# Addressing the unmet needs in LDL-C lowering; what can we expect?

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# Conflicts of interest

- Dr Kastelein reports consultancies with 89Bio, CiVi Biotech, CSL-Behring, Draupnir Bio, Menarini Ricerce, Madrigal, North Sea Therapeutics, Novartis, Silence Therapeutics, CinCor, Scribe Therapeutics
- Dr Kastelein is acting Chief Medical Officer (CMO) of Staten Biotech and Chief Science Officer (CSO) of NewAmsterdam Pharma

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In connection with the previously announced business combination between NewAmsterdam Pharma and FAC, NewAmsterdam Pharma loding B.V. (the "Company") has filed a registration statement on form F-4 with the SEC that includes a prospectus with respect to the Company securities to be issued in connection with the business combination and a proxy statement with respect to the shareholder meeting of FAC to vote on the business combination. FAC, the Company and NewAmsterdam Pharma arge is investors, shareholders and other interested persons to read the preliminary proxy statement/prospectus, as well as other documents field with the SEC back use these documents field with the SEC business combination. The company counters field with the SEC well as control the company, securities to be established for voting on the proposed business combination. After the registration statement/prospectus to be included in the registration statement will contain a cony of the form FA, including the provy statement/prospectus, and between the countents field with the SEC that includes a process the registration statement will contain a cony of the form FA, including the provis statement/prospectus, and between the childre effective provis statement/prospectus to be included in the registration statement, wo lines on statement will contain a cony of the form FA, including the provis statement/prospectus, and between the childre effective provis statement/prospectus, and between the childre effective provis statement/prospectus to be included in the registration statement, wo lines on statement will contain a cony of the provis statement/prospectus, and between the childre effective provis statement/prospectus to be included in the registration statement. The preliminary and definitive provis statement/prospectus to be included in the registration statement, will contain a convert the statement, and the Statement were expressed.

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### Forward-Looking Statements

Forward socking statements including that ments that are not historical fasts are forward-looking statements for purposes of the safe harbor provisions under the United States Private Sociality and that are possible for the Social matters. These flowing double gatements include, but are not limited to, statements regarding estimates and forecasts of other financial and performance metrics and postential metrics. These flowing double gatements include, but are not limited to, statements regarding estimates and forecasts of other financial and performance metrics and postential matters. These flowing double gatements include, but are not limited to, statements regarding estimates and forecasts of other financial and performance metrics and postential metrics. These flowing double gatements are possed for having and constructions and expectations and that are regarding estimates and forecasts of ather financial and performance metrics and postential metrics. These flowing double gatements are possed for having and end that are regarding estimates and matters are based on an againeter, an assumption, hadware that are regarding estimates are based on an againeter, and and are postential metrics. These flowing based metrics are based on the annet state estimates are based on a adainance metrics and uncertainties are based on a matter for the postential metrics. These flowing based metrics, including the proceed transaction, and expectition of examinates are based on a matter interest. The advarding that are regarding that are regarded to the postential transactions and end that are regarding that are regarded to the postential transactions and end that are regarded to the postential transaction and that are regarded to the postential transaction and that are regarded to the postential transaction and that are regarded to the postential transactine and transaction and that aregarded to t

### Elevated levels of LDL-C are the root cause of cardiovascular disease

- Cardiovascular disease (CVD) is the leading cause of death among adults worldwide
- Hyperlipidemia nearly doubles the risk of developing CVD
- Elevated levels of LDL cholesterol (LDL-C) are the root cause of atherosclerosis, the process that leads to CVD

Absolute reduction of LDL-C, and duration of that reduction, is the key to reducing cardiovascular risks

Sources: American Heart Association, CDC, Mayo clinic, Global Health estimates 2016: Deaths by Cause, Age, Sex, by Country and by Regio, 2000-2016, Geneva, WHO; 2018.



# How well are we treating our ASCVD patients?

### Europe Da Vinci Study: Overall LLT use & risk-based LDL-C goal attainment



\*Stabilised LLT at time of LDL-C measurement. combo, combination; LDL-C, low-density lipoprotein cholesterol; LLT, lipid lowering therapy; PCSK9i; proprotein convertase subtilisin/kexin type 9 inhibitor

Ray KK, et. al., DA VINCI study. EU-Wide Cross-Sectional Observational Study of Lipid-Modifying Therapy Use in Secondary and Primary Care: the DA VINCI study. Eur J Prev Cardiol. 2021 Sep 20;28(11):1279-1289. doi: 10.1093/eurjpc/zwaa047. PMID: 33580789.



# Moderate-intensity statin with ezetimibe observed to be non-inferior and better tolerated than high-intensity statin, suggesting better adherence and less relevance of the MOA for lowering LDL-C

- Primary Endpoint = Composite of cardiovascular death, major cardiovascular event, or non-fatal stroke
- Moderate-intensity statin (>93% rosuva 10mg) with ezetimibe 10mg combination therapy (n=1894)
- High-intensity statin (>90% rosuva 20mg) monotherapy (n=1886)
- At year three, 72% of patient achieved LDL-C < 70mg/dl on the combination vs 58% on HIS, absolute difference 14.8% [95% Cl 11.1–18.4] p<0.0001</li>
- Discontinuation or dose reduction of the study drug by intolerance was observed in 88 patients (4.8%) on the combination vs 150 patients (8.2%) on HIS (p<0.0001)</li>



Byeong-Keuk Kimet.al., Long-term efficacy and safety of moderate-intensity statin with ezetimibe combination therapy versus high-intensity statin monotherapy in patients with atherosclerotic cardiovascular disease (RACING): a randomised, open-label, non-inferiority trial, The Lancet, Published:July 18, 2022, DOI:https://doi.org/10.1016/S0140-6736(22)00916-3

### Rationale to treat all very high- and extremely high-risk patients with combination therapy as the initial strategy

Simplified treatment algorithm for very high-risk patients with ASCVD



Ray, KK, et al., Combination lipid-lowering therapy as first-line strategy in very high-risk patients, European Heart Journal (2022) 43, 830-833



## Effect of bempedoic acid on LDL-C after 12 weeks of treatment



## Bempedoic Acid / Ezetimibe Combination Non-Statin Mechanisms of Action (MOAs)

### Bempedoic Acid

- Inhibits ATP Citrate Lyase (ACL)
  - Active in liver cells
- Acts in the same cholesterol biosynthesis pathway as statins
- Upregulates LDL receptors



Adapted from Pinkosky et al. Nature Communications. 2016 Nov 28; DOI: 10.1038/ncomms13457; Garcia-Calvo et al. Proc Natl Acad Sci USA. 2005; 102:8132–8137; Ference et al. European Heart Journal. 2017 0, 1-14.

### Ezetimibe

- Inhibits NPC1L1 (sterol transporter)
- Primary
  - Inhibition of gastrointestinal cholesterol absorption
- Secondary
  - Upregulates LDL receptors



# Phase 3 Study of Bempedoic Acid or Ezetimibe Alone or in Fixed-dose Combination vs Placebo



BA, bempedoic acid; EZE, ezetimibe; LS, least square.

Ballantyne CM, et al. Eur J Prev Cardiol. 2020;27:593-603.

- Patients at high risk due to ASCVD or HeFH with LDL-C ≥100 mg/dL, or multiple CVD risk factors with LDL-C ≥130 mg/dL
- All treatments added to stable background maximally tolerated statin therapy
- No safety concerns

	Non-HDL-C	Аро В		
	LS Mean %∆ at 12 weeks			
Placebo	1.8	5.5		
EZE	-19.9	-15.3		
BA	-14.1	-11.8		
BA + EZE	-31.9	-24.6		

All p<0.05 for BA + EZE vs placebo, EZE and BA

# ANGPTL3 inhibition

# LDL-R-independent hepatic uptake of 'remnant' particles



# ELIPSE HoFH Study: The addition of the ANGPTL3-inhibitor, evinacumab, for homozygous FH (n=65)



Raal FJ et al. New Engl J Med 2020;383:711-20

# ELIPSE HoFH Study



Raal FJ et al. New Engl J Med 2020;383:711-20



Adapted from Sniderman A, et al JACC 2014;63:1935-47

How does CETP fit in this pathobiology?

# HDL-C initial target for CETP inhibition

CETP inhibitors were initially developed based on the premise that increasing HDL-C would prevent CHD



### CHD= Coronary Heart Disease

Emerging Risk Factors Collaboration, Di Angelantonio E, Sarwar N, Perry P, Kaptoge S, Ray KK, Thompson A, Wood AM, Lewington S, Sattar N, Packard CJ, Collins R, Thompson SG, Danesh J. Major lipids, apolipoproteins, and risk of vascular disease. JAMA. 2009 Nov 11;302(18):1993-2000. doi: 10.1001/jama.2009.1619. PMID: 19903920; PMCID: PMC3284229

### Dalcetrapib: Dal-OUTCOMES Study

### ORIGINAL ARTICLE

# Effects of Dalcetrapib in Patients with a Recent Acute Coronary Syndrome

Gregory G. Schwartz, M.D., Ph.D., Anders G. Olsson, M.D., Ph.D., Markus Abt, Ph.D., Christie M. Ballantyne, M.D., Philip J. Barter, M.D., Ph.D., Jochen Brumm, Ph.D., Bernard R. Chaitman, M.D., Ingar M. Holme, Ph.D., David Kallend, M.B., B.S., Lawrence A. Leiter, M.D., Eran Leitersdorf, M.D., John J.V. McMurray, M.D., Hardi Mundl, M.D., Stephen J. Nicholls, M.B., B.S., Ph.D., Prediman K. Shah, M.D., Jean-Claude Tardif, M.D., and R. Scott Wright, M.D., for the dal-OUTCOMES Investigators\* CVOT with ~16,000 patients with recent MI on lipidlowering therapy randomized to dalcetrapib or placebo

CVOT= Cardiovascular outcomes trial MI= Mvocardial Infarction

Schwartz, GG, et, al., Effects of Dalcetrapib in Patients with a Recent Acute Coronary Syndrome, November 29, 2012, N Engl J Med 2012; 367:2089-2099, DOI: 10.1056/NEJMoa1206797

### HDL-C increase in Dal-OUTCOMES did not lower CHD risk; the end of the HDL hypothesis

HDL cholesterol levels increased from baseline by 4 to 11% in the placebo group and by 31 to 40% in the dalcetrapib group



levels 85 LDL Cholesterol (mg/dl) 8( 7( 6 60-

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Dalcetrapib did not alter the risk of the primary end point\*



\*Composite of death from coronary heart disease, nonfatal myocardial infarction, ischemic stroke, unstable angina, or cardiac arrest with resuscitation

Schwartz, GG, et, al., Effects of Dalcetrapib in Patients with a Recent Acute Coronary Syndrome, November 29, 2012, N Engl J Med 2012; 367:2089-2099, DOI: 10.1056/NEJMoa1206797

Dalcetrapib did not move LDL-C

### Evacetrapib: ACCELERATE Study

### ORIGINAL ARTICLE

### Evacetrapib and Cardiovascular Outcomes in High-Risk Vascular Disease

A. Michael Lincoff, M.D., Stephen J. Nicholls, M.B., B.S., Ph.D., Jeffrey S. Riesmeyer, M.D., Philip J. Barter, M.B., B.S., Ph.D., H. Bryan Brewer, M.D., Keith A.A. Fox, M.B., Ch.B., F.Med.Sci.,
C. Michael Gibson, M.D., Christopher Granger, M.D., Venu Menon, M.D., Gilles Montalescot, M.D., Ph.D., Daniel Rader, M.D., Alan R. Tall, M.B., B.S., Ellen McErlean, M.S.N., Kathy Wolski, M.P.H., Giacomo Ruotolo, M.D., Ph.D., Burkhard Vangerow, M.D., Govinda Weerakkody, Ph.D., Shaun G. Goodman, M.D., Diego Conde, M.D., Darren K. McGuire, M.D., M.H.Sc., Jose C. Nicolau, M.D., Jose L. Leiva-Pons, M.D., Yves Pesant, M.D., Weimin Li, M.D., David Kandath, M.D., Simon Kouz, M.D., Naeem Tahirkheli, M.D., Denise Mason, B.S.N., and Steven E. Nissen, M.D., for the ACCELERATE Investigators\* CVOT with ~12,000 patients with recent ACS, or other vascular disease, on lipidlowering therapy randomized to evacetrapib or placebo

CVOT= Cardiovascular outcomes trial ACS= Acute coronary syndrome

Lincoff, AM. et al., Evacetrapib and Cardiovascular Outcomes in High-Risk Vascular Disease, May 18, 2017, N Engl J Med 2017; 376:1933-1942, DOI: 10.1056/NEJMoa1609581

# ACCELERATE; LDL-C was measured by a direct assay

Event or Laboratory Variable	Evacetrapib (N=6038)	Placebo (N = 6054)	Hazard Ratio (95% CI)	P Value*
Primary composite end point — no. (%)†	779 (12.9)	776 (12.8)	1.01 (0.91 to 1.11)	0.91
Death from cardiovascular causes	143 (2.4)	166 (2.7)	0.86 (0.69 to 1.08)	0.19
Myocardial infarction	258 (4.3)	259 (4.3)	1.00 (0.84 to 1.18)	0.97
Stroke	94 (1.6)	98 (1.6)	0.96 (0.72 to 1.27)	0.77
Hospitalization for unstable angina	155 (2.6)	146 (2.4)	1.06 (0.85 to 1.33)	0.60
Coronary revascularization	487 (8.1)	485 (8.0)	1.01 (0.89 to 1.14)	0.94
Secondary composite end point — no. (%)‡	437 (7.2)	453 (7.5)	0.97 (0.85 to 1.10)	0.59
All-cause mortality — no. (%)	231 (3.8)	276 (4.6)	0.84 (0.70 to 1.00)	0.04
Lipids — % change§				
HDL cholesterol	133.2±57.2	1.6±17.5	_	< 0.001
LDL cholesterol	-31.1±27.6	6.0±29.0	—	< 0.001
Median triglycerides (IQR)	-6.0 (-24 to 16.7)	0 (-17.7 to 22.8)	_	< 0.001
Apolipoprotein A1	50.5±30.8	1.1±21.5	_	< 0.001
Apolipoprotein B	-15.5±22.3	3.8±22.0	_	< 0.001
Median lipoprotein(a) (IQR)	-22.3 (-50.6 to 0)	0 (-15.4 to 14.9)	_	< 0.001

Wrong assay!

LDL-C was measured using a direct assay vs preparative ultra-centrifugation which is more sensitive at low absolute LDL-C levels

Lincoff, AM. et al,. Evacetrapib and Cardiovascular Outcomes in High-Risk Vascular Disease, May 18, 2017, N Engl J Med 2017; 376:1933-1942, DOI: 10.1056/NEJMoa1609581 Nicholls SJ, Lincoff AM, Barter PJ, et., Assessment of the clinical effects of cholesteryl ester transfer protein inhibition with evacetrapib in patients at highrisk for vascular outcomes: rationale and design of the ACCELERATE trial. Am Heart J 2015;170:1061-9.

# ▶ Kaplan-Meier curves for ACCELERATE, REVEAL and IMPROVE-IT studies



Cannon CP, et al. N Engl J Med 2015;372:2387-2397. Lincoff AM, et al. N Engl J Med 2017;376:1933-1942. Bowman L, et al. N Engl J Med 2017;377:1217-1227.

Evacetrapib's CVOT was underpowered and too short

# The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 SEPTEMBER 28, 2017 VOL. 377 NO. 13

# Effects of Anacetrapib in Patients with Atherosclerotic Vascular Disease

The HPS3/TIMI55-REVEAL Collaborative Group\*

CVOT with ~30,000 patients with occlusive vascular disease on lipidlowering therapy randomized to anacetrapib or placebo

CVOT= Cardiovascular outcomes trial

The HPS3/TIMI55–REVEAL Collaborative Group, Effects of Anacetrapib in Patients with Atherosclerotic Vascular Disease, September 28, 2017, N Engl J Med 2017; 377:1217-1227, DOI: 10.1056/NEJMoa1706444

# REVEAL study results were initially misinterpreted based on the reported 41% LDL-C reduction

### At 4.1 years, two important learnings:

### Learning 1: Predictable MACE benefit

- 9% drop in MACE is exactly predicted by the CTT metaregression line
- Indicates CETPi behaves like statins in reducing MACE



At 6.4 years: 20% additional MACE risk reduction

### Learning 2: Baseline levels were too low

- Baseline 60 mg/dL already below U.S. guideline goals
- Modest drug LDL-lowering potency (17%) resulted in very small absolute reduction (only 11 mg/dL)



Anacetrapib's long half-life causes it to continue to have effects in patients (patients remained randomized)

### At both time readouts, REVEAL showed statistically significant drop across all composites of MACE\*

Composites of MACE included in this analysis were coronary death, myocardial infarction or coronary revascularization

The HPS3/TIMI55-REVEAL Collaborative Group, Effects of Anacetrapib in Patients with Atherosclerotic Vascular Disease, September 28, 2017, N Engl J Med 2017; 377:1217-1227, DOI: 10.1056/NEJMoa1706444



### A Placebo-Controlled, Double-Blind, Randomized, Phase 2 Dose-Finding Study to Evaluate the Effect of Obicetrapib 5 and 10 mg as an Adjunct to High-Intensity Statin Therapy

Stephen J Nicholls, Marc Ditmarsch, John J Kastelein, Scott P Rigby, Douglas Kling, Danielle L Curcio, Nicholas J Alp, Michael H Davidson

NLA Scientific Session, Late Breaking Sessions, June 4, 2022

# In ROSE Phase 2b clinical trial, obicetrapib demonstrated robust LDL-C lowering as adjunct to high intensity statins



### Preparative ultra-centrifugation (PUC) is "gold-standard" for LDL-C quantification

\* In obicetrapib 5mg arm, 40 patients were randomized. N-value at end-of-treatment decreased to 38 because one patient was missing an LDL value at baseline and a second patient was missing an LDL value at end-of-treatment reading.

NLA Scientific Session, Late Breaking Sessions, June 4, 2022

# ROSE waterfalls: LDL-C % change from baseline at Day 56

### 20% of obicetrapib 5mg patients 100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 Note: Each bar represents one subject in the trial. Obicetrapib 5mg

LDL-C reduction of >60% was observed in

### LDL-C reduction of >60% was observed in 40% of obicetrapib 10mg patients



NewAmsterdam Pharma Data on File

# ROSE safety: AEs, SAEs and withdrawals overview

Positive safety profile observed, and no drop-outs due to AEs

		Placebo (N=40)	Obicetrapib 5mg (N=40)	Obicetrapib 10mg (N=40)
AEs (%)				
	AEs, total	19 (47.5)	15 (37.5)	8 (20.0)
	AEs, related	4 (10.0)	2 (5.0)	1 (2.5)
	AEs, severe	1 (2.5)	0	0
SAEs				
	SAEs, total	2 (5.0)	0	0
	SAEs, related	0	0	0
	Deaths	0	0	0
Withdrawals study / medication				
	TEAEs leading to discontinuation of study drug	1 (2.5)	0	0
	TESAEs leading to discontinuation of study	0	0	0

NLA Scientific Session, Late Breaking Sessions, June 4, 2022

# REVEAL supports translation from absolute LDL reduction to MACE benefit



### Conclusions

- Driving statins to their highest dose as monotherapy has many downsides, of which failed goal attainment is the worst
- Emerging data support the rationale for the option of combining early with ezetimibe, bempedoic acid, monoclonals against PCSK9 or inclisiran makes the most sense

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• Novel agents, such as the CETP-inhibitor obicetrapib and the oral PCSK9 modulators, have shown promising results in the clinic