

## **Corporate Presentation**

July 2024

**Rěclūdo (Latin)** transitive verb III conjugation 1 to open 2 to open up, to disclose, to reveal, to unlock

## **Unlocking New Therapeutic Possibilities**

#### Unlocking Previously Undruggable SH2 Domains of High Value Recludix Targets in Inflammatory Diseases and Cancer



### **Expanded Leadership Team**



SVP, Chemistry

SVP, Biology



#### Nancy Whiting, Pharm.D.

Seagen, GSK Adcetris<sup>®</sup>, Tukysa<sup>®</sup>, Padcev<sup>®</sup>, Tivdak<sup>®</sup>



#### Ajay Nirula, M.D., Ph.D. EVP, Head R&D

Lilly, Amgen, Biogen Idec, Merck Rituxan<sup>®</sup>, Tecfidera<sup>®</sup>, Siliq<sup>®</sup>, Taltz<sup>®</sup>, Olumiant<sup>®</sup>, Omvoh<sup>®</sup>, Ebglyss<sup>®</sup>



#### Matt Caldemeyer, MBA

CBO

CEO

Everest Medicines, Ambrx, Array BioPharma, Amgen, Lilly



#### Catherine Bovenizer, C.P.A. SVP, Finance

Renova, Apricus, Ambit, Senomyx, Ligand, GeneFormatics





Daniel Treiber, Ph.D. SVP, Discovery Technology

Eurofins, Discoverx, Ambit, MIT Vanflyta®

Paul Smith, Ph.D.

Brian Hodous, Ph.D.

Accent, Blueprint, Merck-Serono, Amgen, MIT

CONTRACT OF

### Opelurz

Opelurza™

Connect Biopharma, Incyte, Merck Serono, Novartis

#### Nick Lydon, Ph.D.

Ayvakit™

#### Co-Founder, Board Member

Blueprint, AnaptysBio, Ambit, Amgen, Kinetix, Novartis/CIBA-GEIGY

Gleevec® (imatinib), Lasker-DeBakey Award, Japan Prize

#### \$102M Series A





WESTLAKE VILLAGE BIOPARTNERS'

Nick Lydon

### Strategic Collaboration with Sanofi for STAT6 Inhibitor



#### Strategic Collaboration to Advance Novel Oral STAT6 SH2 Domain Inhibitor

- Recludix will conduct preclinical research and early clinical development
- Sanofi will assume worldwide clinical development and commercialization from Phase 2 onwards
- Up to double-digit royalties on future sales
- Recludix has certain US co-promotion activities



Validates Recludix Approach to Developing Selective Oral STAT SH2 Domain Inhibitors

### SH2 Domains Have Previously Been Deemed "Undruggable"



#### Significant Opportunity in Targeting SH2 Domain Proteins

#### Src Homology 2 (SH2) domains are highly conserved protein domains that have long been recognized as attractive drug targets

- Small protein modules made up of ~100 amino acids
- 120 human SH2 domains
- Play a key role in mediating protein-protein interactions
- The SH2 domain of STAT proteins is required for
  - Binding to cytokine receptors via the SH2 domain and phospho-tyrosine motifs on the receptor
  - Dimerization of STAT proteins occurs by reciprocal interactions with each monomer's SH2 domain; STAT DNA binding and transcriptional activity requires dimerization



Molecular Cell (2006) vol. 22, p.851

#### Recludix Platform: Integrated Proprietary Technologies Recludix & New Chemical Approaches



#### **STAT SH2 Domain Inhibition Enables a Best-in-Class Product Profile**









# STAT3

#### STAT3 is a First and Best-In-Class Opportunity to **Recludix Selectively Inhibit Th17 Inflammatory Disease Pathways**

- STAT3 is a key driver of Th17 inflammatory cells which cause multiple inflammatory diseases such as psoriasis, rheumatoid arthritis, ulcerative colitis, Crohn's disease and thyroid eye disease
- Increased selectivity by targeting STAT3 has the potential to provide both greater efficacy and less toxicity than JAK and TYK2 inhibitors
- A selective, oral STAT3 inhibitor has potential to replace JAK/TYK2 inhibitors and biologics for multiple inflammatory diseases with large market opportunities
  - JAK inhibitor global sales >\$4.7B annually, ٠ despite Black Box safety warnings.
  - STELARA®, an injectable IL-12/23 inhibitor, ٠ annual sales >\$10.8B in 2023



Pharma

# **Recludix Has Identified Multiple Highly Potent, Selective and Orally Bioavailable STAT3 Inhibitors**



	REX-4019	REX-5376	REX-7117
Biochemical Potency (SH2scan K <sub>D</sub> )	0.28 nM	0.15 nM	0.16 nM
Cellular Potency (pSTAT3 IC <sub>50</sub> in human PBMCs)	5.1 nM	0.72 nM	1.2 nM
Biochemical STAT Family Selectivity	~15X vs. STAT1 >300X vs. STAT2/4/5/6	~2X vs. STAT1 >150X vs. STAT2/4/5/6	~20X vs. STAT1 >500X vs. STAT2/4/5/6
Cellular Selectivity (PBMCs)	>10X vs. STAT1 >100X vs. STAT2/4/5/6	~2X vs. STAT1 ~20X vs. STAT2 >300X vs. STAT4/5/6	~20X vs. STAT1 >500X vs. STAT2/4/5/6
SH2 Domain Selectivity			

#### **STAT3 Inhibition Impairs Th17 Cells and Differentiates From JAK/TYK2** Inhibitors in Functional T Cell Assays



		T cell function				Hematologic homeostasis	
		General Adaptive Immune response	Defense against viruses and bacteria	Defense against extracellular pathogens	Defense against parasites and mediation of antibody responses	Erythropoiesis	Thrombopoiesis
		T Cell Activation (CD25)	Th1 Cell Function (IFNγ)	Th17 Cell Function (IL-17A)	Th2 Cell Function (IL-5)	EPO-Induced STAT5-Driven Transcription	TPO-Induced STAT5-Driven Transcription
	<b>REX-4019</b>	>10,000 nM	>2,000 nM	48 nM	>3,000 nM	>10,000 nM	>10,000 nM
STAT3 INNIDITORS	<b>REX-5376</b>	>10,000 nM	>2,000 nM	11 nM	>3,000 nM	>10,000 nM	>10,000 nM
	<b>REX-7117</b>	>10,000 nM	>2,000 nM	14 nM	>3,000 nM	>10,000 nM	>10,000 nM
IL-6 Antagonist	Tocilizumab	>1,000 nM	>1,000 nM	In progress	>1,000 nM	>1,000 nM	>1,000 nM
IL-23 Antagonist	Risankizumab	>1,000 nM	>1,000 nM	In progress	>1,000 nM	>1,000 nM	>1,000 nM
TYK2 Inhibitor	Deucravacitinib	>3,000 nM	260 nM	34 nM	~3,300 nM	3,200 nM	250 nM
	Tofacitinib	340 nM	74 nM	20 nM	20 nM	340 nM	200 nM
JAK Inhibitors	Upadacitinib	39 nM	36 nM	8.0 nM	4.4 nM	69 nM	20 nM
	Baricitinib	110 nM	210 nM	15 nM	15 nM	57 nM	40 nM
Selectivity relative to Th17 inhibition: >30X 10-30X <10X							

Selectivity relative to 1 h17 inhibition:

#### **Recludix Oral STAT3 Compounds Characterized by Selective and Sustained Target Inhibition**



• Dog PBMCs evaluated for ex vivo pSTAT1/3 activity following single day oral dosing





# **Oral STAT3 Inhibition Significantly Reduces an IL-6 Dependent LPS-Induced Inflammation in Dogs**





- LPS challenge drives pSTAT3 activation, immune activation, and IL-6 dependent CRP production
- Oral REX-5376 inhibits endogenous pSTAT3 signaling and abrogates CRP induction



Oral STAT3 inhibition effectively impairs IL-6 mediated inflammatory responses

#### **REX-7117 Demonstrates Efficacy After Oral Dosing in a Murine IL-23-Induced Th17 Model of Psoriasis**

- Preclinical model used in the development of anti-IL-17 and anti-IL-23 biologics therapies
- REX-7117 dose was selected to match PD profile to that observed in dog at 15 mg/kg QD
- Deucravacitinib clinically relevant dose determined from regulatory filings and publications



REX-7117 efficacy comparable to anti-IL-17A biologic and improved relative to deucravacitinib

#### STAT3 Inhibition Selectively Targets Key Inflammatory Cytokines and Downstream Th17 Cell Pathogenesis





Selective STAT3 inhibitors have potential JAK/TYK2 safety differentiation advantages

#### Selectively Targeting STAT3 Does Not Impair Interferon-Mediated Inhibition of VZV Viral Replication

Human retinal epithelial cells preincubated with STAT3 or JAK/TYK2 inhibitors then either IFNβ or IFNγ cytokines, followed by VZV infection.

IFNα

IFNβ IFNω

IFNε

IFNκ

JAK1

Measurement of viral IE62 and ORF63 protein expression 48hrs postinfection



#### Type II IFN: Herpes Zoster IFNy **REX-7117** IFN-y (20na/ml) kDa VZV (MOI=0.04) 250 150 IE62 Viral 100 proteins 50 37 ORF63 JAK' Baricitinib STAT1 STAT1 IFN-y (20ng/ml) kDa VZV (MOI=0.04) 250 150 IE62 Viral 100 proteins 75 37 -ORF63 Deucravacitinib N-y (20ng/ml) kDa + + + VZV (MOI=0.04) 250 · 150-IE62 Viral 100 proteins 37 -ORF63

STAT3 inhibition spares IFN dependent anti-viral immunity and differentiates from JAK/TYK2 therapies

#### STAT3 Inhibition Selectively Targets Key Inflammatory Cytokines and Downstream Th17 Cell Pathogenesis





Selective STAT3 inhibitors have potential JAK/TYK2 safety differentiation advantages

#### **Targeting STAT3 Spares STAT5 Mediated Hematopoietic Signaling**



Erythropoietin (EPO) or Thrombopoietin (TPO) mediated pSTAT5 signaling in reporter cell lines		He		natopoiesis	
		STAT 3-driven	Erythropoiesis	Thrombopoiesis	
		IL-6-Driven pSTAT3 Activation in PBMCs (IC <sub>50</sub> )	EPO-Induced STAT5-Driven Transcription (IC <sub>50</sub> )	TPO-Induced STAT5-Driven Transcription (IC <sub>50</sub> )	
STAT3	<b>REX-5376</b>	6 nM >10,000 nM		>10,000 nM	
Inhibitors	<b>REX-7117</b>	1 nM	>10,000 nM	>10,000 nM	
TYK2 Inhibitors	Deucravacitinib	140 nM	3,200 nM	250 nM	
	TAK-279	>10,000 nM	>10,000 nM	>10,000 nM	
JAK Inhibitors	Tofacitinib	110 nM	340 nM	200 nM	
	Upadacitinib	48 nM	69 nM	20 nM	
	Baricitinib	28 nM	55 nM	46 nM	
Selectivity r	elative to PBMC pST	AT3 inhibition	>30X 1	0-30X	

JAK inhibitors impair hematopoietic signaling at equivalent concentrations to their anti-inflammatory mechanism of action

#### **STAT3 Inhibition Has Potential Clinical Applications Across Multiple I&I Diseases**





Leveraging clinically validated mechanisms with selective STAT3 inhibition



# STAT6

#### STAT6 – First and Best-In-Class Opportunity to Selectively Inhibit Th2 Inflammatory Disease Pathways

- STAT6 is a critical driver of Th2 inflammatory cells and is the only STAT utilized by IL-4 and IL-13 signaling
- IL-4/IL-13 biologics have demonstrated efficacy in Th2 diseases such as atopic dermatitis, asthma, and COPD
- While JAK inhibitors have utility in Th2 disease, increased selectivity gained by targeting STAT6 has the potential to provide both greater efficacy and less toxicity
- A selective, oral STAT6 inhibitor has potential to complement and/or replace biologics in multiple Th2 diseases with large market opportunities
  - DUPIXENT®, an injectable IL-4Ra inhibitor, annual sales >\$10B in 2023



Recludix

Pharma

#### **STAT6 Early Lead Compound REX-4671 is Potent** and Selective in Biochemical and Cellular Assays



**Current Lead Compounds Further Optimized** 

#### **REX-4671**

Biochemical Potency (SH2scan K <sub>D</sub> )	Cellular Potency (pSTAT6 IC <sub>50</sub> in human PBMCs)	Biochemical STAT Family Selectivity	Cellular Selectivity (PBMCs)	SH2 Domain Selectivity
0.025 nM	1.3 nM	>1,000X vs. STAT1/2/3/4/5	>1,000X vs. STAT1/2/3/4/5	



### STAT6 Inhibitor Phenocopies Dupilumab In Functional Assays and Differentiates From JAK Inhibitors



		T cell function			Hematologic homeostasis		
		General Adaptive Immune response	Defense against viruses and bacteria	Defense against extracellular pathogens	Defense against parasites and mediation of antibody responses	Erythropoiesis	Thrombopoiesis
		T Cell Activation (CD25)	Th1 Cell Function (IFNγ)	Th17 Cell Function (IL-17A)	Th2 Cell Function (IL-5)	EPO-Induced STAT5-Driven Transcription	TPO-Induced STAT5-Driven Transcription
STAT6 Inhibitor	<b>REX-4671</b>	>10,000 nM	>3,000 nM	>10,000 nM	20 nM	>10,000 nM	>10,000 nM
IL-4/IL-13 Antagonist	Dupilumab	>10,000 nM	>1,000 nM	>1,000 nM	22 nM	>1,000 nM	>1,000 nM
JAK Inhibitors	Abrocitinib	1,300 nM	900 nM	81 nM	81 nM	3,200 nM	2,800 nM
	Upadacitinib	39 nM	36 nM	8.0 nM	4.4 nM	69 nM	20 nM
	Baricitinib	110 nM	210 nM	15 nM	15 nM	56 nM	42 nM

>30X

10-30X

<10X

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#### **Reduction of Lung Inflammation in Ovalbumin Asthma** Model

**BALF:** Eosinophils

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**REX-4671** 

(mg/kg, i.p.)

Vehicle (i.p.)

Tofacitinib\*\*

Cell frequency (10<sup>4</sup>) Cell frequency (10<sup>4</sup>) Cell frequency (10<sup>4</sup>)

0

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Vehicle (p.o.)



\*\*Tofacitinib 30 mg/kg p.o.

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- Prophylactic REX-4671 treatment reduced pathogenic immune cell infiltration and IgE levels ٠
- Improvements in lung function and histopathology in REX-4671 treated animals also observed
- REX-4671 abrogates serum IgE immunity, a clinical biomarker of treatment response in asthma and dermatitis •

#### **Oral STAT6 Compounds Characterized by Selective** and Sustained Target Inhibition



Program partnered with Sanofi

# STAT6 pathway inhibitor: an *oral* small molecule that blocks type 2 IL-4 and IL-13 pathways



STAT6 SH2 dom cellular responses	ain inhibitors se s and differentic	electively target ate from JAK inl	type 2 hibitors			
	STAT6 inhibitor	IL-4/13 antagonist <sup>1</sup>	JAK inhibitor <sup>1</sup>			
T Cell Function (IC50)						
Th2	26nM	26nM	4nM			
Th17	>100X	>35X (highest tested)	2X			
Th1	>100X	>35X	9X			
Hematological homeostasis						
EPO-STAT5	>300X	>35X	17X			
TPO-STAT5	>300X	>35X	5X			

Durable and selective pSTAT6 inhibition following single oral dose of STAT6 SH2 domain inhibitor in preclinical model



STAT6 inhibitor offers potential for *antibody-like efficacy* with oral convenience in type 2 diseases

Strong human *genetic evidence* for critical role of STAT6 with associated GWAS and gain of function mutations driving allergic disease<sup>2,3,4,5</sup>

Entered strategic collaboration with Recludix Pharma to advance novel oral STAT6 SH2 domain inhibitors with *IND projected in 2025* 

1. Corporate presentation, Recludix Pharma, JPM HealthCare Conference, Jan 2023. 2. Baris et al., JACI 152, 2023. 3. Sharma et al., J Exp Med 220, 2023. 4. Takeuchi et al., JACI 151, 2023. 5. Suratannon et al., JACI 151, 2023.





# Thank you

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**Unlocking New Therapeutic Possibilities**