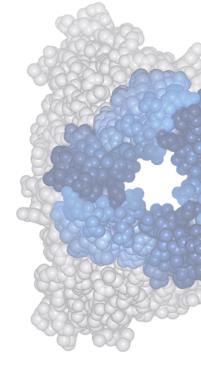
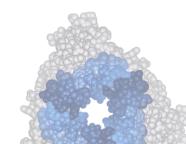


Investor Presentation

NASDAQ/TSX - BLU

September 11, 2020





Forward Looking Statements

Certain statements contained in this presentation, other than statements of fact that are independently verifiable at the date hereof, may constitute "forward-looking statements" within the meaning of Canadian securities legislation and regulations and other applicable securities laws. Forward-looking statements are frequently, but not always, identified by words such as "expects," "anticipates," "believes," "intends," "estimates," "potential," "possible," "projects," and similar expressions. Such statements, based as they are on the current expectations of management, inherently involve numerous important risks, uncertainties and assumptions, known and unknown, many of which are beyond BELLUS Health's control. Such statements include, but are not limited to, the potential of BLU-5937 to successfully treat chronic cough, chronic pruritus and other hypersensitization-related disorders, BELLUS Health's expectations related to its preclinical studies and clinical trials, including the timing of initiation and completion of and results from the BLU-5937 Phase 2 RELIEF trial and its chronic pruritus program, the potential tolerability profile and other characteristics of BLU-5937 as compared to other competitor candidates and the potential applicability of BLU-5937 and BELLUS Health's P2X3 platform to treat other disorders. Risk factors that may affect BELLUS Health's future results include but are not limited to: the ability to expand and develop its project pipeline, the ability to obtain adequate financing, the ability of BELLUS Health to maintain its rights to intellectual property and obtain adequate protection of future products through such intellectual property, the impact of general economic conditions, general conditions in the pharmaceutical industry, the impact of the COVID-19 pandemic on BELLUS Health's operations, plans and prospects, including to the initiation and completion of clinical trials in a timely manner or at all, changes in the regulatory environment in the jurisdictions in which BELLUS Health does business, stock market volatility, fluctuations in costs, changes to the competitive environment due to consolidation, achievement of forecasted burn rate, potential payments/outcomes in relation to indemnity agreements and contingent value rights, achievement of forecasted preclinical study and clinical trial milestones, reliance on third parties to conduct preclinical studies and clinical trials for BLU-5937 and that actual results may vary once the final and quality-controlled verification of data and analyses has been completed. In addition, the length of BELLUS Health's product candidate's development process and its market size and commercial value are dependent upon a number of factors. Moreover, BELLUS Health's growth and future prospects are mainly dependent on the successful development, patient tolerability, regulatory approval, commercialization and market acceptance of its product candidate BLU-5937 and other products. Consequently, actual future results and events may differ materially from the anticipated results and events expressed in the forward-looking statements. BELLUS Health believes that expectations represented by forward-looking statements are reasonable, yet there can be no assurance that such expectations will prove to be correct. The reader should not place undue reliance, if any, on any forward-looking statements included in this presentation. These forward-looking statements speak only as of the date made, and BELLUS Health is under no obligation and disavows any intention to update publicly or revise such statements as a result of any new information, future event, circumstances or otherwise, unless required by applicable legislation or regulation.

Please see BELLUS Health's public filings with the Canadian securities regulatory authorities, including, but not limited to, its Annual Information Form, and the United States Securities and Exchange Commission, including, but not limited to, its Annual Report on Form 40-F, for further risk factors that might affect BELLUS Health and its business.





Company Overview



BELLUS Overview

BLU-5937 – Highly Selective P2X3 Antagonist for Hypersensitization Disorders

Lead Indication - Refractory Chronic Cough

- Large population, 9m in U.S., with significant unmet need
- BLU-5937, a second generation highly selective P2X3 antagonist, has shown reduction in cough frequency in patients ≥20 coughs/h and low taste side effects
 - First generation P2X3 antagonist in Phase 3, Merck's MK-7264: efficacious but has taste alteration/loss in 58-69% of patients¹
- Phase 2b trial expected to start in Q4 2020

Pipeline within a Molecule

- Potential for broad applicability in hypersensitization disorders
- 5 non-cough indications in phase 2 with P2X3 antagonists expected in 2020 including phase 2 with BLU-5937 for chronic pruritus²

Well Financed ~\$74M³ cash position

100% Owned Composition of Matter IP

100% owned patent estate including composition of matter covering BLU-5937 expiring in 2034



¹McGarvey L., Two Phase 3 Randomized Clinical Trials of Gefapixant, a P2X3 Receptor Antagonist, in Refractory or Unexplained Chronic Cough (COUGH-1 and COUGH-2), ERS Abstract 2020 ² 4 indications (pain related to endometriosis, overactive bladder, sleep apnea and neuropeathic pain) in development by third parties ³ as of June 30, 2020

Strong Leadership and Advisory Group

Management



Roberto Bellini President & Chief Executive Officer



Dr. Catherine Bonuccelli Chief Medical Officer



Dr. Denis Garceau Senior Vice President, Drug Development



François Desjardins Vice President, Finance



Tony Matzouranis Vice President, Business Development

Board of Directors



Clinical Advisory Board

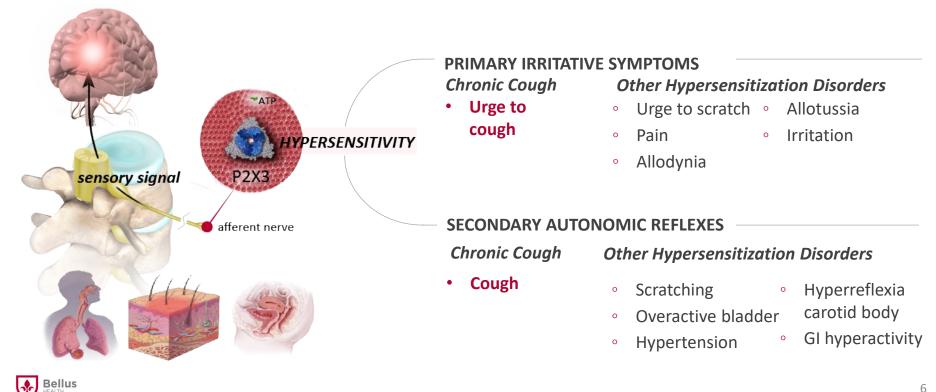
Dr. Jacky Smith (Chair), MB, ChB, FRCP, PhD University of Manchester Dr. Michael S. Blaiss, MD Medical College of Georgia

Dr. Surinder Birring, MB ChB (Hons), MD Kings College London **Dr. Peter Dicpinigaitis, MD** Albert Einstein Medical Colloege

Bellus

P2X3 Linked to Cough & Other Hypersensitization Disorders

P2X3 is an ATP gated ion channel in the peripheral sensory nervous system

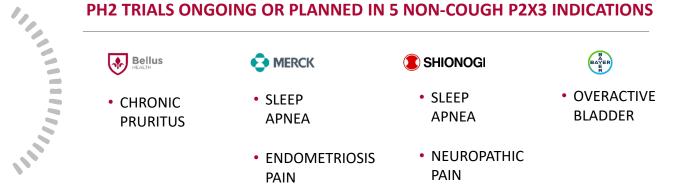


BLU-5937: Pipeline Within a Molecule

PROGRAM		DEVELO	PMENT	STATUS		
Indication	Preclinical	phase 1	phase 2	phase 3	Worldwide Rights	Next Anticipated Milestone
BLU-5937						
Refractory Chronic Cough					Bellus HEALTH	Q4 2020: FDA meeting and phase 2b start
Chronic Pruritus Associated with Atopic Dermatitis					Bellus HEALTH	Q4 2020: phase 2 start

Potential for Broad Applicability and Building **Pipeline** in a **Product**

PH2 TRIALS ONGOING OR PLANNED IN 5 NON-COUGH P2X3 INDICATIONS







Refractory Chronic Cough



Refractory Chronic Cough

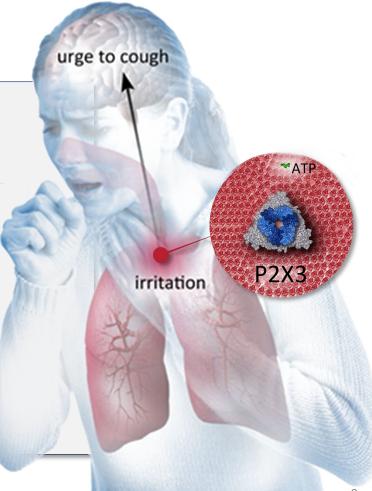
Cough lasting ≥ 8 weeks that does not respond to treatment for underlying cause or is unexplained

Significant impact on patients' quality of life

including impact on social, physical and psychosocial well-being

Current treatment options are inadequate and non-specific

Large patient population¹ - up to ~9M refractory chronic cough patients in the U.S. with ~3M patients coughing >1 year



Proof-of-Mechanism Illustrated by First-in-Class P2X3 Antagonist MK-7264

MK-7264

First generation P2X3 antagonist with low selectivity

Effective in reducing cough but with Taste Side Effects Two Phase 3 Trials of Gefapixant: COUGH-1 (12 week duration) and COUGH-2 (24 week duration)

Cough

18% & 15%

placebo adjusted reduction in 24H cough frequency (primary endpoint)

Taste

58% & 69%

of patients have taste alteration or taste loss

McGarvey L., Two Phase 3 Randomized Clinical Trials of Gefapixant, a P2X3 Receptor Antagonist, in Refractory or Unexplained Chronic Cough (COUGH-1 and COUGH-2), ERS Abstract 2020; 45mg BID dose data presented



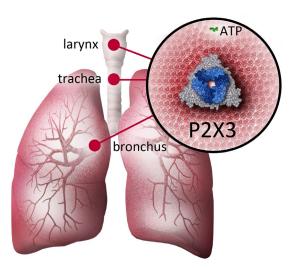
Lack of P2X3 Selectivity Results in Taste Effect

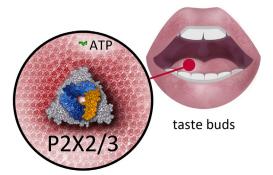
P2X3 and P2X2/3: ATP-gated ion channels that transmit sensory signals

COUGH REFLEX:

P2X3 **homotrimers** have primary role in cough

TASTE: P2X2/3 heterotrimers have major role in taste





OPPORTUNITY:

Highly selective P2X3 antagonist to reduce cough (P2X3 inhibition) and maintain taste (no P2X2/3 inhibition)



BLU-5937: P2X3 Antagonist with Best in Class Selectivity

BLU-5937

HIGHLY POTENT¹

P2X3 antagonist Low nM IC_{50}

CLINICALLY MEANINGFUL²

reduction in cough frequency in RCC patients \geq 20 coughs/h

HIGHLY SELECTIVE¹

P2X3 antagonist ~ 1500X selectivity vs P2X2/3

WELL TOLERATED

Low taste side effects ($\leq 10\%$)





²BELLUS RELIEF Phase 2 Trial Results

receptor antagonist, for the treatment of refractory or unexplained chronic cough: a randomised, double-blind, controlled, parallelgroup, phase 2b trial

characterized P2X3 antagonists described in Bayer US patent 10,183,937 (may not be BAY1817080) Respiratory Journal 2019 54: RCT452

P2X3 Competitive Landscape¹

Best in class selectivity for P2X3 supports potential favorable clinical and commercial profile

	1 ST IN CLASS P2X3 ANTAGONIST	2 ND GENERATION P2X3 ANTAGONISTS		BEST IN CLASS SELECTIVITY FOR P2X3	
Company		BAYER	SHIONOGI	Bellus HEALTH	
Candidate	MK-7264 ²	BAY 1817080 ³	S-600918 ⁴	BLU-5937	
Trial	phase 3	phase 2	phase 2	phase 2	
Trial ID(s)	NCT03449147 / NCT02612623	NCT03310645	JAPIC-CTI184027	NCT03979638	
Dosing	BID	BID	QD	BID	
P2X3 vs. P2X2/3 Selectivity	3-7x	17-126x⁵	~ 250x	~ 1500x	



Unexplained Chronic Cough (COUGH-1 and COUGH-2), ERS Abstract 2020

⁵Bayer selectivity range of most characterized P2X3 antagonists described in Bayer US patent 10,183,937 (may not be BAY1817080) 13

Phase 2 **RELIEF** Trial Design

(A <u>Randomized</u>, Doub<u>l</u>e-bl<u>i</u>nd, Plac<u>e</u>bo-Controlled, Crossover, Dose Escalation Study of BLU-5937 in Subjects with Unexplained or Re<u>f</u>ractory Chronic Cough)

Primary endpoint:

11,

Placebo-adjusted reduction in awake cough frequency using cough recorder

68 refractory chronic cough patients:

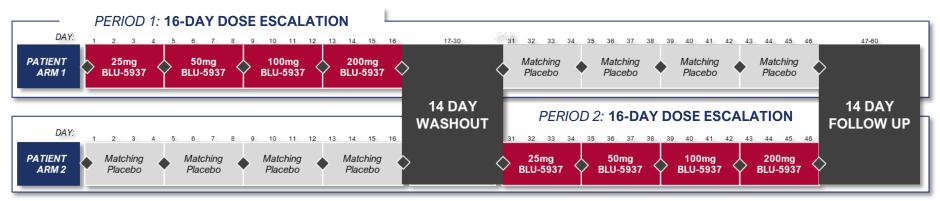
- 52 completed dosing
- 13 pandemic-related discontinuations
- 3 non-drug related discontinuations

16 sites in UK and US:

40 patients from 8 UK sites 28 patients from 8 US sites

4 dose levels:

25/50/100/200mg BID with forced dose escalation at 4-day intervals



Cough Recording Conducted

BLU-5937: RELIEF PHASE 2 TRIAL PRIMARY ENDPOINT

- RELIEF trial achieved similar magnitude of effect to Merck Phase 3 trials but did not achieve statistical significance in the overall population
- In pre-specified subgroup analyses of patients with ≥20 coughs/h and 32 coughs/h, statistically significant reductions in awake cough frequency were achieved at all doses
 - ≥20 c/hr : 18-27% placebo-adjusted reduction in awake cough frequency (p<0.032)
 - ≥32 c/hr : 28-32% placebo-adjusted reduction in awake cough frequency (p<0.0015)

PLACEBO-ADJUSTED CHANGE IN AWAKE COUGH FREQUENCY

	Intent-To-Treat Population 100% Trial Population			≥ 20 c/h Population 80% Trial Population			≥ 32 c/h 50% Trial Population					
Dose (BID)	Placebo- Adjusted 2	p-value	BLU-5937 better	Placebo better	Placebo- Adjusted ∠	p-value	BLU-5937 better	Placebo better	Placebo- Adjusted Z	p-value	BLU-5937 better	Placebo better
25 mg	-11%		⊢-≎		-20%	0.0010	⊢oI *			0.0005	⊢– 0 ––-1 *	
50 mg		0.4602	⊢			0.0186	⊢−○−−− 1	*	-28%	0.0003	⊢- ○ 1 *	
100 mg		0.4181	⊢−○ −			0. 0320	⊢−− 0−−−1	*		0. 0014	⊢ <u></u> ⊶ *	
200 mg	-17%	0.0855	⊢о		-27%	0.0026	⊢_oi *			0.0006	⊢- ○ *	
		-509	% -30% -10%	10% 30%		-50	0% -30% -10%	10% 30%		-50	0% -30% -10%	10% 30%

Key learning that baseline cough frequency is an important indicator of treatment benefit

BLU-5937 RELIEF Phase 2 and MK-7264 Phase 3 Trial

Bellus

BLU-5937¹ RELIEF: Phase 2 (4 days) 200mg BID

31/26 c/h Baseline Awake Cough Frequency

17%

Placebo Adjusted Reduction in Awake Cough Frequency

9% Taste AEs

Intent-To-Treat Population

MK-7264² (gefapixant) COUGH-1: Phase 3 (12-wk)

45mg BID

25-30 c/h Baseline Awake Cough Frequency

18%

Placebo Adjusted Reduction in Awake Cough Frequency

58%

Taste AEs

MK-7264² (gefapixant) COUGH-2: Phase 3 (24-wk) 45mg BID

24-26 c/h

Baseline Awake Cough Frequency

16%

Placebo Adjusted Reduction in Awake Cough Frequency

69% Taste AEs Similar magnitude of placebo-adjusted effect with significant reduction in taste effect with BLU-5937 though comparison limited by:

- Trial design (crossover vs parallel arm)
- Duration of trial (16 days drug; 4 days 200mg BID vs 12/24 weeks)
- Differences in baseline cough frequency
- Differences in placebo effects



No head-to-head clinical trials have been conducted; data derived from different clinical trials in different patient populations and with different dosing regimens and protocols.

 1 RELIEF Phase 2 Trial data including geometric mean for baseline awake cough frequency (period 1 and period 2)

²McGarvey L., Two Phase 3 Randomized Clinical Trials of Gefapixant, a P2X3 Receptor Antagonist, in Refractory or Unexplained Chronic Cough (COUGH-1 and COUGH-2), ERS Abstract 2020

BLU-5937 RELIEF Phase 2 and S-600918 Phase 2 Trial

Similar reduction in awake cough frequency using populations with similar baseline cough frequency



BLU-5937 phase 2 ≥ 32 coughs/h Patients¹ 25-200mg BID

55/59 c/h Baseline Cough Frequency²

28-32%

Placebo Adjusted Reduction in Awake Cough Frequency



S-600918 phase 2A 150mg QD

56 c/h Baseline Cough Frequency²³

32%

Placebo Adjusted Reduction in Awake Cough Frequency²

No head-to-head clinical trials have been conducted; data derived from different clinical trials in different patient populations and with different dosing regimens and protocols. Ishihara et al. ERS2020 PA2271: "Design of phase 2b randomised controlled trial of S-600918, P2X3 receptor antagonist for refractory chronic cough"

- Interaction between baseline cough frequency and treatment effect observed in Phase 2a trial
- Phase 2b Design:
 - Enrichment strategy with baseline cough frequency inclusion criteria, ≥10 coughs/h (24-hours)
 - Patient stratification by baseline cough frequency to help balance trial arms

Interaction between baseline cough frequency and treatment effect observed in RELIEF and Shionogi Phase 2 trials



¹ Pre-specified sub-group analysis of RELIEF Phase 2 trial

² Shionogi: not disclosed if arithmetic or geometric mean; Bellus: both arithmetic and geometric means presented ³ Niimi A et al.; Eur.Respir. J 2019 54: Suppl. 63, RCT452

RELIEF: Well-Tolerated and Safety Profile Comparable to Placebo

INCIDENCE OF MOST FREQUENT ADVERSE EVENTS (>5% INCIDENCE)

	Placebo (N=61)	BLU-5937 Total (N=61)					
n of subjects (%) with Adverse Events	41 (67.2%)	42 (68.9%)					
Serious Adverse Events	0	0					
Most Common TEAEs (≥5% of subjects)							
Headache	7 (11.5%)	6 (9.8%)					
Back pain	6 (9.8%)	5 (8.2%)					
Dysgeusia	2 (3.3%)	5 (8.2%)					
Diarrhea	3 (4.9%)	4 (6.6%)					
URTI	3 (4.9%)	4 (6.6%)					
Dizziness	2 (3.3%)	4 (6.6%)					
Oropharyngeal pain	0 (0%)	3 (4.9%)					

- Similar incidence of adverse events on placebo and active
- No serious adverse events
- No clinically significant effect on vital signs, ECG and laboratory measures
- Low incidence of potential P2X3 class-related side effects (taste effects, hypoaesthesia)
- No drug-related discontinuations

RELIEF: Taste Disturbance Adverse Events

Low incidence and mild nature of taste side effect at all doses:

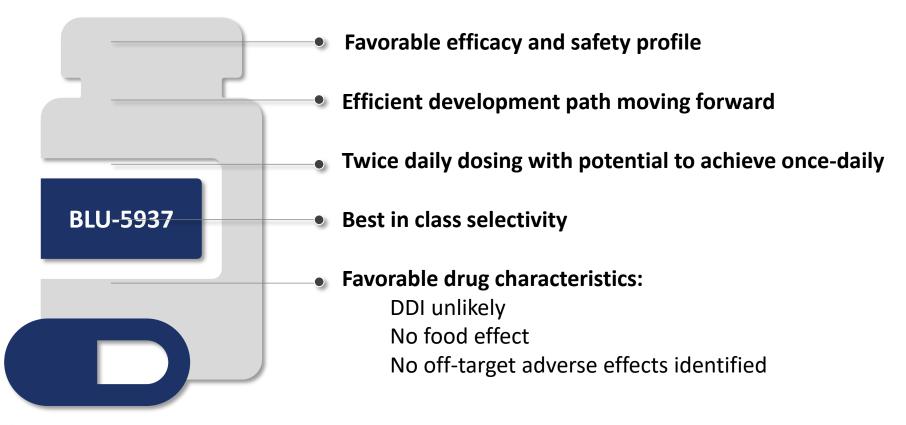
- No complete loss of taste at any dose
- No dropouts due to taste disturbance
- Only 2 cases of partial taste loss
- Mostly mild in nature

INCIDENCE OF TASTE DISTURBANCE ADVERSE EVENTS ITT POPULATION

	Placebo (n=61)	25mg BID (n=61)	50mg BID (n=61)	100mg BID (n=59)	200mg BID (n=58)	Total BLU- 5937 (n=61)
Taste Disturbance	2 (3.3%)	3 (4.9%)	5 (8.2%)	5 (8.3%)	4 (6.9%)	5 (8.2%)
Partial Taste Loss	1 (1.6%)	2 (3.3%)	2 (3.3%)	2 (3.4%)	2 (3.4%)	2 (3.3%)
Complete Taste Loss	0	0	0	0	0	0
Total Taste AEs	3 (4.9%)	4 (6.5%)	6 (9.8%)	6 (10.0%)	5 (8.6%)	6 (9.8%)



BLU-5937: Favorable Drug Profile







SOOTHE Phase 2b Trial Design & RCC Commercial Considerations



Learnings from RELIEF Trial for Phase 2b Design

- Cough frequency at baseline is a key indicator of treatment benefit with ≥20 coughs/h demonstrating statistically significant and clinically meaningful benefit
- Patient level data between 20-32 coughs/h
- 200 mg BID dose slightly outperformed other doses but cannot distinguish effect of dose level from duration of treatment
- Plasma concentrations achieved in RELIEF are consistent with achieving receptor occupancies in the 75-95+% range
- Within-patient dose response curves are shallow with overall effect size increasing with increasing baseline cough frequency



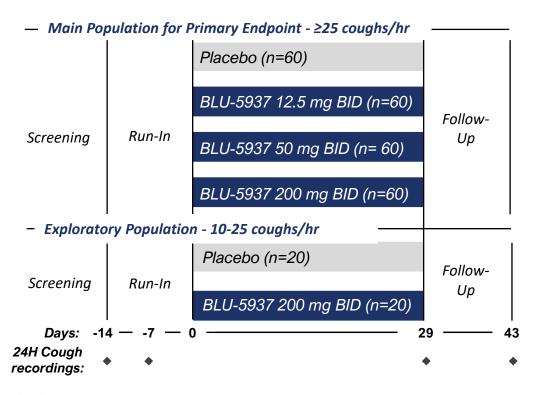
 25 coughs/h cutoff selected for Phase 2b population



 12.5mg, 50mg and 200mg BID selected as doses

SOOTHE Phase 2b – Expected Trial Design

Randomized, double-blind, 4-week placebo-controlled parallel arm study with 3 active doses



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ENDPOINTS

Primary: Change from baseline in 24H cough frequency using cough recorder in ≥25 coughs/h population

Key Secondary: Change from baseline in awake cough frequency, Leicester Cough Questionnaire and Cough Severity Visual Analogue Scale

MAIN POPULATION

Diagnosed refractory chronic cough >1 year

Screening and baseline awake cough frequency ≥25 coughs/h using cough recorder

SITES

Approximately 100 sites: ~50% US / ~50% ex-US

SOOTHE Phase 2b – Expected Timeline

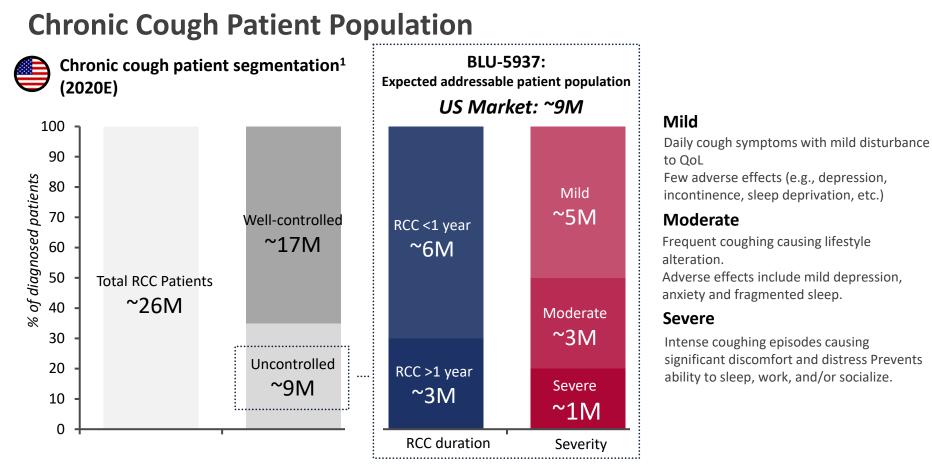
4Q20: **3Q21**: FIRST PATIENT ENROLLED ENROLLMENT COMPLETED 4Q20: **MID21**: 2H21: **FDA MEETING INTERIM ANALYSIS TOP LINE DATA** 50% of patients in main Feedback on Phase 2b design Top line efficacy, safety population completed trial and tolerability data Evaluation of doses using

predefined efficacy and probability thresholds

meeting

Identification of dose(s) can initiate Phase 3 planning including end of Phase 2 FDA



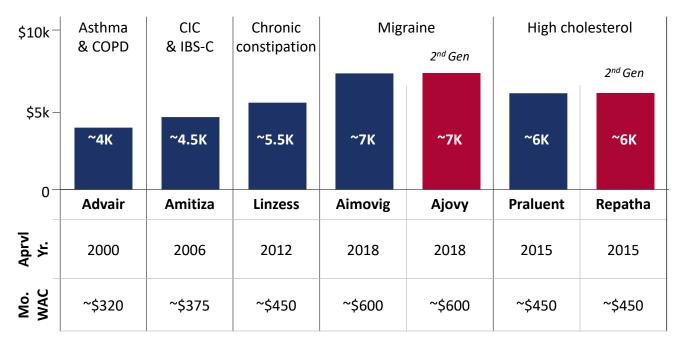


Bellus HEALTH

P2X3 Class and BLU-5937: Pricing Comparables

Annual WAC cost of analogue drugs

Thousands of USD (2020)



PRICING COMPARABLES

Pricing analogues

provide range of

\$300-600 WAC per

month

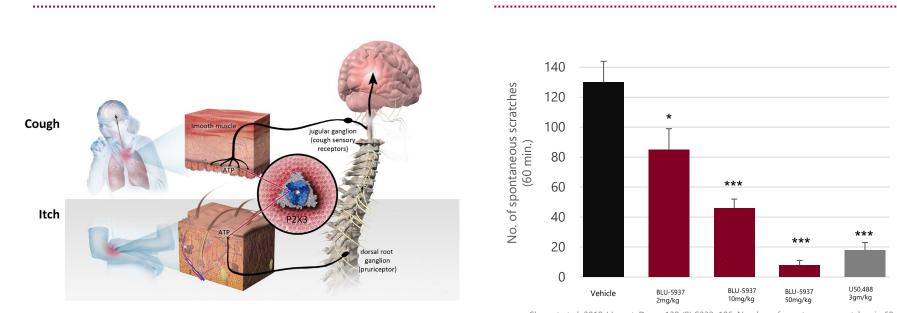
Reflects annual cost of treatment for asthma; COPD treatment is ~\$6K per patient per year; ** A range of doses are available at this price point Analysis of ClinicalTrials.gov; PriceRX



BLU-5937: Beyond Chronic Cough

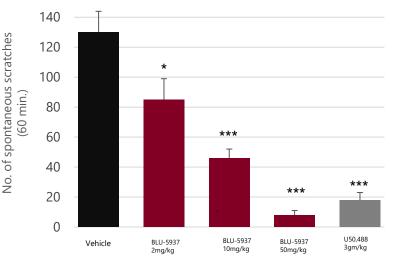


BLU-5937 Second Indication: Chronic Pruritus Associated with Atopic Dermatitis



Mechanistic Similarities Between Cough and Itch

Animal POC – Atopic Dermatitis Mouse Model



Chauret et al. 2019 J Invest. Derm. 139 (9) S232, 106: Number of spontaneous scratches in 60 min of day 8 Calcipotriol (MC903) treated mice pre-injected with vehicle, 2, 10, or 50 mg/kg test BLU-5937, or 3 mg/kg U50,488. (n = 10 mice per group),*p < 0,05, ***p < 0.0001, one-way ANOVA. Data are represented as mean ± S.E.M. U50,488: kappa opioid agonist

Mechanistic rationale and preclinical data support moving into the clinic



AD Chronic Pruritus Market

Adult Prevalence

Diagnosed

Treated



US Atopic Dermatitis Patients

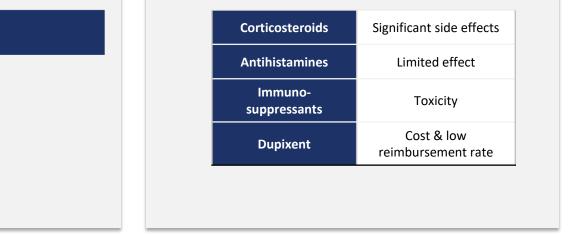
16.9M

3M

2.25M



Limitations of Current Therapies



Report 2019 Bluestar BioAdvisors

Phase 2 proof of concept trial in ~100 mild/moderate atopic dermatitis patients with moderate/severe chronic pruritus expected to start in 4Q 2020

Potential for Broad Applicability Across Important Markets

Inhibition of P2X3 receptors has therapeutic potential in a number of other indications



- ~10% global prevalence for Chronic Cough¹
- ~3M US adults with refractory chronic cough >1 year; ~6M US adults with RCC <1 year¹

CHRONIC ITCH ASSOCIATED WITH ATOPIC DERMATITIS

~17m US adults suffer from atopic dermatitis¹

ENDOMETRIAL-RELATED PAIN

- Affects ~4m women in the United States¹
- MK-7264 Ph2 on-going²

SLEEP APNEA

- Affects ~23m in the
 - United States¹ S-600918 Ph2
 - 2 BAY 1

OVERACTIVE BLADDER

- Affects ~33m in the United States¹
 - BAY 1817080 Ph2 initiated⁴

NEUROPATHIC PAIN

- Affects ~20m in the United States¹
- S-600918 Ph2 initiated³

OTHER POTENTIAL INDICATIONS

- Migraine
 - Hypertension

IBS

Bladder Pain

initiated³

Bronchoconstriction



¹Adult population, Company sponsored market research

²NCT03654326 [accessed 2020-0623], ³Shionogi (2020). 2030 Vision and New Medium-Term Business Plan. Retrieved from https://bit.ly/2Z0AwHj

⁴EudraCT Number: 2019-004169-42 - Clinical study to evaluate the efficacy and safety of three different doses of BAY 1817080 compared to placebo in patients with chronic cough

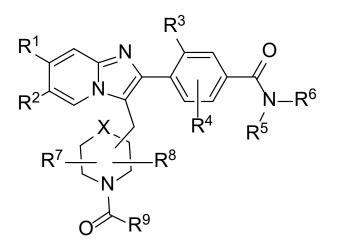


IP and Corporate Summary



100% Owned Intellectual Property Portfolio

Composition of matter patent expires in 2034



- All intellectual property 100% owned with no future obligations owed
- U.S. and international patent estate covering BLU-5937 and related compounds
- Composition of matter patent for BLU-5937 and related P2X3 antagonists granted in the U.S., Europe, Japan, and China (expires in 2034 not including potential patent term extension)
- Methods of Use patent for the treatment of cough granted in the U.S. (expires 2038)

Stock and Financial Information

Capital Structure¹

...........

60.4M basic shares 66.1M fully diluted shares ¹as of August 12, 2020

Cash Position²

Cash, cash equivalents, and short-term investments position of $\$74M^2$

² as of Jun 30, 2020



Potential Catalysts & Upcoming Events

Key Anticipated Milestones in 2020 and 2021

BLU-5937 in chronic cough:

- BLU-5937 KOL Event in Chronic Cough (May 27, 2020)
- RELIEF Phase 2 top-line data
- Phase 2b trial design (3Q20)
- Regulatory feedback (4Q20)
- SOOTHE Phase 2b trial initiation (4Q20)
- Respiratory/cough conferences: ERS (September) and ICS (January 2021)

BLU-5937 in chronic pruritus associated with AD

• Phase 2 design and first patient enrolled (2H20)

Other P2X3 trials

• Phase 2 on-going in overactive bladder, neuropathic pain, pain-related to endometriosis and sleep apnea

Recent competitor data:



September 7th-9th, 2020

- Shionogi: Design of a Ph2b randomised control trial of S-600918¹
- **Bayer**: Safety & Efficacy of BAY1902607 in RCC¹
- **Merck**: Two Phase 3 Randomized Clinical Trials of Gefapixant, Refractory or Unexplained Chronic Cough (COUGH-1 and COUGH-2)¹

¹2020 - ERS International Congress - European Respiratory Society (www.erscongress.org)

