

# BIOAGE

R&D Update  
May 8, 2026

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**Welcome & Introductions**

# Management attendees



**Kristen Fortney, PhD**  
Co-Founder & CEO



**Paul Rubin, MD**  
CMO & EVP Research



**Dov Goldstein, MD, MBA**  
CFO

# Guest presenters



**Matthias Geyer, PhD**

Director, Institute of Structural  
Biology

University of Bonn



**Michael Davidson, MD**

Clinical Professor of Medicine  
Director, Lipid Clinic

University of Chicago  
Pritzker School of Medicine



**Brian Hafler, MD, PhD**

Associate Professor  
Ophthalmology & Visual Science

Yale School of Medicine



**David Boyer, MD**

Senior Partner

Retina-Vitreous Associates  
Medical Group

## Introduction

**Kristen Fortney, PhD**  
*Co-Founder & CEO*

## BGE-102

### Structural biology insights

**Matthias Geyer, PhD**  
*University of Bonn*

### Phase 1 results

**Paul Rubin, MD**  
*CMO & EVP Research*

### Cardiovascular

**Michael Davidson, MD**  
*University of Chicago*

### Ophthalmology

**Paul Rubin, MD**  
*CMO & EVP Research*

**Brian Hafler, MD, PhD**  
*Yale University*

**David Boyer, MD**  
*Retina-Vitreous Associates*

## Closing remarks

**Kristen Fortney, PhD**  
*Co-Founder & CEO*

## Q&A

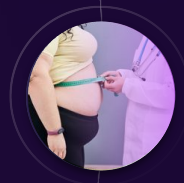
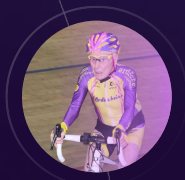
**Management Team**  
**Michael Davidson, MD**  
**Brian Hafler, MD, PhD**

# Introduction



**Kristen Fortney, PhD**  
Co-Founder & CEO

We are harnessing the biology of human aging to develop new therapies for cardiometabolic diseases



## The BioAge discovery platform: from human data to therapeutics for metabolic aging

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Validated platform: ongoing partnerships with Novartis & Lilly to discover drugs and drug targets

>150M molecular data points: one of the world's largest collections of longitudinal human aging data and functional outcomes

## BGE-102: oral brain-penetrant NLRP3 inhibitor

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Potential "pipeline in a pill" targeting efficacy in-line with injectable anti-inflammatories

CV risk: potential best-in-class profile for hsCRP reduction

- 86% reduction in hsCRP in obese subjects
- 87-93% of subjects achieved normalized hsCRP <2 mg/L

Ophthalmology: therapeutic retinal exposure enables oral treatment of diseases including DME, where intravitreal anti-IL-6 has shown benefit

Anticipated catalysts: CV risk POC H2:2026, DME POC mid-2027

## APJ agonism: exercise mimetic for obesity

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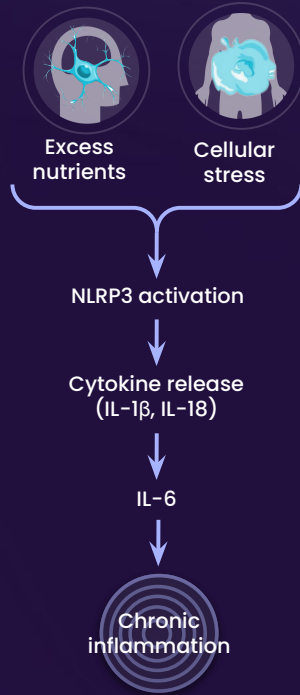
Obesity: potential to double weight loss & fully restore body composition when combined with an incretin in preclinical models

Anticipated catalysts: IND submission 2026 YE

# Chronic NLRP3 activity drives disease & predicts poor human longevity

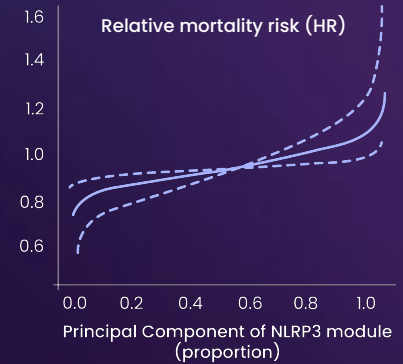
## NLRP3 overview

- Normal NLRP3 function: innate immune response to danger signals
- In pathology: cellular stress & nutrient excess stimulates chronic activation
- Resulting chronic inflammation drives a range of diseases



## NLRP3 in human longevity & disease

Reduced NLRP3 activity is associated with longevity



**Strong human genetic evidence for NLRP3 in cardiometabolic disease**



**Mendelian randomization:** NLRP3 levels strongly predictive of heart failure ( $\uparrow$  1 SD expression = up to  $\uparrow$  70% risk)

**GoF mutations**  $\downarrow$  lean mass & body composition  $\uparrow$  atherosclerosis

# Our lead program, BGE-102, is well positioned to address diseases driven by inflammation in both the CNS and the periphery

## Key attributes



**Potential best-in-class potency** based on Phase 1 trial results

**1.8 nM IC<sub>90</sub>** by human ex vivo whole blood stimulation

**24h IC<sub>90</sub> coverage** at 60 mg QD provided 24-hour IL-1 $\beta$  suppression  $\geq$ 90%

**86% hsCRP reduction; 87-93% of subjects achieved normalized hsCRP (<2 mg/L)\***

in line with injectable anti-IL-6 drugs



**CNS penetrant**

~0.7 Kp<sub>uu<sub>CSF</sub></sub>  
(120 mg MAD, day 14)



**Attractive safety & tolerability**

All AEs to date mild / moderate,  
self-limited, with no dose  
dependency



**50-97x safety margin for  
60 mg dose\*\***

based on 3-month GLP tox



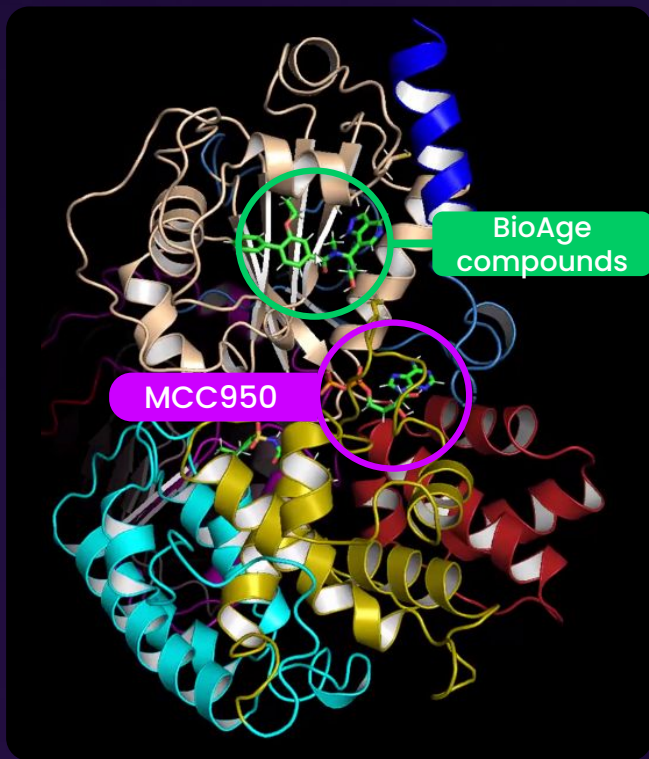
**Strong IP position**

2045 composition of  
matter & claims for  
novel NLRP3 binding site

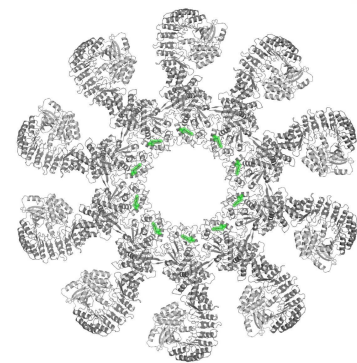
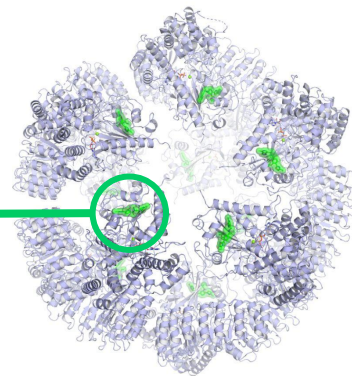
Note: \* in MAD cohorts – obese subjects with baseline hsCRP > 3 mg/L; \*\* based on Phase 1 healthy volunteer MAD at Day 14

# BioAge NLRP3 inhibitors: unique, patented binding site & novel mechanism

Unique binding site



Our inhibitors bind both the active & inactive inflammasome, unlike other NLRP3 inhibitors



Discovery of potent and selective inhibitors of human NLRP3 with a novel mechanism of action



The discovery of novel and potent indazole NLRP3 inhibitors enabled by DNA-encoded library screening

Bioorganic & Medicinal  
Chemistry Letters

Inhibition of NLRP3 by a CNS-penetrating indazole scaffold

bioRxiv

# NLRP3

Structural biology insights

Phase 1 results

Cardiovascular

Ophthalmology

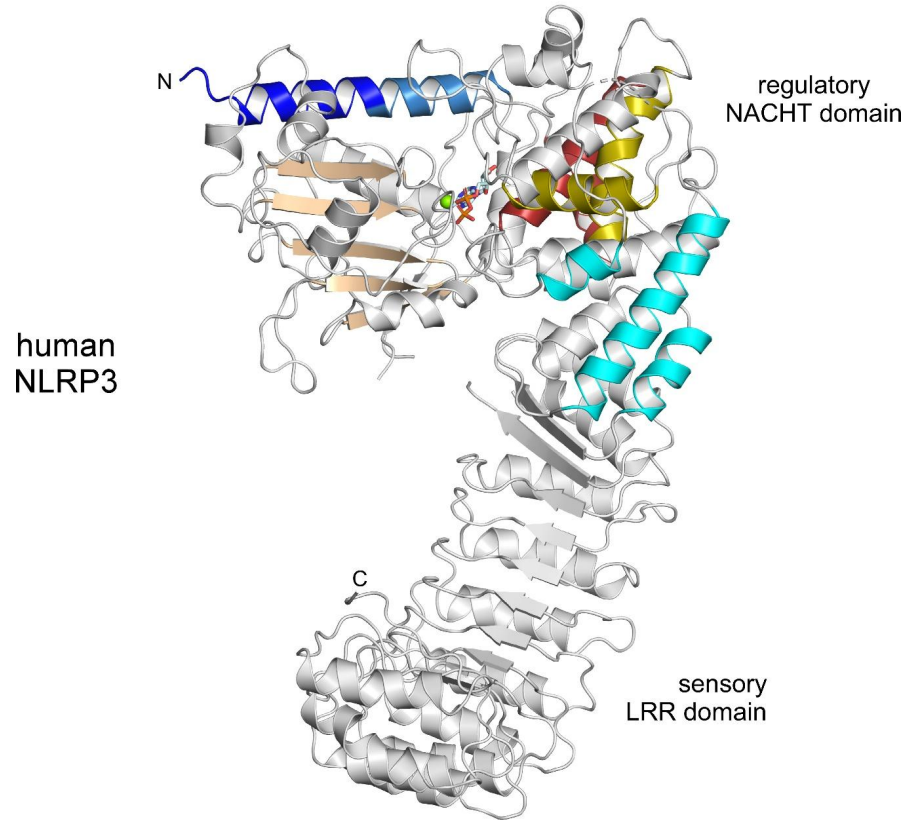


**Matthias Geyer, PhD**

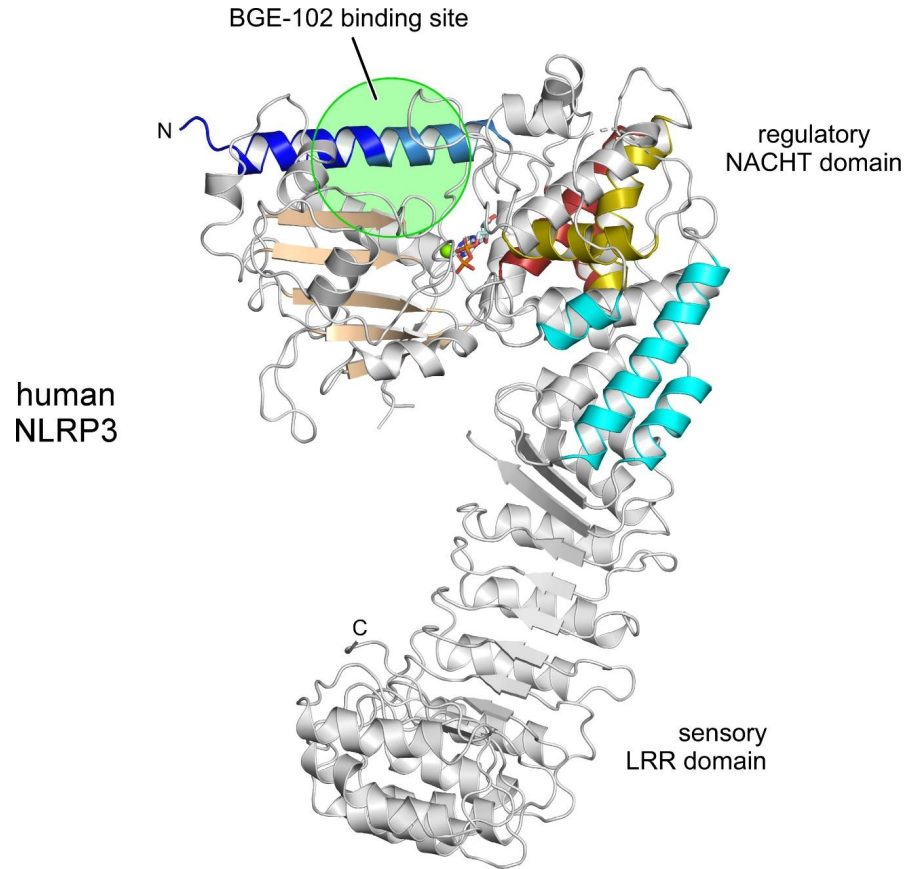
Director, Institute of Structural Biology  
University of Bonn

**A new way to  
inhibit NLRP3**

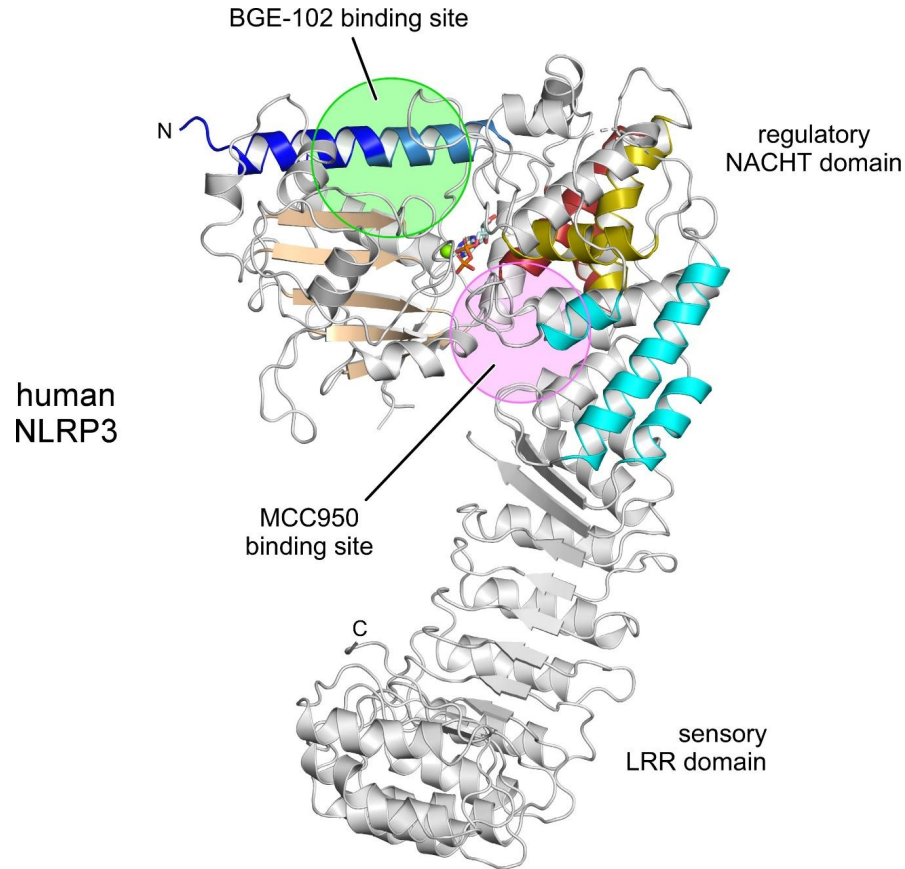
# BGE-102 targets a different site on NLRP3 than other inhibitors in development



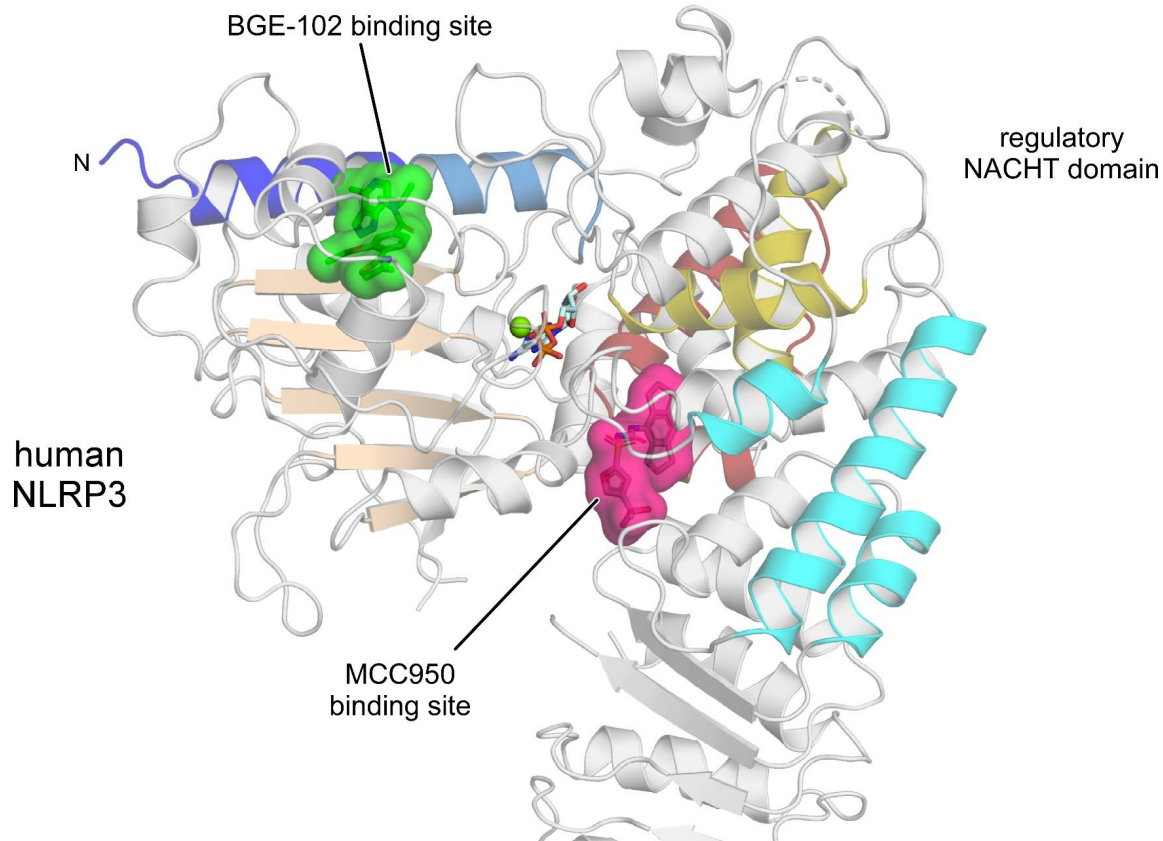
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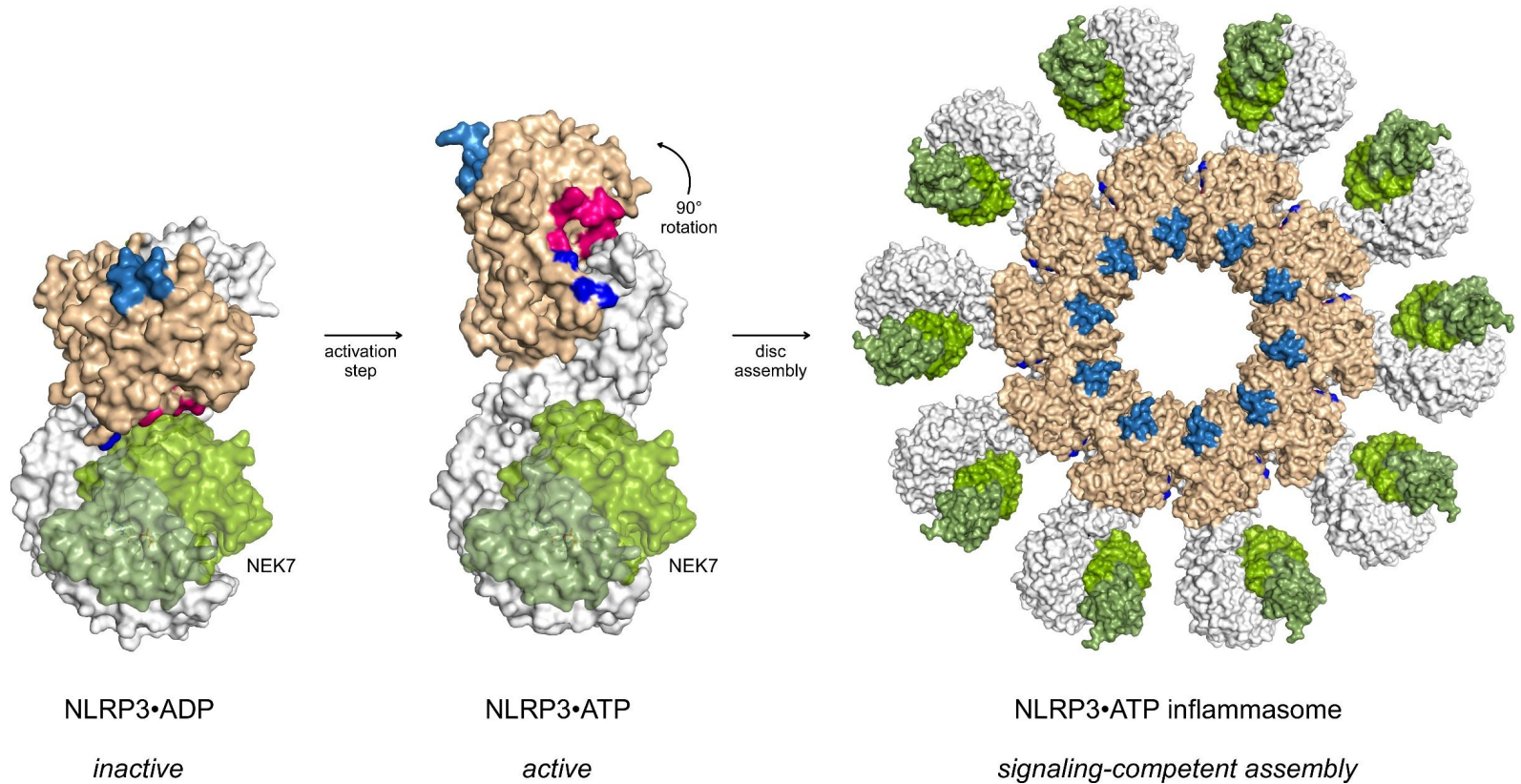
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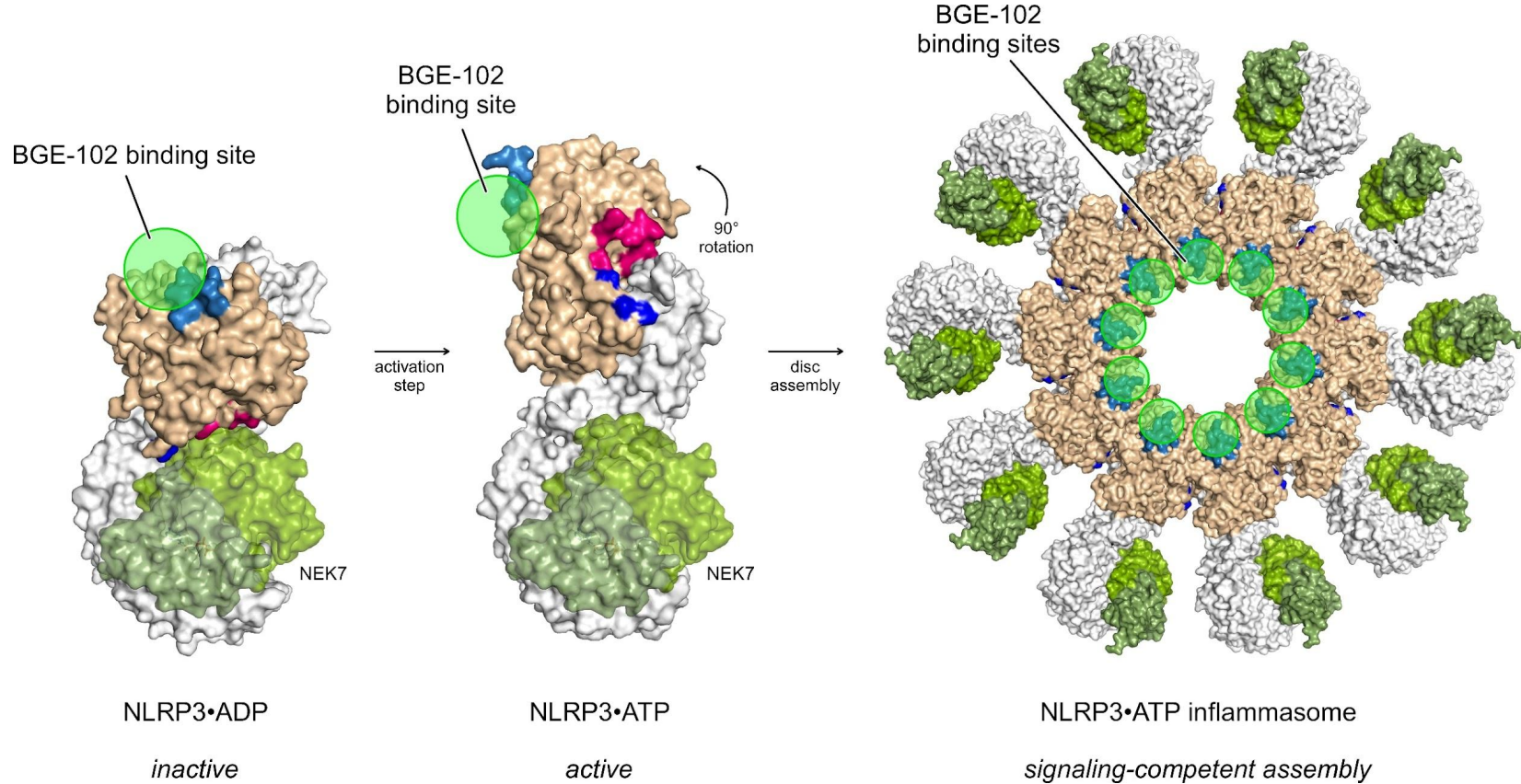
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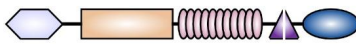









# BGE-102 inhibits both forms of NLRP3 – the resting state and the active inflammasome











# BGE-102 inhibits both forms of NLRP3 – the resting state and the active inflammasome



# BGE-102 is selective for NLRP3

Subfamily	Protein	Function	Domain architecture
NLRP	NLRP1	inflammasomal signaling	
	NLRP2,-7,-9	inflammasomal signaling, embryonic development	
	NLRP3	inflammasomal signaling	
	NLRP5	embryonic development	
	NLRP6	inflammasomal signaling, NF-κB and MAPK signaling inhibition, type I IFNs	
	NLRP8,-13	unknown	
	NLRP10	NF-κB regulation	
	NLRP11	NF-κB and MAPK signaling inhibition	
	NLRP12	inflammasomal signaling, NF-κB and MAPK signaling inhibition	
	NLRP14	spermatogenesis	

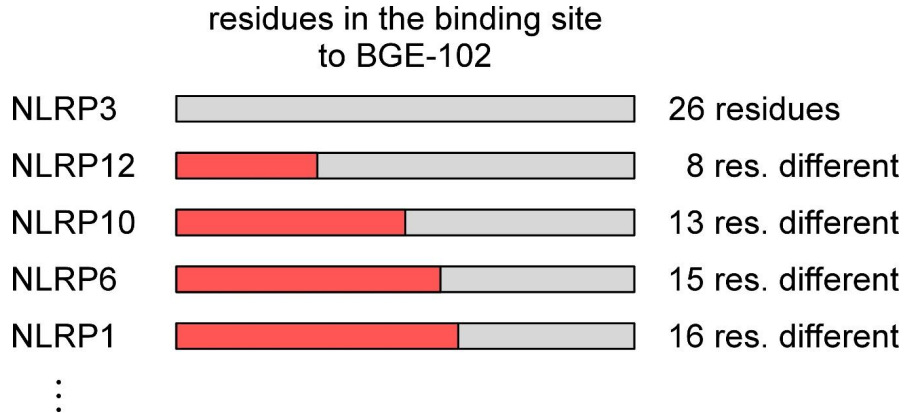
Subfamily	Protein	Function	Domain architecture
NLRA	CIITA	MHC II expression	
NLRB	NAIP	T3SS and flagellin recognition	
NLRC	NOD1	NF-κB and MAPK signaling, autophagy	
	NOD2	NF-κB and MAPK signaling, autophagy, type I IFN	
	NLRC3	negative regulator of T-cell activation	
	NLRC4	inflammasomal signaling with NAIP	
	NLRC5	MHC I expression, antiviral response	
	NLRX1	antiviral response, type I IFN inhibition, ROS regulation, autophagy	

 CARD 
  AD 
  NACHT 
  LRR 
  BIR 
  unknown 
  PYD 
  FIIND

There are 22 human NOD-like receptors

# BGE-102 is selective for NLRP3



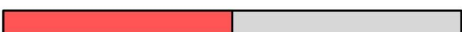

The BioAge compound binding site is in pocket of NLRP3 that is different from every other inflammasome

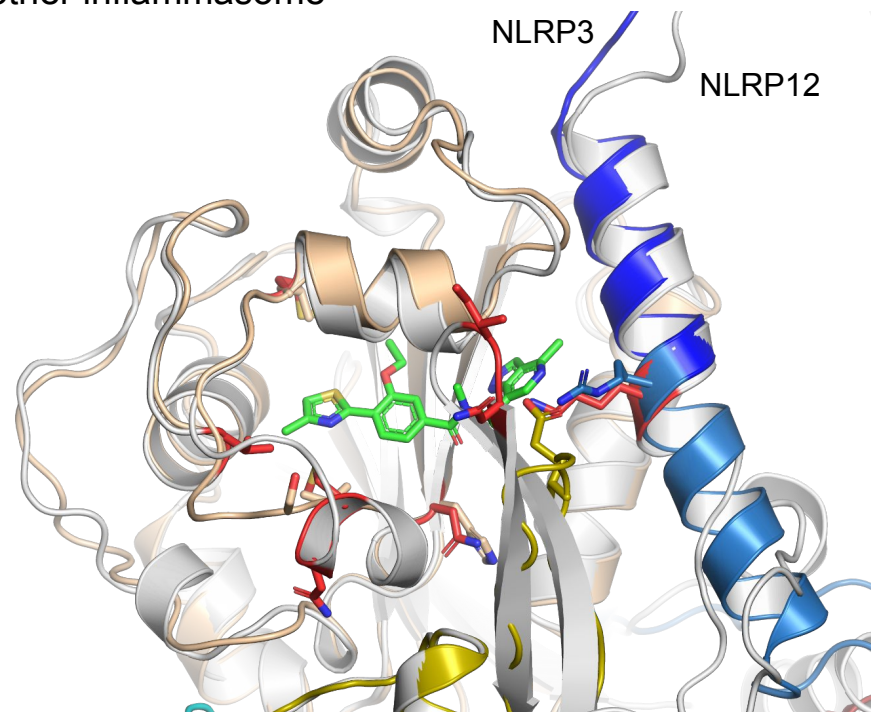


# BGE-102 is selective for NLRP3

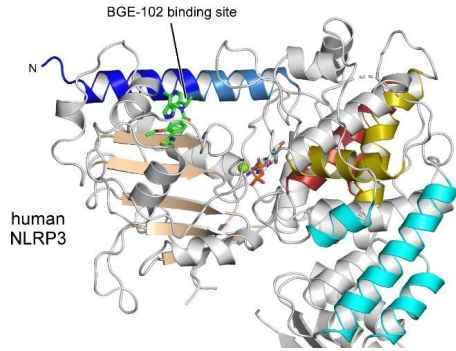
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residues in the binding site to BGE-102

NLRP3		26 residues
NLRP12		8 res. different
NLRP10		13 res. different
NLRP6		15 res. different
NLRP1		16 res. different
⋮		

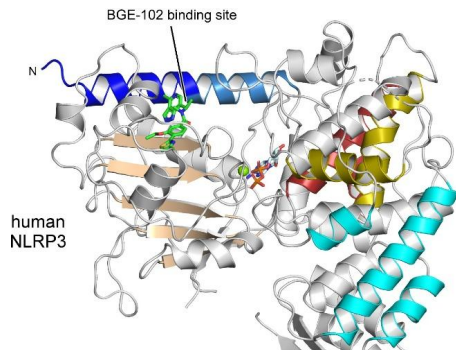


# Three structural features set BGE-102 apart

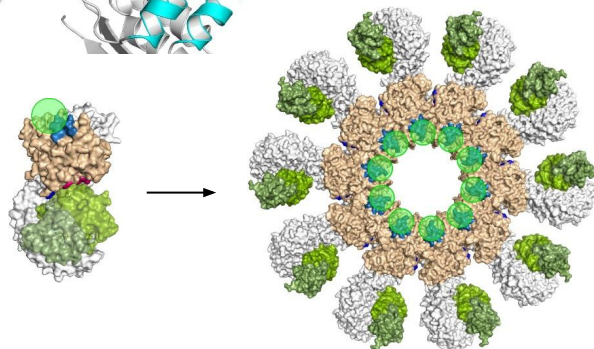


The BGE-102 binding site on NLRP3 is **unique** from every other inhibitor in the clinic

# Three structural features set BGE-102 apart

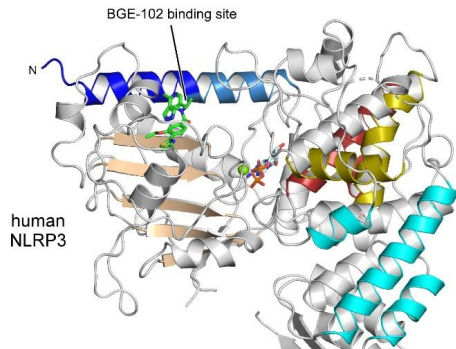


The BGE-102 binding site on NLRP3 is **unique** from every other inhibitor in the clinic

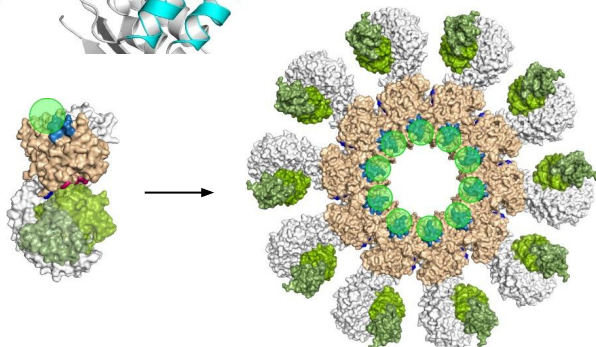


The BGE-102 binding site is accessible in the **resting** and **active state** of NLRP3

# Three structural features set BGE-102 apart








The BGE-102 binding site on NLRP3 is **unique** from every other inhibitor in the clinic



The BGE-102 binding site is accessible in the **resting** and **active state** of NLRP3

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NLRP3		26 residues
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NLRP1		16 res. different
⋮		

The BGE-102 binding site is **selective for NLRP3 alone** within the inflammasome family

# NLRP3

Structural biology insights

Phase 1 results





Cardiovascular



Ophthalmology



**Paul Rubin, MD**  
CMO & EVP Research

# Phase 1 clinical trial design

	Single Ascending Dose HVs & obese	Multiple Ascending Dose HVs - 14 days of dosing	Multiple Ascending Dose Obese - 14-21 days of dosing
<b>Objectives</b>	Safety & tolerability, pharmacokinetics, pharmacodynamics (IL-1 $\beta$ , hsCRP)		
<b>Subjects</b>	HVs (N=36) & obese subjects (N=9)	HVs (N=18)	Obese subjects with hsCRP > 3 mg/L (N=41)
<b>Design</b>	5 cohorts x  HVs: 10 mg   30 mg   60 mg   120 mg Obese: 60 mg (fed / fasted)	2 cohorts x  60 mg   120 mg	60 mg  21 days 120 mg  14 days

Note: HVs = healthy volunteers  active  placebo  
 All cohorts conducted in a clinical trial unit; for post-baseline visits, window +/- 1 day

# BGE-102 met key trial objectives

## Safety / tolerability

- Well tolerated with all mild / moderate, self-limited AEs
- No dose-limiting toxicities

## Pharmacokinetics

- Dose-proportional exposure with  $T_{1/2}$  supporting QD dosing

## Pharmacodynamics

*After 14 days of dosing at 60 mg QD in healthy volunteers:*

- $\geq 90\%$  suppression of IL-1 $\beta$  for 24 hours
- Drug levels in CSF  $> IC_{90}$

## Efficacy

*After 21 days of dosing at 60 mg QD in obese subjects:*

- 86% reduction in hsCRP
- 87% of subjects achieved normalized hsCRP ( $< 2$  mg/L)

*After 14 days of dosing at 120 mg QD in obese subjects:*

- 86% reduction in hsCRP
- 93% of subjects achieved normalized hsCRP ( $< 2$  mg/L)

# BGE-102 was well tolerated

- Only mild / moderate treatment-emergent AEs (TEAEs); all self-limited with no dose dependency
- No serious AEs
- No TEAEs leading to discontinuation
- No clinically meaningful adverse changes in vital signs, laboratory values, or ECGs

TEAEs	All BGE-102 (N=82)	All placebo (N=22)
Subjects with at least 1 AE	50 (61.0%)	13 (59.1%)
Subjects with mild TEAEs	49 (59.8%)	12 (54.5%)
Subjects with moderate TEAEs	8 (9.8%)	3 (13.6%)

# Obese MAD cohorts: baseline characteristics

Baseline characteristic	60 mg obese MAD (N=19)	120 mg obese MAD (N=14)	Obese placebo (N=8)
Age, years, mean (SD)	41.7 (9.8)	39.4 (9.8)	38.8 (6.7)
Male, n (%)	7 (36.8)	8 (57.1)	2 (25.0)
Female, n (%)	12 (63.2)	6 (42.9)	6 (75.0)
Race, n (%)			
White	10 (52.6)	11 (78.6)	2 (25.0)
Black or African American	6 (31.6)	2 (14.3)	3 (37.5)
American Indian or Alaska Native	1 (5.3)	0	0
Native Hawaiian or Other Pacific Islander	1 (5.3)	0	0
Multiple	1 (5.3)	1 (7.1)	3 (37.5)
Weight, kg, mean (SD)	99.9 (12.7)	99.0 (13.3)	107.2 (8.7)
BMI, kg/m <sup>2</sup> , mean (SD)	34.9 (2.9)	35.1 (2.4)	36.0 (3.3)
hsCRP (mg/L), median (IQR)	6.30 (2.95; 7.80)	4.85 (3.68; 6.40)	5.35 (3.33; 7.10)
IL-6 (pg/mL), median (IQR)	2.23 (1.75; 2.65)	2.33 (1.88; 3.06)	1.85 (1.47; 2.55)

# Obese MAD cohorts: safety and tolerability

TEAEs	60 mg obese MAD (N=19)	120 mg obese MAD (N=14)	Obese placebo (N=8)
Subjects with any related TEAE, n (%)	5 (26.3%)	2 (14.3%)	1 (12.5%)
Subjects with TEAE leading to discontinuation, n	0	0	0
Subjects with SAE or severe TEAE, n	0	0	0
TEAE: neutropenia, thrombocytopenia, or infections and infestations, n	0	0	0

The only related adverse event occurring in >1 subject on active treatment across pooled MAD cohorts (healthy volunteers and obese) was headache, which occurred in 6 subjects (12.8%)

# NLRP3

Structural biology insights

## Phase 1 results

Healthy volunteer SAD / MAD

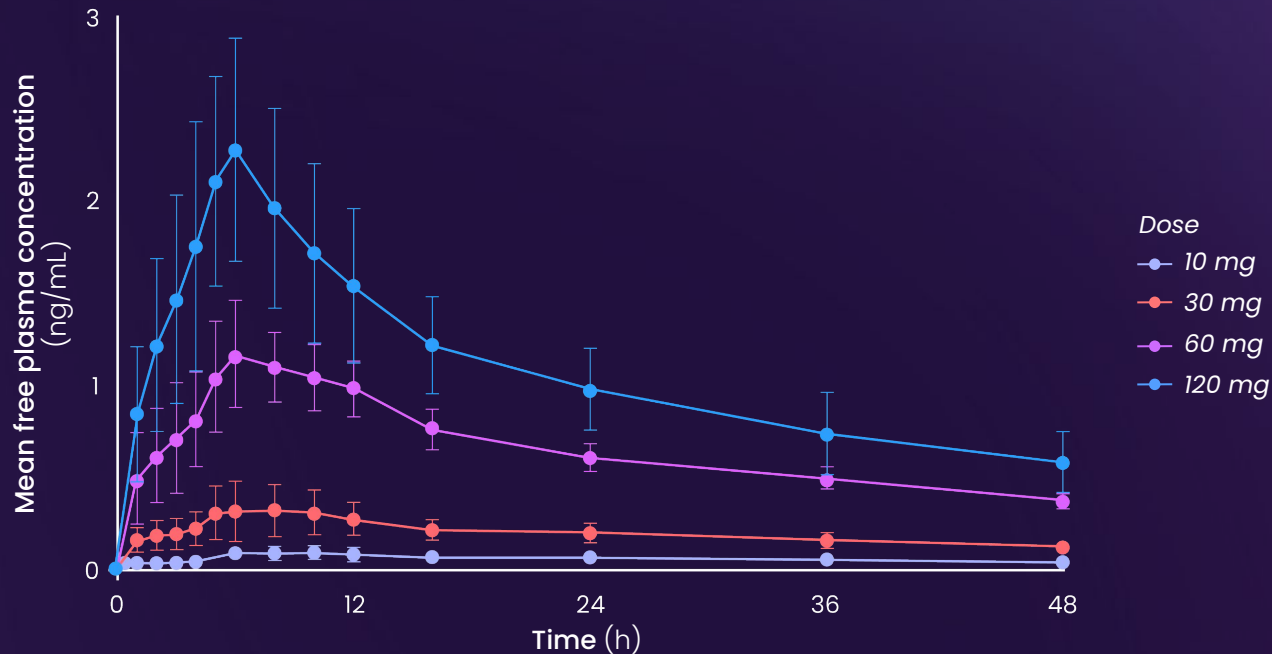
Obese MAD

Cardiovascular

Ophthalmology

# Plasma PK: dose-proportionality observed in SAD cohorts

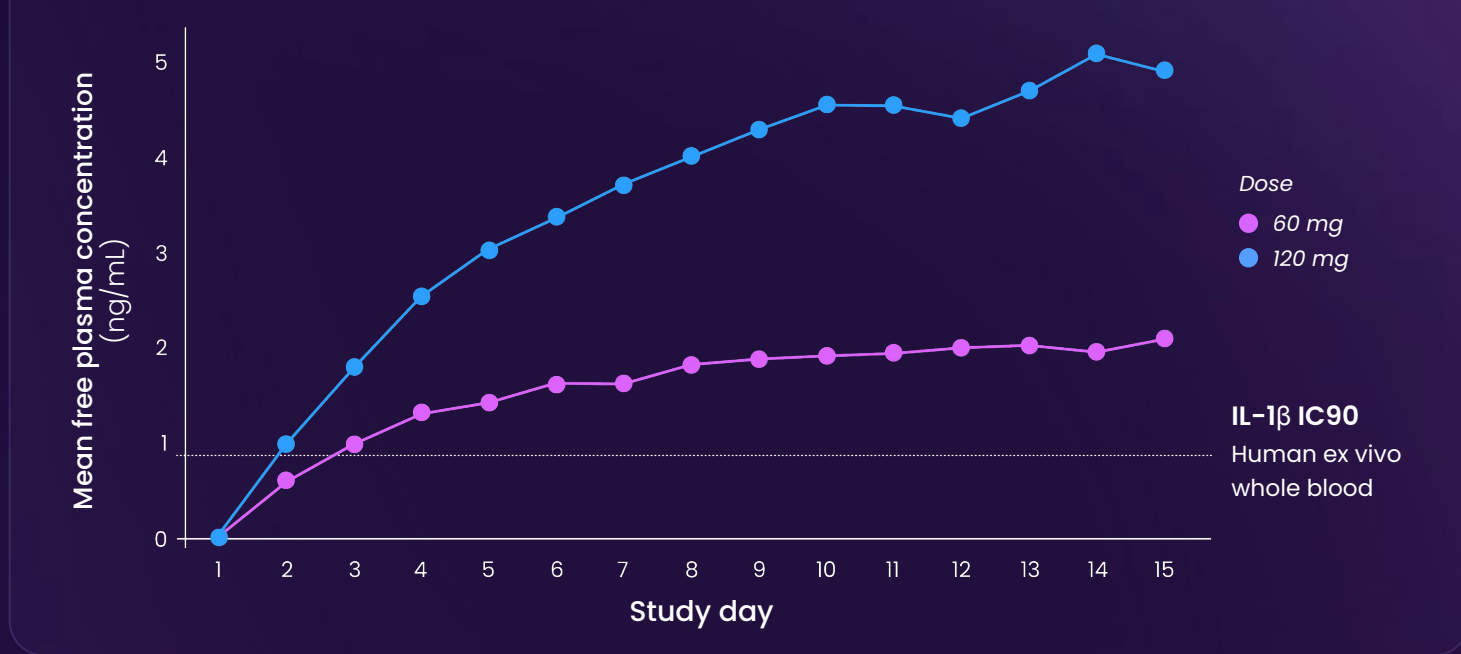
SAD cohorts: mean plasma PK  
BGE-102 and active metabolite\* free concentration



Note: \* combined concentration of BGE-102 and its sole active metabolite M1, which acts as an NLRP3 inhibitor of comparable potency. M1 has been previously shown to have a large safety margin in rat & dog toxicology studies.

# Plasma PK: MAD cohorts showed accumulation out to 14 days with near steady-state levels above the human IC<sub>90</sub> for IL-1 $\beta$ inhibition

MAD cohorts: mean plasma PK at trough (pre-dose)  
BGE-102 and active metabolite free concentration



Note: \* IC<sub>90</sub> calculated from first 24 hours of treatment of healthy volunteers in SAD & MAD cohorts

# CSF PK: doses of 60 mg and above exceeded human IC<sub>90</sub> at near steady state

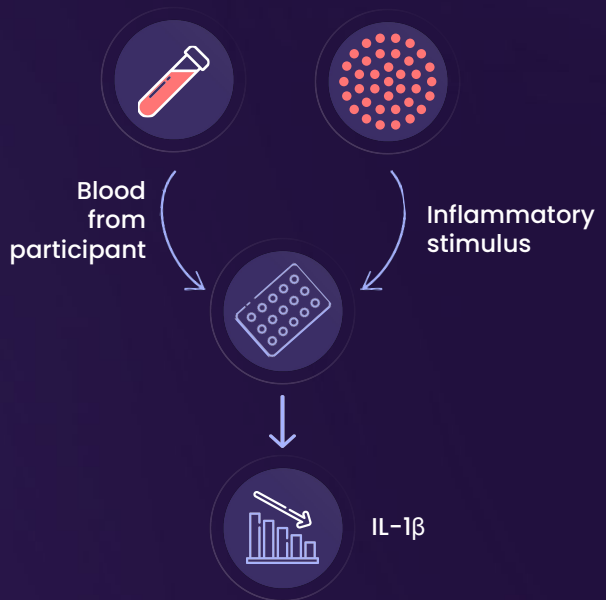
## MAD cohorts: Day 14 CSF PK

BGE-102 and active metabolite, 11-13 hours post-dose

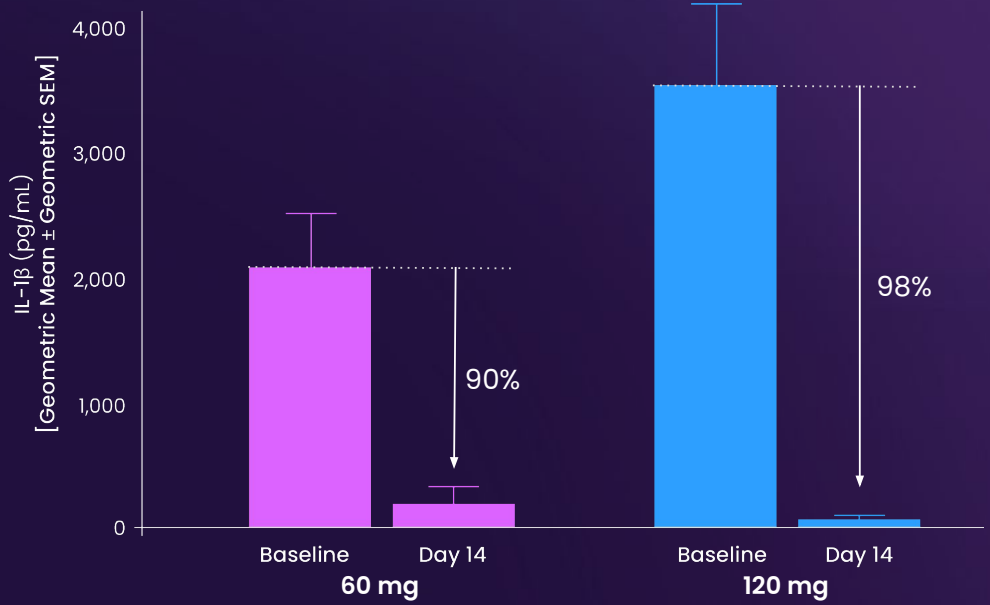


# PK / PD: 90-98% suppression of IL-1 $\beta$ at BGE-102 trough in MAD cohorts

## Ex vivo whole blood stimulation



## MAD cohorts: mean IL-1 $\beta$ with ex vivo stimulation at trough baseline vs Day 14



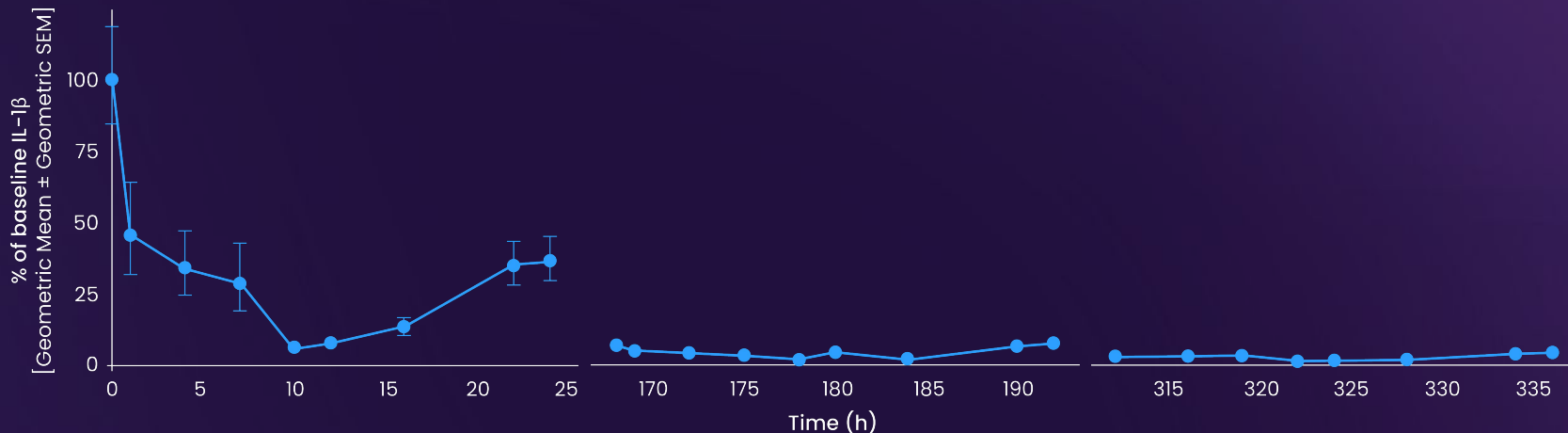
# PK / PD: 24 hours of near-maximal suppression of IL-1 $\beta$ achieved by Day 8

120 mg MAD

Day 1

Day 8

Day 14



# NLRP3

Structural biology insights

## Phase 1 results

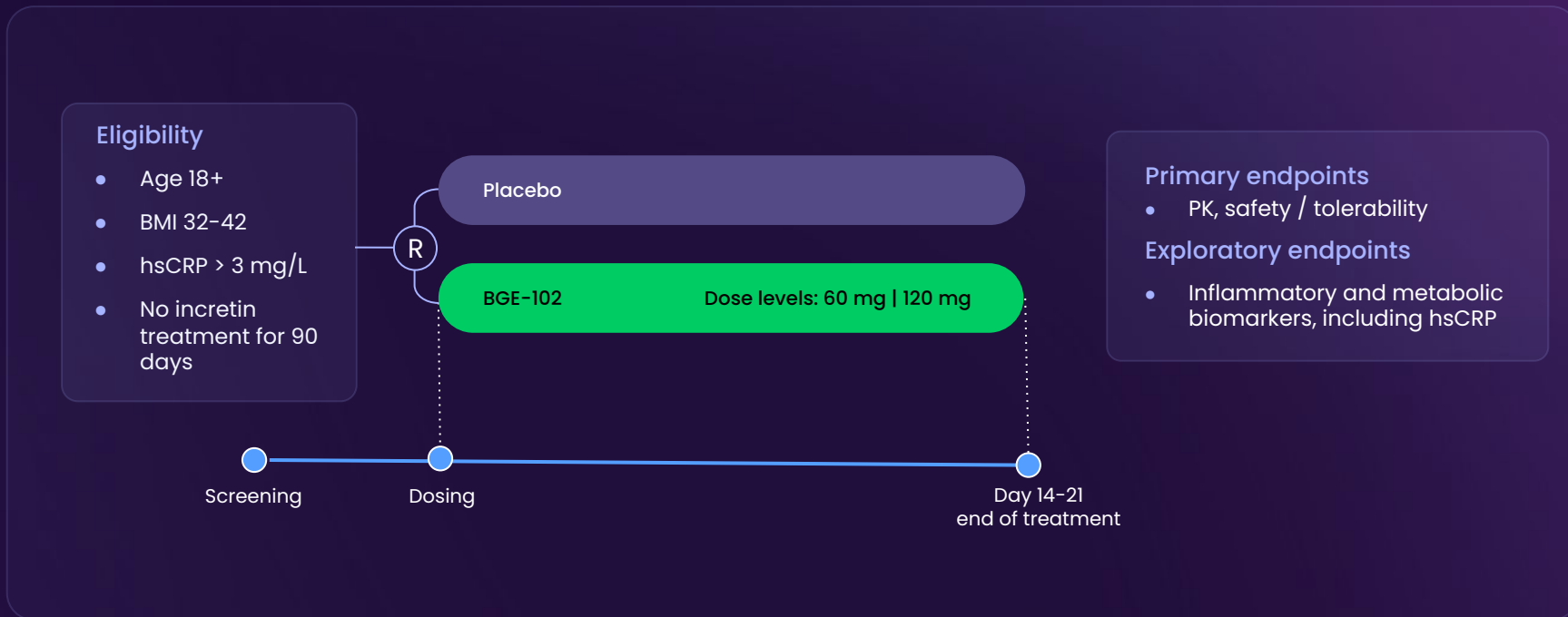
Healthy volunteer SAD / MAD

Obese MAD

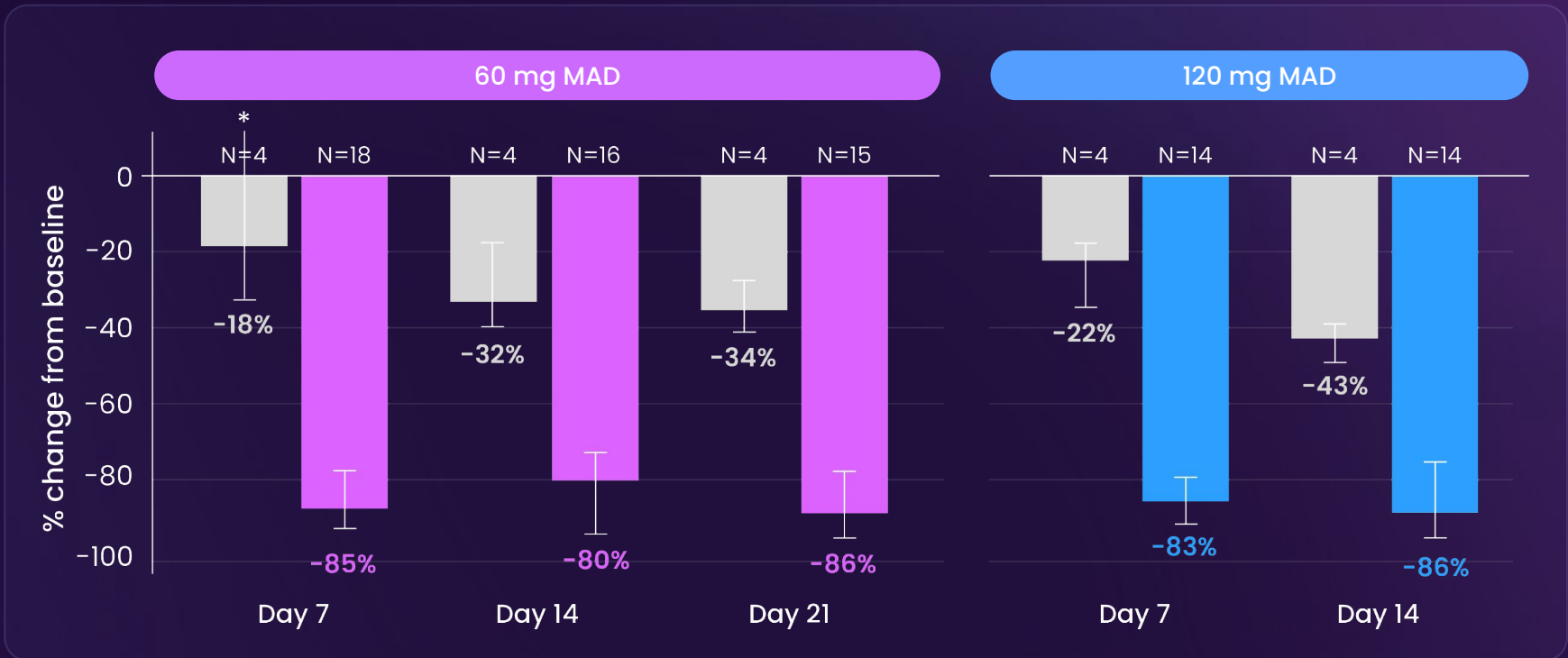
Cardiovascular

Ophthalmology

# The Phase 1 trial included 2 obese MAD cohorts, enabling evaluation of biomarkers including hsCRP

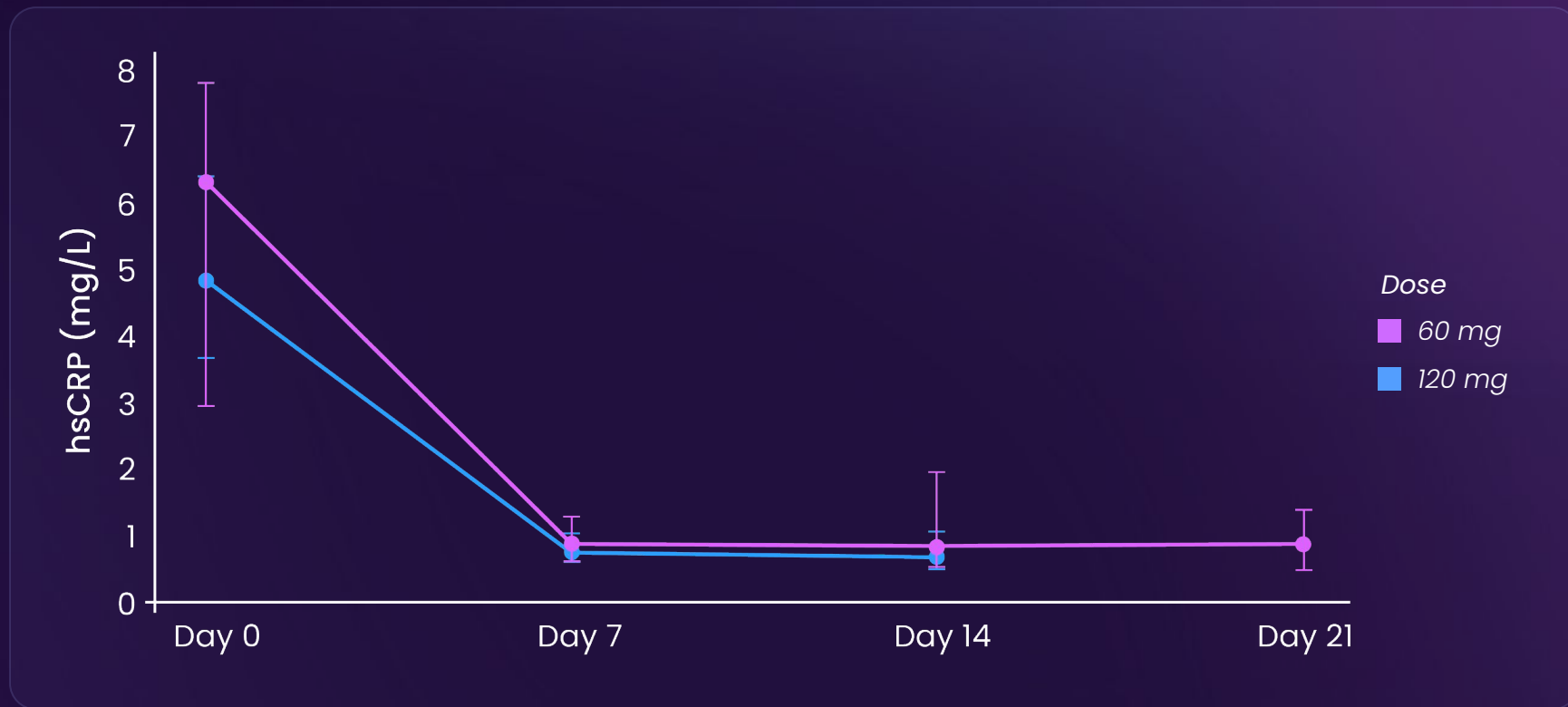


# 60 mg & 120 mg doses of BGE-102 resulted in 86% reductions in hsCRP, consistent with best-in-class efficacy



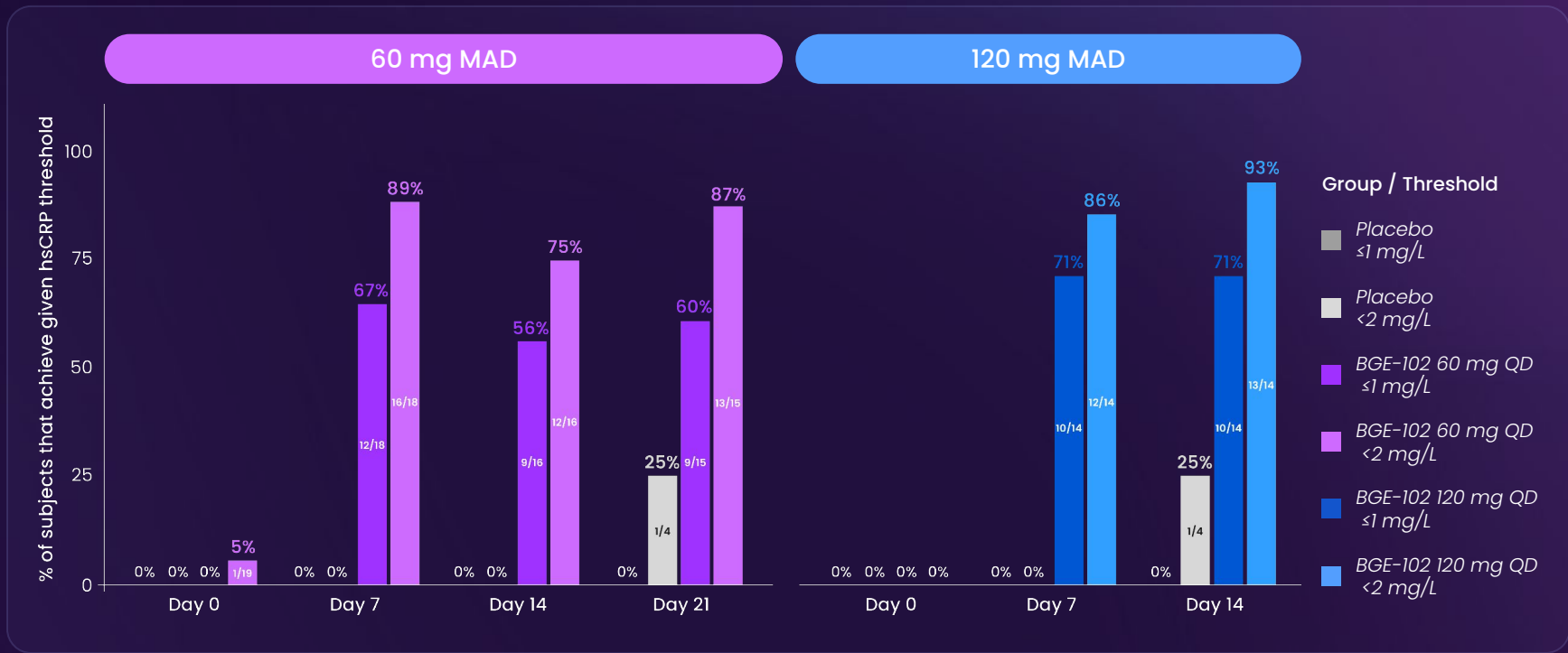
Note: median values, error bars show IQR (Q1-Q3); \* Day 7 placebo IQR upper limit is 115%; median baseline hsCRP 60 mg cohort 6.30 mg/L for both active treatment and placebo, 120 mg cohort 4.85 mg/L for active treatment and 4.25 mg/L for placebo

# Similar hsCRP trajectories in both obese MAD cohorts



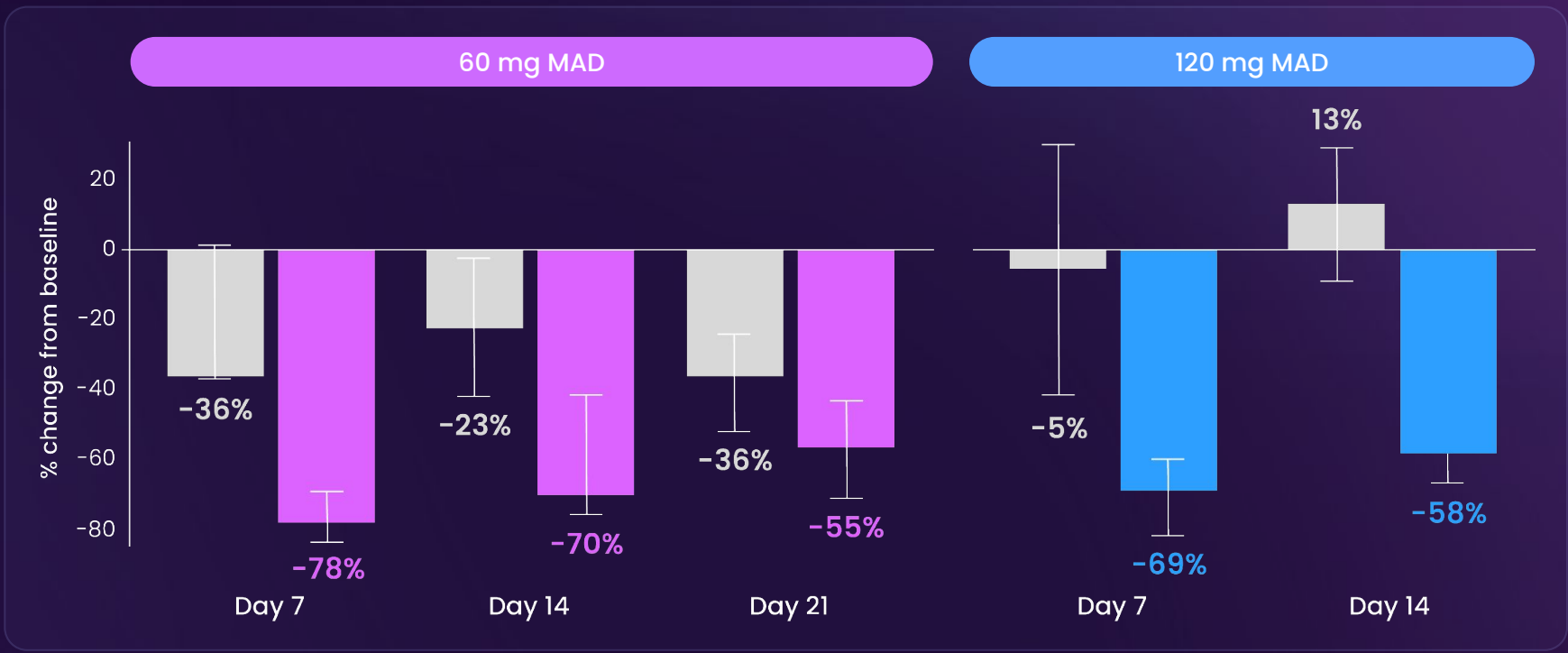
Note: median values, error bars show IQR (Q1-Q3); median baseline hsCRP for subjects on active treatment 60 mg cohort 6.30 mg/L, 120 mg cohort 4.85 mg/L

# 87-93% of subjects on BGE-102 achieved normal hsCRP levels (<2 mg/L)



Note: median baseline hsCRP 60 mg cohort 6.30 mg/L for both active treatment and placebo, 120 mg cohort 4.85 mg/L for active treatment and 4.25 mg/L for placebo

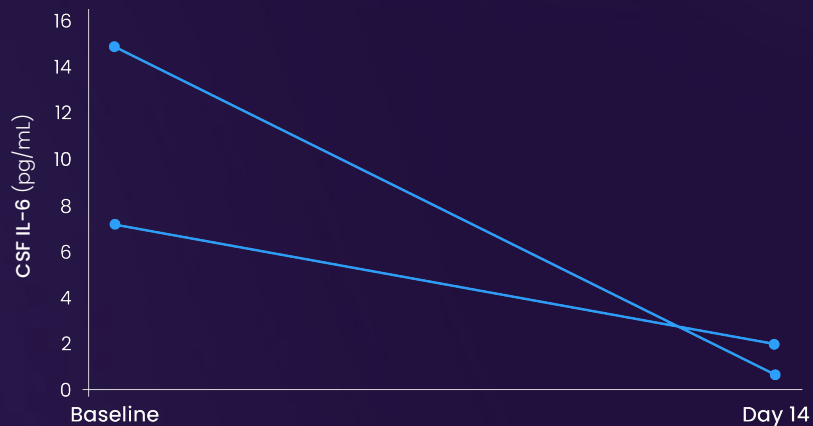
# 60 mg & 120 mg doses of BGE-102 resulted in comparable IL-6 reductions



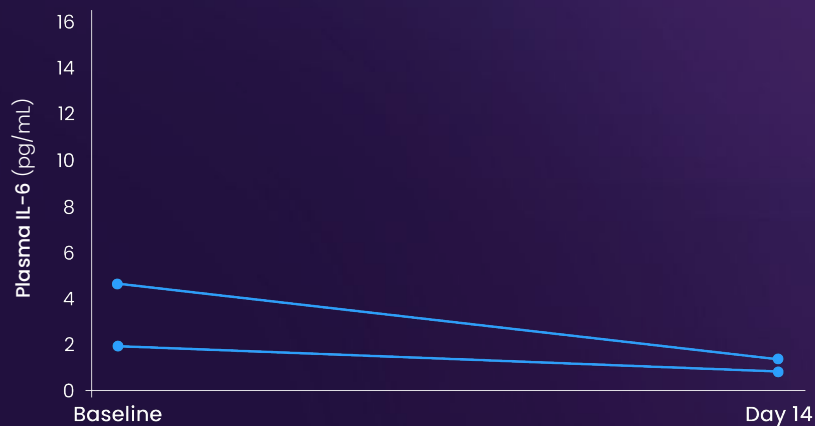
Note: median values, error bars show IQR (Q1-Q3); median baseline IL-6 60 mg cohort 2.2 pg/mL for active treatment and 2.8 pg/mL for placebo, 120 mg cohort 2.3 pg/mL for active treatment and 1.3 pg/mL for placebo

In the 2 subjects with elevated baseline CSF IL-6, BGE-102 reduced levels by 84% in the Day 14 CSF

CSF IL-6\*

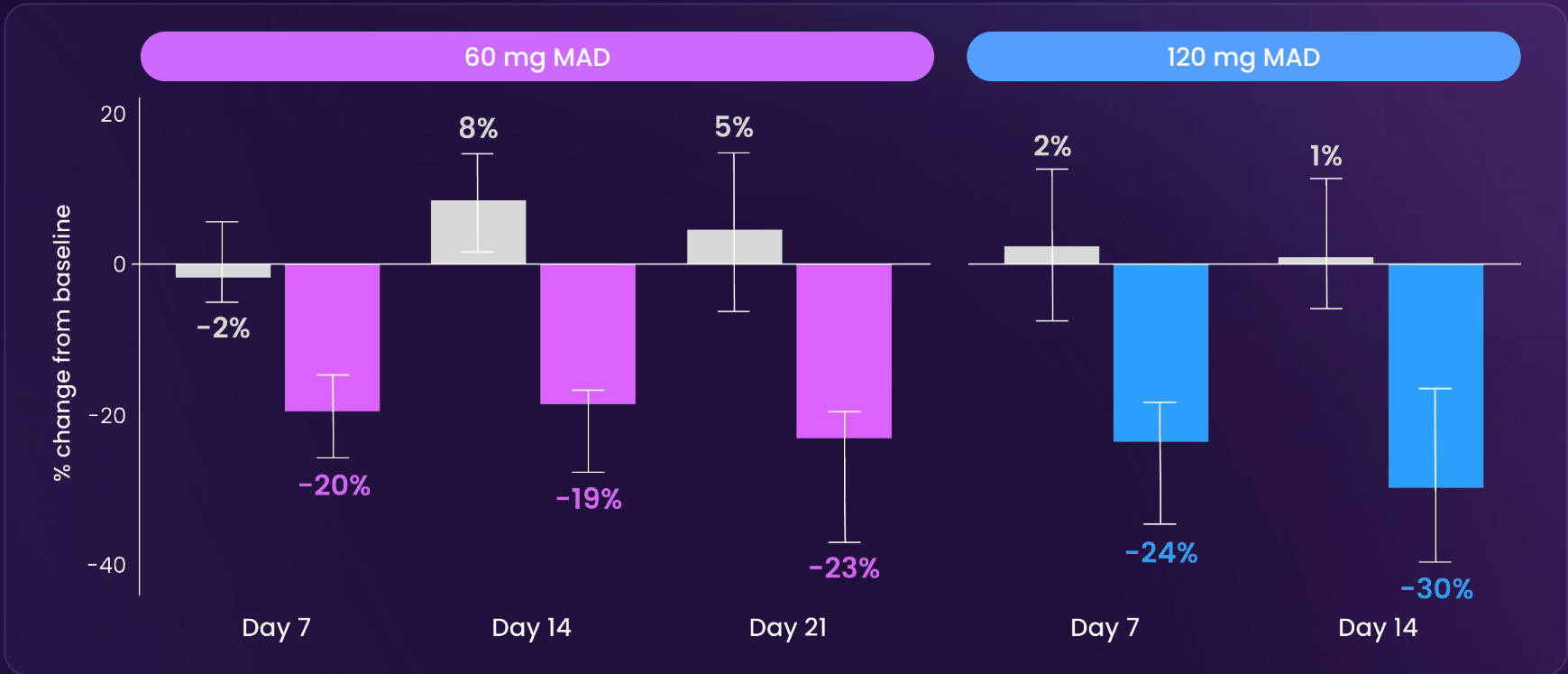


Plasma IL-6



Note: \* IL-6 levels >7 pg/mL in the CSF are considered elevated; corresponding decrease in the plasma was 62%; measurements performed using the Alamar NULISA platform

# 60 mg & 120 mg doses of BGE-102 resulted in comparable reductions in fibrinogen



Note: median values, error bars show IQR (Q1-Q3); median baseline fibrinogen 60 mg cohort: 362 mg/dL for active treatment and 379 mg/dL for placebo, 120 mg cohort: 331 mg/dL for active treatment and 290 mg/dL for placebo

# NLRP3

Structural biology insights

Phase 1 results

**Cardiovascular**

Ophthalmology



**Paul Rubin, MD**  
CMO & EVP Research

# BGE-102 has the potential to address a range of cardiometabolic and neuroinflammatory disorders

Neuro-inflammation

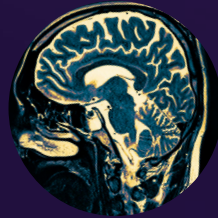


Peripheral inflammation

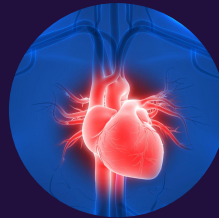


## BGE-102 addressable diseases

Neurodegeneration



Ocular



CVD  
(ASCVD, HF)



Insulin  
resistance

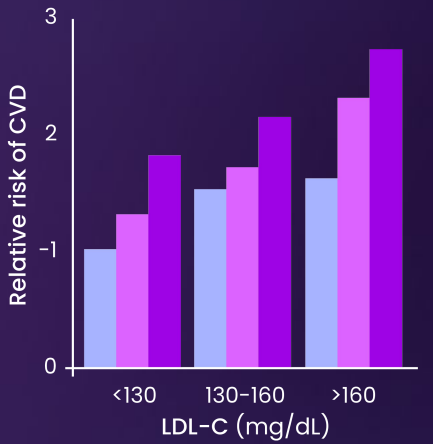


MASLD /  
MASH

# The CV opportunity

Inflammation is an independent risk factor for CVD

hsCRP (mg/L)    ■ <1.0    ■ 1.0-3.0    ■ >3.0



15M addressable patients in the US alone

**~60%**  
of 25M ASCVD patients have elevated hsCRP

Orals are highly preferable

**>80%**  
of statins are prescribed by PCPs

Potential for oral fixed-dose combinations with other CV risk mechanisms (e.g., PCSK9, GLP-1)

Lipid-lowering therapies set precedent for large market

**\$50B**  
expected global market size of lipid-lowering therapies by 2035

Source: Ridker 2002, Nguyen 2024, Mazhar 2024, broker reports, Towards Healthcare

# Planned CV risk POC



Note: \* PK modeling indicates that the 90 mg QD dose at steady state will reach or exceed exposures from the 120 mg QD dose after 1 week, where we observed maximal IL-1β inhibition.



**Michael Davidson, MD**

Clinical Professor of Medicine  
Director, Lipid Clinic

University of Chicago  
Pritzker School of Medicine

## Anti-inflammatory strategies for ASCVD

# Role of inflammation in atherosclerosis?

- A fierce debate started in the 19th century -

**Both observed cellular inflammatory changes in the atherosclerotic vessel walls**



**Carl von Rokitansky**

*"Inflammation accompanies atherosclerosis"*

Rokitansky;  
*A manual of pathologic anatomy.* 1852



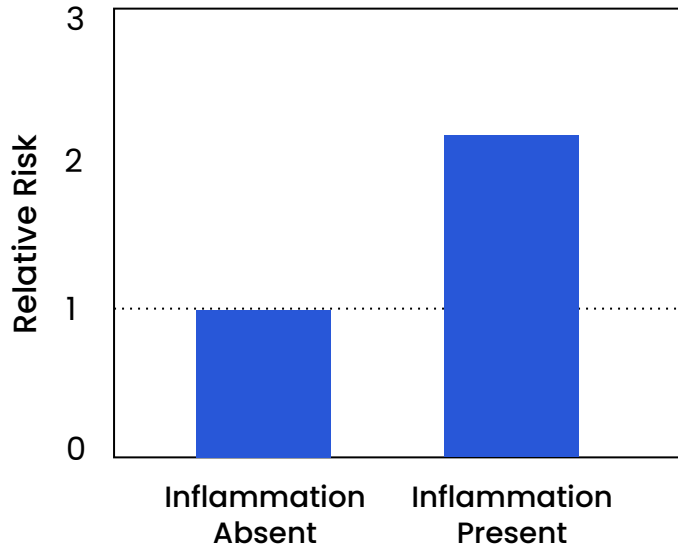
**Rudolf Virchow**

*"Inflammation initiates atherosclerosis"*

Virchow R. *Der atheromatöse Prozess der Arterien.* *Wien Med Wschr* 1856

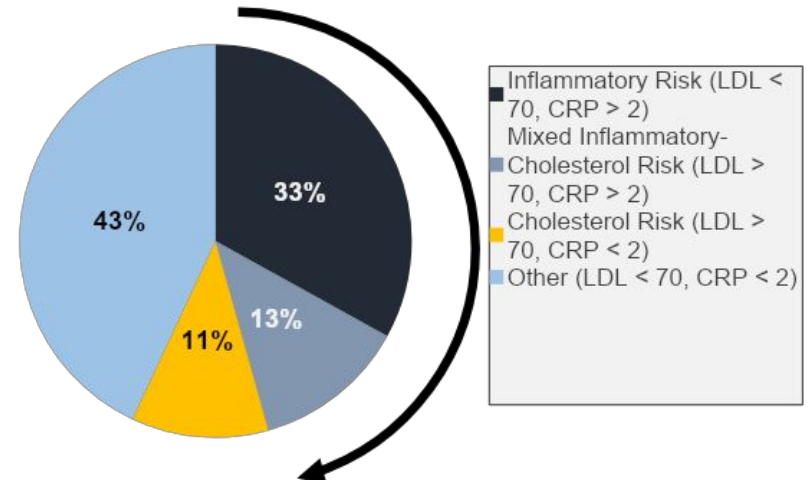
# Chronic Inflammation is a Driver of Cardiovascular Risk

>2-fold increase in relative CV risk due to inflammation



Adapted from 1998\_ridker\_Circulation

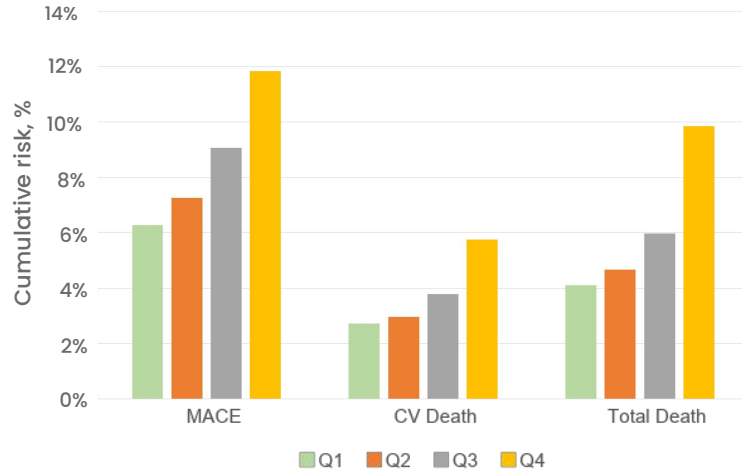
~46% of patients with inflammation despite maximal lipid therapy (across 4 studies)



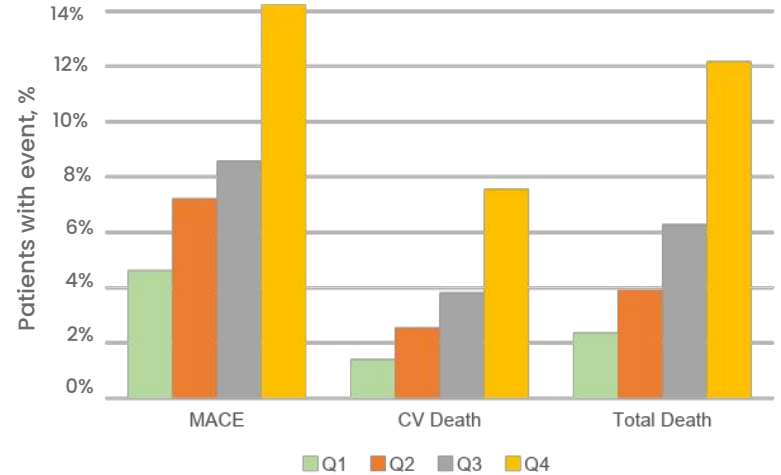
\*Adapted from 2018\_Ridker\_JACC\_Review with data across 3 clinical studies (PROVE-IT, IMPROVE-IT, SPIRE1&2)

# hsCRP and IL-6 predict MACE, CV Death, and Total Death: results from the STABILITY trial

MACE by baseline hsCRP quartile



% of CHD patients with an event over 3 years by baseline IL-6 quartile

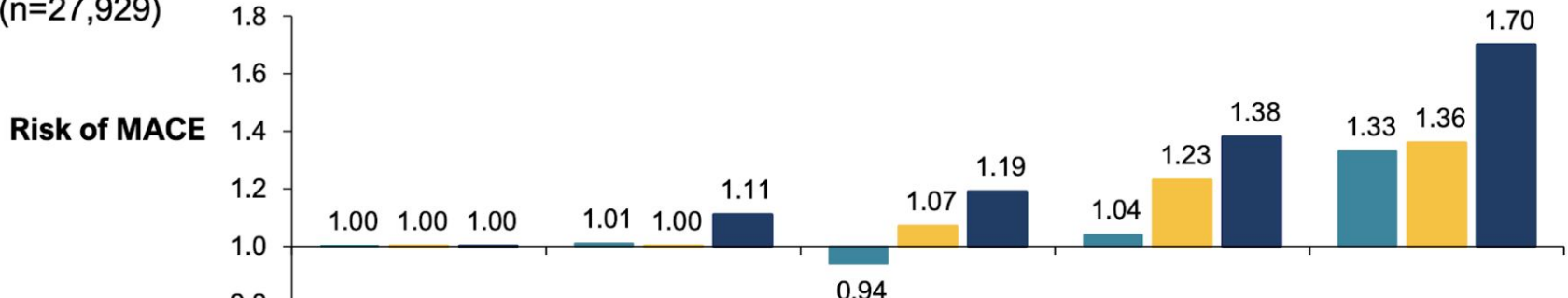


# Emerging evidence suggests that hsCRP is more strongly associated with MACE than both LDL and Lp(a)

Late breaking data presented at European Society of Cardiology 2024 Congress and simultaneously published in the New England Journal of Medicine

## 30-year longitudinal data from the Women's Health Study<sup>1</sup>

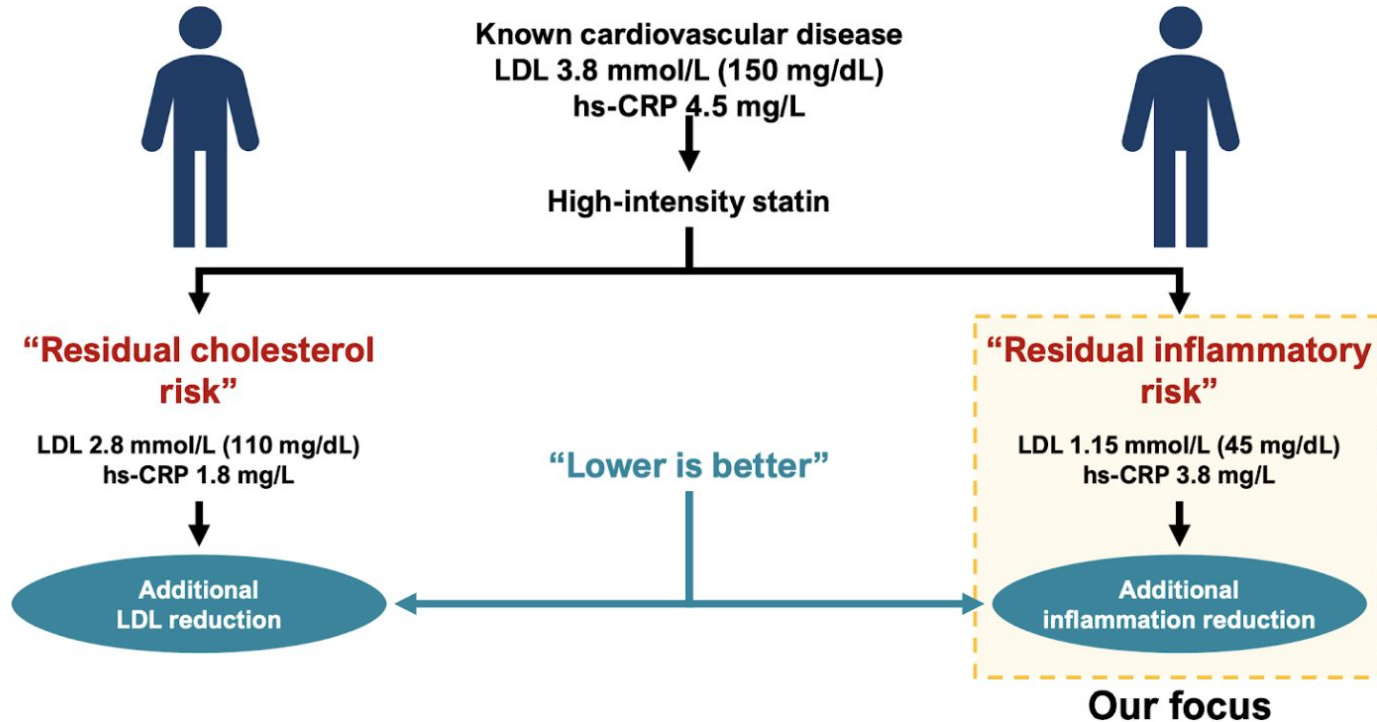
(n=27,929)



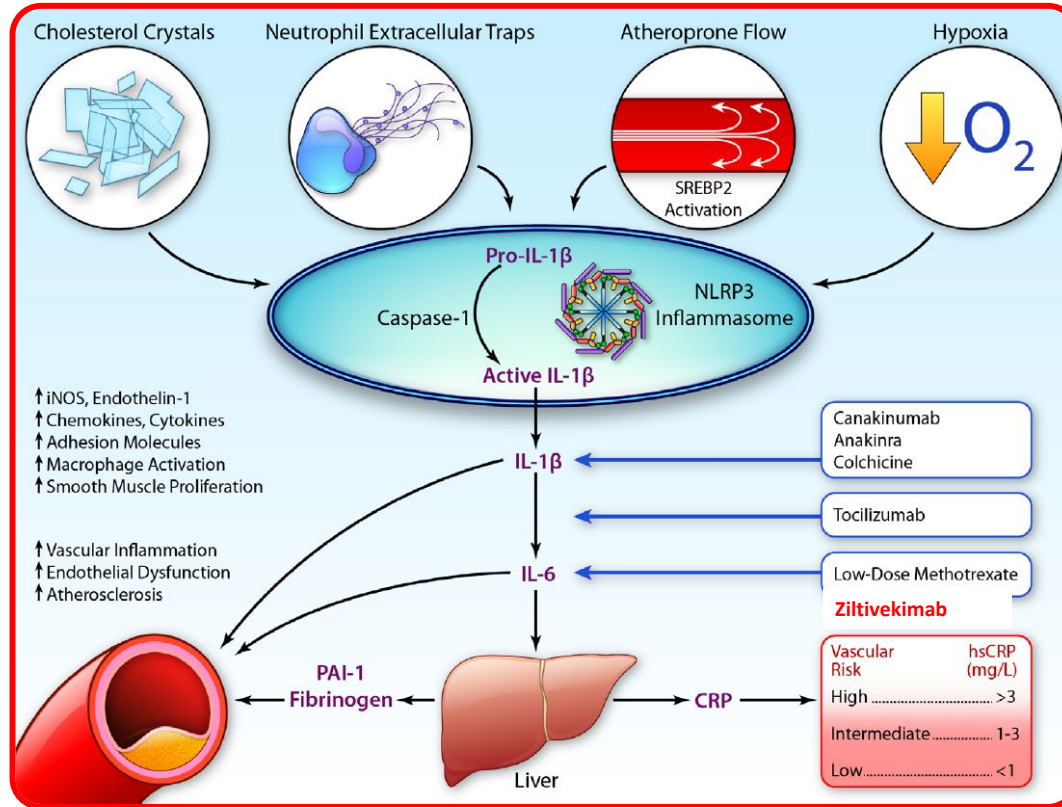
	Quintile (reference)	Quintile 2	Quintile 3	Quintile 4	Quintile 5
■ hs-CRP mg/L baseline	<0.65	0.65 to <1.47	1.47 to <2.75	2.75 to <5.18	≥5.18
■ LDL-C mg/dL baseline	<96.1	96.1 to <113.5	113.5 to <129.7	129.7 to <150.7	≥150.7
■ Lp(a) mg/dL baseline	<3.6	3.6 to <7.6	7.6 to <15.5	15.5 to <44.1	≥44.1

# Many CV disease patients have residual inflammatory risk

## Differential secondary prevention treatment options for statin-treated patients<sup>1</sup>



# Novel Targets for Reducing CRP for Atheroprotection

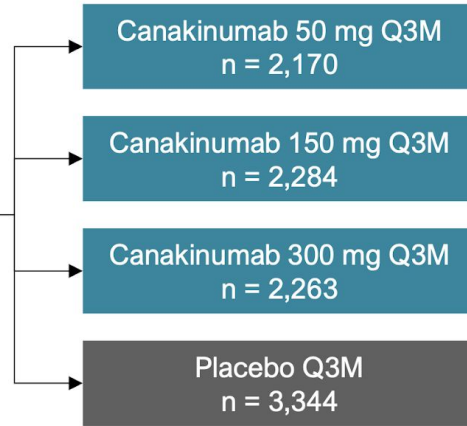


Ridker et al Circ Res 2016;118:145-156.

## Canakinumab Anti-inflammatory Thrombosis Outcomes Study (CANTOS) Trial Design<sup>1</sup>

### 10,061 patients

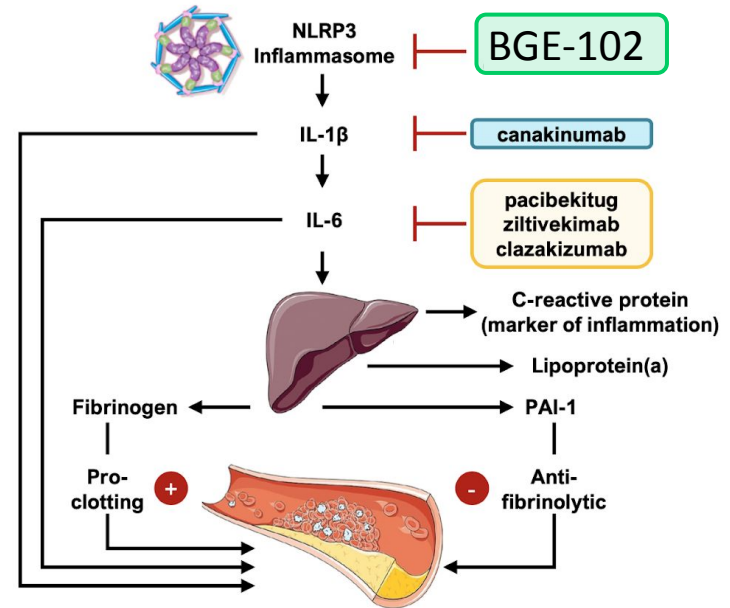
- Stable CAD (post MI)
- On Statin, ACE/ARB, BB, ASA
- hs-CRP  $\geq 2$  mg/L



### Primary endpoint:

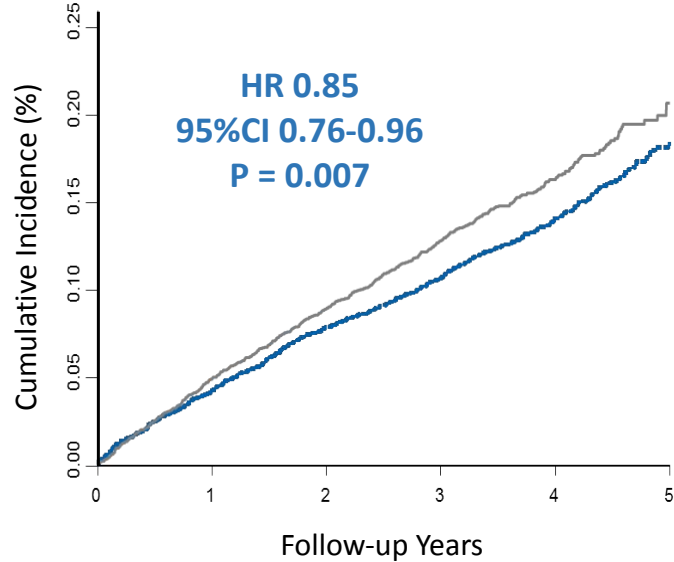
Time to the first occurrence of MACE (CV death, non-fatal MI, or non-fatal stroke)

## IL-1 $\beta$ is upstream of IL-6<sup>2</sup>

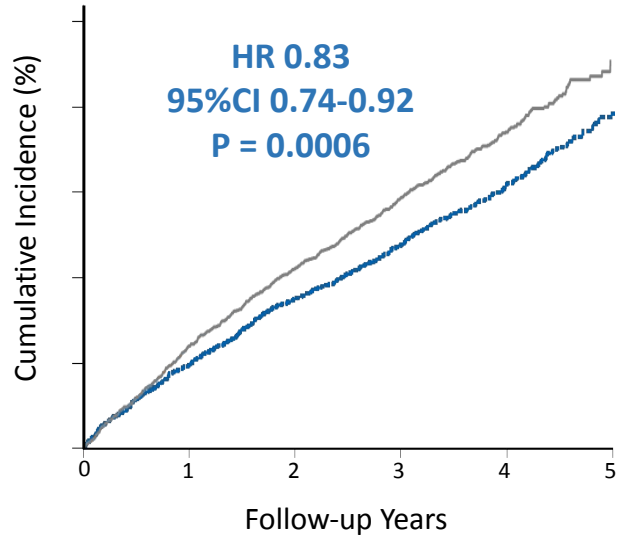


— Placebo SC q 3 months  
— Canakinumab 150/300 mg SC q 3 months

### MACE



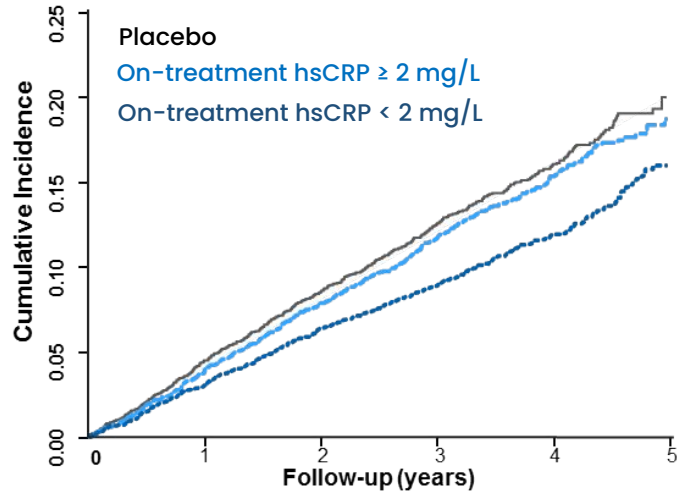
### MACE - Plus



35 - 40% reductions in hsCRP and IL-6  
No change in LDLC

# Achievement of CRP < 2.0mg/L Provide 50% reduction in Mortality if CANTOS like Responses can be Achieved in CVOT

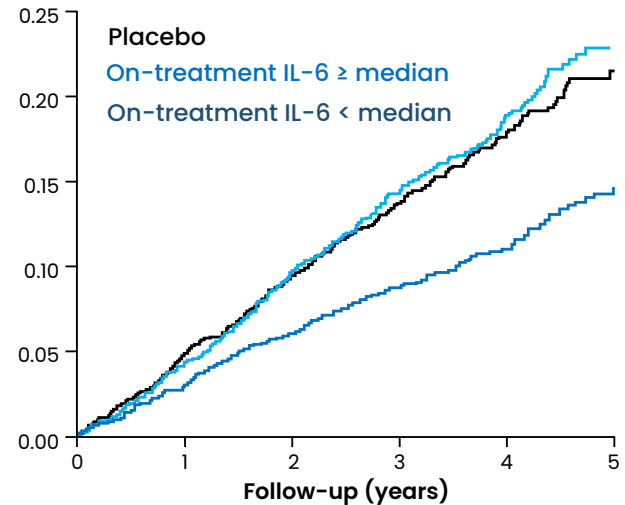
## On-Treatment hsCRP



MACE

25% reduction in risk for those achieving hsCRP < 2 mg/L  
5 % reduction in risk for those achieving hsCRP ≥ 2 mg/L  
(No change in LDL cholesterol)

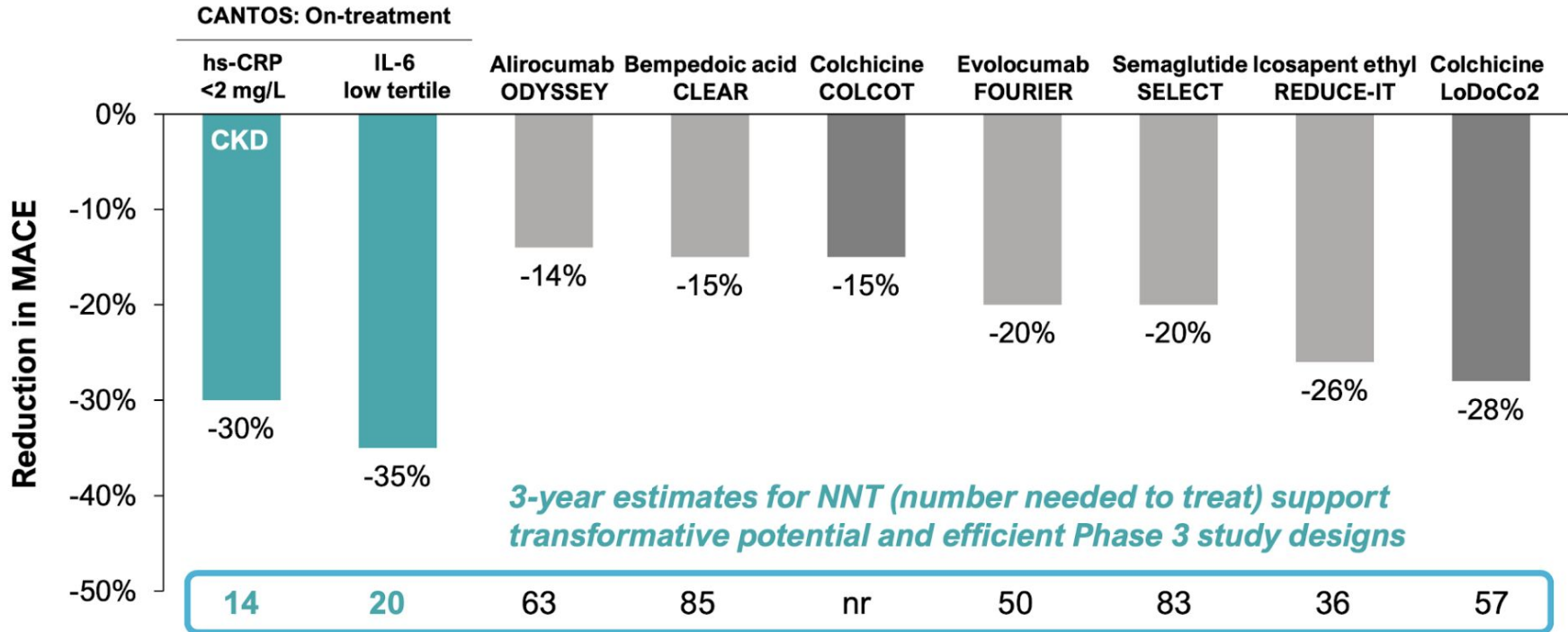
## On-Treatment IL-6



MACE

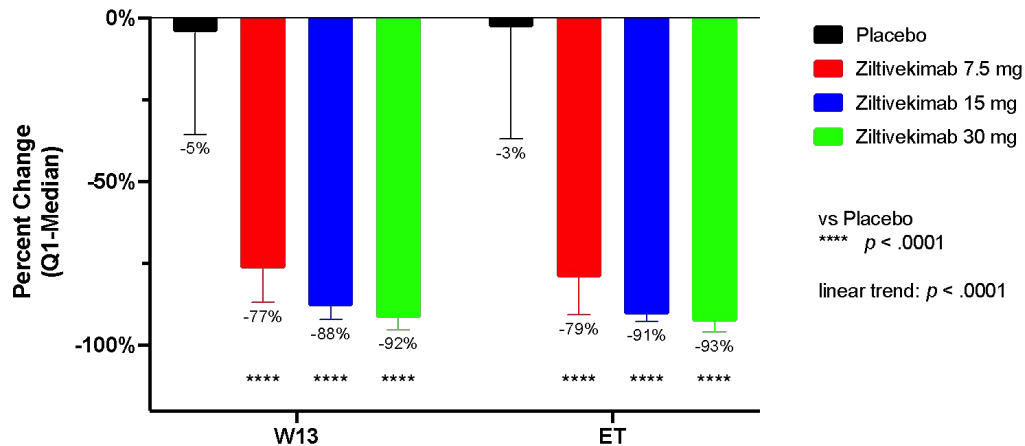
36% reduction for those achieving IL-6 below median  
No benefit for those achieving IL-6 above median  
(No change in LDL cholesterol)

# Lessons from canakinumab: Robust reduction of inflammation through IL-1B has transformative potential for ASCVD



# Primary RESCUE End Point Achieved

## Median Percent Change in hsCRP



Median (Q1, Q3) hsCRP values (mg/L) at baseline, W13 and ET

Time	Ziltivekimab			
	Placebo	7.5 mg	15 mg	30 mg
Baseline	5.8 (3.3 ,9.9) (N=66)	5.5 (3.5 ,9.3) (N=66)	5.7 (3.5 ,8.1) (N=66)	5.8 (3.7 ,8.9) (N=66)
W13	5.1 (3.4 ,9.2) (N=57)	1.0 (0.6 ,2.8) (N=58)	0.6 (0.4 ,1.4) (N=61)	0.5 (0.2 ,0.8) (N=57)
ET	6.4 (3.5 ,10.0) (N=51)	0.9 (0.4 ,1.8) (N=52)	0.5 (0.3 ,1.4) (N=55)	0.4 (0.2 ,0.8) (N=53)

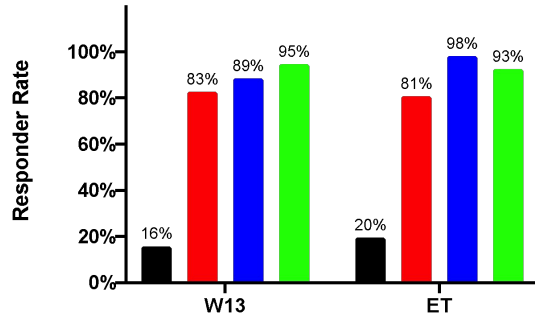
Note: Percent change is shown as Median (Q1/Q3)

ET (End of Treatments) is defined as the average of values at Week 23 and Week 24. For patients who discontinued after Week 13, ET is defined as the average of the values from the last 2 visits after Week 13 including Week 13

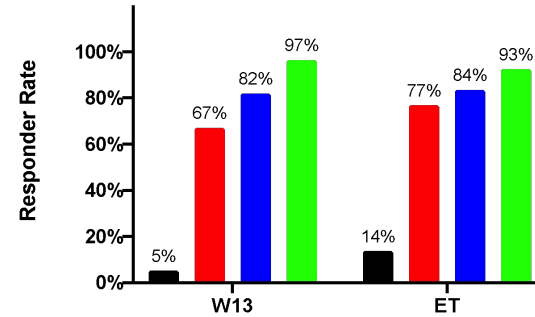
# Increasing Responder Rate with Increasing Dose of Zilti

## Superior hsCRP Responder Rate Relative to Canakinumab in CANTOS

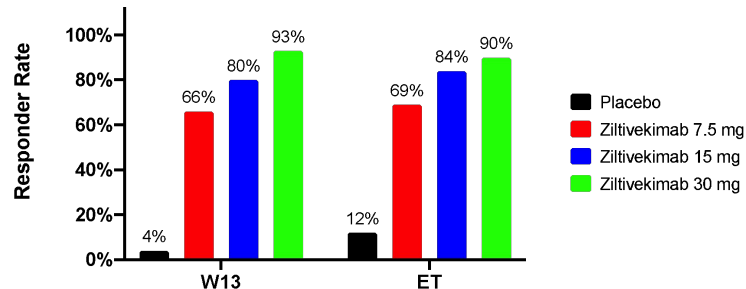
hsCRP suppression  $\geq$  50% from baseline



hsCRP suppression  $<$  2 mg/L threshold

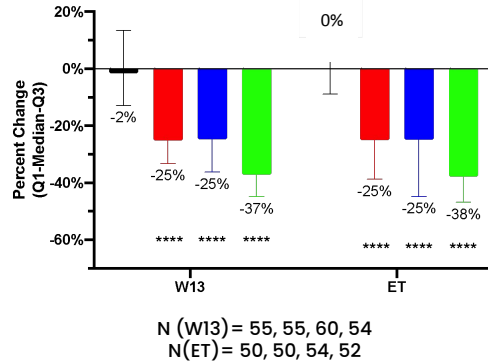


hsCRP suppression  $\geq$  50% from baseline AND below 2mg/L



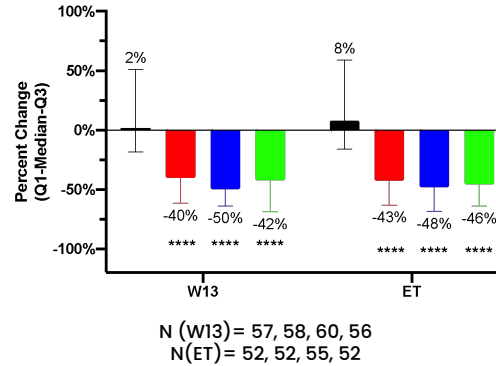
# Ziltivekimab Significantly Reduced Fibrinogen, SAA and Haptoglobin

## Fibrinogen



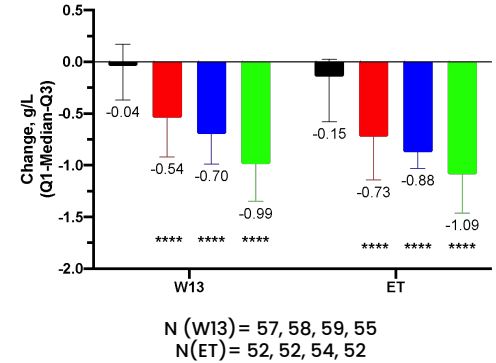
A 100 mg/dL increase is associated with a 2-fold increase in CV risk<sup>†</sup>

## SAA



3.7 mg/L decrease with 15mg dose vs 0.05 mg/L increase with placebo

## Haptoglobin

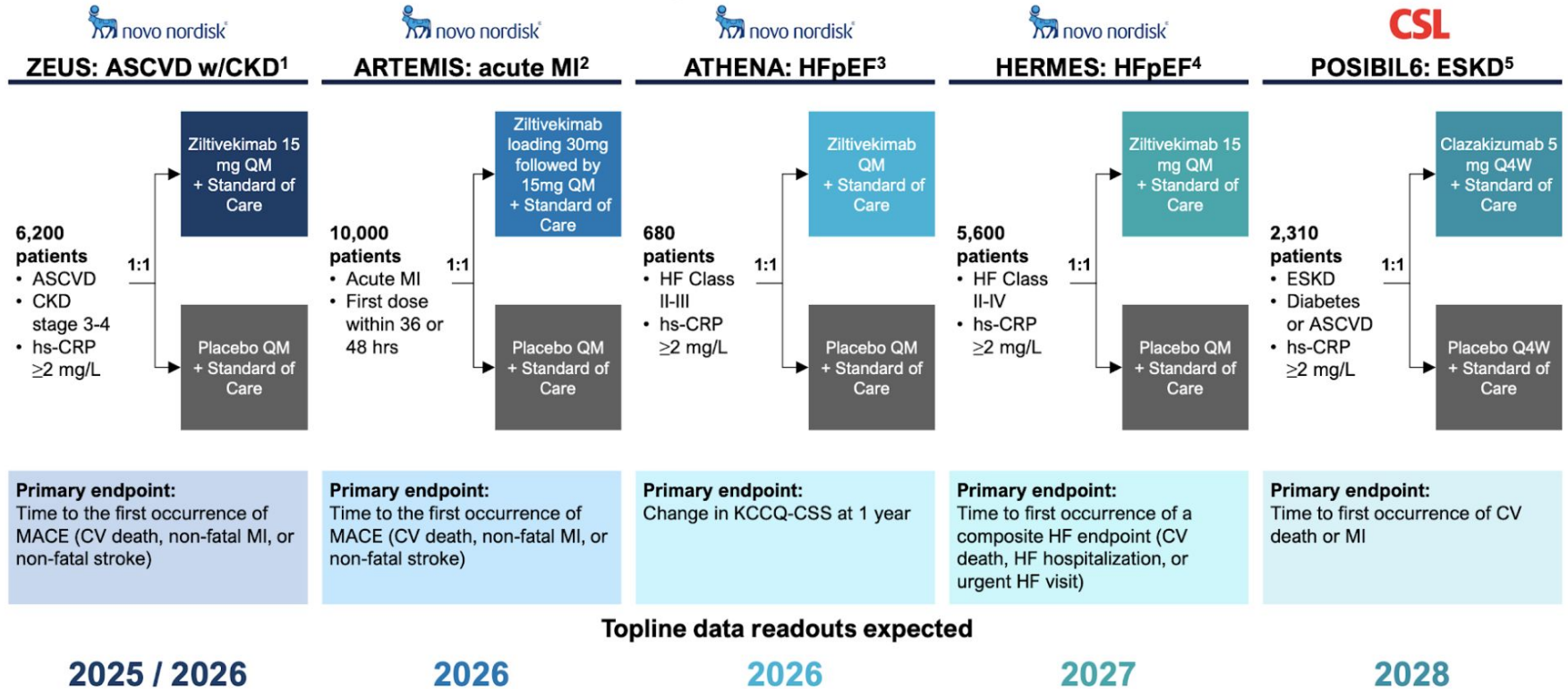


Placebo  
 Ziltivekimab 7.5 mg  
 Ziltivekimab 15 mg  
 Ziltivekimab 30 mg  
 \*\*\*\*  $p < .0001$

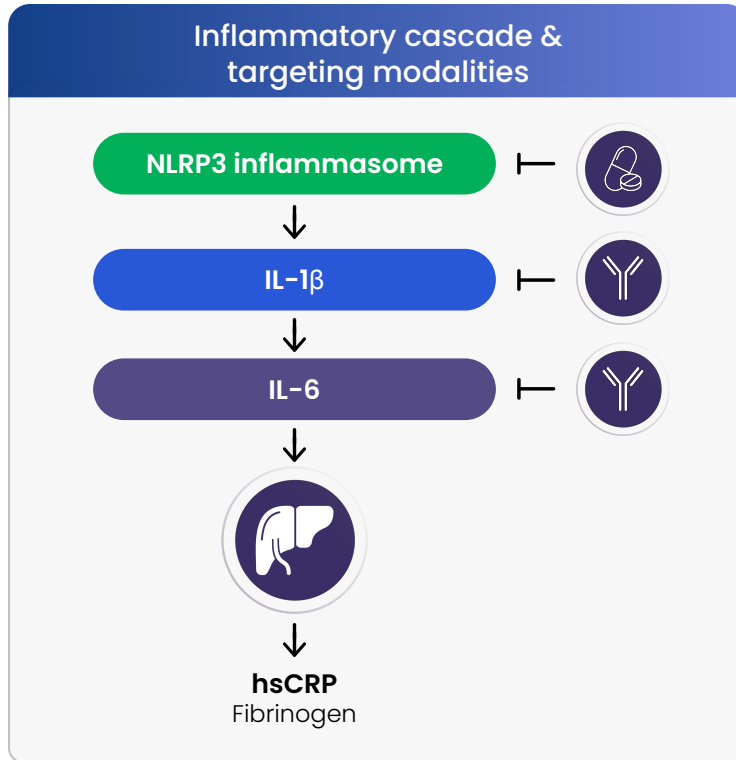
<sup>†</sup> JAMA 2005 Oct 12;294(14):1799-809

Note: Percent change is shown as Median (Q1/Q3)

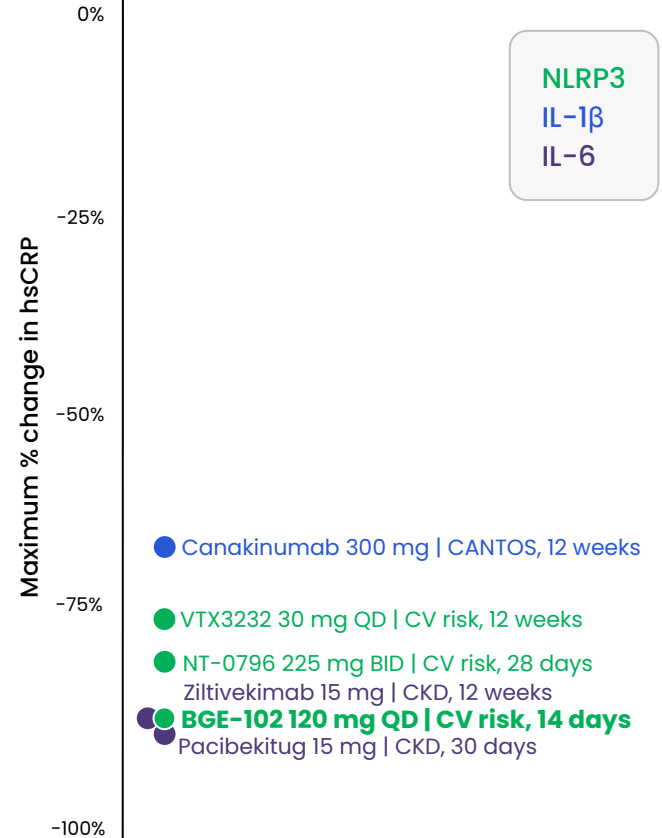
# Five Phase 3 CVOTs enrolling > 24,000 patients



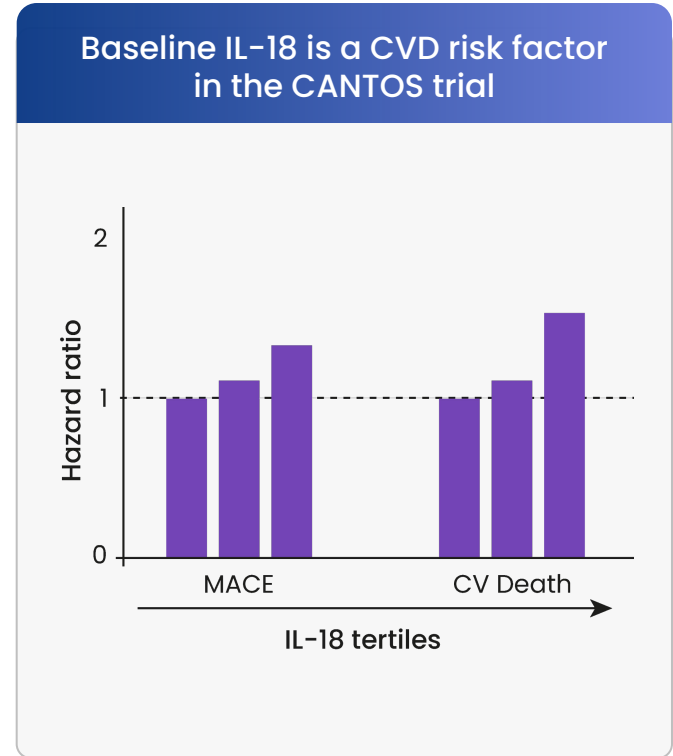
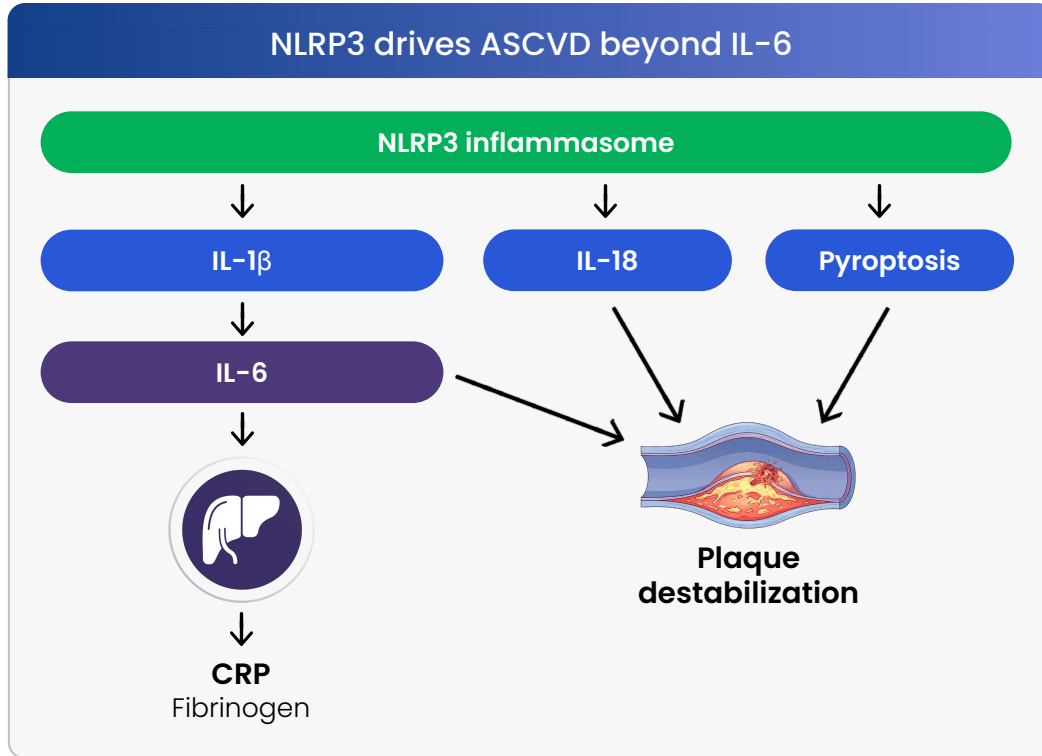
# NLRP3 inhibitors are a potential “oral IL-6” with comparable reductions in hsCRP



Sources: NodThera, Tourmaline Bio, Ventyx Biosciences, Wada 2023, Ridker 2017



# NLRP3 inhibition also has potential benefits beyond IL-6, reducing IL-18 & cell death that contribute to plaque destabilization



Source: Ridker 2020, Mallat 2001, Zeng 2021

# NLRP3

Structural biology insights

Phase 1 results

Cardiovascular

Ophthalmology



**Paul Rubin, MD**  
CMO & EVP Research

# The retinal opportunity for BGE-102



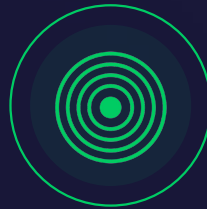
**Greater efficacy  
with new MOA**



**Oral treatment to lower  
treatment burden**



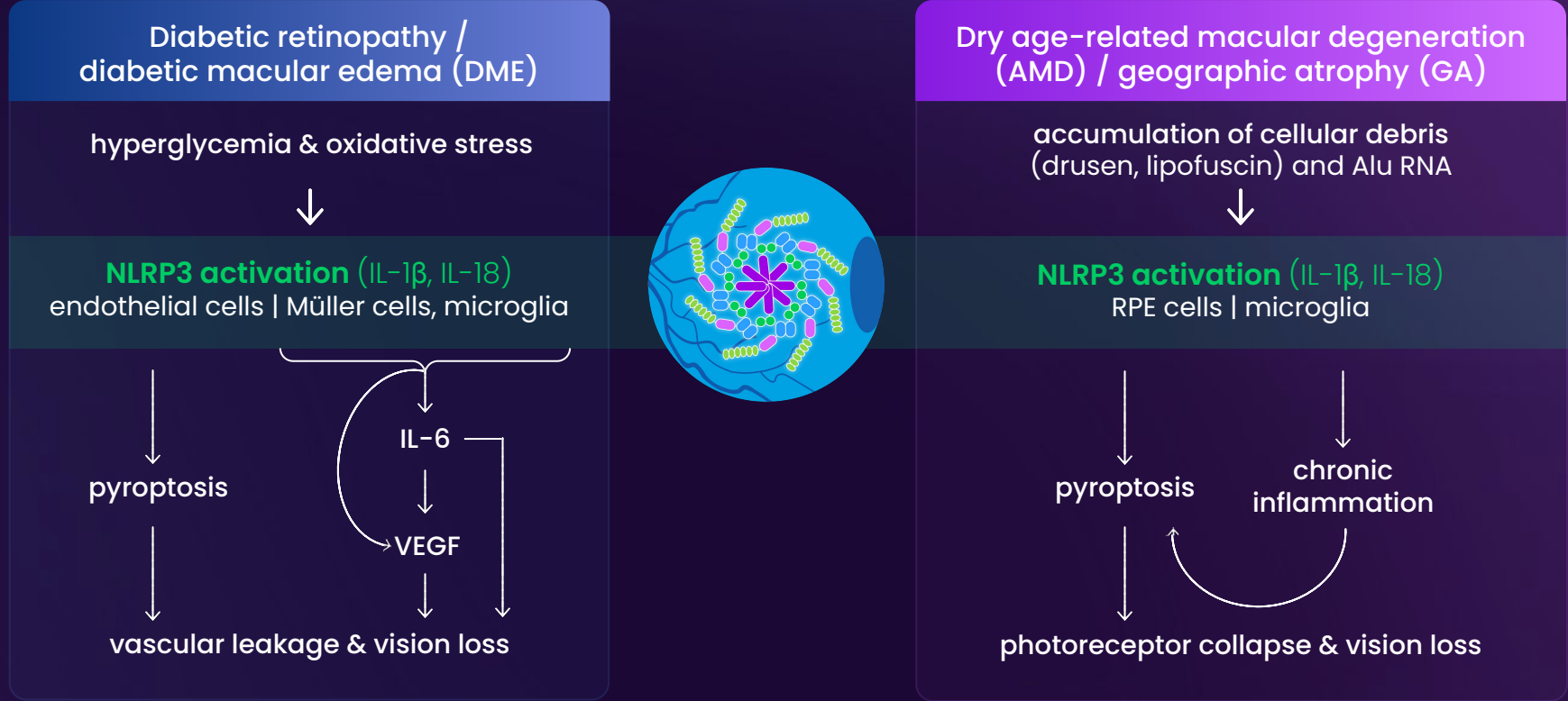
**Simultaneous treatment  
of bilateral disease**



**Ocular *and* systemic  
biology addressed**

*BGE-102 has shown therapeutic retinal exposure across species, including primates*

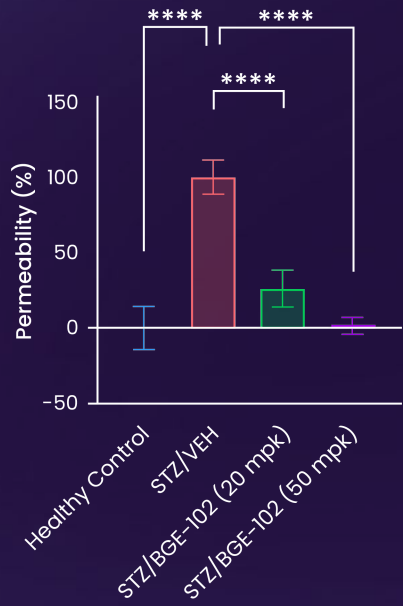
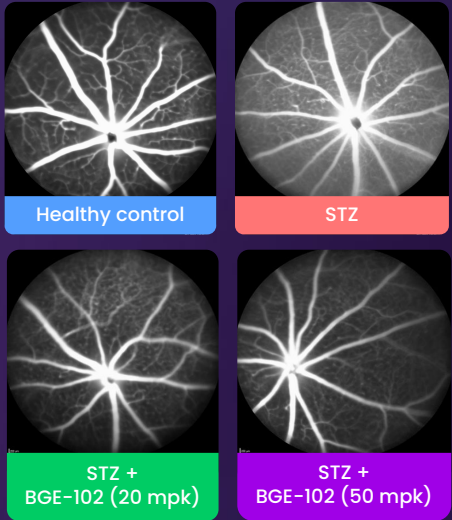
# NLRP3 activation is a central feature of retinal diseases DME & GA



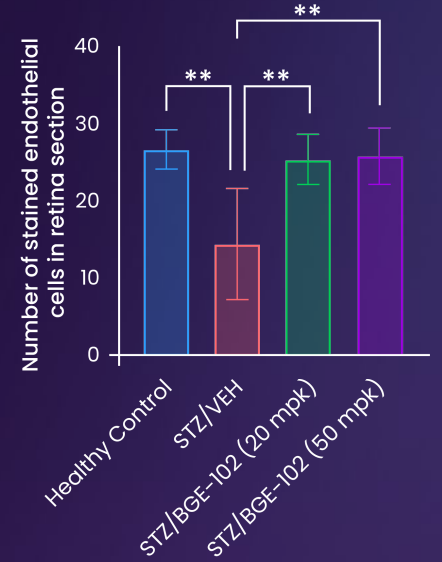
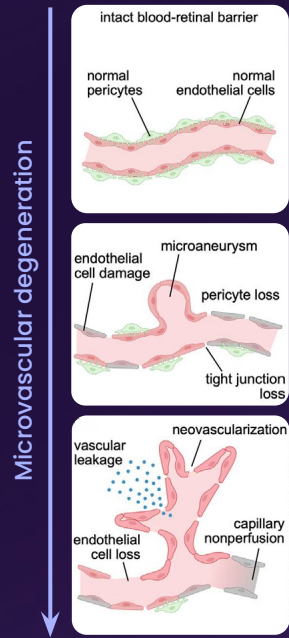
Source: Zheng 2023

# DME: oral delivery of BGE-102 preserved retinal vascular integrity in a preclinical model of diabetic retinopathy

## Retinal vascular permeability measured via fluorescein angiography



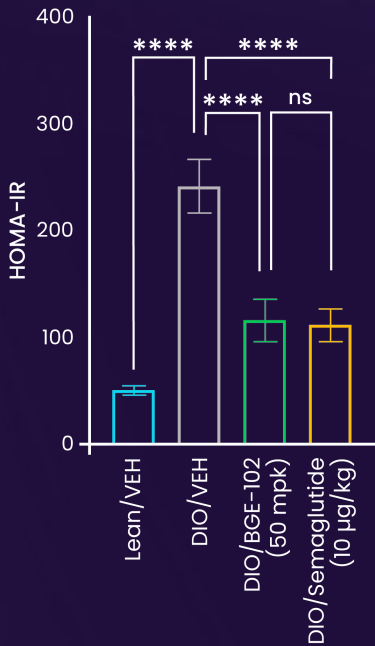
## Blood-retinal barrier integrity claudin-5 IHC (endothelial tight junctions)



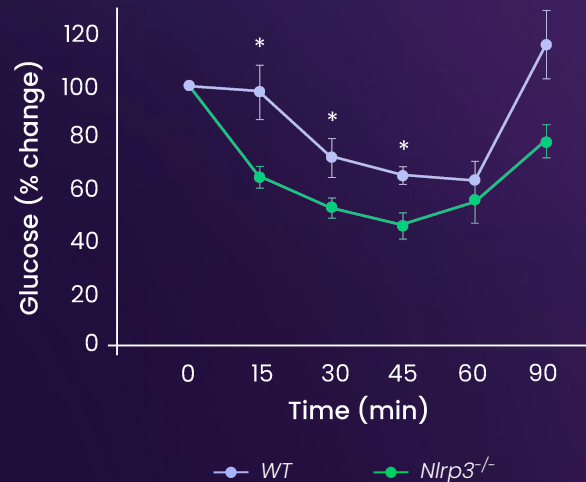
Note: Streptozotocin (STZ) diabetic mouse model; BGE-102 dosing initiated 11 days following last dose of STZ; assessments performed after 3 months of BGE-102 QD dosing; BGE-102 is more potent in human cells, for example 150-250x higher potency in microglia  
Source: Wolf 2023

# DME: BGE-102 improved insulin sensitivity in obese mice, recapitulating mouse genetics & establishing potential to treat the key disease driver

**BGE-102**  
**HOMA-IR**  
 (Day 26)

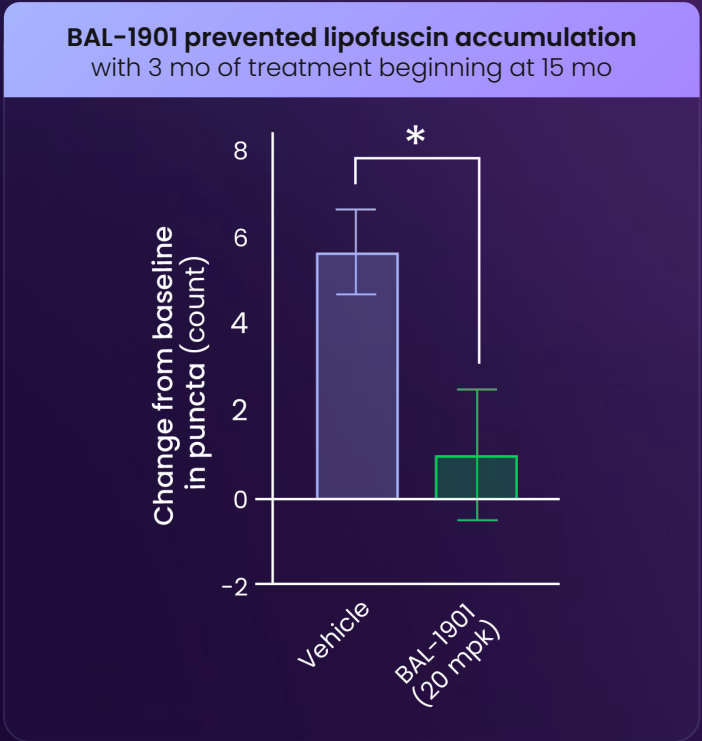
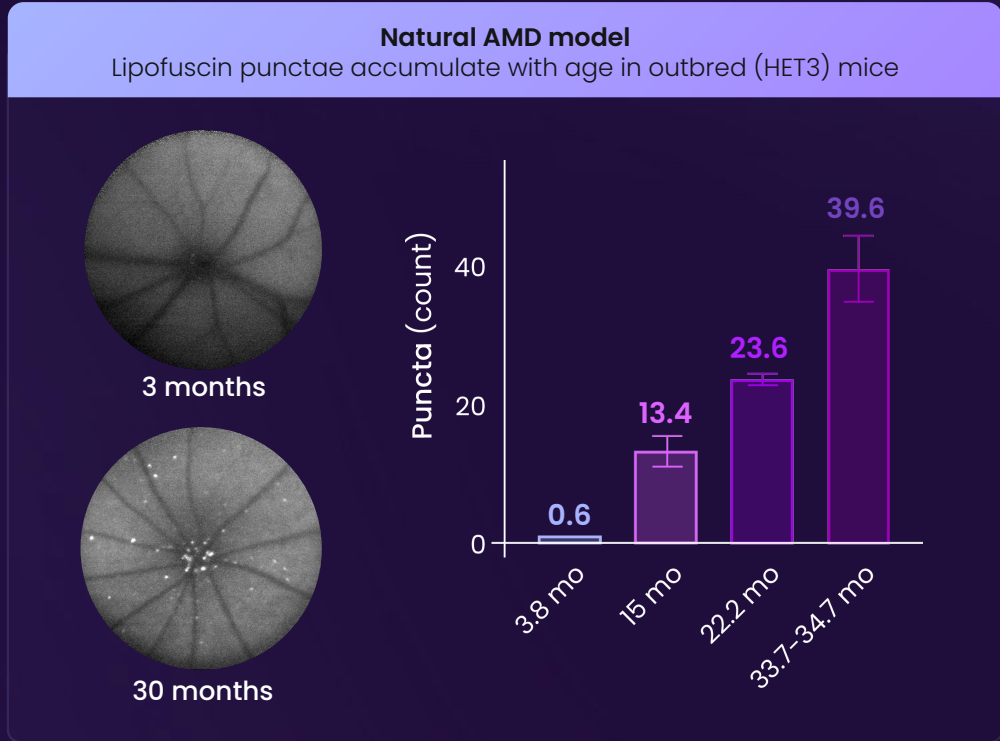


**Nlrp3 -/-**  
**Insulin**  
**tolerance**  
**test**  
 (6 weeks)

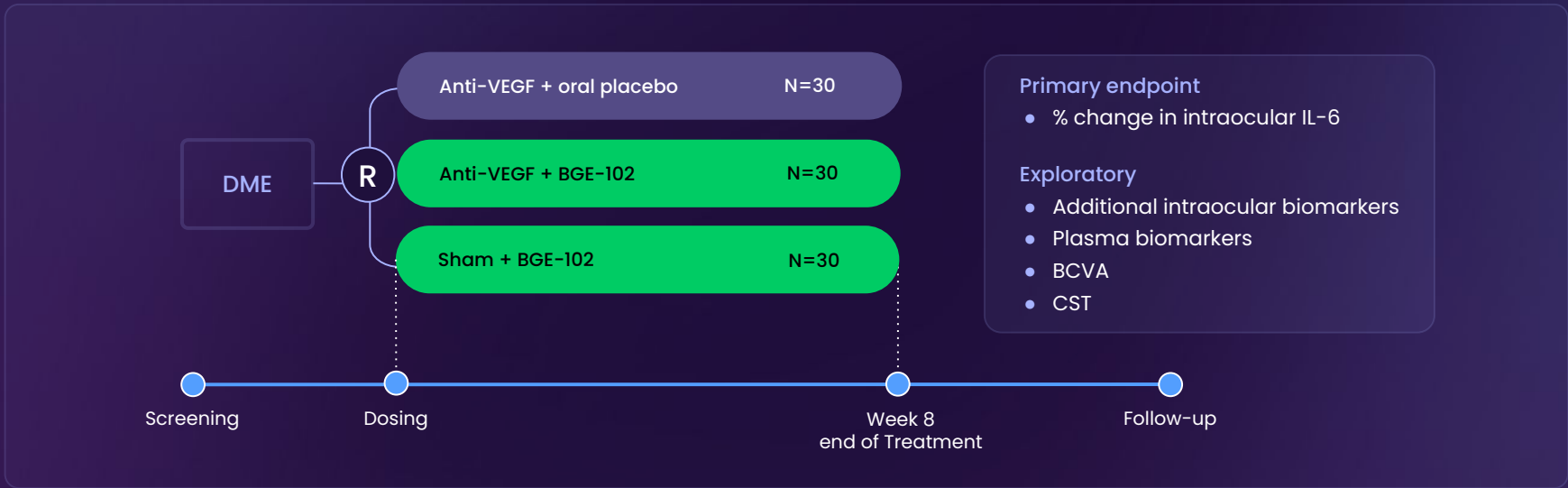


Note: BGE-102 was dosed PO QD; semaglutide was dosed SC QD.  
 Source: Vandanmagsar 2011

**GA:** In a natural AMD preclinical model, oral delivery of a BGE-102 analog prevented age-related lipofuscin accumulation, a key disease feature



# Planned BGE-102 Phase 1b/2a POC in DME: goal is to demonstrate PD in the eye





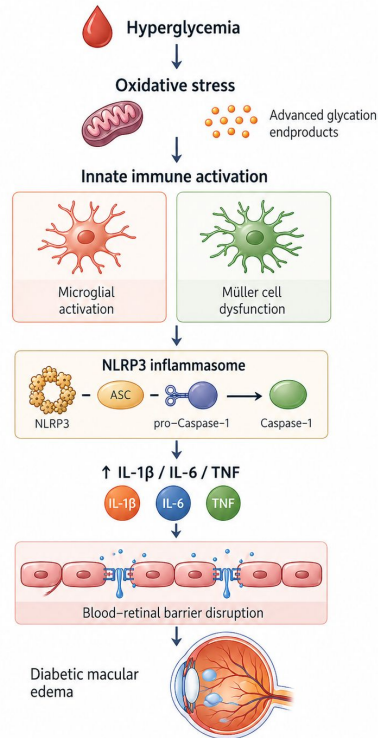
**Brian Hafler, MD, PhD**

Associate Professor  
Ophthalmology & Visual Science,  
Yale School of Medicine

## Targeting the NLRP3 inflammasome in DME & GA

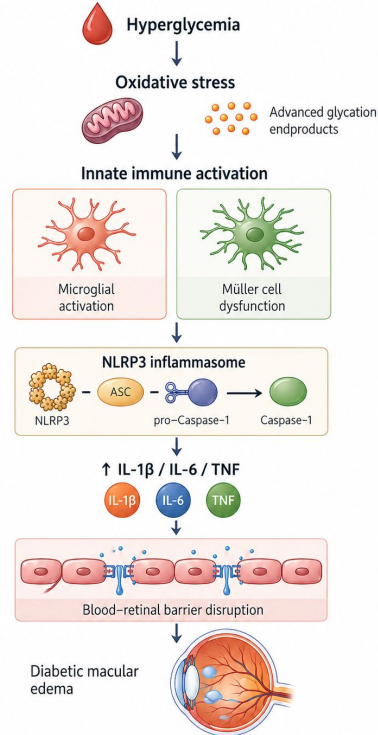
# The NLRP3 inflammasome plays a key role in DME & dry AMD / GA

## Diabetic macular edema

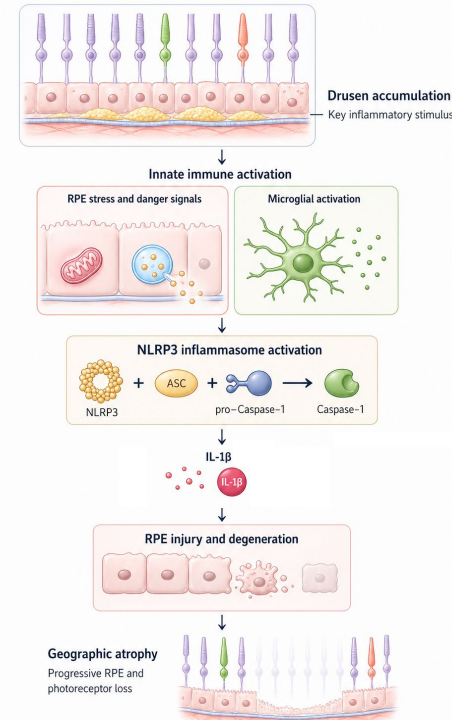


# The NLRP3 inflammasome plays a key role in DME & dry AMD / GA

## Diabetic macular edema



## Geographic atrophy



# Real-world DME remains burdensome despite anti-VEGF therapy

*The* NEW ENGLAND  
JOURNAL *of* MEDICINE

ESTABLISHED IN 1812

MARCH 26, 2015

VOL. 372 NO. 13

Aflibercept, Bevacizumab, or Ranibizumab for Diabetic  
Macular Edema

The Diabetic Retinopathy Clinical Research Network\*

Median of 9 intravitreal injections  
in year 1 across treatment arms

Treatment intensity and incomplete  
response still leave room for  
differentiated therapy

## Why oral therapy matters

An effective oral adjunct or alternative could  
reduce procedure burden and expand options  
for incompletely controlled patients.

Varma et al., *JAMA Ophthalmology*, 2014; Payne et al., *Eye*, 2024; Fu DJ et al., *Eye*, 2025; Protocol T / NEJM 2015.

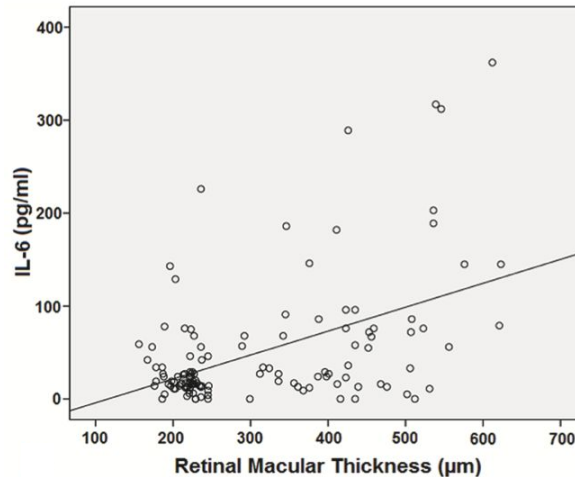
OCT morphology image from Kim K, Kim ES, Kwak HW, Yu SY. Long-term Outcomes of Diabetic Macular Edema Following Initial Intravitreal Ranibizumab Injection Based on Morphologic Pattern. 2016) under CC BY-NC.

# Human aqueous humor data support inflammation-rich DME

## Key findings

- Diabetic macular edema eyes showed higher IL-1 $\beta$ , IL-6, IL-8, MCP-1, IL-10, and VEGF than diabetic eyes without macular edema.
- These markers correlated with macular thickness, volume, and disease severity.
- The data demonstrate that diabetic macular edema is not only VEGF-driven but also inflammation-rich.

124-patient aqueous humor study



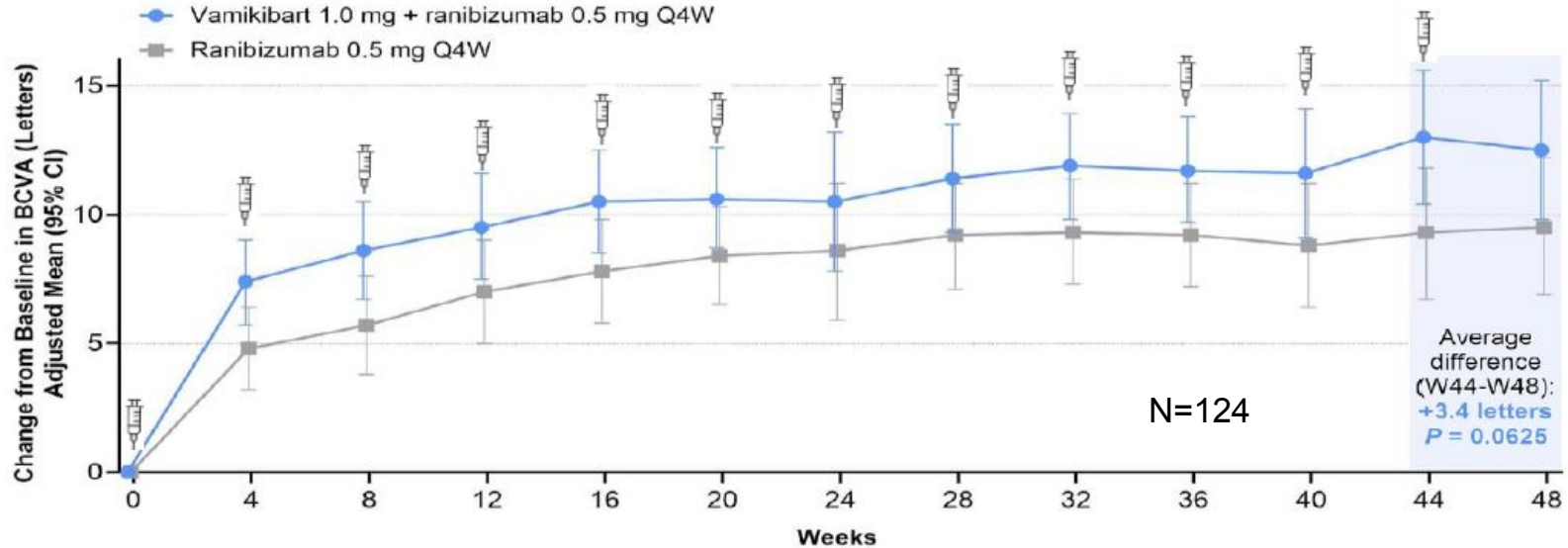
Dong N, Xu B, Chu L, Tang X. PLoS ONE. 2015;10(4):e0125329

## Scientific implication

An upstream inflammasome-directed strategy is biologically plausible in inflammation-high diabetic macular edema.

# Ph2 results for VEGF + IL-6 inhibition support role of inflammation in DME

Primary endpoint: Change from baseline in BCVA for treatment-naïve patients



Sources: Roche ASOPRS / AAO 2025 Virtual IR Event;  
ARVO 2026

**Participants with  $\geq 15$  letter gain**  
44.7% ranibizumab + vamikibart vs. 28.6% ranibizumab

# Exploratory clinical data support the inflammasome as a target in DME

Med

CellPress

Article

## Oral lamivudine in diabetic macular edema: A randomized, double-blind, placebo-controlled clinical trial

Felipe Pereira,<sup>1,6</sup> Joseph Magagnoli,<sup>2,6</sup> Meenakshi Ambati,<sup>3,6</sup> Talita Fernandes de Oliveira,<sup>1</sup> Juliana Angélica Estevão de Oliveira,<sup>1</sup> Vinicius Oliveira Pesquero,<sup>1</sup> Lucas Zago Ribeiro,<sup>1</sup> Dante Akira Kondo Kuroiwa,<sup>1</sup> Fernando Korn Materbi,<sup>1</sup> Sergio Atala Dib,<sup>4</sup> Nilva Bueno Moraes,<sup>1</sup> Michel Eid Farah,<sup>1</sup> Eduardo Buchele Rodrigues,<sup>1</sup> and Jayakrishna Ambati<sup>5,7,8\*</sup>

**+9.8 letters**

lamivudine at week 4

**-1.8 letters**

placebo at week 4

## Interpretation

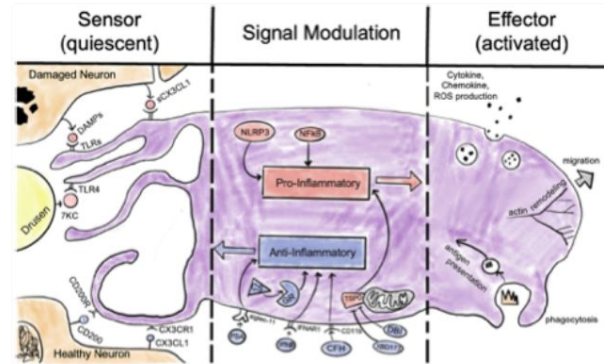
These data support the relevance of inflammasome modulation in diabetic macular edema

# BGE-102 is positioned upstream of inflammatory drivers in DME

## BGE-102

- Oral inhibitor of the NLRP3 inflammasome
- Intended to reduce inflammatory cytokines and vascular leakage
- Could complement anti-VEGF or potentially serve as an alternative in selected patients
- Oral dosing is the key differentiator if efficacy is shown

## Mechanism



Seminars in Immunopathology (2022) 44:673–683  
<https://doi.org/10.1007/s00281-022-00939-3>

REVIEW

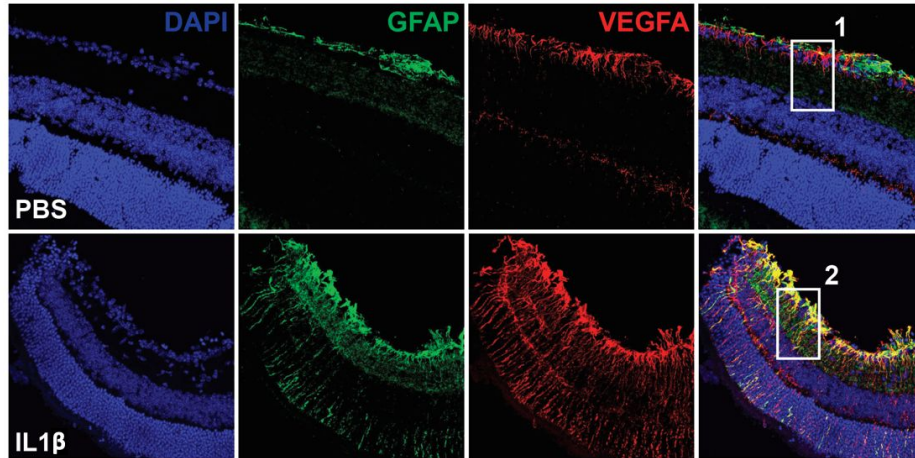


**Glial-mediated neuroinflammatory mechanisms in age-related macular degeneration**

Rahul M. Dhodapkar<sup>1</sup> · Diego Martell<sup>2</sup> · Brian P. Hafler<sup>2,3</sup>

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# IL-1 $\beta$ , a downstream effector of the NLRP3 inflammasome, drives retinal VEGF in vivo



nature communications



Article

<https://doi.org/10.1038/s41467-023-37025-7>

## Single-cell analysis reveals inflammatory interactions driving macular degeneration

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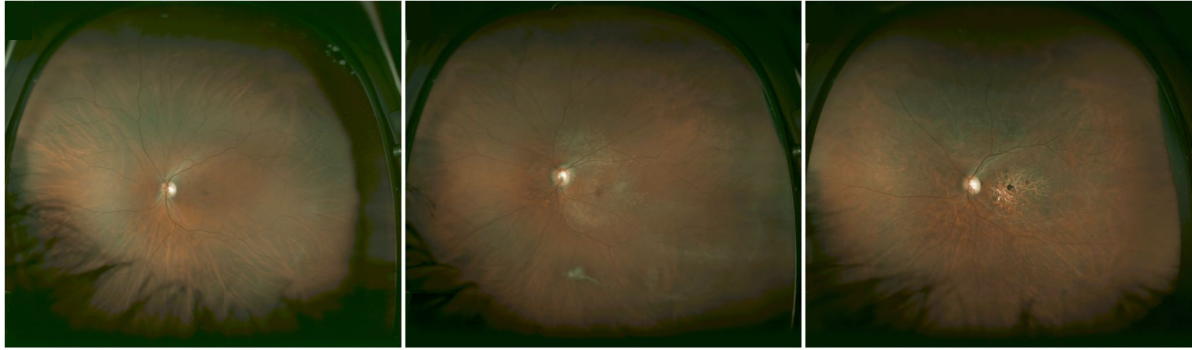
Check for updates

Manik Kuchroo<sup>1,10</sup>, Marcello DiStasio<sup>2,10</sup>, Eric Song<sup>3,10</sup>, Eda Calapkulu<sup>3</sup>,  
Le Zhang<sup>1,4</sup>, Maryam Ige<sup>5</sup>, Amar H. Sheth<sup>6</sup>, Abdellilah Majdoubi<sup>8</sup>,  
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Smita Krishnaswamy<sup>7,14,20</sup> & Brian P. Hafler<sup>2,3,18,20</sup>

### Mechanistic implication

If upstream NLRP3 inhibition reduces IL-1 $\beta$  signaling, it may also reduce VEGFA-linked vascular leakage.

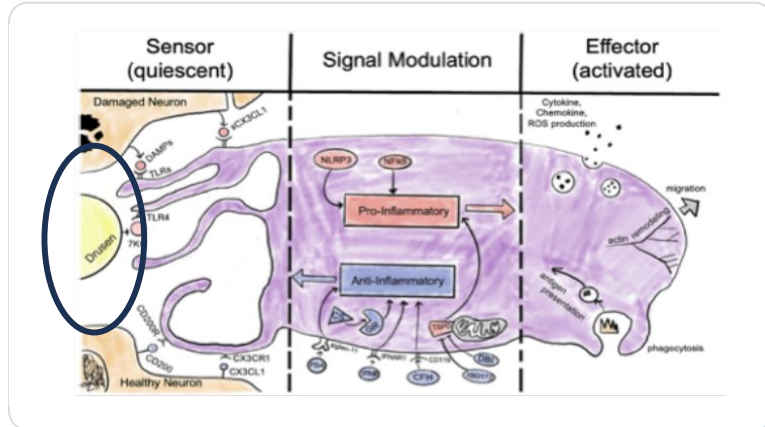
# Drusen are inflammatory drivers of the NLRP3 inflammasome in AMD



Hafler BP. *Retina*. 37(3):417, 2017

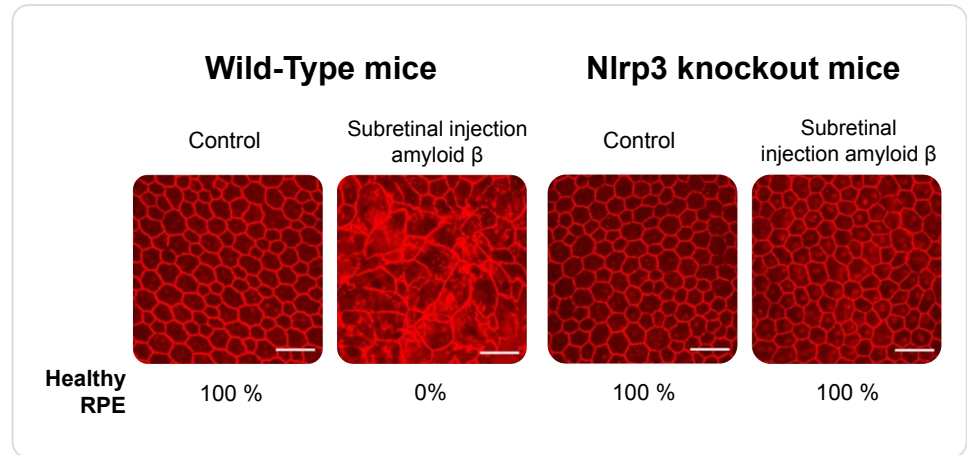
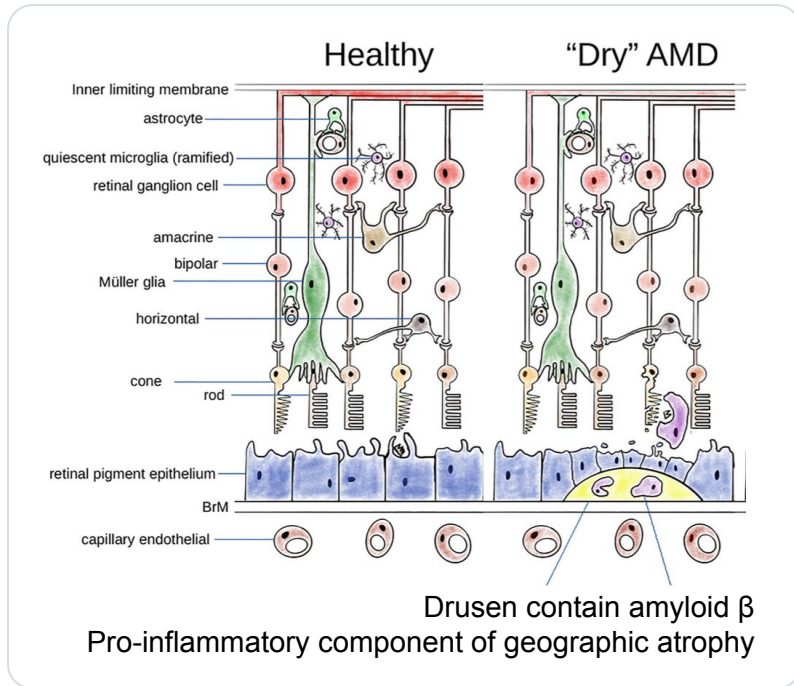
**Drusen from donor AMD eyes activate the NLRP3 inflammasome.**

Doyle, S., Campbell, M., Ozaki, E. et al. *Nat Med* 18, 791–798 (2012).



Dhodapkar RM, Martell D, Hafler BP. *Glial-mediated neuroinflammatory mechanisms in age-related macular degeneration. Semin Immunopathol.* 2022 Sep;44(5):673-683.

# NLRP3 knockout rescues RPE degeneration in mouse model of GA



Narendran, S., Pereira, F., Yerramothu, P. et al. Nucleoside reverse transcriptase inhibitors and Kamuvudines inhibit amyloid- $\beta$  induced retinal pigmented epithelium degeneration. *Sig Transduct Target Ther* 6, 149 (2021).

Dhodapkar RM, Martell D, Hafler BP. Glial-mediated neuroinflammatory mechanisms in age-related macular degeneration. *Semin Immunopathol.* 2022 Sep;44(5):673-683.

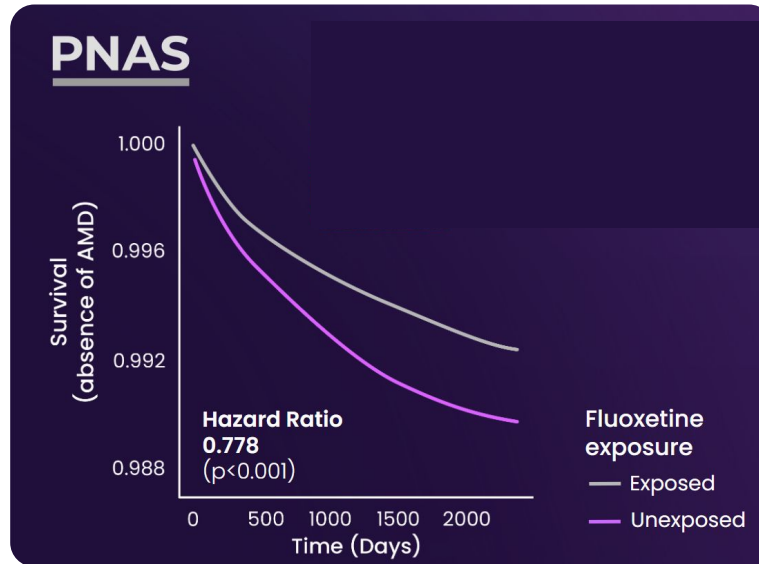
# Inflammasome inhibition in humans: promising early signals of potential efficacy in GA

**Phase 1** clinical trial suggests potential for inflammasome inhibitor intravitreal implant K8

**53%** reduction in geographic atrophy lesion growth with intravitreal K8 implant compared to untreated eyes at month 3 in low dose cohort (Inflammasome Therapeutics) n=10

**Syfovre** (C3 complement inhibitor) **17%** reduction in lesion growth at 12 months in Phase 3 trials OAKS and DERBY

Decreased incidence of AMD observed with fluoxetine, a weak NLRP3 inhibitor in a retrospective analysis



Ambati M, Apicella I, Wang SB, Narendran S, Leung H, Pereira F, Nagasaka Y, Huang P, Varshney A, Baker KL, Marion KM, Shadmehr M, Stains CI, Werner BC, Sadda SR, Taylor EW, Sutton SS, Magagnoli J, Gelfand BD. Identification of fluoxetine as a direct NLRP3 inhibitor to treat atrophic macular degeneration. Proc Natl Acad Sci U S A. 2021 Oct 12;118(41):e2102975118.



**David Boyer, MD**

Senior Partner

Retina-Vitreous Associates  
Medical Group

## **DME & GA treatment landscape**

# **Diabetic macular edema (DME)**

# DME is the leading cause of vision loss working aged adults

~27M  
patients  
globally

~25% of all diabetes patients develop DME within 10 years of diagnosis

60 years average age of diagnosis

Systemic disease,  
retinal  
manifestation

Elevated HbA1c is the largest risk factor for DME progression

Characterized by **central vision loss with distortion that impacts activities of daily living**: driving, reading, recognizing faces & work productivity

Anti-VEGFs are well-established but have many unmet needs

Anti-VEGFs are standard of care, however:

- Poor compliance given in-office monthly to bi-monthly intravitreal injections
- Response rates are lower in DME vs. wet AMD given prominent role of underlying inflammation

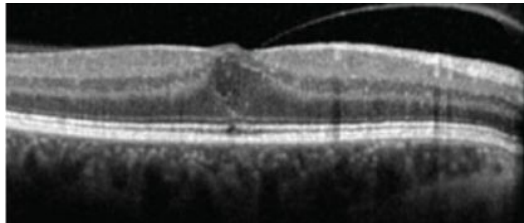
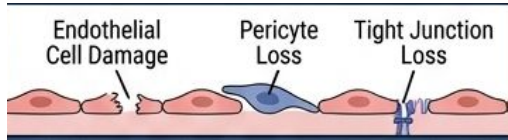
Normal Vision

Vision with DME

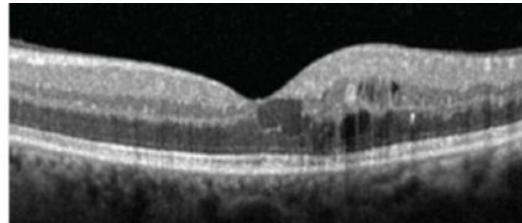
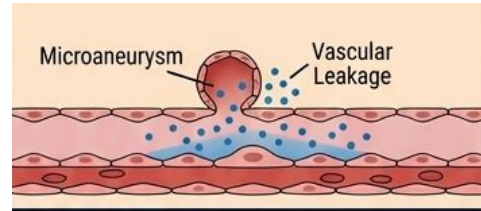


# DME progresses due to hyperglycemia-driven vascular fluid leakage in the macula, directly causing central vision loss

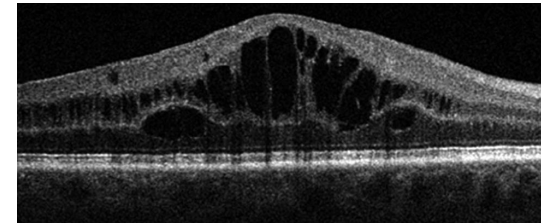
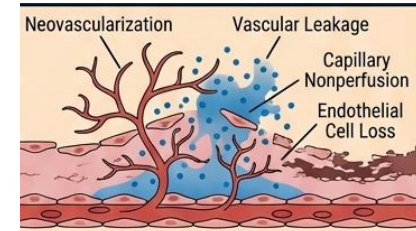
Chronic hyperglycemia causes **breakdown of the blood-retinal barrier**



Fluid accumulates in the macula, visible on OCT



Persistent fluid **damages photoreceptor layer (EZ)**  
*Leads to central vision loss*



# ~45% of diagnosed patients are treated with anti-VEGFs; ~55% are observed and not actively treated

## Diagnosed DME patients

~55%  
Observed



- Patients with **no to mild VA impairment**, but progressive structural damage on OCT scan
- Guidelines recommend observation-only; in these patients, **treatment burden outweighs benefit**

~45%  
Treated



- Anti-VEGFs are generally initiated once disease becomes center-involving **with vision loss**

1<sup>st</sup> line

IVT Anti-VEGF

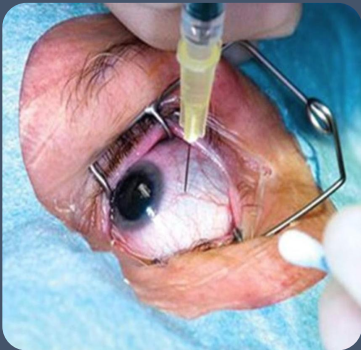
2nd line

IVT steroids

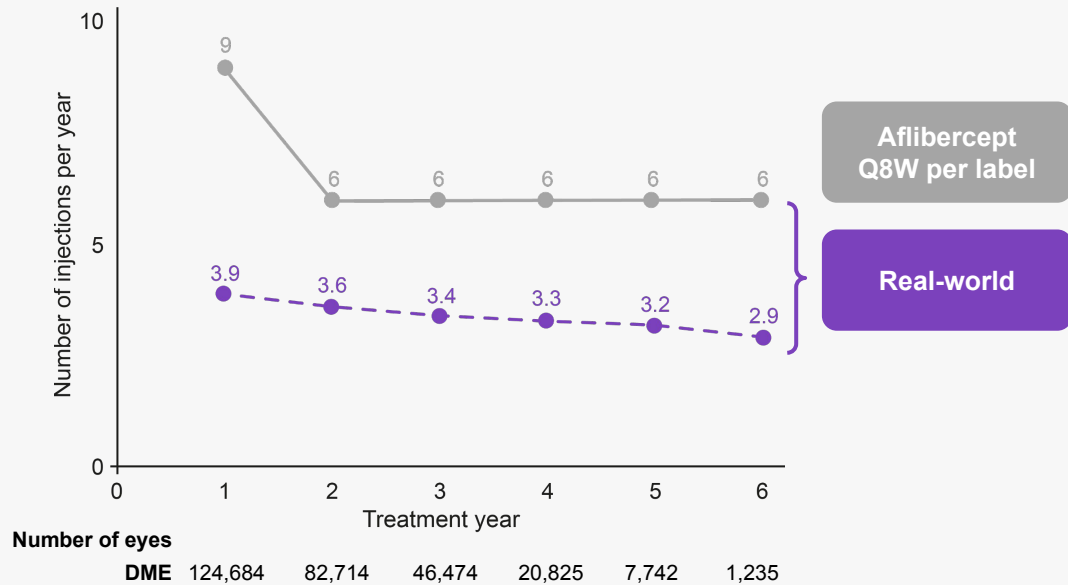


# Compliance is a key challenge ...

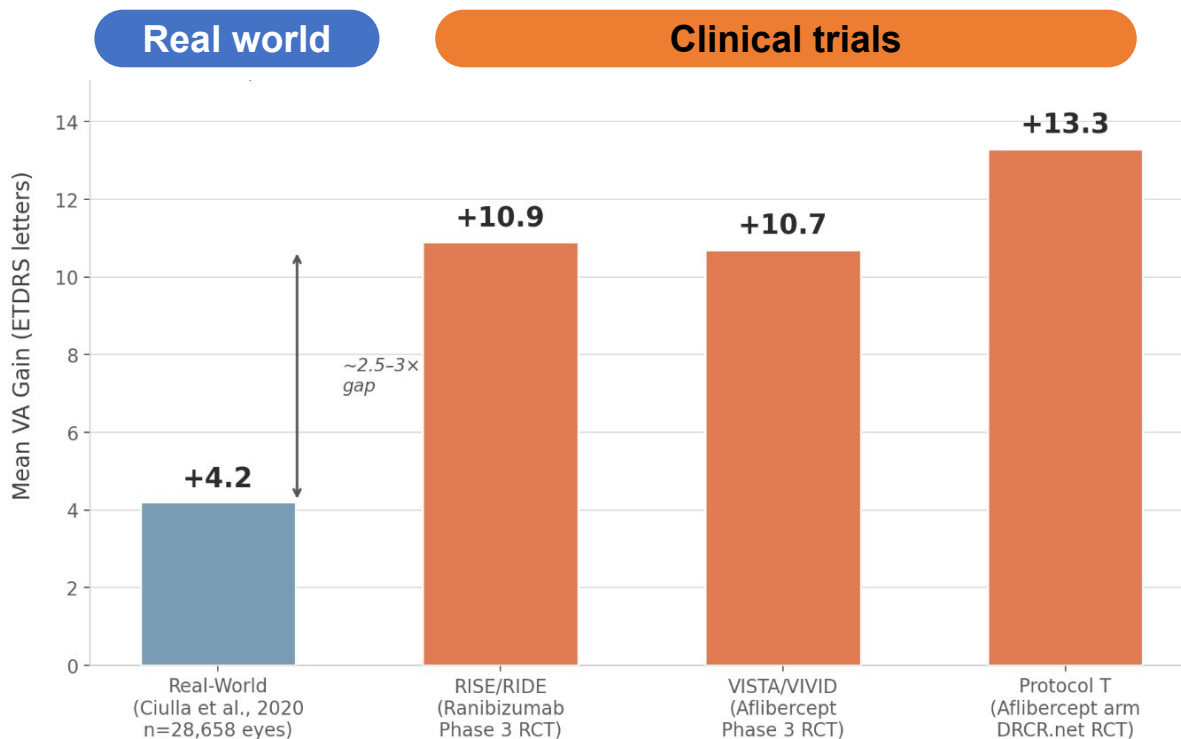
Injections are invasive and inconvenient; in the real world, they are not administered as frequently as they should be



### Number of anti-VEGF injections received Real-world (IRIS) vs aflibercept 2 mg q8W label

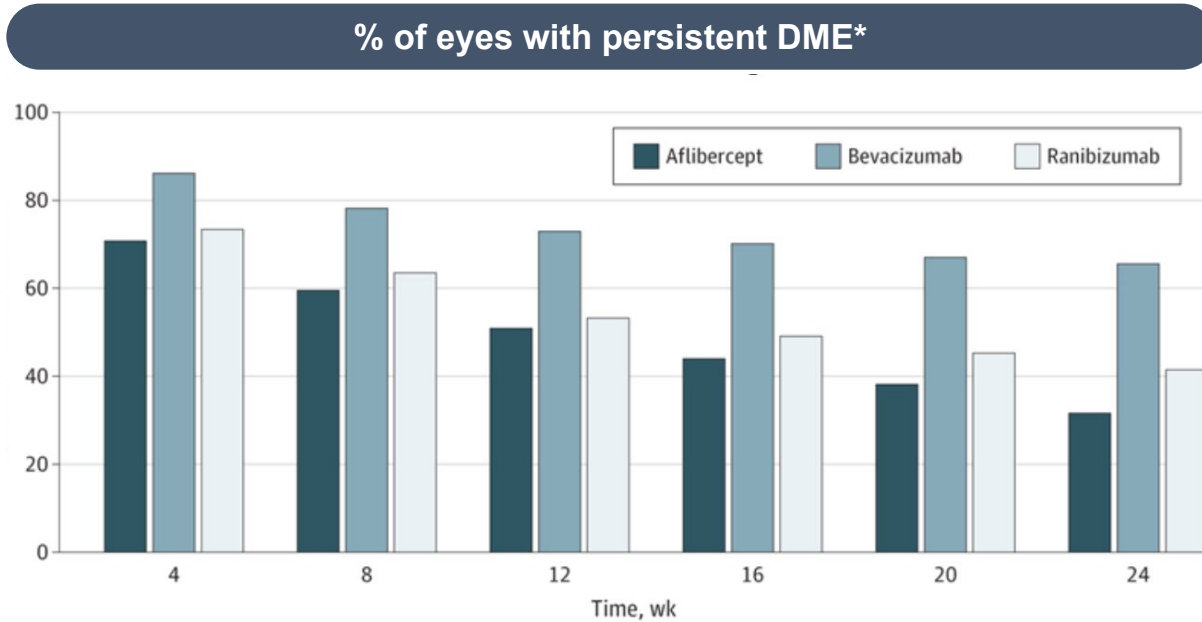


... that has led to 50-70% lower VA gains in the real world vs. in trials



Sources: Ciulla 2020, Wells 2015, Boyer 2015, Korobelnik 2014

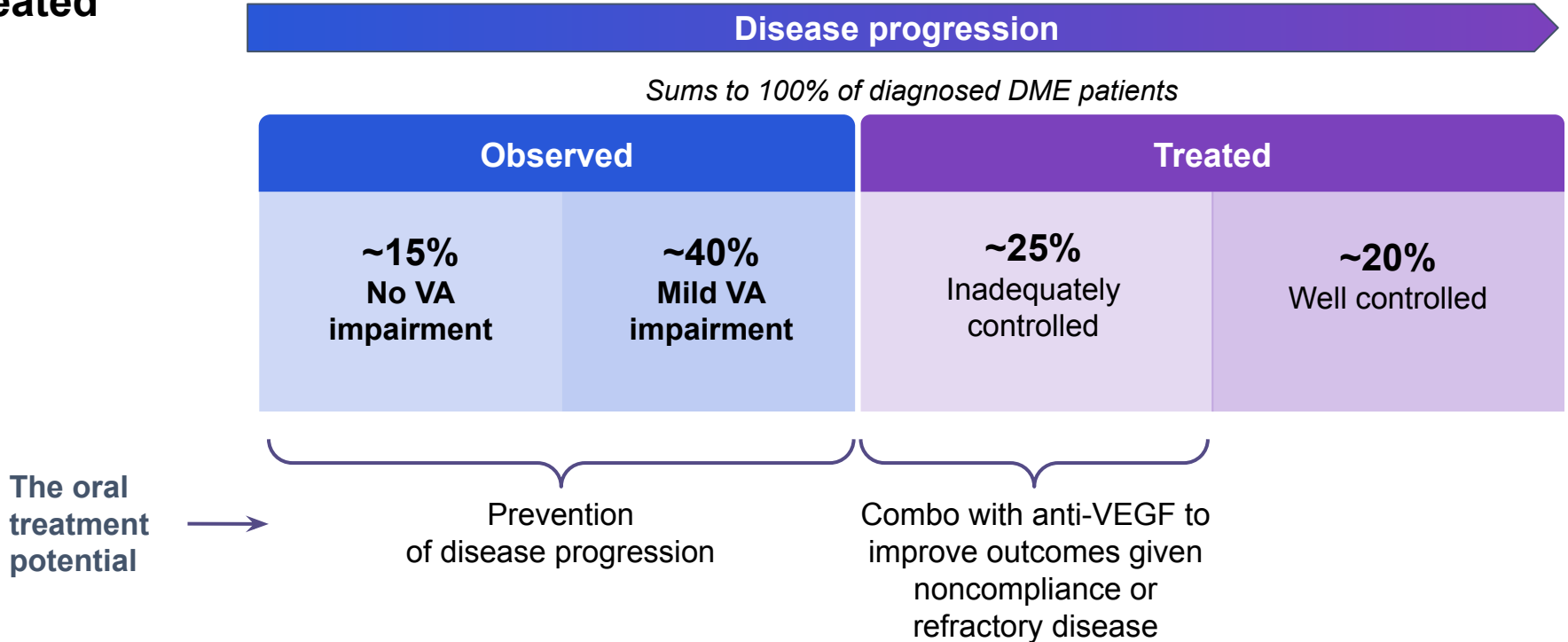
# Even with strong compliance, ~50% of patients have persistent fluid on anti-VEGF therapy



\*Note: Persistent DME was defined as central subfield thickness  $\geq 250 \mu\text{m}$

Source: Bressler 2018

# An effective oral therapy could benefit not only patients currently treated with anti-VEGFs but could allow for treatment of earlier-stage disease not currently treated



# **Geographic atrophy (GA)**

# Geographic atrophy is a leading cause of blindness in the elderly, characterized by irreversible central vision loss

>8M patients globally

Most severe form of AMD (~20% of all cases)  
Est. 18M patients by 2040: rapidly growing  
Age 75: median age of onset

A leading cause of blindness

Characterized by **loss of central vision, poor low-light acuity, blurry or distorted vision**  
*From diagnosis:*  
~5 years: time to legal blindness (median)  
~10 years: time to total vision loss (median)

No treatments preserve VA

No approved therapies have shown vision benefits to date, unlike in other retinal diseases

## GA vision loss progression

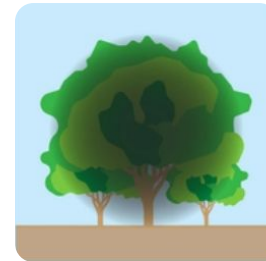
At risk



Early



Intermediate

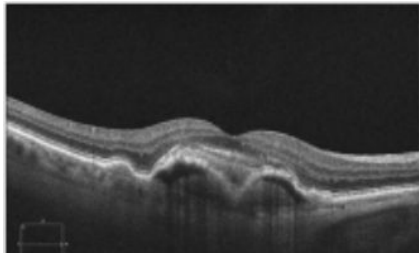
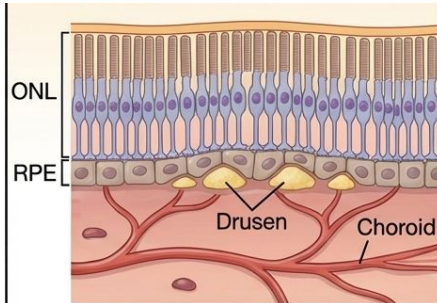


Advanced

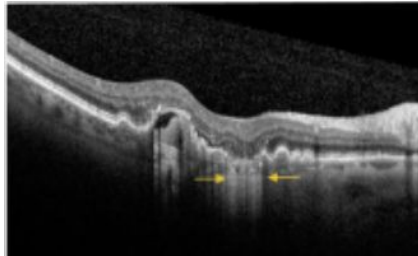
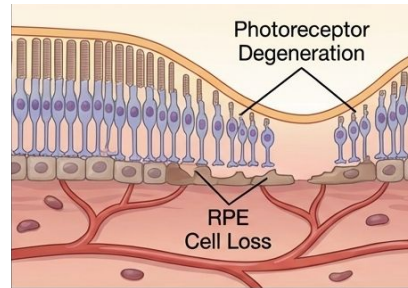


# GA is characterized by continuous neurodegenerative decline

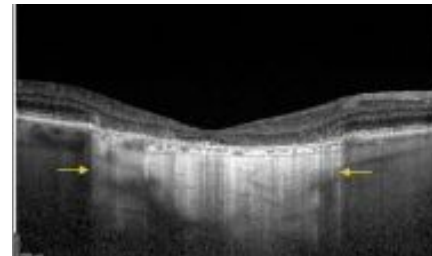
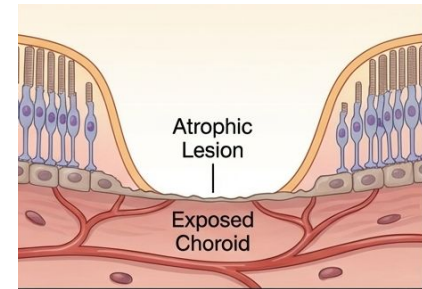
**Drusen build up & initial RPE dysfunction**



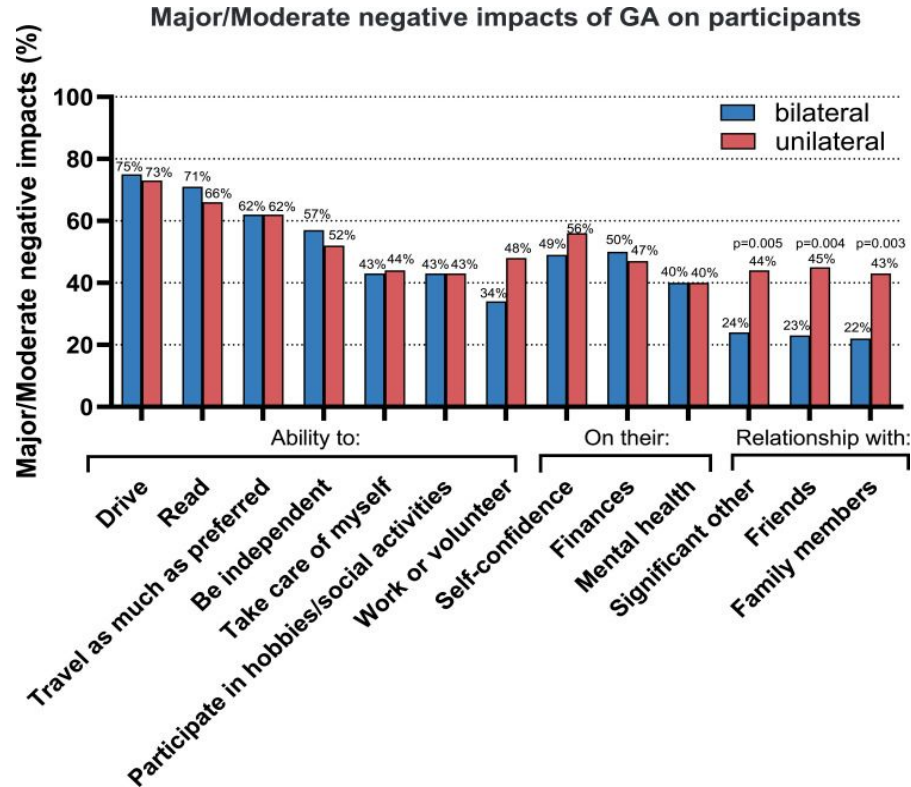
**RPE cell death leads to photoreceptor degeneration**  
Photoreceptors convert light into vision signals



**Expansion of atrophic lesions**  
Lesions signal established GA and lead to VA loss when they cover the fovea



# The effects of GA on quality of life can be devastating, making it difficult or impossible for independent living

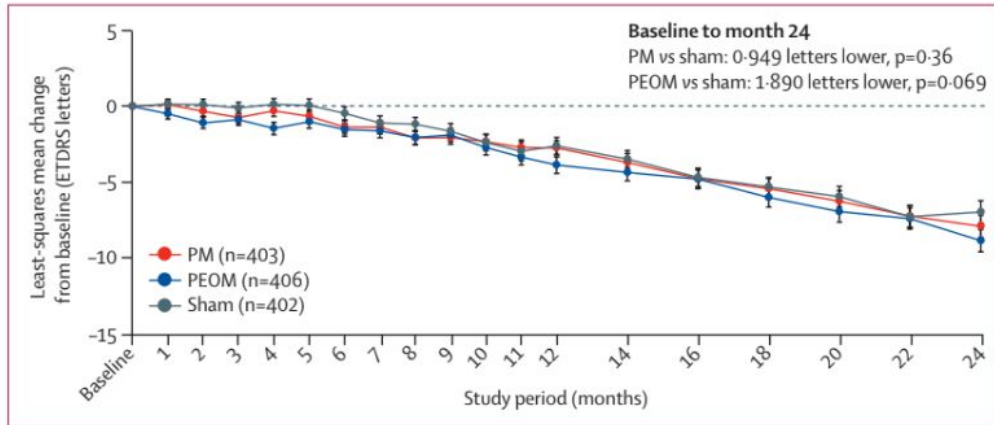


Source: Bakri 2024, : Global Geographic Atrophy Insights Survey (N=203)

# Approved complement inhibitors have been shown to reduce lesion growth by 15-20%, no vision preservation shown to date

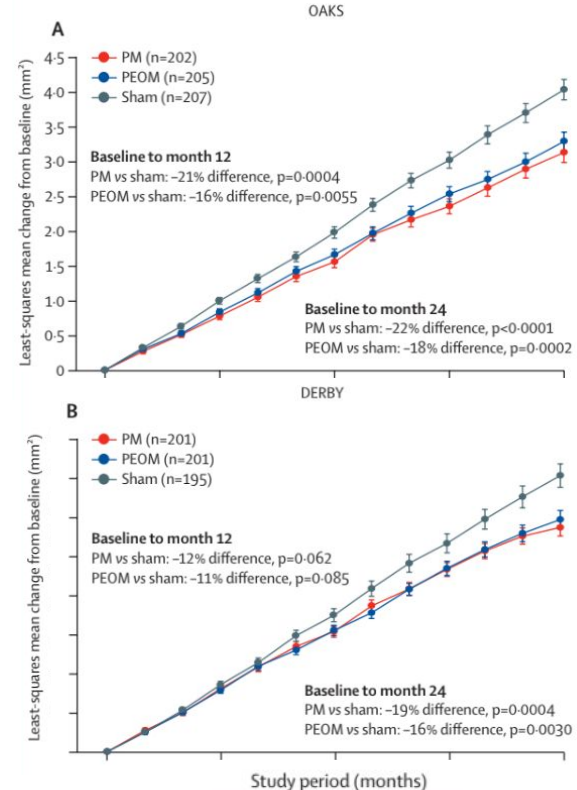
**Syfovre OAKS/DERBY Pooled Analysis-**  
*Showed declines in VA similar to sham*  
 but significant lesion growth rate reduction

## Visual acuity



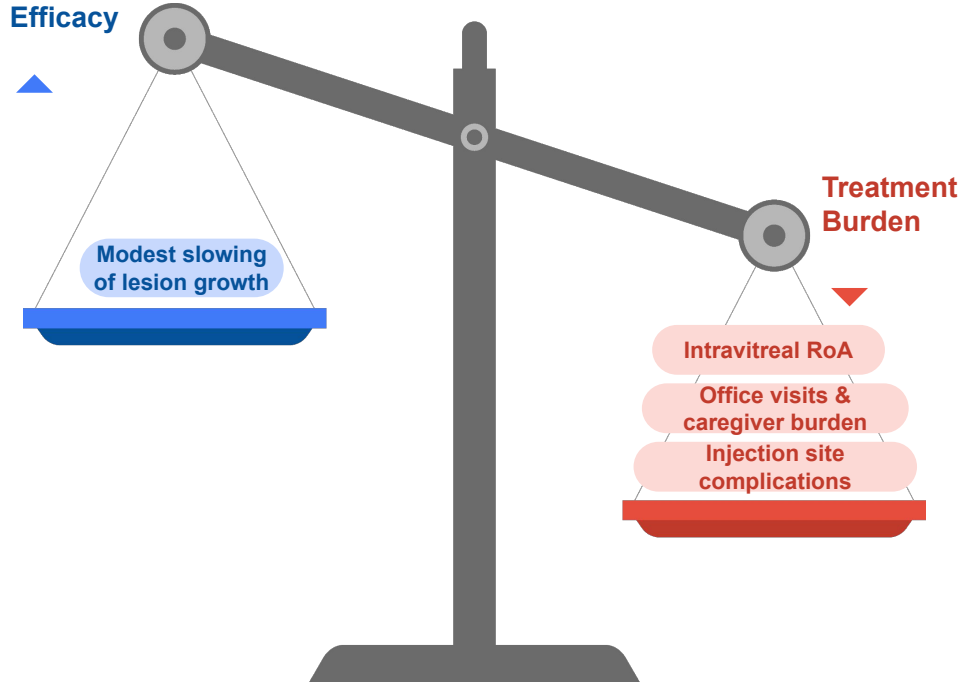
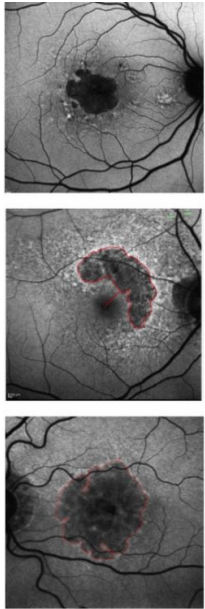
Source: Khanani 2023

## Lesion growth



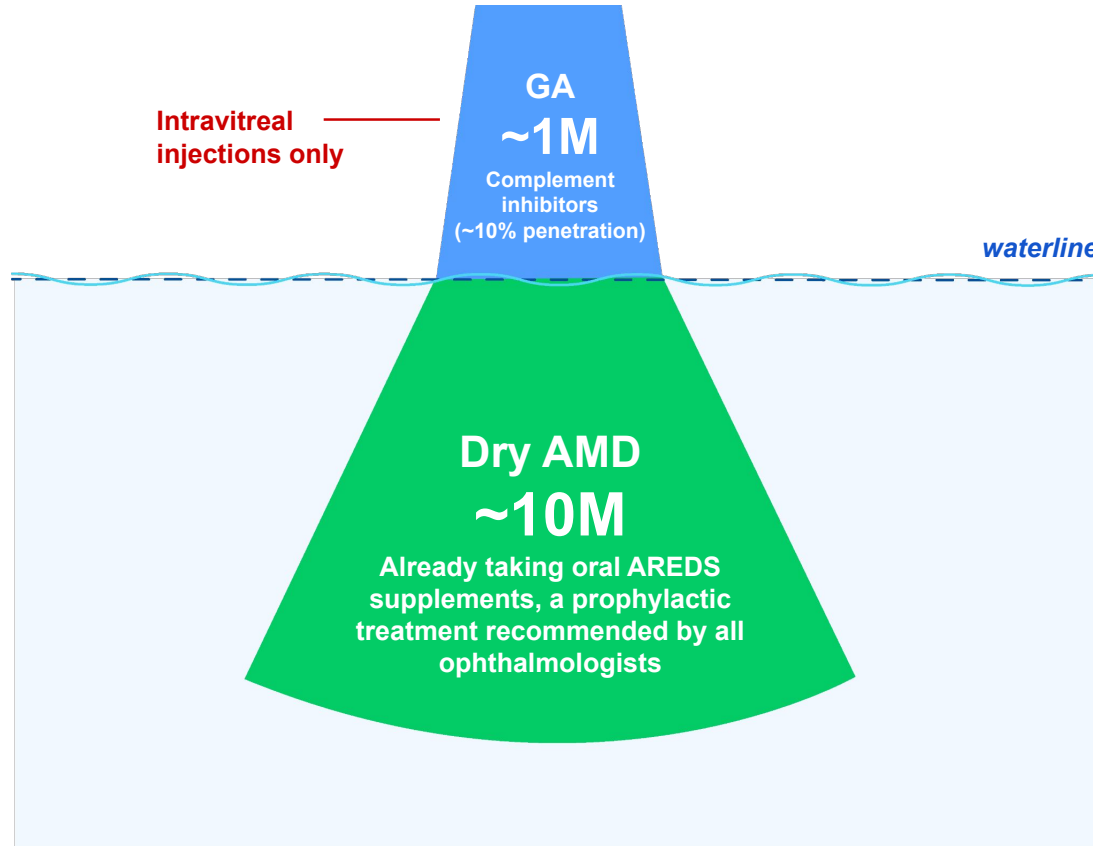
# Complement inhibitors are currently prescribed in ~10% of patients

Lesion growth in GA



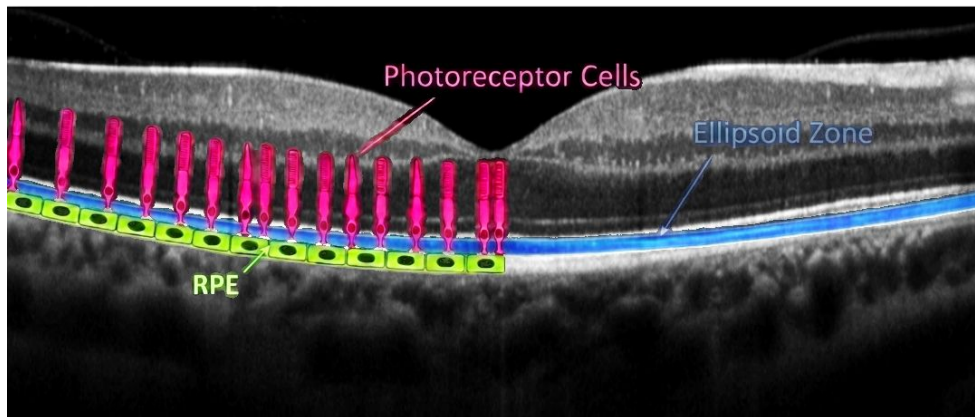
An effective oral therapy could rebalance efficacy and treatment burden

# An oral therapy could be used in earlier stages of dry AMD patients to slow GA progression



# Emerging approvable endpoint: the ellipsoid zone (EZ)

- **Definition:** The EZ is a hyperreflective, photoreceptor rich band observed on OCT, serving as a crucial biomarker for assessing retinal health and vision loss
- **Clinical relevance:** EZ attenuation (loss) precedes GA formation and is the strongest predictor of visual function
- **Regulatory validation:** FDA has previously recognized EZ attenuation as an approvable endpoint:
  - Stealth Bio advanced to Ph3 directly because of EZ attenuation data in GA (a secondary endpoint)
  - Basis of ENCELTO approval (cell therapy for macular telangiectasia)
- **Adoption:** rapidly expanding across KOLs, clinical use & regulatory



## Summary & Q&A



**Kristen Fortney, PhD**  
Co-Founder & CEO

# Pipeline overview

Leveraging the BioAge platform to address key unmet needs in metabolic aging

Program	Mechanism of action	Target dosing	Indication	Discovery	Lead op	IND-enabling	Phase 1	Phase 2	Anticipated milestones
<b>BGE-102</b>	NLRP3 inhibitor (CNS penetrant)	Oral QD	CV risk						CV risk Phase 2 results H2:2026
			Diabetic macular edema						DME Phase 1b/2a initiation mid-2026 results mid-2027
<b>APJ</b>	APJ agonist	Oral QD	Obesity						IND submission 2026 YE
		SQ QW	Obesity						
<b>Program 1</b>	Undisclosed	-	Cardio-metabolic - various	Lilly					
<b>Program 2</b>	Undisclosed	-		Lilly					
<b>Target discovery</b>	Multiple targets	-	-	NOVARTIS					

Strong balance sheet with \$285.1M in cash, cash equivalents, and marketable securities as of December 31, 2025

BIOAGE

BIOAGE

Q&A

BIOAGE