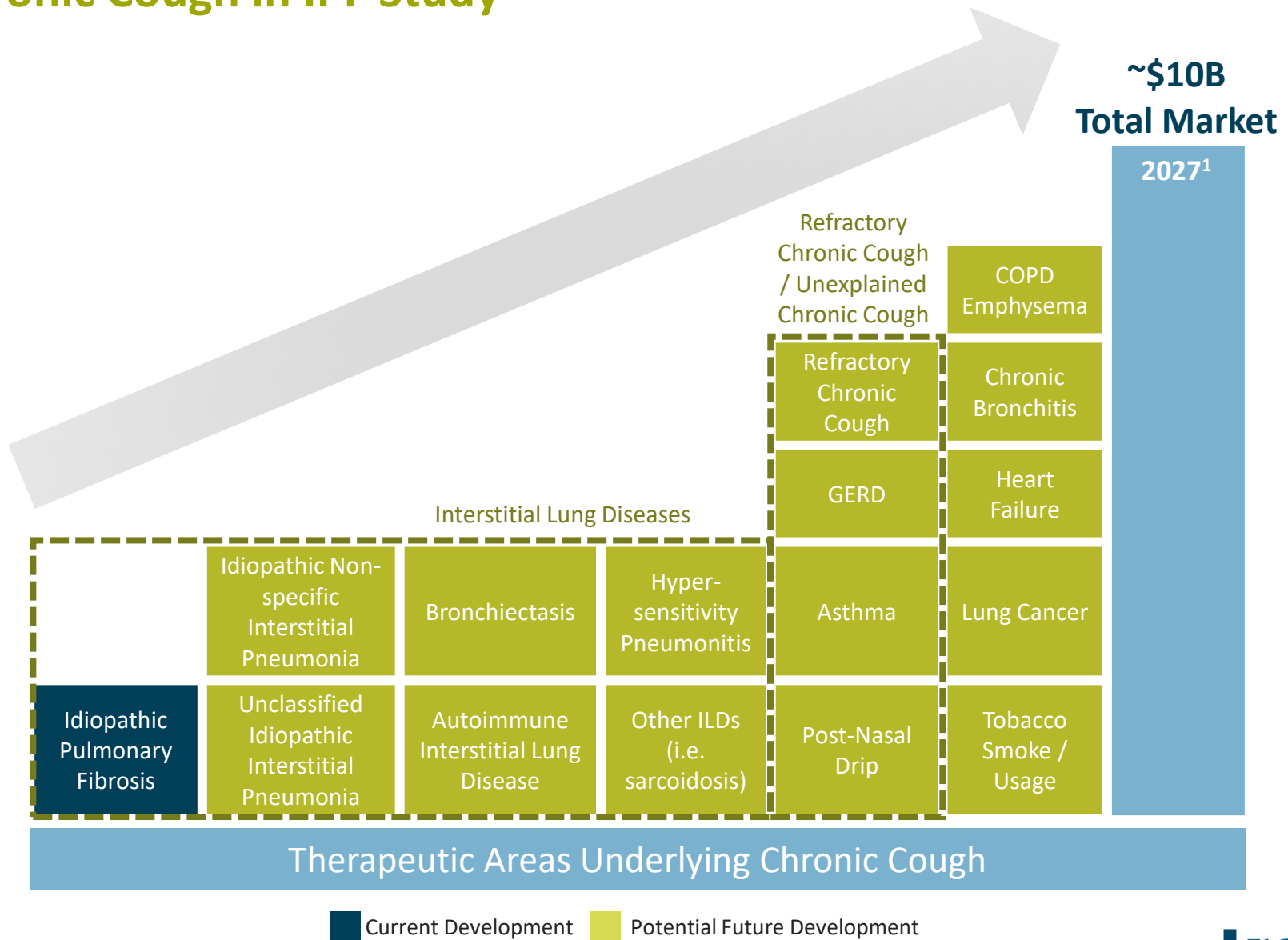
Randomization



Treatment Period 1	Investigational Study Drug (Day 1 to Day 22)	Placebo (Day 1 to Day 22)
	2-week washout period/treatment crossover	
Treatment Period 2	Placebo (Day 1 to Day 22)	Investigational Study Drug (Day 1 to Day 22)

- Amended study protocol (approved by MHRA) for fewer in-person visits and procedures to adapt to COVID restrictions
 - Restrictions lifting in the UK end of March 2021
 - Seeking regulatory approval to add sites in Germany to accelerate enrollment and mitigate the single country COVID risks
- Enrollment of up to 60 patients with goal of 44 completers
 - Primary endpoint is the mean percent change in daytime cough frequency from baseline as measured by a digital cough monitor between the nalbuphine ER and placebo treatments
 - Secondary endpoints measured at various time points include cough, fatigue and dyspnea scales

Multiple Expansion Opportunities From Results in Chronic Cough in IPF Study



Investment Highlights

Near-term Ph2b/3 Readout in Prurigo Nodularis

- Ph2b/3 enrollment expected to complete by Q3 2021 with top-line data in Q4 2021
- Only oral in development in a \$3B+ category
- Ph2a data demonstrated potential for benefit/risk profile in severe pruritus

Ph2 Readout in Patients with Chronic Cough in Idiopathic Pulmonary Fibrosis

- Amended study protocol (approved by MHRA) for fewer in-person visits and procedures to adapt to COVID restrictions
- Opportunity to be first to market
- \$4B market with significant unmet need

Strong Financial Position

- Cash balance as of 12/31/20 of \$45.0 million
- Cash position will fund operations into the second quarter of 2022

Thank You

