Bellus HEALTH

Corporate Presentation

Jefferies 2019 Global Healthcare Conference

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President & CEO

June 5, 2019

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BELLUS OVERVIEW

Lead program

BLU-5937

P2X3 ANTAGONIST FOR CHRONIC COUGH:

Large population with significant need

Targeted by big pharma – Merck/Bayer

PI confirms best in class potential

Clinically validated target reduces clinical risk

Phase II starting mid 2019

Experienced

management with track record of execution

Important US institutional ownership with

~2 years

cash runway

Potential to build

P2X3 Platform

TEAM

Management

Roberto Bellini
President &
Chief Executive Officer

Dr. Denis Garceau
Senior Vice President,
Drug Development

François Desjardins
Vice President,
Finance

Tony Matzouranis
Vice President,
Business Development

Board of Directors

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VERTEX

Dr. Youssef Bennani

JPMorgan

Franklin Berger

OrbiMed
Healthcare Fund Management

Chau Q. Khuong

Pierre Larochelle

Shire

Joseph Rus

clementia

Dr. Clarissa Desjardins

Bellus HEALTH

Roberto Bellini

PROBLEM: REFRACTORY CHRONIC COUGH

Cough lasting
≥8 weeks,
0 therapies that are
safe **&** effective

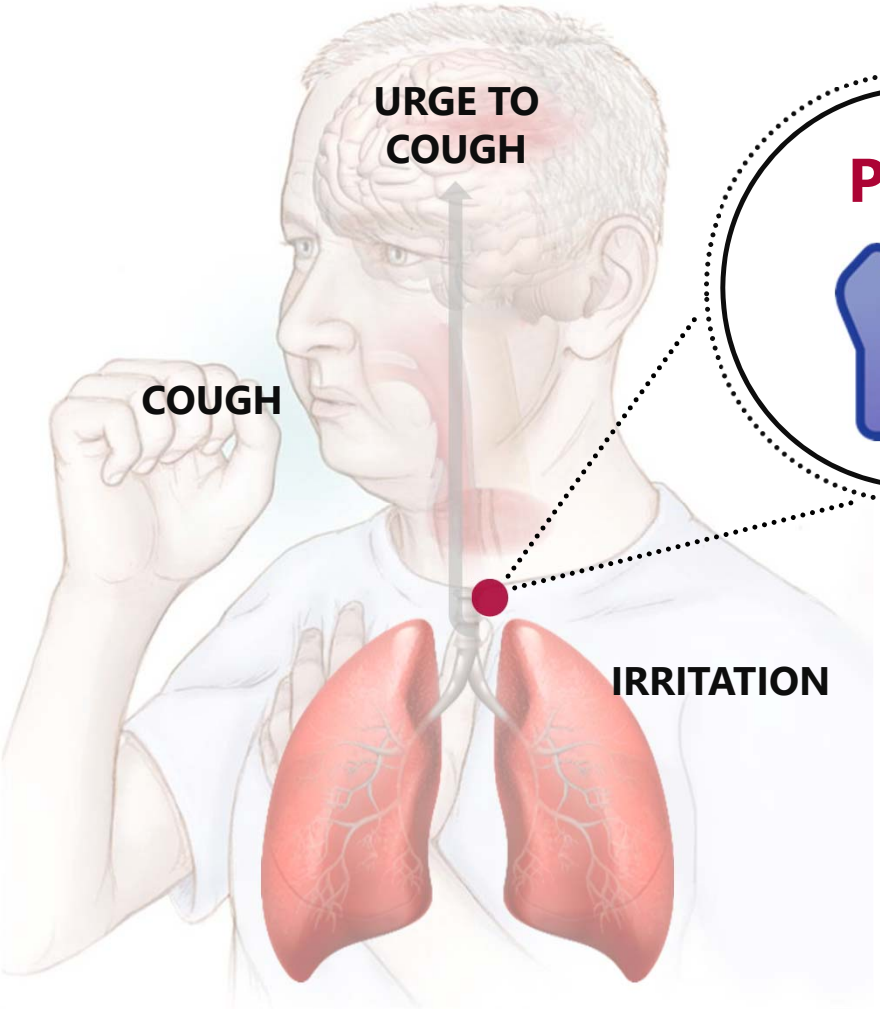
Major
impact on quality
of life

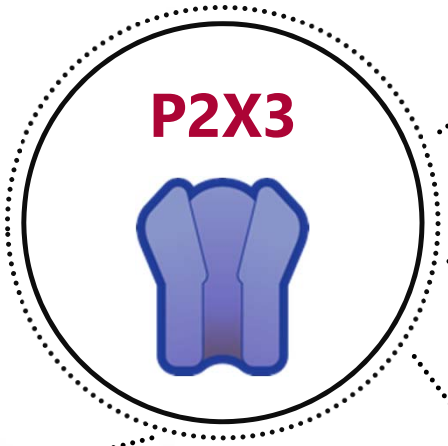
"I see patients that have been coughing 2 months to 30 years. Within that group, there is a good portion where I am the 8th or 10th doctor."
– Chronic Cough KOL

2.6M
patients in U.S. with longstanding refractory chronic cough

Multi $B
market potential

P2X3 RECEPTOR IN REFRACTORY CHRONIC COUGH





- ATP gated ion channel in the peripheral nervous system
- Key sensory receptor in feeling upper airway irritation and triggering cough reflex
- Targeting P2X3 with an antagonist is a validated approach to treating chronic cough in animals and humans

FIRST-IN-CLASS TREATMENT | MERCK (MK-7264)

Effective but **Sub-optimal**

MERCK | MK-7264

Mechanism:
P2X3 antagonist

Afferent PHARMACEUTICALS

Acquired in 2016 for $1.25B ($500M upfront) based on PII data and currently in two PIII studies

Cough

57%
nominal reduction in cough frequency

37%
placebo adjusted reduction in cough frequency

Taste

80%
of patients have taste alteration or loss

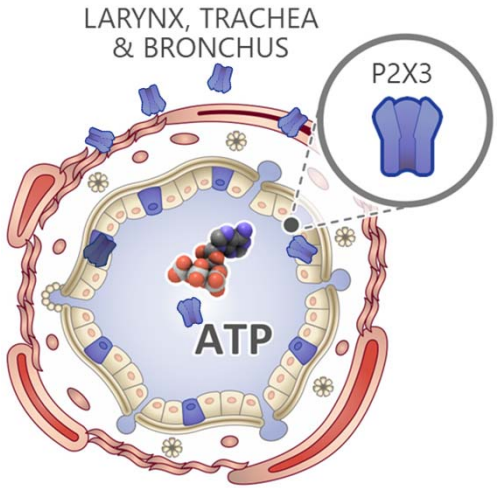
Merck & Co., Inc. (2017). *Merck Announces Presentation of Phase II Results for MK-7264, an Investigational, P2X3 Receptor Antagonist, Being Evaluated for the Treatment of Chronic Cough.* [Press Release]. Retrieved from http://www.mrknewsroom.com/news-release/research-and-development-news/merck-announces-presentation-phase-2-results-mk-7264-inve

TASTE EFFECT CAUSED BY P2X2/3 INHIBITION

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

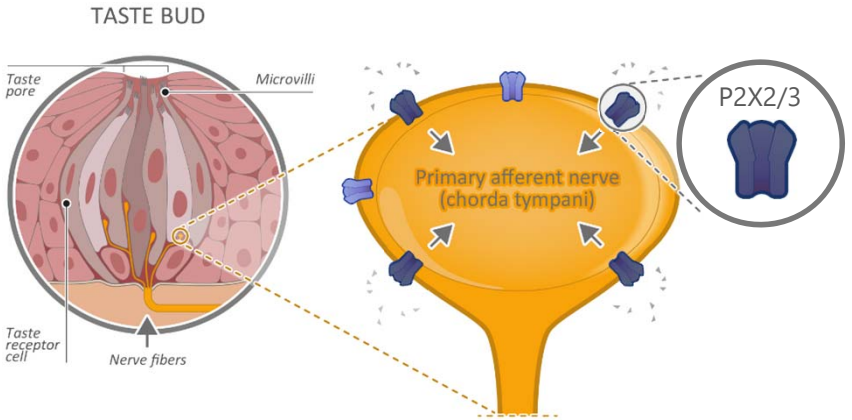
COUGH REFLEX:

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)

OUR SOLUTION

BLU-5937 has key characteristics to test hypothesis and already validated in animal models

HIGHLY POTENT

P2X3 antagonist

Low nM IC_{50}

HIGHLY SELECTIVE

P2X3 antagonist

~ 1500X selectivity vs P2X2/3

Bellus HEALTH **BLU-5937**

EQUIVALENT

reduction in cough[1]

[1]vs. MK-7264 in animal studies

LITTLE / NO

impact on taste[2]

[2]Bellus Phase I data

BLU-5937 TASTE PROFILE DIFFERENTIATED

Incidence and Severity of Taste Effect AEs at Estimated Comparative Therapeutic Doses

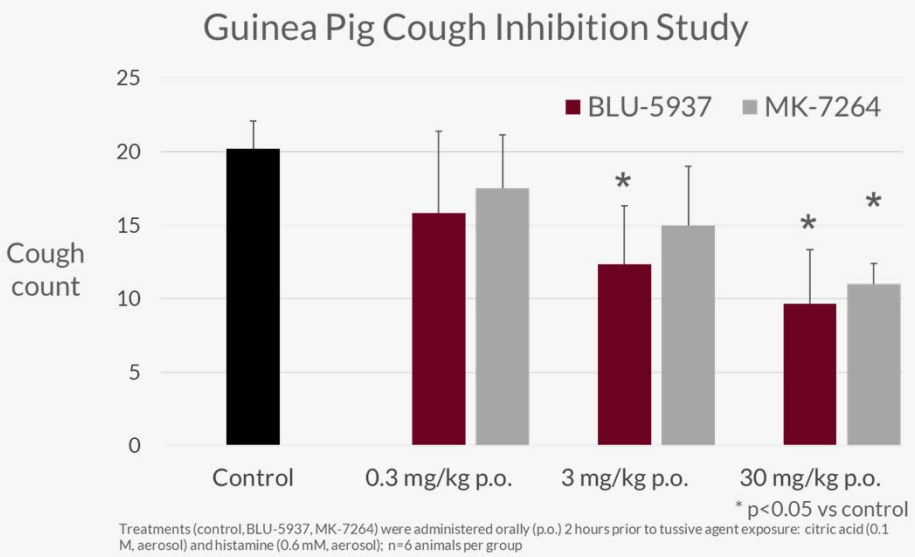
	BLU-5937 (50-100 mg) (n=24)	MK-7264[1] (50 mg) (n=57)
STUDY	NCT03638180	NCT02612610
DOSE(S)	50 and 100 mg single dose and 7 day BID cohorts	50mg BID arm for 12 weeks
SUBJECTS	Healthy volunteers	Refractory chronic cough
TASTE ALTERATION	<5%	48%
PARTIAL TASTE LOSS	0%	24%
COMPLETE TASTE LOSS	0%	20%
ALL TASTE ADVERSE EVENTS	<5%	81%

[1]Merck & Co Presentation of gefapixant Phase IIb data at American Thoracic Society 2017

AT ESTIMATED THERAPEUTIC DOSES:

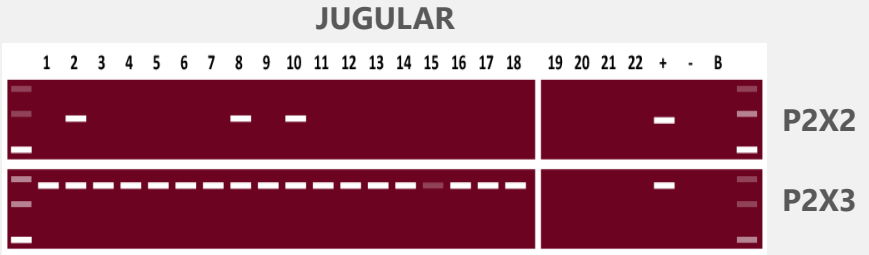
BLU-5937 has significantly improved taste effect profile versus gefapixant

VALIDATED EFFICACY TARGET - PRECLINICAL



BLU-5937 Has Comparable Efficacy to MK-7264 in Animal Model

P2X3 is the Principal Receptor in the Upper Airway



Kwong et al 2008: Single-cell RT-PCR analysis of 22 lung specific guinea pig jugular neurons

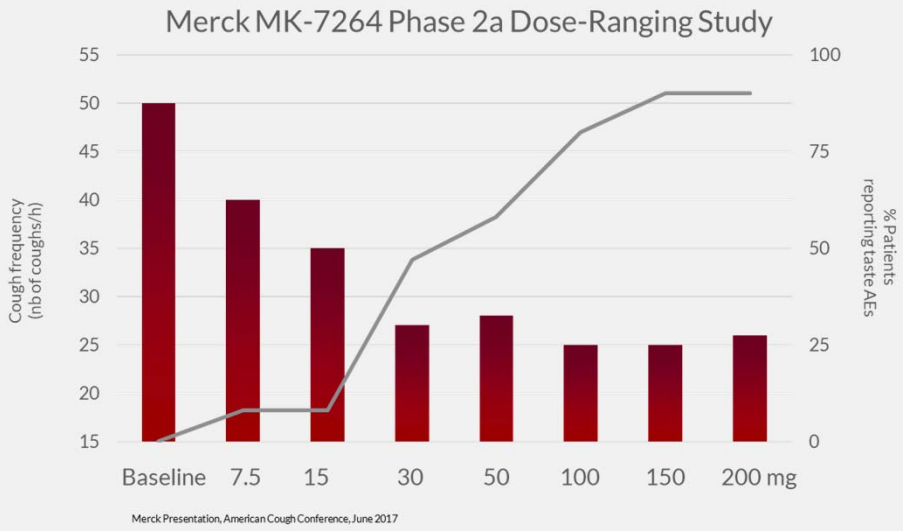
Preclinical data supports BLU-5937 having comparable efficacy to MK-7264

VALIDATED EFFICACY TARGET – CLINICAL

Highly Selective S-600918 Has Comparable Efficacy to MK-7264

Reduction in Cough Frequency

MERCK	SHIONOGI
MK-2764 Phase IIb Study	**S-600918 Phase IIa Study**
57% Nominal	**53%** Nominal
37%* Placebo Adjusted	**32%**** Placebo Adjusted
Merck & Co ATS Presentation, May 22 2017; *p<0.01	*Research and Development at Shionogi* Presentation, March 14, 2019; **p=0.055



Inhibition of P2X3 Linked to Efficacy
Inhibition of P2X2/3 Linked to Taste Effect With Low Selectivity (MK-7264)

P2X3 is a clinically validated targeted with multiple positive Phase 2 studies with low and high selectivity P2X3 antagonists

P2X3 COMPETITIVE LANDSCAPE

	BEST IN CLASS SELECTIVITY FOR P2X3	*1ST IN CLASS P2X3 ANTAGONIST*	*2ND GENERATION P2X3 ANTAGONISTS*	
Company	Bellus Health	MERCK / Afferent Pharmaceuticals	Bayer	Shionogi
Candidate	BLU-5937	MK-7264	BAY1817080	S-600918
Dosing	*50-100mg B.I.D.*	*15mg B.I.D. / 45mg B.I.D.*	*B.I.D.*	*Q.D.*
P2X3 vs. P2X2/3 Selectivity	*~ 1500x*	2-7x	25-125x*	175x**
Anti-tussive effect †	High	High	High	High
Taste Interference†	**Low/None**	**High**	**Moderate/Low**	**Moderate/Low**
Developmental Phase	Phase I	Phase III	Phase II	Phase II

Best in class selectivity for P2X3 supports potential best in class profile

* Bayer selectivity range of 419 P2X3 antagonists described in Bayer US patent 10,183,937 (may not be BAY1817080)

** Shionogi selectivity value presented in Tobinaga et al., 2017 for a representative, single, optimized P2X3 antagonist generated by Shionogi (may not be S-600918)

† Effect on taste and anti tussive effect are company estimates based on animal data, clinical data, dose, human P2X3 potency and human P2X3 vs P2X2/3 selectivity

PHASE I STUDY DESIGN

Key Objectives

Assess Safety	Tolerability including Taste Effect	Assess Pharmacokinetic Profile and Select Doses for Phase II

Single Ascending Dose

N = 60 healthy adult subjects

6 cohorts of 10 subjects (8 active: 2 placebo) administered single dose

Single doses of 50mg to 1200mg

Food interaction tested in 1 cohort (200mg)

Multiple Ascending Dose

N = 30 healthy adult subjects

3 cohorts of 10 subjects (8 active: 2 placebo) administered multiple dose

Doses of 100, 200 and 400mg BID for 7 days

DESIGNED TO ASSESS SAFETY, TOLERABILITY (INCLUDING TASTE EFFECT) AND PHARMACOKINETIC PROFILE

PHASE I PK PROFILE AND DOSING

Excellent Pharmacokinetic Profile

- Rapidly absorbed (Tmax ~1h)
- Systemic exposure increases dose proportionally up to 800 mg
- Plasma half-life of 4 to 9 hours
- No significant food effect
- No significant drug systemic accumulation

Dosing

Optimal projected therapeutic dose of:

50-100mg twice daily

Based on achieving targeted receptor inhibition & efficacy seen in preclinical studies and on achieving comparative drug blood levels of clinically validated comparator

PHASE I - SAFE AND WELL TOLERATED

Safe and Well Tolerated

- Incidence of adverse events on BLU-5937 (44%) similar to placebo (50%)
- No serious adverse event (SAE) reported
- No subject withdrew prematurely due to adverse event
- No clinically significant effect on vital signs and ECG
- No clinically significant trends of changes in laboratory tests

Side Effects

At expected therapeutic doses (50-100mg; n= 24), no side effects of concern:

- Taste alteration <5%
- Headache <10%
- Heartburn <5%

SAFE AND WELL TOLERATED PARTICULARLY AT PROJECTED OPTIMAL THERAPEUTIC DOSES

MINIMAL TASTE EFFECT AT THERAPEUTIC DOSES

Incidence of Taste AEs (All SAD and MAD Cohorts)

	50mg (n=8)	100mg (n=16)	200mg (n=16)	400mg (n=16)	800mg (n=8)	1200 mg (n=8)
Taste alteration	0 (0%)	1 (6%)	0 (0%)	6 (38%)	5 (63%)	2 (25%)
Partial taste loss	0 (0%)	0 (0%)	0 (0%)	1 (6%)	1 (13%)	0 (0%)
Complete taste loss	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Minimal incidence of taste AEs at doses to be studied in Phase 2

- One subject out of 24 (4%) reported taste alteration at the anticipated therapeutic doses (50-100 mg)
- No taste loss or taste alteration at 200 mg
- No complete taste loss at any dose

MARKET

263M U.S. adults

10% or 26.3M
chronic cough patients

2.6M
Primary addressable patients (idiopathic, treatment refractory > 1 yr)

LARGE ADDRESSABLE PATIENT POPULATION

COMPARABLE PRODUCTS

ONCE DAILY Aptiom®

Linzess®

amitiza®

ADVAIR DISKUS®

Payer discussions and comparable product analysis support $300-600 per month pricing

Report 2018 Bluestar BioAdvisors (formerly known as Torreya Insights)

Potential multi billion dollar refractory chronic cough market

KEY DEVELOPMENT MILESTONES

PHASE I DATA

4Q18

Completed

- Excellent PK profile
- Safe and well tolerated
- Little to no taste effect

IND FILING

1Q19

Completed

- Investigational new drug filing cleared with FDA

PHASE II START

Mid19

On Track

- Crossover design study with approximately 50 patients in UK and US

PHASE II DATA

Mid20

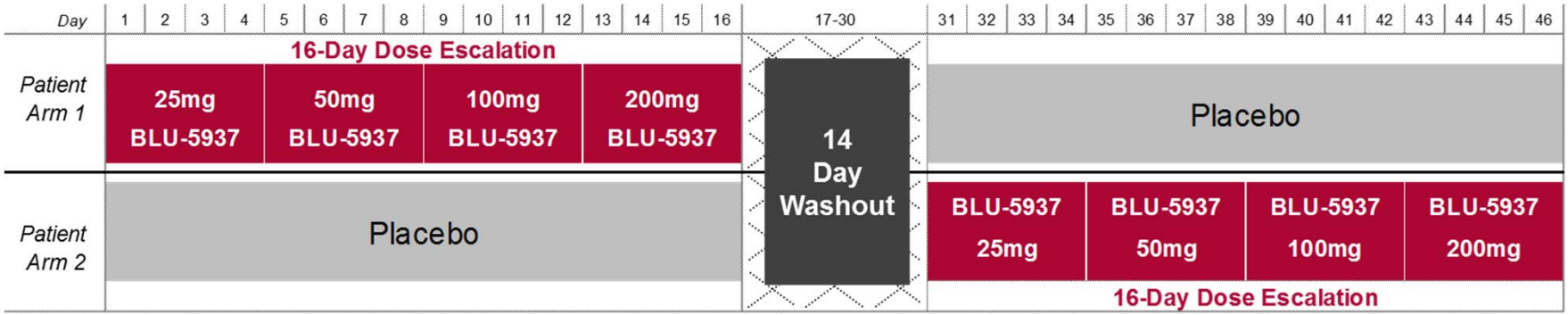
Anticipated

- Effect on cough and taste
- Dose selection for future studies

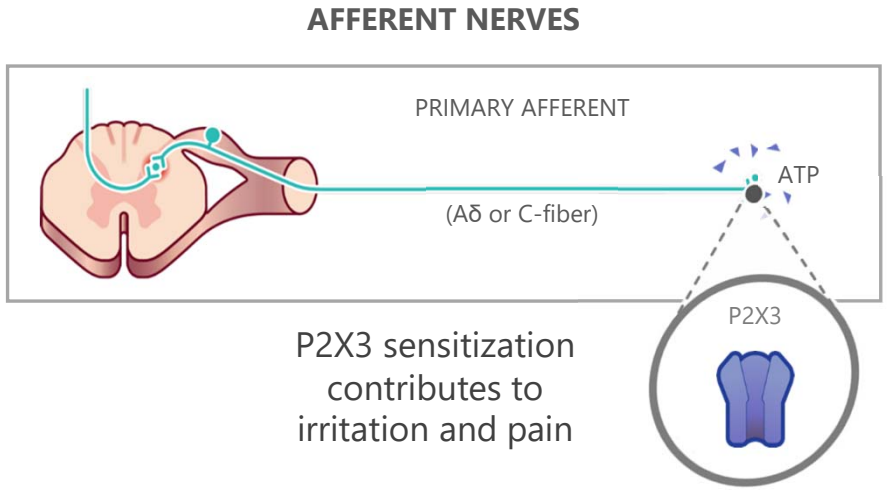
PHASE II STUDY DESIGN

Phase II initiation expected **mid-2019**; with topline data in **mid-2020**

- **50** unexplained/refractory chronic cough patients; at **>1 year** coughing
- **12** sites in UK and US
- **Primary endpoint:** Reduction in awake cough frequency using cough recorder
- **2** patient arms
- **4 dose levels** with forced escalation at 4-day intervals (25/50/100/200mg twice daily)
- **Safety** and **tolerability** assessment, **including taste effect**

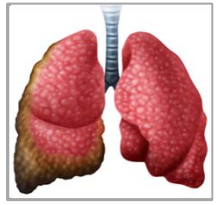


POTENTIAL FOR P2X3 INDICATION EXPANSION

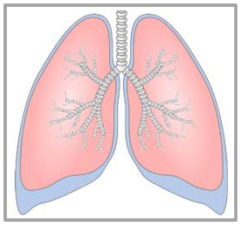


ENDOMETRIOSIS PAIN
Phase II study started by Merck

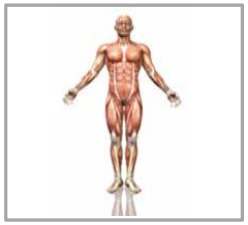
OBSTRUCTIVE SLEEP APNEA
Phase II study started by Merck



IPF COUGH
Phase II study conducted by Merck



ACUTE COUGH
Phase II study conducted by Merck

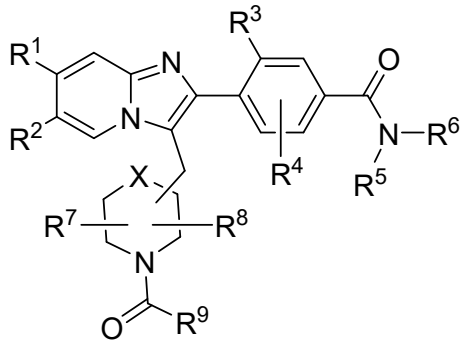


UNDISCLOSED INDICATION
Bellus preclinical studies ongoing

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

INTELLECTUAL PROPERTY

- Broad and comprehensive patent estate covering BLU-5937 and related compounds
- Composition of matter patent for BLU-5937 and related imidazopyridines granted in the U.S., Europe, Japan and China
- Long patent life, expiring in 2034 (not including potential patent term extension)



Composition of matter IP in place to 2034

STOCK AND FINANCIAL INFORMATION

$35M Financing in Dec 2018

OrbiMed Healthcare Fund Management
NEW LEAF VENTURE PARTNERS
FIRST MANHATTAN CO.
SAMSARA BIOCAPITAL
FONDS de solidarité FTQ
ATP
AMZAK® CAPITAL MANAGEMENT

Clean capital structure

158M basic shares

175M fully diluted shares

Ownership

~40% institutional

~25% founding family offices

Company estimate based on financing participation, insider reporting and NOBO list

C$45.4M / US$34.0M

cash position[1] provides

~2

years of cash runway through PII

[1]as of March 31, 2018

MARKET

Past Execution

- √ BLU-5937 preclinical proof of concept (June 2017)
- √ $20M financing (December 2017)
- √ BLU-5937 Phase I data with best in class taste profile (November 2018)
- √ $35M financing (December 2018)

2019 Milestones

Execution of BLU-5937 plan in chronic cough:

- ✓ Phase II US Investigational New Drug (IND) and UK Clinical Trial Authorization (CTA) cleared (Q1 2019)
- ▪ Phase I abstracts at American Thoracic Society Conference (May 21) and American Cough Conference (June 8)
- ▪ KOL Event with Phase II Principal Investigator Dr. Jacky Smith (July 16th in New York City)
- ▪ First patient dosed in Phase II (mid 2019)

Competitor Catalysts:

- ✓ Shionogi Phase II data
- ▪ Merck MK-7264 pipeline: Phase II in pain related to endometriosis (2H 2019)
- ▪ Bayer P2X3 Phase I and Phase II data

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