

### **Investor Presentation**

September 2019

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# **Treating Orphan Diseases Caused by Complement & Leukotriene Dysregulation**

Unique MOA **Nomacopan (Coversin):** Bifunctional inhibitor of C5 & LTB4 Focused on orphan inflammatory & autoimmune diseases where treatment options limited and C5 and LTB4 implicated

Diversified Targets Four orphan conditions currently in Phase II and Phase III studies
Subcutaneous (TMA, BP, & PNH) and topical delivery (AKC)

Clinical Data

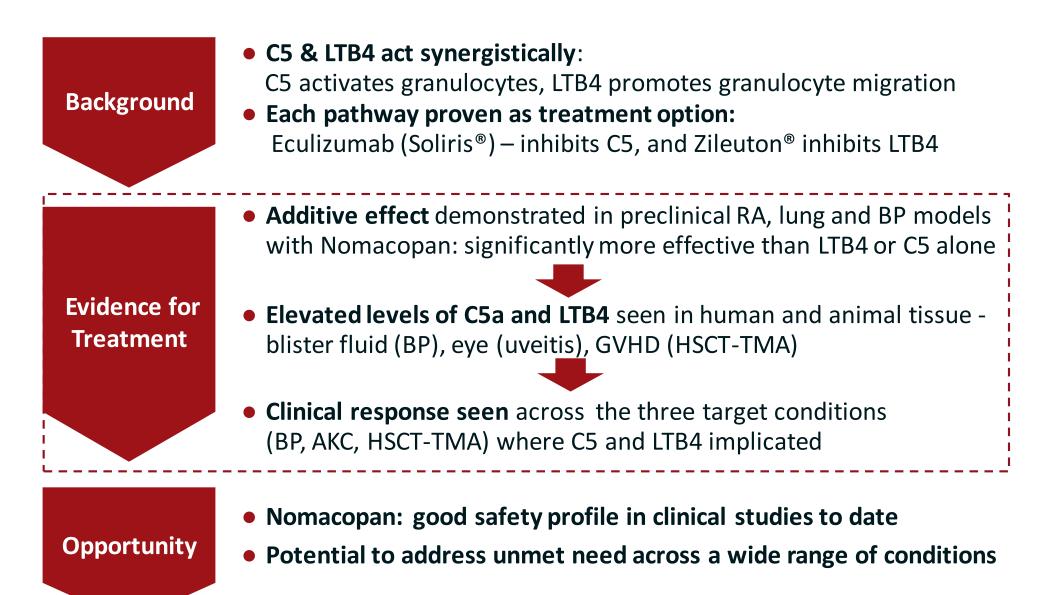
- Positive initial clinical readouts across clinical studies
- Excellent safety profile; no drug-related SAEs over 20 cumulative patient-years of cumulative patient treatment data

Market Potential

- \$500 million peak sales targets, including follow-on indications
- Platform molecule with a large and active pipeline

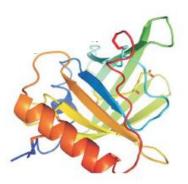
Pathway to Approval  Potential upcoming value inflection points via multiple mid-stage clinical study readouts in 2019-2020 from TMA, BP, and AKC

# Dual C5 & LTB4 MOA Provides Unique Option for Multiple Poorly Treated Inflammatory Diseases



# Nomacopan: Well-Designed by Nature Tightly Binding Both C5 & LTB4

### Independent, Highly Specific C5 & LTB4 Inhibitory Activity

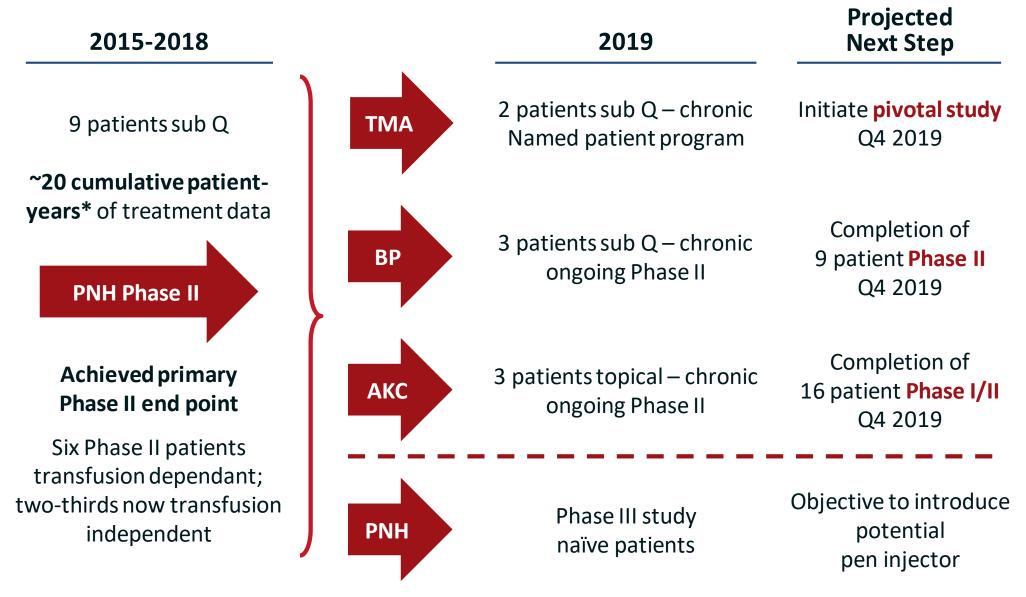


- Nomacopan: biological with high specificity for C5 & LTB4
- Avoids off-target effects by binding ligands not receptors
- No immunogenicity to date in human studies



- Multiple modes of administration (sub Q, topical, nebulized)
- Delivers high degree of patient comfort
  - Sub Q: Highly soluble & low viscosity
  - Topical drops: pH neutral / comfortable

# Nomacopan: Extensive and Growing Positive Efficacy Data Across Four Indications





# **Subcutaneous** Nomacopan:

# **Clinically Testing C5 & LTB4 Binding in**

# **HSCT – Thrombotic Microangiopathy**

# HSCT-TMA High Mortality Rate – and No Approved Treatments

- Arteriolar thrombi associated with intimal swelling, fibrinoid necrosis, thickening of arterioles and capillaries, and subendothelial accumulation of proteins & cell debris
- Cause of TMA after bone marrow transplant not well understood
  - Can occur in up to 30% patients
  - Typical diagnostic markers include elevated sC5b9 and proteinuria
- Diagnosis & treatment of pediatric TMA-HSCT refined by Dr. Jodele at Cincinnati Children's Hospital
- No approved therapy; current treatment by immunosuppressants
- In severe pediatric cases, mortality ≥80%
- Orphan condition with a prevalence of circa 5,000 treatable patients

# Upcoming Pediatric HSCT-TMA Pivotal Trial Potential Expansion to Related Indications

- Complement's role highlighted by elevated terminal complement components (sC5b9) in many patients.
- LTB4 believed to have a role in TMA-HSCT in terms of graft vs. host disease (GVHD) progression
- Nomacopan used on a named patient basis for pediatric HSCT-TMA
- Positive FDA meeting, trial designed around multiple responder endpoints
- Nomacopan has received pediatric Fast Track and Orphan status for adult and pediatric HSCT-TMA
- Pivotal trial anticipated to commence Q4 2019; primary endpoint TMA response

Potential expedited approval with a single pivotal study Gateway condition into other TMAs Potential first approval for nomacopan Adult TMA-HSCT Pediatric aHUS Other TMA/Vasculitis

Rosenthal (2016) Journal of Blood Medicine 7: 181-186

# Activity Demonstrated in HSCT–TMA Across Multiple Responder End Points (First 2 Named Patients)

TMA Marker	Patient	Baseline	Day 7	Day 14	Day 28	Day 60
Hemolytic anemia	1	Yes —				Resolved
	2	Mild				
Red blood cell	1	Yes —				Resolved
fragments	2	Yes —			Resolved	
Thrombocytopenia	1	Yes				Resolved
	2	Yes —		Resolved		
Increased LDH	1	Yes —			Resolved	
	2	Yes —		Resolved		
Proteinuria and/or	1	Yes —			Resolved	
increased creatinine	2	Yes				→ N/A
Hypertension	1	Yes —				Resolved
	2	Yes —		Resolved		
Neurology	1	Yes —		Resolved		
	2	No				
GI bleed	1	No				
	2	Yes —			Resolved	

Patient 1 : treated at GOSH made a complete recovery and nomacopan was discontinued after seven weeks
Patient 2 : despite resolution of the TMA markers, patient died at day 63 of lung damage considered unrelated to treatment with nomacopan. Note - data for patient 2 is up to day 28

# Nomacopan in HSCT-TMA Differentiation Against Competitors

### Clear Positioning

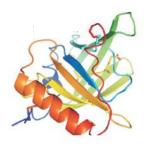
• Patient group to be treated identified via histologic TMA diagnosis in tissue biopsy or laboratory & clinical markers

## Differentiated MOA

- Daily dosing facilitates more complete complement suppression
- LTB4 inhibition may further reduce epithelial activation

### **Next Steps**

- Pivotal pediatric study scheduled to commence Q4 2019
- Responder-based study based on achieving end points related to disease resolution
- Working with FDA on optimizing dosing through the Model-Informed Drug Development (MIDD) Pilot Program

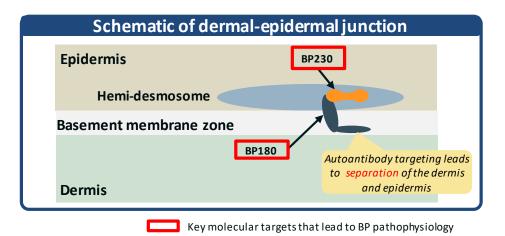


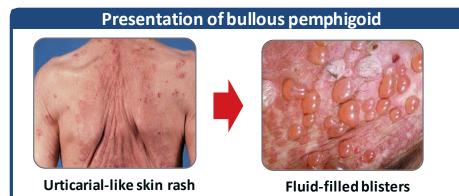
# **Subcutaneous** Nomacopan:

# **Clinically Testing C5 & LTB4 Binding in**

**Bullous Pemphigoid** 

# Bullous Pemphigoid Significant Unmet Need





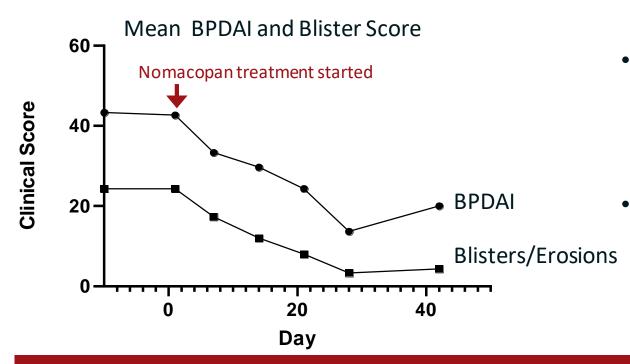
- Severe autoimmune blistering skin disorder primarily of the elderly
- Caused by immune complex mediated inflammation via autoantibodies
- No approved therapy. Current treatment with chronic corticosteroids poses substantial health concerns
- KOLs: essentially no change in standard of care in decades
- Understanding of BP has grown, but specific therapies still lacking
- Orphan condition, with a prevalence of circa 120K patients in US and EU

# Bullous Pemphigoid Evidence of Combined C5 & LTB4 Involvement

- Orphan condition in which there is evidence that both terminal complement activation (C5) and LTB4 have a role in driving disease
  - Preclinical studies with nomacopan showed a dose response and combined C5 & LTB4 more effective than LTB4 alone (1)
  - Elevated C5/LTB4 in *ex-vivo* study of BP patients
- Clinical objective is steroid sparing and rapid reduction symptoms
- Ongoing Phase II study : 42 days mild to moderate patients

# Significant market with expansion potential into related conditions Bullous Pemphigus Epidermolysis Vulgaris Bullosa Acquisita SJS

# Bullous Pemphigoid Initial Study Data\* First 3 Patients: Global and Blisters BPDAI



- By Day 7, 21 and day 42 of treatment, the BPDAI global score fell by a mean of 31%, 45% and 52%
- By Day 7, 21 and day 42 of treatment, blisters/erosions dropped by a mean of 45%, 75% and 87%

Daily SQ nomacopan well tolerated, no drug-related adverse events

#### Planned amendment to extend into severe patients

\* Prior to treatment, two of three patients were on topical corticosteroids (mometasone), while the third patient was naïve to steroid treatment & received no steroid while on nomacopan. There was no planned tapering of topical steroid dose, but patients did use less than the 30g permitted to day 21. After day 21, any use of mometasone was regarded as rescue therapy, and both patients were only treated with nomacopan.

In the 7-11-day period prior to initiation on nomacopan, the two patients showed either no or minor improvement in BPDAI score (between 0 and 5%), and no improvement in blisters while being treated with topical steroids alone.

# Nomacopan in Bullous Pemphigoid Differentiation Against Competitors

### Clear Positioning

- Positioned as 2nd line treatment for patients with moderate to severe symptoms, previously treated with corticosteroids
- Better safety and side effect profile than steroids and non-specific immunosuppressants
- Used to reduce or eliminate dependency on steroids



 Nomacopan acts upstream of competitors' targets – in particular C5 & LTB4 are part of inflammatory process leading to generation of cytokines via antibody

### **Next Steps**

 Potential post-Phase II regulatory interaction following study completion to help define pivotal study design



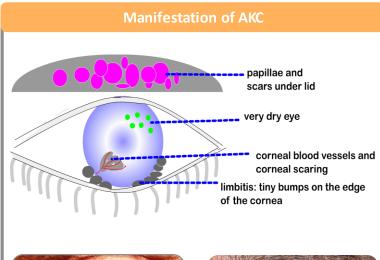
# **Topical Nomacopan:**

# **Clinically Testing C5 & LTB4 Binding in**

**Ophthalmology / AKC** 

# Atopic Keratoconjunctivitis (AKC): Chronic Ocular Disease Which Can Lead to Vision Loss

• Atopic Keratoconjunctivitis: severe eye surface inflammation causing infiltration of immune cells (neutrophils & T cells)







- Chronic disease can result in severe dry eye, corneal neovascularisation, & formation of sterile corneal ulcers
- If left untreated, can lead to vision loss; other complications include cataracts, keratoconus, infectious keratitis and tear dysfunction
- Topical drugs, such as steroids or cyclosporine treatments complicated by issues with comfort and side effects of chronic usage
- Orphan condition with a prevalence of 160K patients in the US and EU

# Atopic Keratoconjunctivitis (AKC)

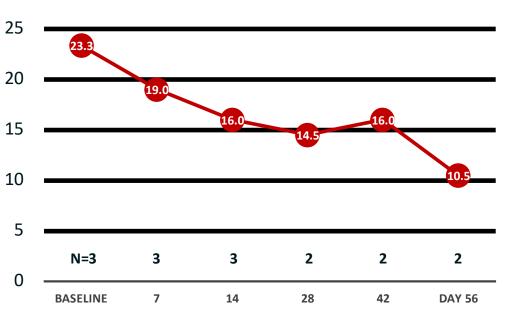
- Infiltration of neutrophils & T cells into conjunctival epithelium
- LTB4 levels 20X in allergic conjunctivitis patients
- Complement system in tears is functionally active, and concentration of all components is greatly increased in closed-eye tears
- C5, likely generated by macrophages, may be aggressively activated by corneal disease (1)
- Preclinical model demonstrated equivalence to cyclosporine
- Ongoing Phase I/II study.

Potential to be first surface of eye biological treatment Different formulation allows potential pricing & licensing flexibility Expansion potential into other poorly-treated surface of the eye diseases



# Initial AKC Clinical Data – First 2 Patients to Day 56 Rapid Improvement in Composite Clinical Scores

- Patients had deteriorating moderate – severe AKC despite ≥3 months treatment with cyclosporin t.i.d. ± steroids
- Part A of study first in man successfully completed – drug well tolerated
- Overall improvement across both signs and symptoms
  - Patient 1 had a disease flare at Day 42 but then recovered



**Composite Clinical Scores** 

- No serious drug-related AEs: drops comfortable and well tolerated
- Next stage of trial (part B) ongoing
  - 16 patients randomized, double masked
  - To enhance recruitment, trial expanded to additional clinical centers

# Nomacopan in AKC Clear Differentiation Vs. Competitors



 Positioned as 1st line treatment for patients with moderate to severe symptoms, given clear unmet need



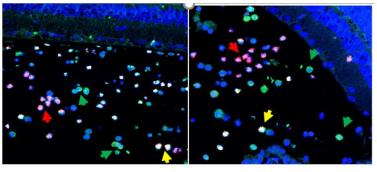
- Comfortable on application (pH neutral)
- Rapid improvement in signs & symptoms in human studies
- Upstream effects on T cells and granulocytes



- Potential regulatory interaction following Phase I/II study completion to help define **pivotal study design**
- Opportunity to expand into broader dry eye

# C5 & LTB4 Activity in Back of the Eye Indications Potential New Target Indication: Uveitis

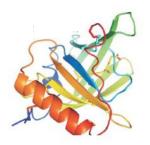
#### LTB4 receptor C5a receptor



Autoimmune Uveitis (EAU) Model



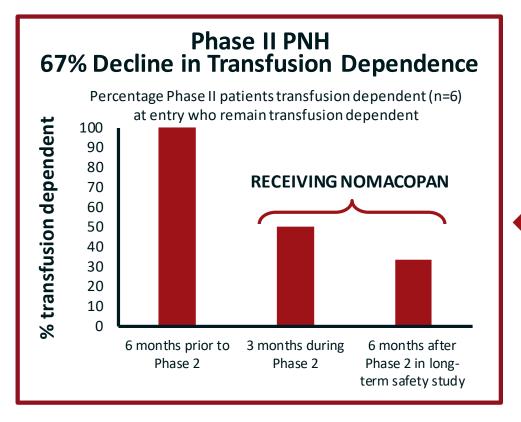
- Intravitreal nomacopan reported significant improvement in uveitis model versus control
- Significant down-regulation of Th1/Th17 cells and IL-17A production
- Effect approx. equal to intravitreal dexamethasone
- C5 & LTB4 receptors both identified in retina\*
- Uveitis treatment currently primarily steroids



# **Subcutaneous** Nomacopan:

# **Paroxysmal Nocturnal Hemoglobinuria**

# PNH Phase II: Transfusion Reduction Validated Efficacy - Option Value For Continuing to MAA



- Six patients transfused in six months prior to entering Phase II
- Three became transfusion independent during Phase II
- Four transfusion independent during followup long-term safety study

- Successful Phase II study achieved primary end point LDH ≤1.8X ULN
- Phase III study in naïve patients – primary end point: transfusion independence
- Potential pen injector will hold weekly dose, stable at room temperature with 0.4ml daily injection



# Four Primary/Lead Indications in Phase II/III Plus Pipeline of Earlier-Stage Targets

	Preclinical	Phase I	Phase II	Phase III
<b>Ophthalmology</b>				
AKC*				
Uveitis				
<u>Subcutaneous</u>				
PNH				
TMA-HSCT				
Bullous Pemphigoid				
APS				
<u>Pulmonary</u>				
Lung (Nebulized form)				
<b>Engineered</b>				
MG (LA / Targeted)				

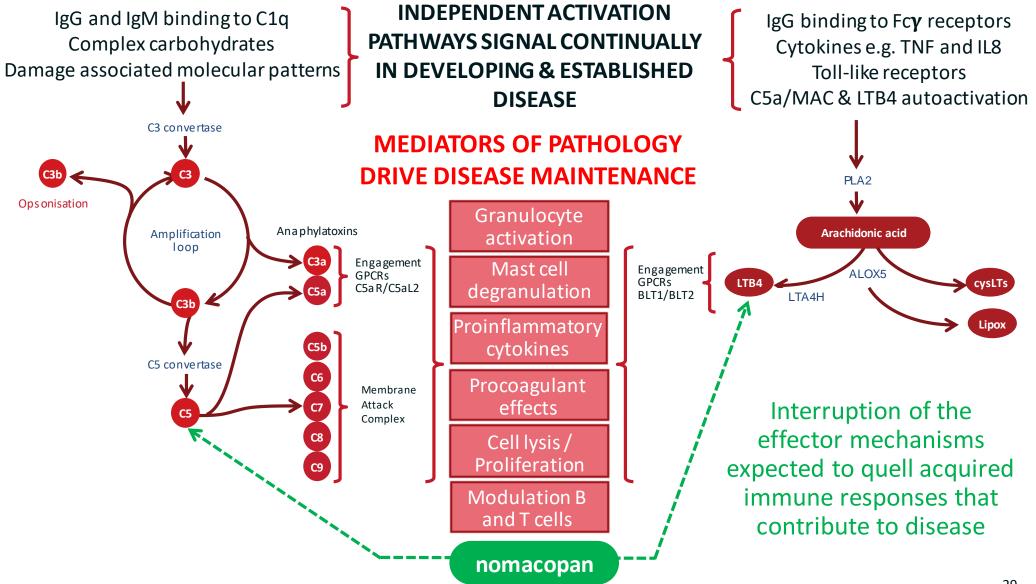
# Financial and Clinical Wrap up Meaningful Upcoming Clinical Milestones

- Growing efficacy data set across four severe orphan conditions
- 20 cumulative patient-years of treatment shows positive safety data and well tolerated
- Multiple expected short- to mid-term clinical readouts:
  - **BP:** Complete mild to moderate patients Q4 2019
  - -TMA: Q4 2019 pivotal trial approval/open
  - AKC: Part B update Q4 2019
  - PNH: Staged readouts
- \$20 million financing facility\* with Aspire Capital
- ~1.6 billion ordinary shares outstanding / equivalent to 16 million ADSs

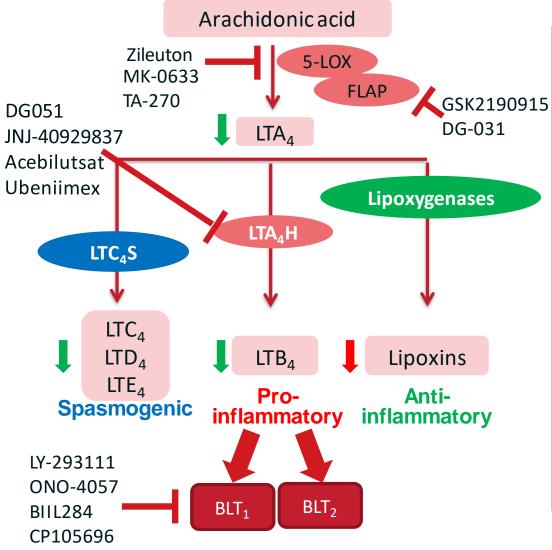
<sup>\*</sup> Circa \$5.5 million drawn down to date

# **APPENDIX**

# Nomacopan Competitive Advantage: Synergistic C5 and LTB4 inhibition



# LTB4 Ligand Capture Advantageous and Unique MOA



### **OFF-TARGET EFFECTS OF OTHER INHIBITORS**

### **5-LOX / FLAP inhibitors**

Reduces anti-inflammatory
lipoxins

### **BLT1/BLT2** antagonists

 Realization that anti-inflammatory mediators also signal through BLT1/BLT2

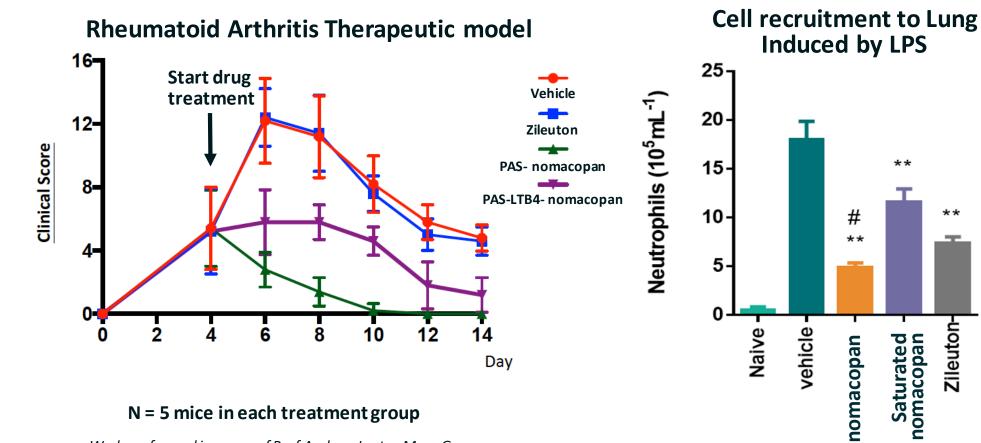
### <u>LTA<sub>4</sub>H inhibitors</u>

 Secondary anti-inflammatory role for LTA<sub>4</sub>H in degrading proinflammatory/ remodelling mediator PGP

# **Expanding Pipeline Focused on Indications** Where C5 and LTB4 Both Involved

Dual action C5+LTB4 (PAS-nomacopan) more effective than inhibition of LTB4 only (PAS-LTB4-nomacopan)

Dual action nomacopan more effective than C5-only nomacopan (or Zileuton®) alone



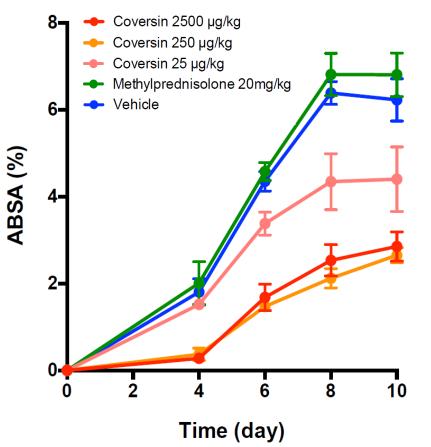
#### N = 5 mice in each treatment group

Work performed in group of Prof Andrew Luster, Mass Gen Hospital, Boston, USA

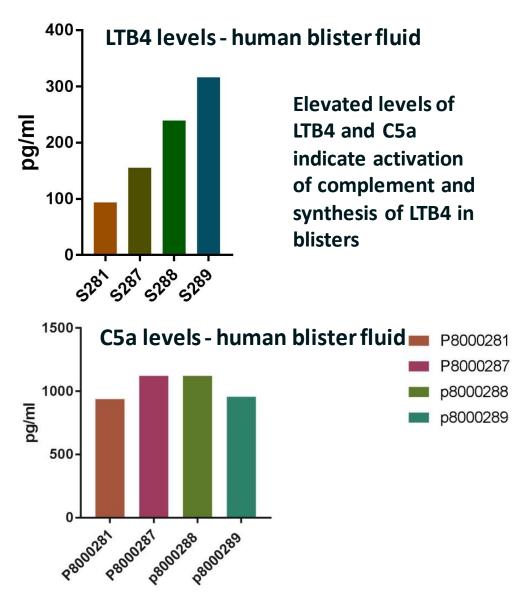
Zileuton-

# Epidermolysis Bullosa Acquisita Preclinical Efficacy & Elevated C5a/LTB4 in Bullous Pemphigoid patients

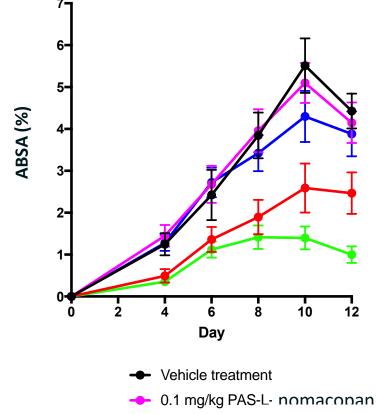
Preclinical passive mouse model of epidermolysis bullosa acquisita (EBA) from Dr. Sadik in Lubeck, Germany a leading Bullous Pemphigoid center



- Clear dose response
- ~60% reduction in affected area on nomacopan (SC) compared to vehicle or steroid
- P=0.0023 between vehicle and 250 µg/kg



## Dual Acting Nomacopan Significantly More Effective Than Long-Acting Nomacopan Only Inhibiting LTB4



- 1 mg/kg PAS-L- nomacopan
- 10 mg/kg PAS-L- nomacoban
- 2.5 mg/kg nomacopan

- Long acting LTB4 only nomacopan (10mg/kg) ameliorates blister formation but is less effective than the molar equivalent dose of nomacopan (2.5mg/kg)
- 1mg/kg long acting LTB4 only nomacopan ineffective whereas molar equivalent dose of 0.25mg nomacopan effective (see previous slide)

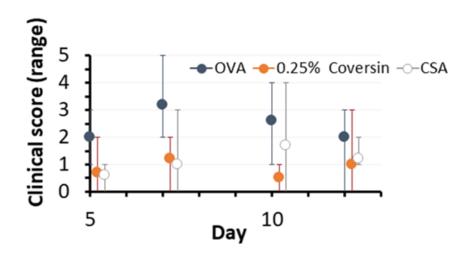
#### **CONCLUSION:**

Both C5 and LTB4 inhibition needed for full efficacy of nomacopan in EBA model

# Significant Benefit Demonstrated in Late-Phase Eye Surface Inflammation

Collaboration with Institute of Ophthalmology, London, UK

EIC pre-clinical model of severe eye surface inflammation (Dr Virginia Calder)



- Treatment model of established severe eye surface inflammation
- Significant improvement in clinical scores
- Histology and cytology data support beneficial role of nomacopan
- Reduction in Th9 cells
- Reduction in IL-9

- C57/Bl6 mice sensitized to OVA for 14 days
- Eye surface challenged with OVA for 12 days post sensitization (days 0 12)
- Nomacopan and cyclosporin A (CSA) applied once daily on days 4 12 after inflammatory response well established
- Maximum effect seen after 10 days of nomacopan treatment (late phase of inflammation)

# Bullous Pemphigoid Ongoing Phase II Study Patients with Mild-to-Moderate Disease

- Trial approved Netherlands (2 sites) and Germany (6 sites)
- Amendment planned to treat ≤9 additional moderate-severe patients for ≤ 90 days

#### **Current Study design**

- Phase II Single arm (n = 9); 42 days treatment
- Test role of C5 & LTB4 dual inhibition in improving BP outcomes
- Active bullous pemphigoid; newly diagnosed or recurrent

#### Treatment

- Nomacopan
- <u>Day 1</u>: 60 mg and 30 mg 12 hours later, <u>Day 2-42</u>: 30 mg od

Primary endpoint	Secondary endpoints			
Safety	Efficacy evaluated by BPDAI (BP disease activity index) and QoL at day 42			

# AKC Phase I/II Proof-of-Principle Trial Design

### Study design

- Phase I/II randomized, double masked, placebo-controlled, safety and efficacy study
- Part A : 3 patients open label safety
- Part B : 16 randomized patients
- All patients on maximum cyclosporine

### Treatment

- Nomacopan topical eye drops twice daily for 2 months
- Placebo eye drops

### **Primary endpoint**

• Safety, comfort

### Secondary endpoints

 Composite score of clinical signs (6) and symptoms (5)



### **Investor Presentation**

September 2019

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