ALDEYRA THERAPEUTICS™

Research Day 2018

Update on Research Programs

June 26, 2018

New York

Disclaimers and Forward-Looking Statements

This presentation and various remarks which may be made during this presentation contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding Aldeyra's possible or assumed future results of operations, expenses and financing needs, business strategies and plans, research and development plans or expectations, trends, the structure, timing and success of Aldeyra's planned or pending clinical trials, expected milestones, market sizing, pricing and reimbursement, competitive position, regulatory matters, industry environment and potential growth opportunities, among other things. Forward-looking statements include all statements that are not historical facts and, in some cases, can be identified by terms such as "may," "might," "will," "objective," "intend," "should," "could," "can," "would," "expect," "believe," "anticipate," "project," "target," "design," "estimate," "predict," "potential," "plan" or similar expressions and the negatives of those terms.

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Our Mission

Developing Next-Generation Medicines to Improve the Lives of Patients with Immune-Mediated Diseases

~7%

Of Western Society

Suffer from some form of **immune-mediated disease**

Disease control elusive despite existing therapies, and thus **novel approaches are needed**

Source: Shurin and Smolkin, Advances in Experimental Medicines and Biology 601:3-12, 2007;
Kuek et al, Postgraduate Medical Journal 83(978): 251-260, 2007.

Developing Next-Generation Medicines to Improve the Lives of Patients with Immune-Mediated Diseases

Deep and Innovative Pipeline focused on immune-mediated diseases

Near-Term Development Catalysts support path to commercialization

Solid Track Record of development success

Large Market Potential of late-stage pipeline

Solid Cash Position

Cash, cash equivalents and marketable securities were $38.9 million as of March 31, 2018

Reproxalap:
Lead Candidate With Significant Commercial Potential

	Estimated U.S. Population[1]	Reproxalap Development Stage	Potential Competitive Advantages[2]
Ocular Inflammation			
Dry Eye Disease	20 million	**Phase 2b**	• **Rapid onset, broader activity**
Allergic Conjunctivitis	30 million	**Phase 3**	• **Non-drying, durable activity, responder superiority vs. vehicle**
Noninfectious Anterior Uveitis	150,000 flares per yr.	**Phase 3**	• **No expected risk of glaucoma or other corticosteroid toxicities**
Inborn Errors of Metabolism			
Sjögren-Larsson Syndrome	1,000[3]	**Phase 3**	• **Clinically demonstrated efficacy** • **No FDA therapy currently approved**

[1] Aldeyra estimates based on internal market research and publicly available information.
[2] Pending clinical data, regulatory discussions, payor negotiations, competition, potential legislative changes, and other factors, which may not be in Aldeyra's control. Preliminary assumptions are subject to change.
[3] Extrapolated from a Swedish estimate and a U.S. genetic mutation analysis, it is generally assumed that there are approximately 1,000 Sjögren-Larsson Syndrome (SLS) patients in the United States and a greater number of SLS patients in Europe.

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Deep and Innovative Pipeline

Approach	Compound	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Next Expected Milestone
RASP Inhibitors	Reproxalap Ocular	Dry Eye Disease			✓		Phase 2b results H2-2018
		Allergic Conjunctivitis			✓ ✓		Phase 3 results H2-2018 / 2019
		Noninfectious Anterior Uveitis			✓		Phase 3 results 2019
	Reproxalap Dermal	Sjögren-Larsson Syndrome			✓		Phase 3, Part 1 results 2019
	ADX-629 Systemic	Autoimmune Disease					
	ADX-103	Retinal Disease					
	Not Disclosed	Systemic Inflammatory Disease			*Research Collaboration* Janssen		
Hsp90 Inhibitors	ADX-1612	Lymphoproliferative Immune Disease					
		Ovarian Cancer					*Investigator Sponsored Trial*
		Mesothelioma					*Investigator Sponsored Trial* Phase 2 results H2-2018
	ADX-1615	Autoimmune Disease					
		Cancer					
Anti-Inflammatory	Not Disclosed	Ocular Inflammation					

RASP = Reactive Aldehydes Species that are Pro-inflammatory

✓= Positive Phase 2 clinical data reported in 2016 – 2017

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2018 Progress and Near-Term Development Catalysts Support Path to Commercialization

H1 2018

- Initiated reproxalap **Phase 2b clinical trial in dry eye disease**
- Initiated reproxalap **Phase 3 clinical trial in allergic conjunctivitis**
- Entered into **research collaboration with Johnson & Johnson Innovation** in systemic inflammatory diseases
- Disclosed **in-license of a Hsp90 inhibitor**
- Clinical sites initiated for reproxalap **Phase 3, Part 1 clinical trial in Sjögren-Larsson Syndrome**

Anticipated Milestones*

H2 2018

- First patient enrolled in reproxalap Phase 3, Part 1 clinical trial in Sjögren-Larsson Syndrome **Q3 2018**
- Reproxalap dry eye disease Phase 2b clinical trial results **H2-2018**

2019

- Reproxalap allergic conjunctivitis Phase 3 results **H2-2018/early 2019**
- Reproxalap noninfectious anterior uveitis Phase 3 clinical trial results **2019**
- Reproxalap Sjögren-Larsson Syndrome Phase 3, Part 1 clinical trial results **2019**

*Contingent on funding, regulatory review, and other factors.

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Developing Next-Generation Medicines to Improve the Lives of Patients with Immune-Mediated Diseases

Targeting RASP

- ADX-629 for Systemic Immune-Mediated Diseases
- ADX-103 for Inflammatory Retinal Disease

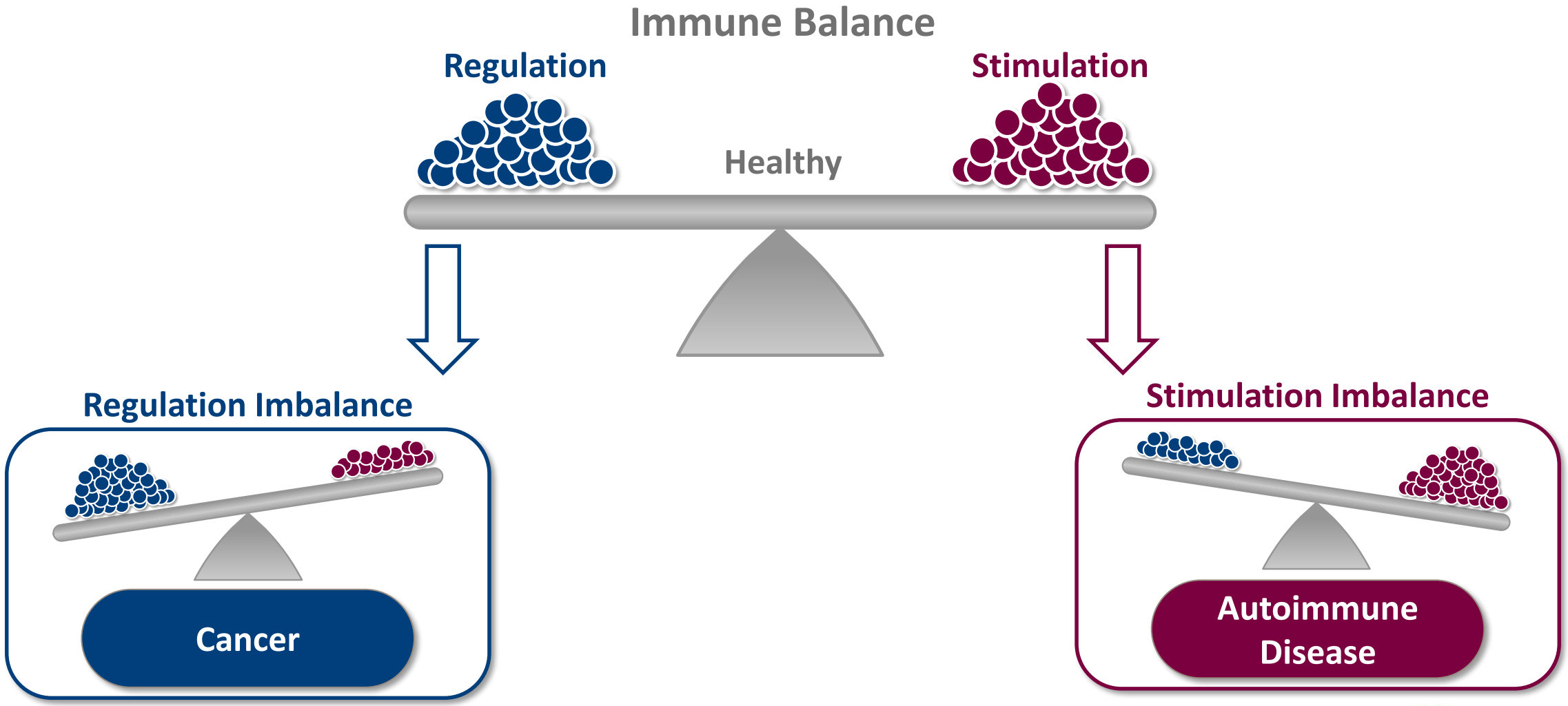
Targeting Hsp90

- ADX-1612 for Lymphoproliferative Immune Disease and Cancer
- ADX-1615 for Autoimmune Disease and Cancer

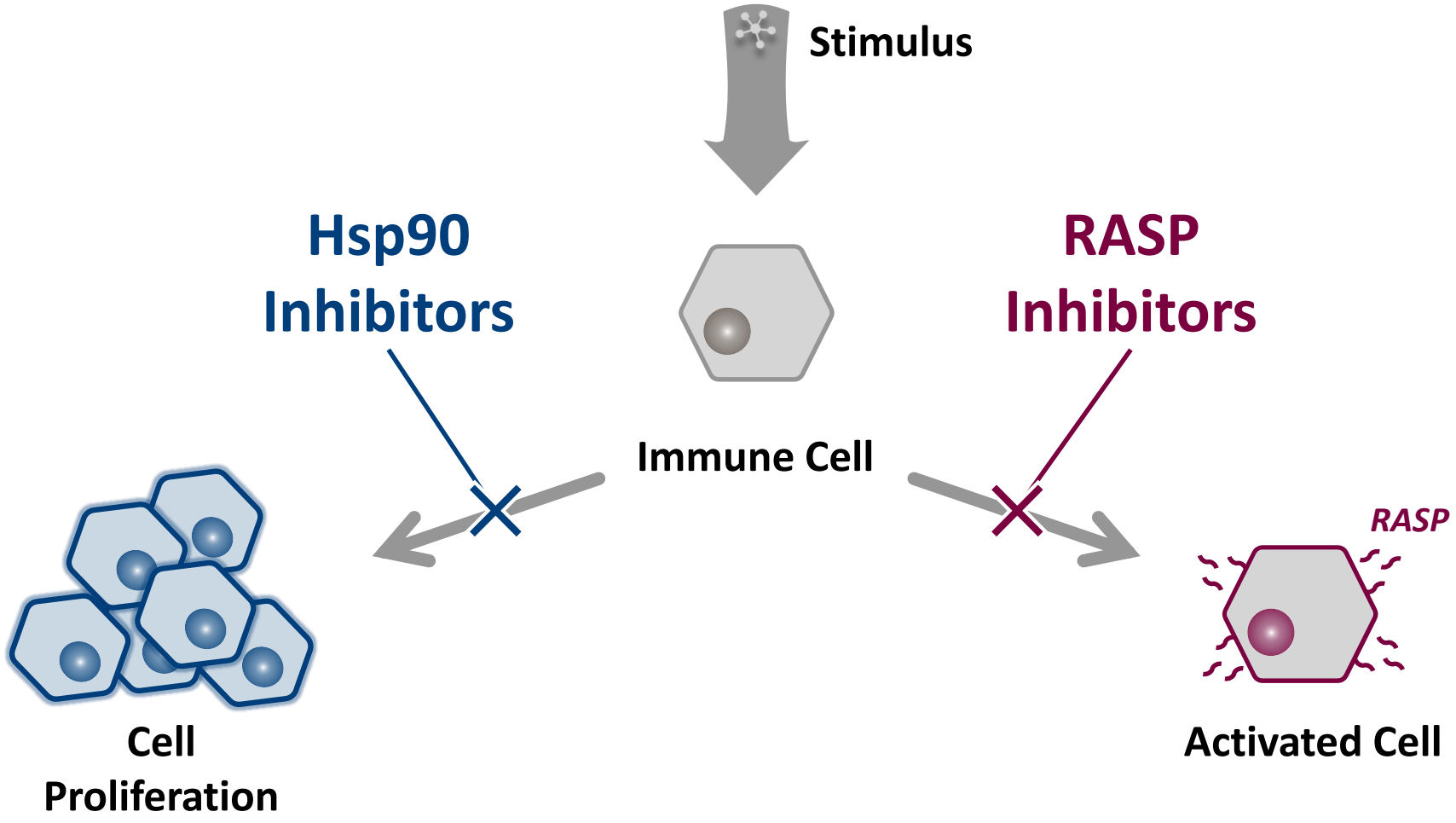
Partnership Update

- J&J Innovation

Immune System Balance is Complex



Novel Approaches to Address Immune-Mediated Disease



RASP = Reactive Aldehydes Species that are Pro-inflammatory

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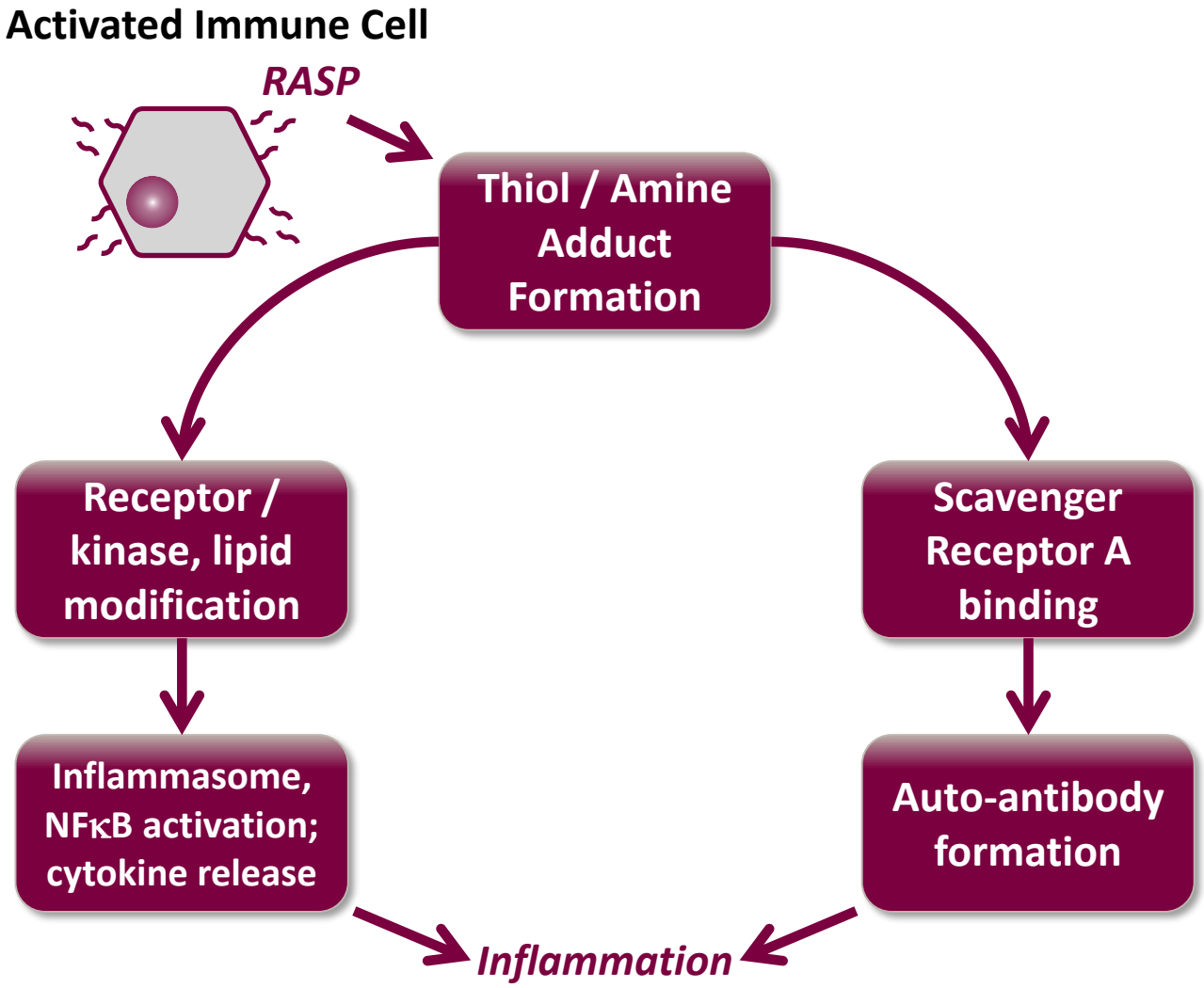
Targeting RASP for Systemic Immune-Mediated Diseases

ADX-629

Targeting RASP: Mediators of Inflammation and Activators of the Immune System



Scientific Literature

Cardiovasc Res. 2010 Nov 1;88(2):352-9. **HNE-induced 5-LO expression is regulated by NF-kB/ERK and Sp1/p38 MAPK pathways via EGF receptor in murine macrophages.**

Biofactors. 2005;24(1-4):229-36. **Role of 4-hydroxy-2,3-nonenal in the pathogenesis of fibrosis.**

Cell Mol Biol Lett. 2015 Dec;20(4):647-62. **The advanced lipoxidation end product precursor malondialdehyde induces IL-17E expression and skews lymphocytes to the th17 subset**.

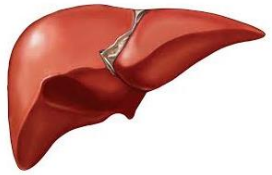
J Leukoc Biol. 2012 Nov;92(5):1055-67. **Proinflammatory effects of malondialdehyde in lymphocytes.**

Diabetes. 2008 Apr;57(4):879-88. **Proinflammatory effects of advanced lipoxidation end products in monocytes.**

RASP = Reactive Aldehydes Species that are Pro-inflammatory

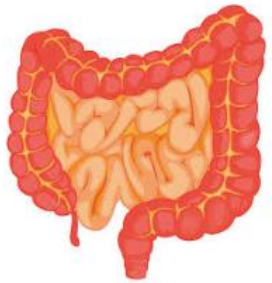
ADX-629: A Novel Pre-Clinical RASP Inhibitor for Treatment of Systemic Immune-Mediated Disorders

NASH (non-alcoholic steatohepatitis)



- Highly prevalent disease characterized by liver inflammation, fibrosis, cirrhosis, and hepatocellular carcinoma
- No FDA-approved therapy
- RASP end-products observed in NASH

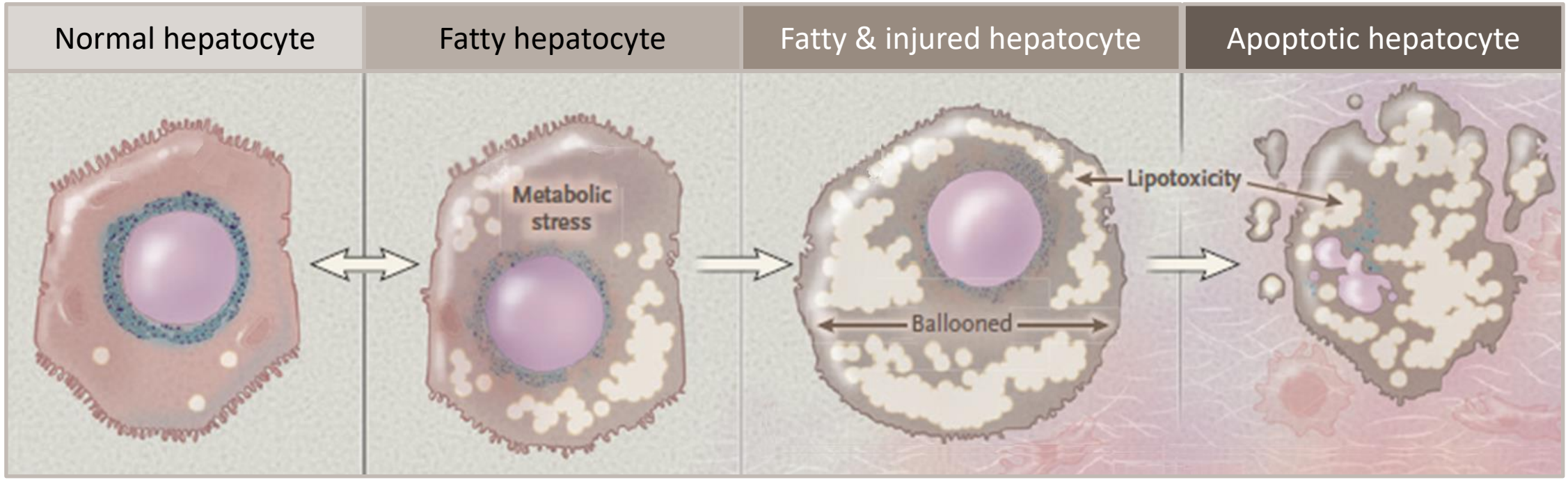
IBD (inflammatory bowel disease)



- Over one million patients in the U.S. suffer from Ulcerative Colitis and Crohn's Disease
- Chronic autoimmune disease with variable response to therapy
- RASP observed in preclinical models; decreased RASP metabolism observed in diseased human intestinal tissue

Source: Prevalence data from U.S. Centers for Disease Control and Prevention

NASH Pathogenesis: Chronic Progression of Inflammation and Fibrosis



Adapted from Diehl and Day NEMJ 377:2062-2072, 2017; RASP activity as shown based on published literature and Aldeyra data on file.

IBD Pathogenesis: Chronic Relapsing Intestinal Inflammation

Phase I:
Pre-disease stage

RASP-Mediated

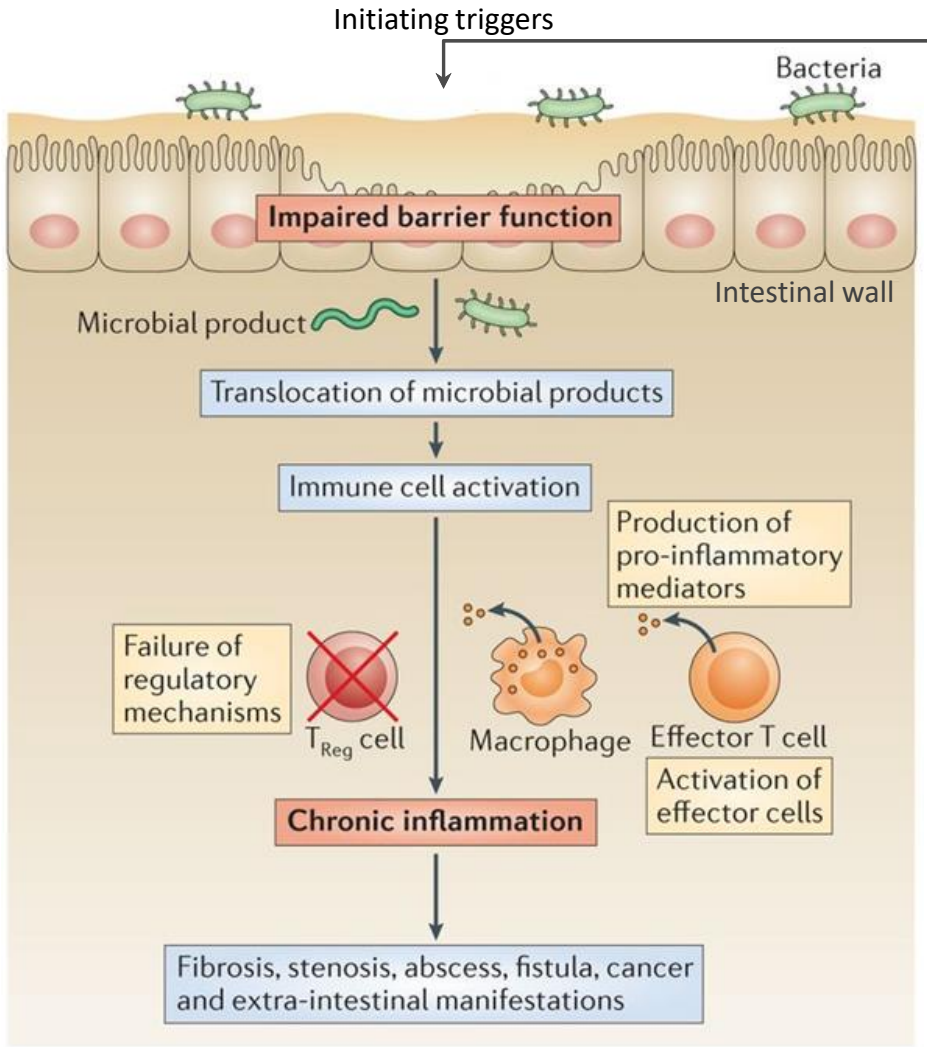
Phase II:
Acute intestinal inflammation

RASP-Mediated

Phase III:
Recurrent inflammation

RASP-Mediated

Phase IV:
Tissue destruction and complications



Environmental factors
- Microorganisms
- Diet
- Infections
- Stress
- NSAIDs
- Appendectomy
- Smoking
- Antibiotics

Genetic factors
- Antimicrobial peptides
- Autophagy
- Handling of bacteria
- Chemokines
- Cytokines

Adapted from Neurath, Nature Reviews Immunology 14:329 – 342, 2014; RASP activity as shown based on published literature and Aldeyra data on file.

ADX-629: A Pre-Clinical Novel RASP Inhibitor

ADX-629 is an analog of reproxalap

Reproxalap has **demonstrated activity in immune-mediated diseases**

Pre-Clinical Models

- ✓ Sepsis
- ✓ Inflammatory pain
- ✓ Oral mucositis
- ✓ Allergic dermatitis
- ✓ Contact dermatitis
- ✓ Acute lung injury
- ✓ Corneal fibrosis

Clinical Trials

- ✓ Dry eye disease
- ✓ Allergic conjunctivitis
- ✓ Noninfectious anterior uveitis

Supporting scientific posters and presentations available on Aldeyra's investors page at ir.aldeyra.com.

ADX-629 Decreased LPS-Induced Pro-inflammatory Cytokine Levels and Increased Levels of an Anti-inflammatory Cytokine in Animal Models

- ADX-629 (100 mg/kg) was administered intraperitoneally to mice
- LPS was administered intraperitoneally (1 mg/kg) 15 minutes later
- Blood was collected 2 hours after ADX-629 administration and plasma cytokines measured by ELISA

Pro-Inflammatory			
Cytokine	Decrease	Cytokine	Decrease
RANTES	93.8%	IL-15	72.1%
MIP-1α	93.1%	IL-9	72.0%
IL-12(p40)	92.4%	IL-1β	71.5%
G-CSF	91.1%	IFNγ	71.3%
LIF	85.8%	IL-12(p70)	68.8%
MIG	83.3%	IL-1α	67.5%
IL-5	82.3%	IL-7	65.2%
IL-17	77.4%	LIX	62.0%
M-CSF	75.1%	TNFα	60.3%
GM-CSF	73.7%	IL-3	56.0%
IL-13	73.6%	VEGF	55.2%
IL-15	72.1%	Eotaxin	26.1 %

Anti-Inflammatory	
Cytokine	Increase
IL-10	2103%

p values range from < 0.05 to < 0.0001

Potential ADX-629 Development Overview

✓ Planning to initiate clinical testing in 2019

Contingent on pre-clinical studies, clinical trials, funding, regulatory review, and other factors.

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Targeting RASP for Inflammatory Retinal Disease

ADX-103

ADX-103: A Structurally Distinct Pre-Clinical RASP Inhibitor

Potential product candidate for treatment of retinal disease

- Diabetic macular edema (DME)
- Dry age-related macular degeneration (AMD) / Stargardt's Disease
- Posterior uveitis

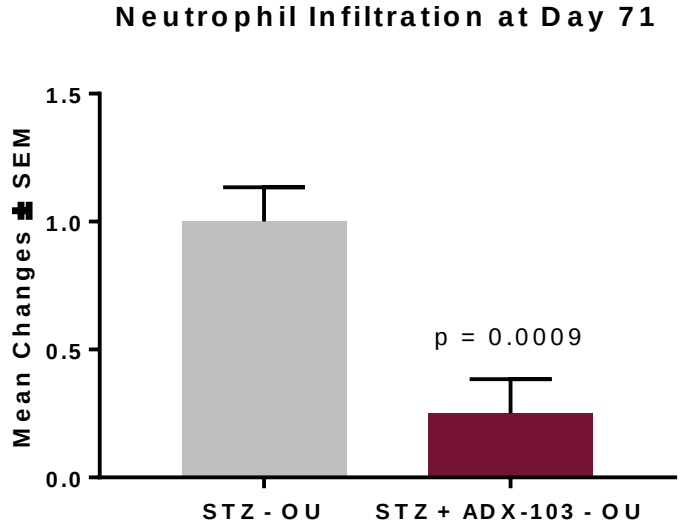
RASP observed in retinal disease

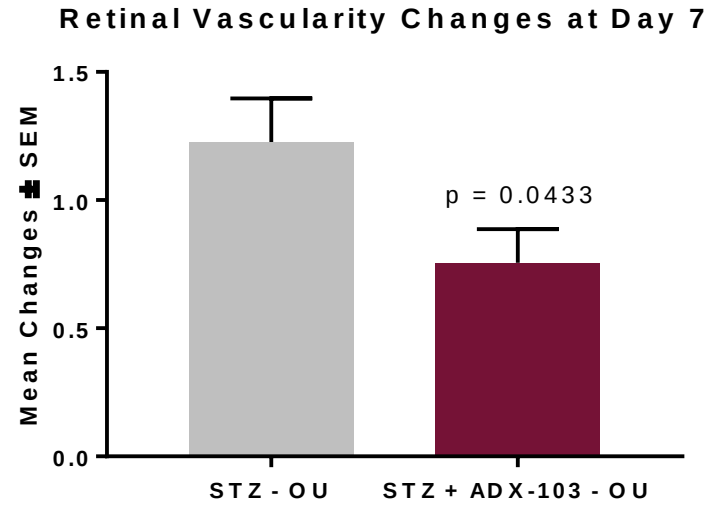
- DME: Glyoxal, methylglyoxal, allysine
- AMD/Stargardt's Disease: Retinaldehyde
- Posterior uveitis: Malondialdehyde, 4-hydroxynonenal

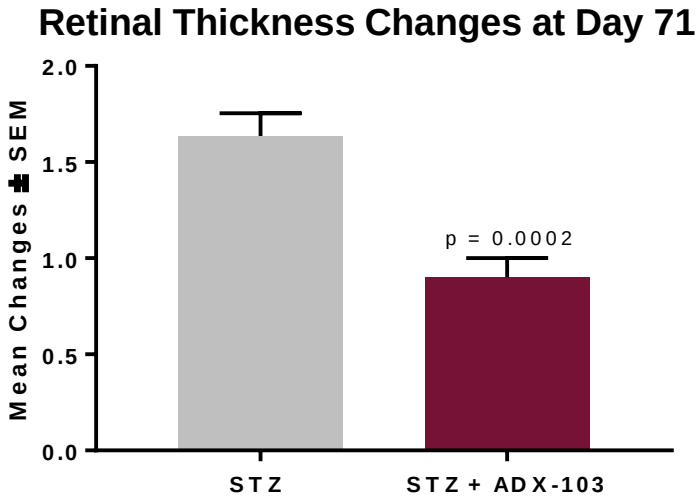
Efficacy in several preclinical models of ocular inflammation

Diabetic Macular Edema: ADX-103 Blocked Diabetes-Induced Retinal Changes in Animal Models

- Male Norway rats were administered streptozotocin (STZ), 55 mg/kg IP, on Day 0 to induce diabetes
- Two single doses of ADX-103 (17.5 µg each) were administered intravitreally, after induction of diabetes (Days 42 and 57)
- Histopathology of the retina was conducted at Day 71





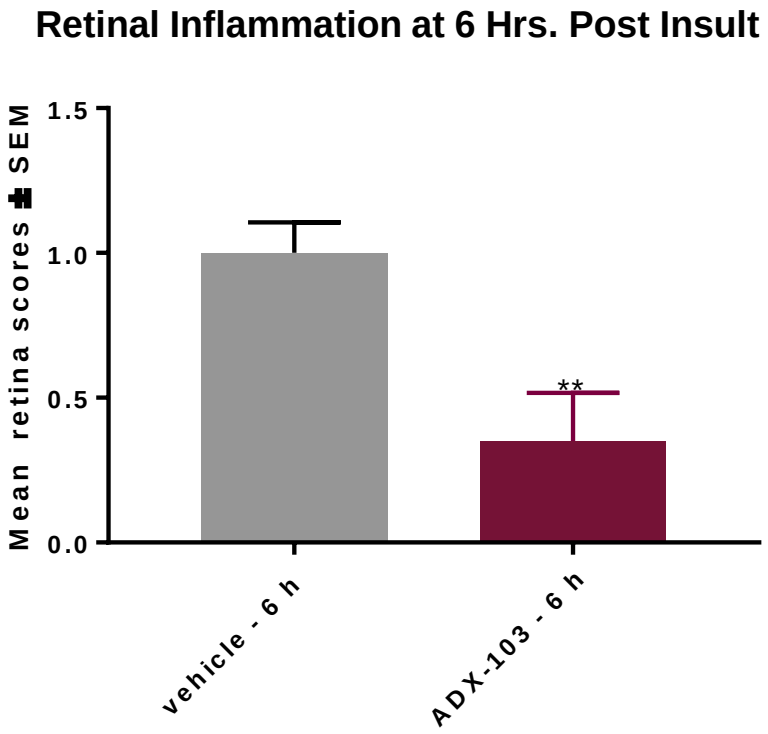


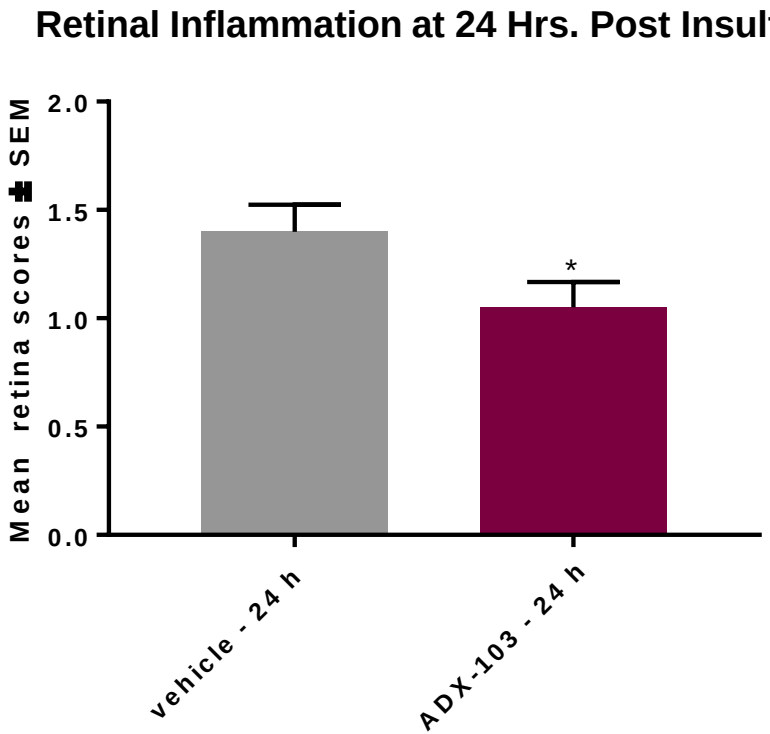
Scale:
1 = minimal microscopically visible changes
2 = mild microscopically visible changes
3 = moderate microscopically visible changes

Presented at the 2018 ARVO annual meeting.

Endotoxin-Induced Uveitis: ADX-103 Decreased Ocular Inflammation in Animal Models

- Ocular inflammation in rats induced by footpad injection of a bacterial endotoxin (LPS)
  - Severe model
  - Peaks at 24 hours
- A single intravitreal dose of ADX-103 (25 µg/eye) was administered at hour 1 post-LPS administration
- Retina-choroid complex was scored for inflammatory changes at six and 24 hours

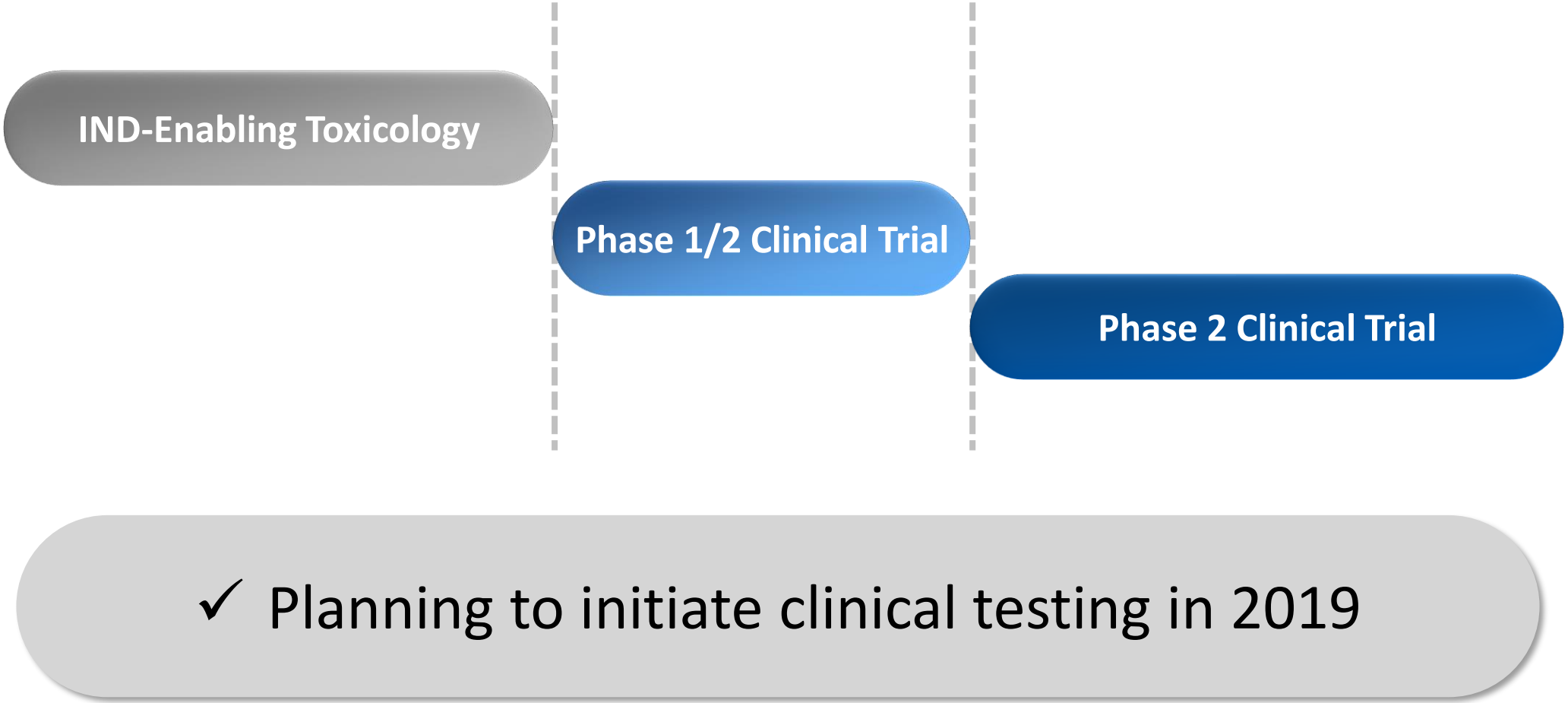




*$p < 0.05$; **$p < 0.01$

Presented at the 2018 ARVO annual meeting.

Potential ADX-103 Retina Program Overview



✓ Planning to initiate clinical testing in 2019

Contingent on pre-clinical studies, clinical trials, funding, regulatory review, and other factors.

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Targeting Hsp90 for Lymphoproliferative Immune Disease and Cancer

ADX-1612

ADX-1612: Clinically Advanced Asset With Extensive Preclinical, Nonclinical, and Clinical Data

In-licensed for potential in immune-mediated disease

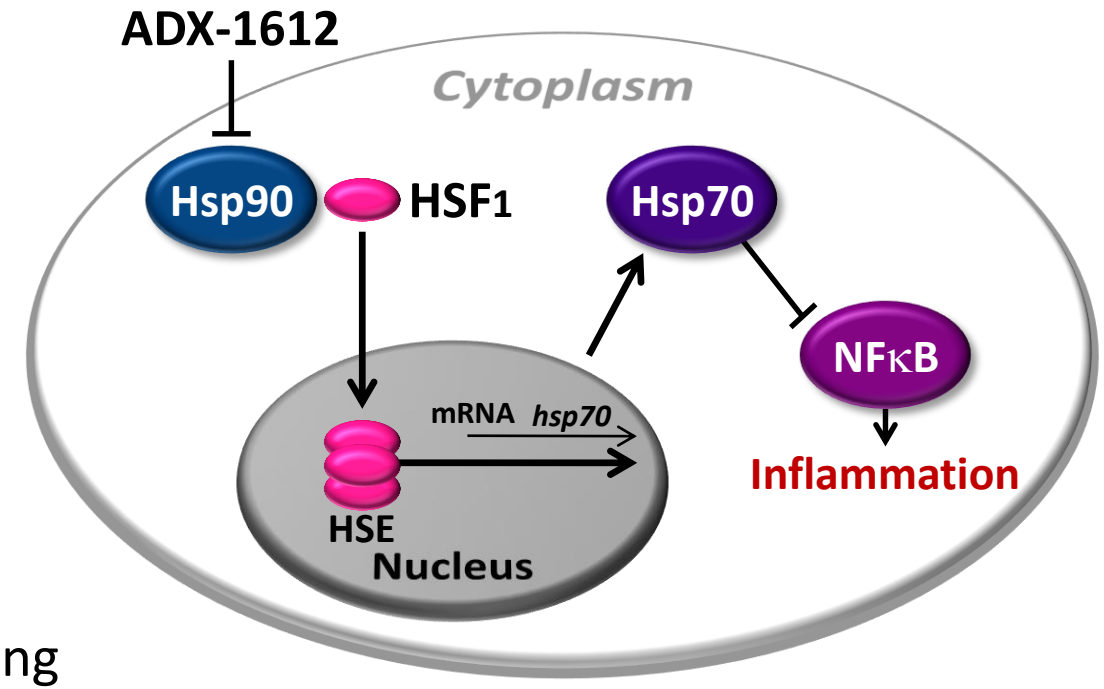
- Preclinical efficacy in immune disorders
  - Unregulated proliferation of immune cells
- Lymphoproliferative/immunoproliferative disorders
  - Hyperactive immune system
- IV formulation

ADX-1612 clinically-tested in oncology as ganetespib

- Ongoing Investigator-Sponsored Trials (ISTs) using ADX-1612 in combination with platins

ADX-1612: Expanding The Potential Repertoire for Treatment of Immune-Mediated Diseases

- ADX-1612
  - Hsp90 inhibitor
- Hsp90
  - Upregulated in stressful conditions
  - Role in antigen presentation in dendritic cells
  - Client proteins involved in signal transduction and cell cycle (e.g., cell proliferation, survival, apoptosis)
- Inhibition of Hsp90
  - Prevents proper folding of client proteins, leading to degradation and disruption of cell cycle
  - Prevents DNA repair



Adapted from Tukaj and Wegrzyn Cell Stress and Chaperones 21:213 – 218, 2016.

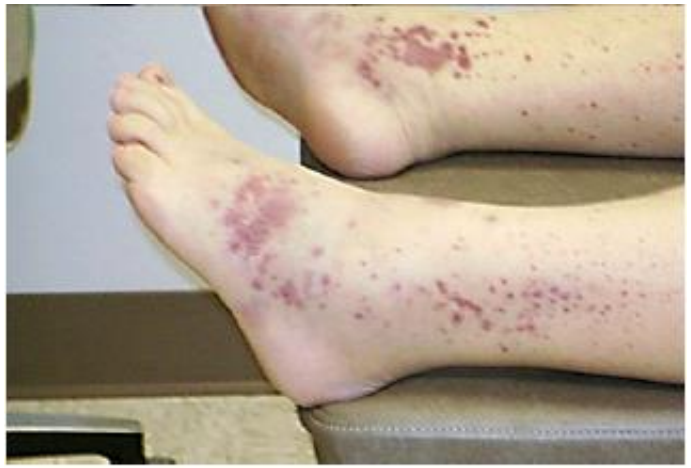
ADX-1612: Observed Effects on Vasculitis in a Patient With Leukemia in Phase 1 Clinical Trial

Vasculitis:
Inflammation of blood vessel walls

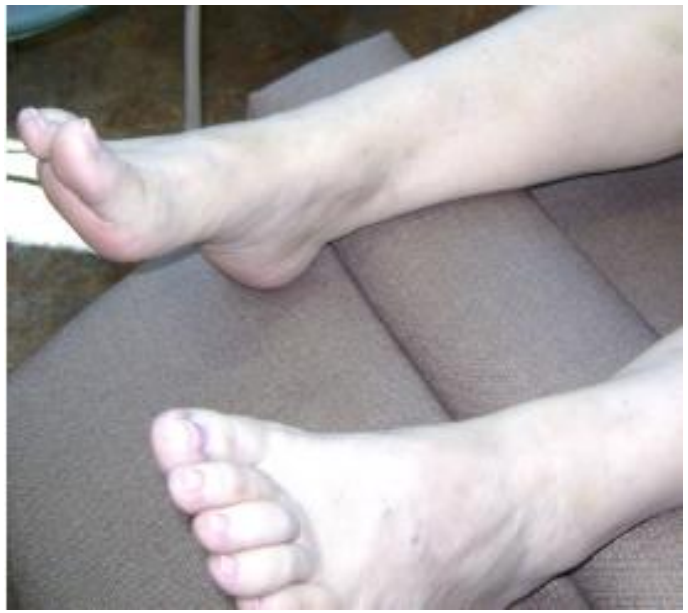
- Fever, headache, fatigue, weight loss, aches and pains, night sweats, rash, ulcers, numbness or weakness

✓ Clearing of limb rash after first ADX-1612 treatment

Pre-Treatment



Post-Treatment

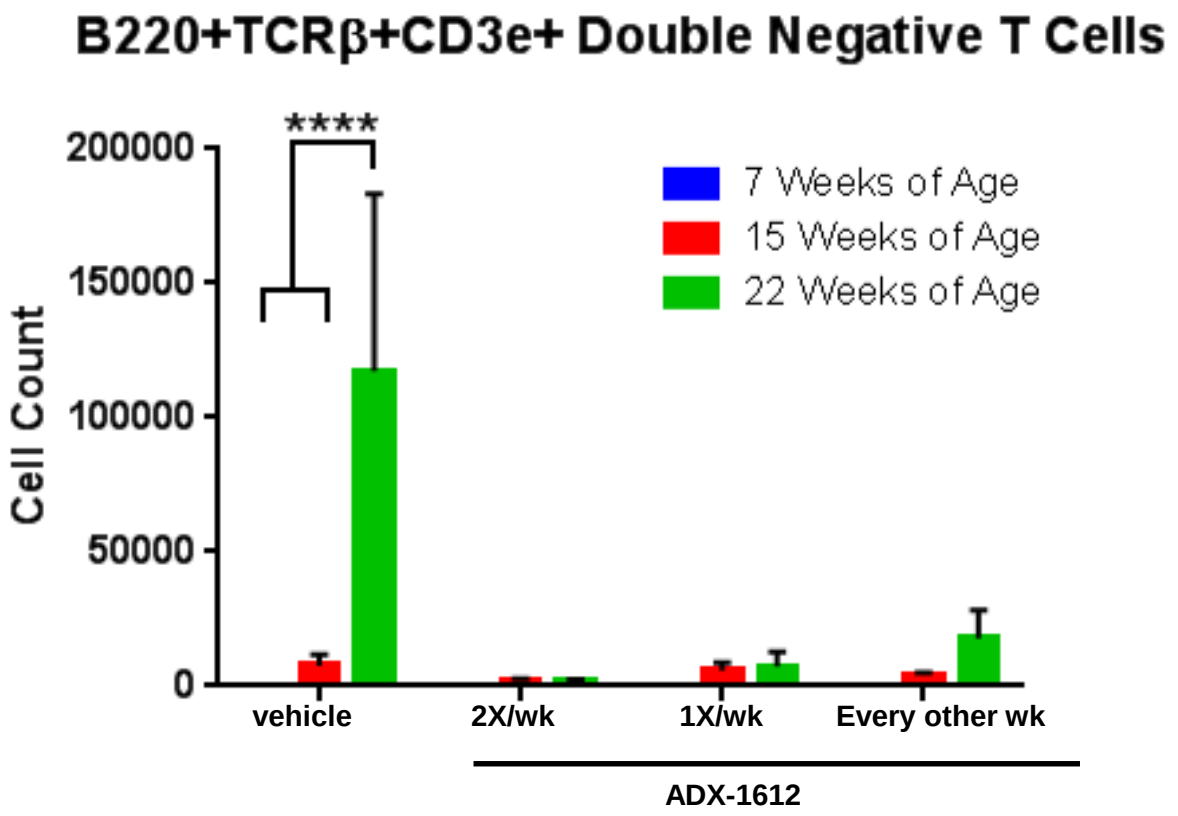


Source: Data on file

ADX-1612: Inhibition of Immune Cell Proliferation Observed in an Animal Model of Lupus

Systemic autoimmunity
(MRL/lpr mouse)

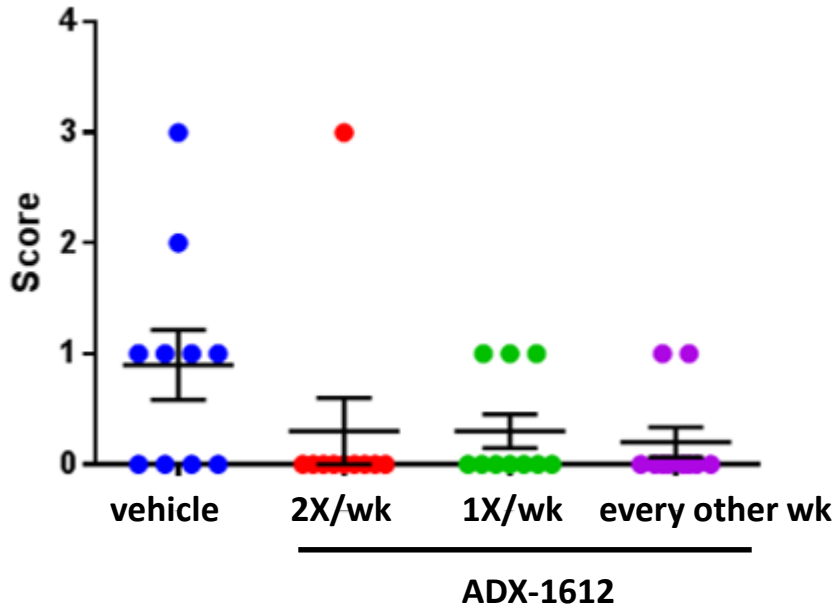
- Treatment was initiated at 7 weeks of age and continued through 22 weeks of age
- Dosing: 50 mg/kg, IV
  - twice weekly
  - once weekly
  - every other week



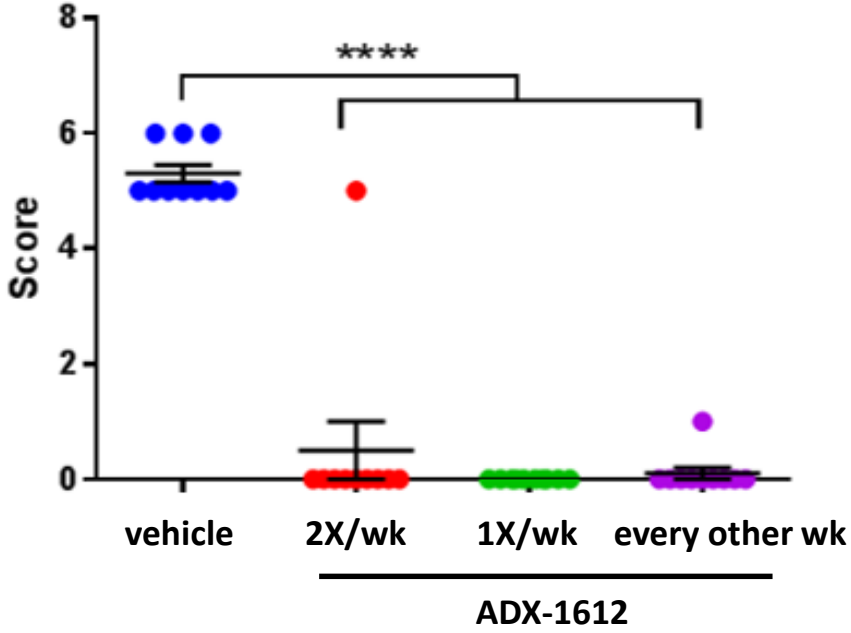
Source: Data on file; Also see Liu et al., The Hsp90 inhibitor ganetespib alleviates disease progression and augments intermittent cyclophosphamide therapy in the MRL/lpr mouse model of systemic lupus erythematosus. PLoS ONE 10(5):e0127361 2015.

ADX-1612: Skin Lesions and Lymphoadenopathy Decreased in an Animal Model of Lupus

Skin Lesion Score at 22 Weeks



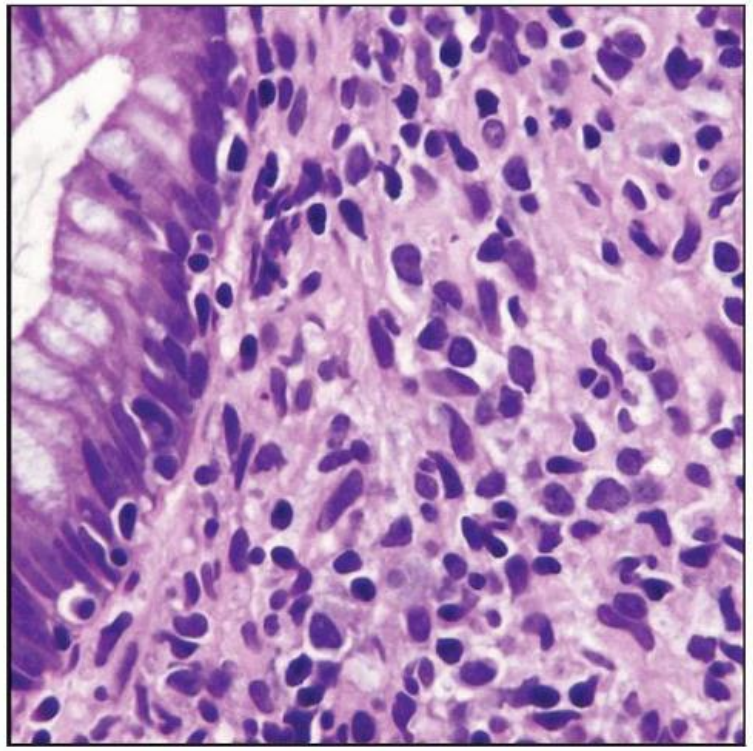
Lymphoadenopathy Score at 22 Weeks



Source: Data on file

Proposed Indication:
Post-Transplant Lymphoproliferative Disorder (PTLD)

- PTLD occurs after stem cell transplant or organ transplant
  - Most serious complication of transplantation, resulting from immunosuppression
    - Uncontrolled proliferation of lymphocytes
      - Medication-induced reduction in immune surveillance
      - Imbalance between immunosuppression and immune surveillance
      - May progress to lymphoma
  - No optimal therapy
- Hsp90 overexpressed in lymphomas
- Initiation of Phase 2a clinical trial currently anticipated in 2019



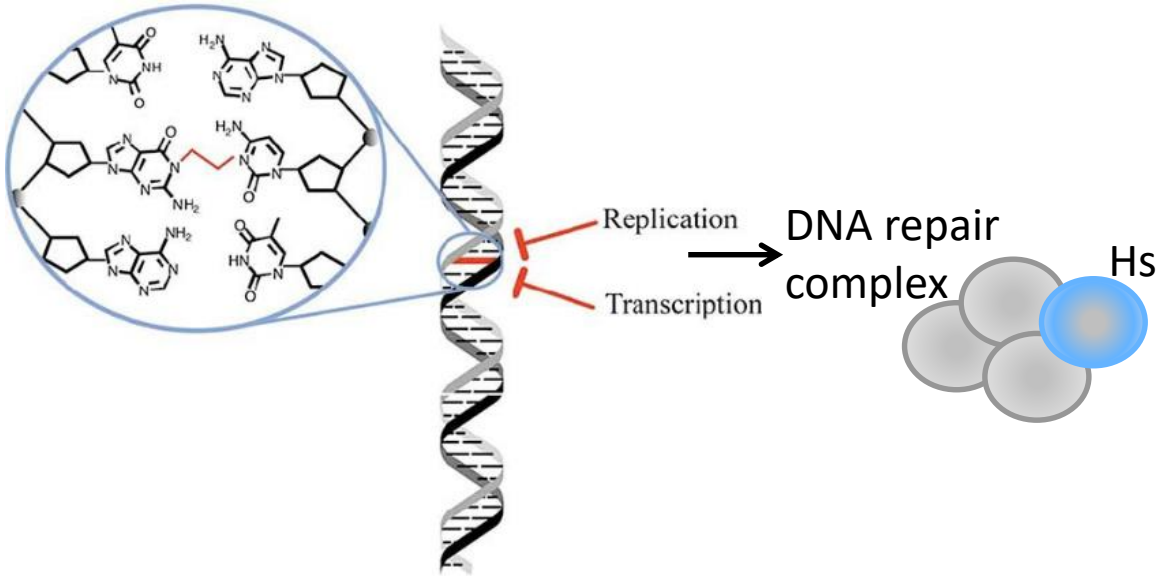
Polymorphic post-transplant lymphoproliferative disorder (PTLD) involving the rectum.
Source: Yin and Lin; Basicmedical Key

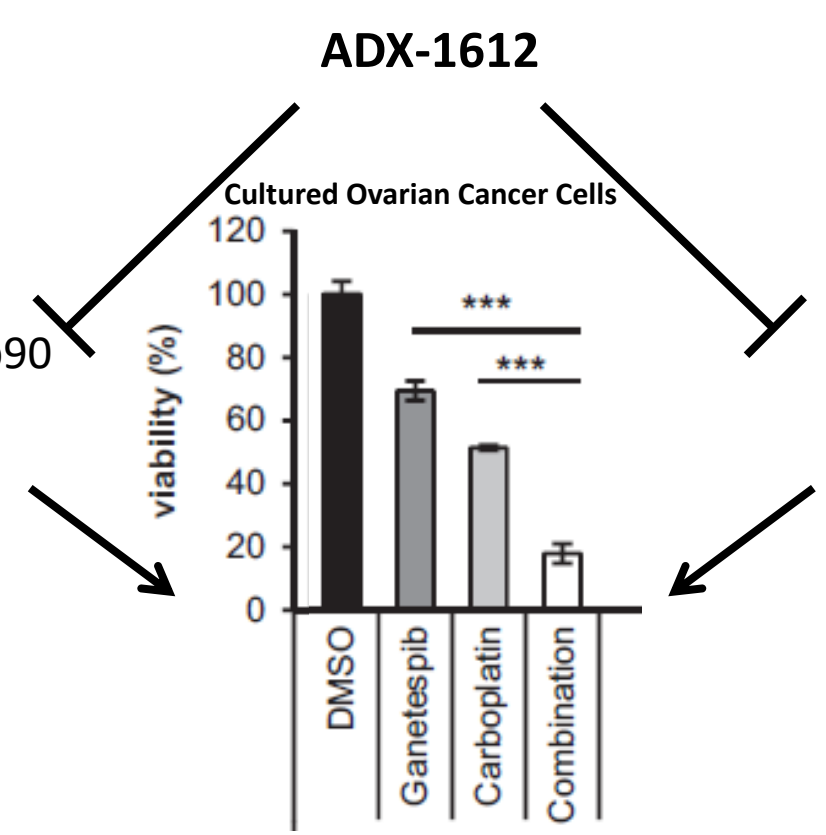
Rationale for Synergism of Hsp90 Inhibitor and Platins for The Treatment of Cancer

Platins induce **DNA damage…**

…But damaged DNA **can be repaired**

Inhibition of Hsp90 prevents repair and inhibits proteins involved in tumor cell survival





Key Cancer Proteins
Wee1
Chk1
Src
Raf
MEK
PDK1
AKT
HIF-1α
IKK
Apaf-1
STAT3
STAT5

Adapted from Noll et al., Front. Biosci. 9:421-437, 2004

Adapted from Kramer et al., Cell Death and Differ. 2:300 – 316, 2017

ADX-1612: A Promising Asset for Oncology

Investigator-sponsored trials (IST) in cancer ongoing

- **Mesothelioma:**
  ADX-1612 + pemextred (antimetabolite) / platinum (DNA damage inducer) therapy
  - Expected data readout **2H 2018**
- **Ovarian cancer (EUDARIO):**
  ADX-1612 + carboplatin + niraparib (PARP inhibitor)
  - Initiation currently anticipated **2H 2018**

Timing subject to numerous factors that may be outside the control of Aldeyra.

ADX-1615: Oral Pro-Drug of ADX-1612

- Orally administered
- Oral administration may be better suited to treatment of chronic immune-mediated disorders
- May also be useful in oncology setting
- Has shown activity in mast cell tumors in dogs (monotherapy)
  - Manuscript submitted
- Next Steps
  - Manufacturing
  - IND-enabling toxicology studies
  - Clinical testing could begin as early as 2020

Contingent on pre-clinical studies, funding, regulatory review, and other factors.

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Partnership Update

Partnership Update

Johnson & Johnson Innovation: Collaborative research agreement

- **Focus:** RASP inhibitors (not including reproxalap)
- **Indications:** immune-mediated diseases characterized by **systemic inflammation**
- Governed by **Joint Scientific Review Committee**
- Limited option for Janssen to negotiate exclusive license to compounds developed during the collaboration

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New York

2018 Progress and Near-Term Development Catalysts Support Path to Commercialization

H1 2018

- Initiated reproxalap **Phase 2b clinical trial in dry eye disease**
- Initiated reproxalap **Phase 3 clinical trial in allergic conjunctivitis**
- Entered into **research collaboration with Johnson & Johnson Innovation** in systemic inflammatory diseases
- Disclosed **in-license of a Hsp90 inhibitor**
- Clinical sites initiated for reproxalap **Phase 3, Part 1 clinical trial in Sjögren-Larsson Syndrome**

Anticipated Milestones*

H2 2018

- First patient enrolled in reproxalap Phase 3, Part 1 clinical trial in Sjögren-Larsson Syndrome **Q3 2018**
- Reproxalap dry eye disease Phase 2b clinical trial results **H2-2018**

2019

- Reproxalap allergic conjunctivitis Phase 3 results **H2-2018/early 2019**
- Reproxalap noninfectious anterior uveitis Phase 3 clinical trial results **2019**
- Reproxalap Sjögren-Larsson Syndrome Phase 3, Part 1 clinical trial results **2019**

*Contingent on funding, regulatory review, and other factors.

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Early-Stage Development Expected Milestones: Novel Approaches to Address Immune-Mediated Disease

Anticipated Milestones*

H2 2018

- ADX-1612 mesothelioma clinical trial results (investigator sponsored trial) **H2-2018**
- ADX-1612 ovarian cancer clinical trial initiation (investigator sponsored trial) **H2-2018**

2019

- ADX-629 Phase 1 clinical trial initiation **2019**
- ADX-629 NASH and/or IBD Phase 2a clinical trials initiation following Phase 1
- ADX-103 retinal disease Phase 1/2 clinical trial initiation **2019**
- ADX-1612 lymphoproliferative immune disease Phase 2 clinical trial initiation **2019**

*Contingent on pre-clinical studies, funding, regulatory review, and other factors.

Deep and Innovative Pipeline

Approach	Compound	Indication	Preclinical	Phase 1	Phase 2	Phase 3	Next Expected Milestone
RASP Inhibitors	Reproxalap Ocular	Dry Eye Disease			✓		Phase 2b results H2-2018
		Allergic Conjunctivitis			✓ ✓		Phase 3 results H2-2018 / 2019
		Noninfectious Anterior Uveitis			✓		Phase 3 results 2019
	Reproxalap Dermal	Sjögren-Larsson Syndrome			✓		Phase 3, Part 1 results 2019
	ADX-629 Systemic	Autoimmune Disease					
	ADX-103	Retinal Disease					
	Not Disclosed	Systemic Inflammatory Disease			*Research Collaboration* Janssen		
Hsp90 Inhibitors	ADX-1612	Lymphoproliferative Immune Disease					
		Ovarian Cancer					*Investigator Sponsored Trial*
		Mesothelioma					*Investigator Sponsored Trial* Phase 2 results H2-2018
	ADX-1615	Autoimmune Disease					
		Cancer					
Anti-Inflammatory	Not Disclosed	Ocular Inflammation					

RASP = Reactive Aldehydes Species that are Pro-inflammatory

✓= Positive Phase 2 clinical data reported in 2016 – 2017

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