KalVista PHARMACEUTICALS

Wedbush PacGrow Conference

August 15, 2017

Forward-Looking Statements

This presentation and the accompanying oral presentation contain “forward-looking” statements within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by words such as: "anticipate," "intend," "plan," "goal," "seek," "believe," "project," "estimate," "expect," "strategy," "future, "likely," "may," "should," "will" and similar references to future periods. Examples of forward-looking statements include, among others, statements we make regarding our future financial performance, business plans and objectives, timing and success of our clinical trials, our ability to obtain regulatory approval or the timing of regulatory filings, the potential therapeutic benefits and economic value of our lead product candidates, financing plans, competitive position, industry environment and potential market opportunities.

Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially from those indicated in the forward-looking statements. Therefore, you should not rely on any of these forward-looking statements. Important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements include, among others, the following: those related to our future financial performance, our ability to raise additional funding when needed, our ability to develop and maintain partnerships, our ability to identify and develop new products in a timely manner, the outcome, cost and timing of our product development activities and clinical trials, market size and acceptance of our products, our ability to maintain, protect and enhance our brand and intellectual property, our ability to continue to stay in compliance with applicable laws and regulations, our ability to scale our business and make key hires and such other factors as discussed under the section titled “Risk Factors” and elsewhere in our definitive proxy statement and quarterly reports on Form 10-Q that we filed with the Securities and Exchange Commission (“SEC”) as well as our other filings and the documents incorporated by reference therein, with the SEC.

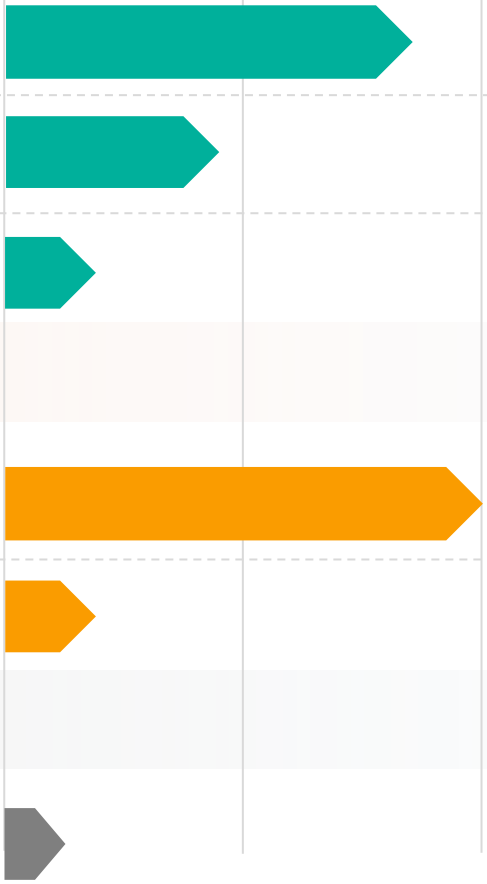
Any forward-looking statement made by us in this presentation and the accompanying oral presentation is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise.

Company Highlights

- Discovery and development of small molecule protease inhibitors, with leading expertise on plasma kallikrein role in disease mechanisms
- Creating a portfolio of oral plasma kallikrein inhibitors to treat orphan disease hereditary angioedema (HAE)
- Additional large market opportunity in diabetic macular edema (DME)
- Composition of matter patents on all programs until 2032 and beyond
- Long-term investors include Novo, SVLS, RA, InterWest and Venrock
- $31.0 million cash at April 30, 2017

Product Portfolio

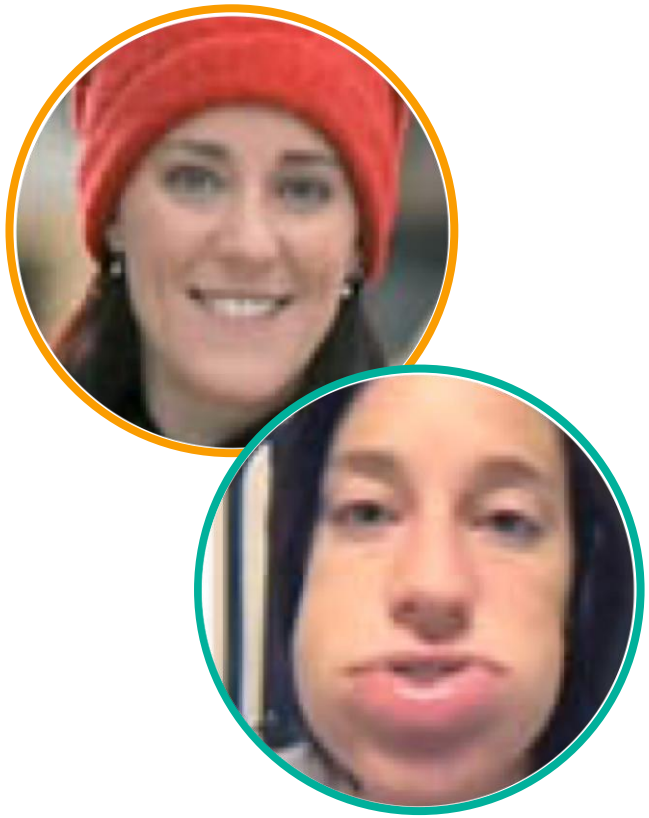
	Route	Preclinical	Phase 1	Phase 2/3	Status
HAE Franchise					
KVD818 Target: Plasma Kallikrein	Oral				• Phase 1 near completion
KVD900 Target: Plasma Kallikrein	Oral				• Regulatory filing in 2017
KVDXXX Target: Plasma Kallikrein	Oral				• Expected to enter clinic in 2018
DME Franchise					
KVD001 Target: Plasma Kallikrein	Intravitreal				• Phase 1 study completed • Phase 2 expected 2017
Oral Program Target: Plasma Kallikrein	Oral				
Other Targets					
Additional Proteases Target: *Undisclosed*	Various				• Discovery profiling phase



Hereditary Angioedema (HAE)

Hereditary Angioedema (HAE)

- Rare, genetic condition causing painful and dramatic swelling in various parts of the body
  - Can be life-threatening if attacks occur in the larynx
- Orphan disease: occurs in 1 in 10,000 to 1 in 65,000
- Driven by uncontrolled activation of plasma kallikrein leading to excessive bradykinin release; primarily caused by defect in C1 inhibitor activity
- Plasma kallikrein inhibition can both treat and prevent HAE attacks - an injectable Pkal inhibitor is an approved therapy



Over $2 Billion Market Forecast by 2020

- Current leading therapies (Cinryze and Firazyr) generate over $1.2 billion in annual sales
- All approved therapies are injected, constraining usage beyond most severe patients
- **Oral therapies will contribute to market growth by expanding use in patients with less frequent attacks**

KalVista
Oral Product

Product
Cinryze
Shire

2016[1] Revenue
$680 m

Product
Firazyr
Shire

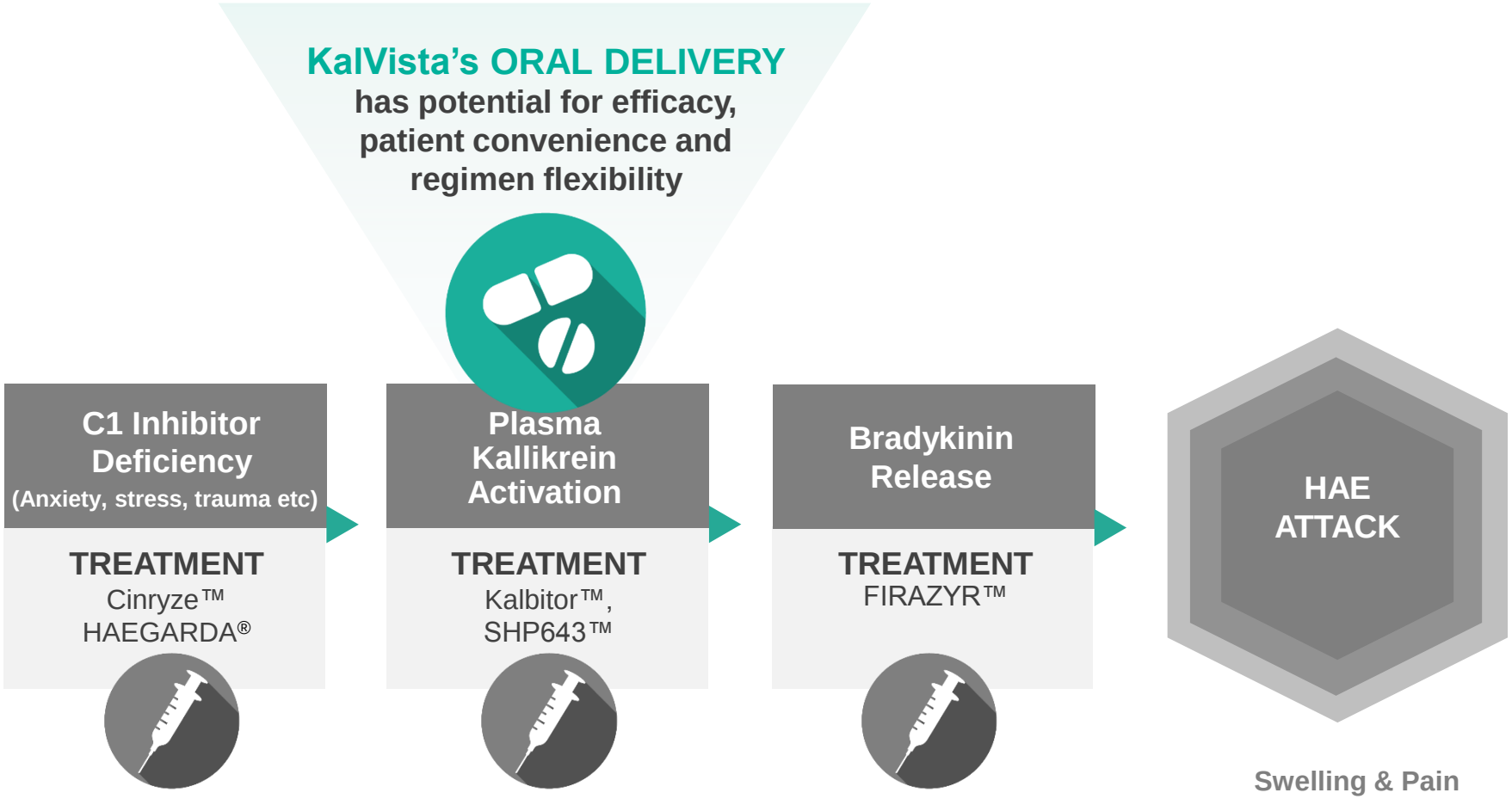
2016[1] Revenue
$578 m

Product
Kalbitor
Shire

2016[1] Revenue
$52 m

[1]*Shire full-year results, February 16, 2017*

Oral Plasma Kallikrein Inhibitor Would Represent a Significant Advancement in HAE Therapy



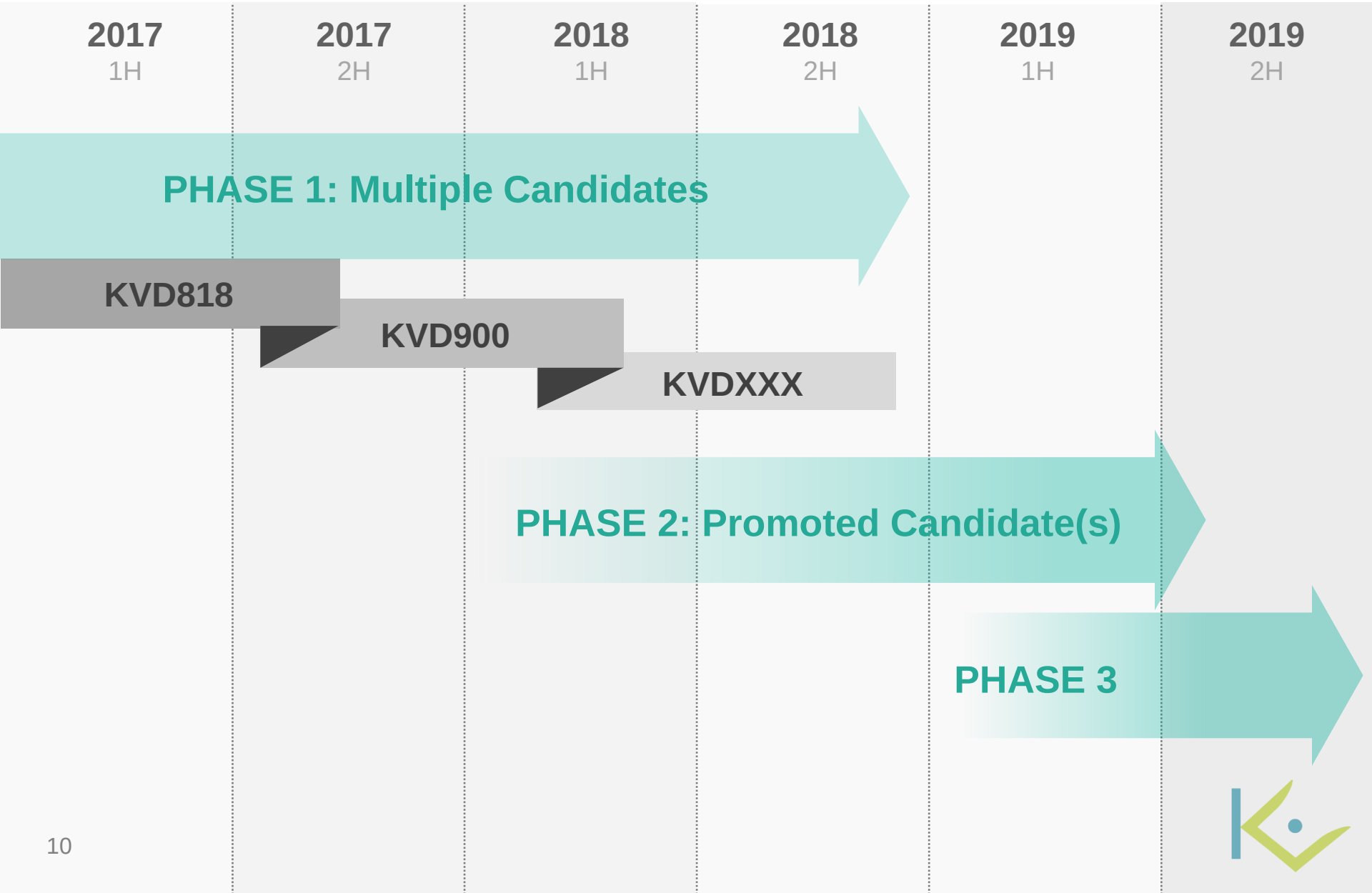
ALL INJECTABLES

Limit patient convenience/compliance and regimen flexibility

Creating Significant Value in Phase 1

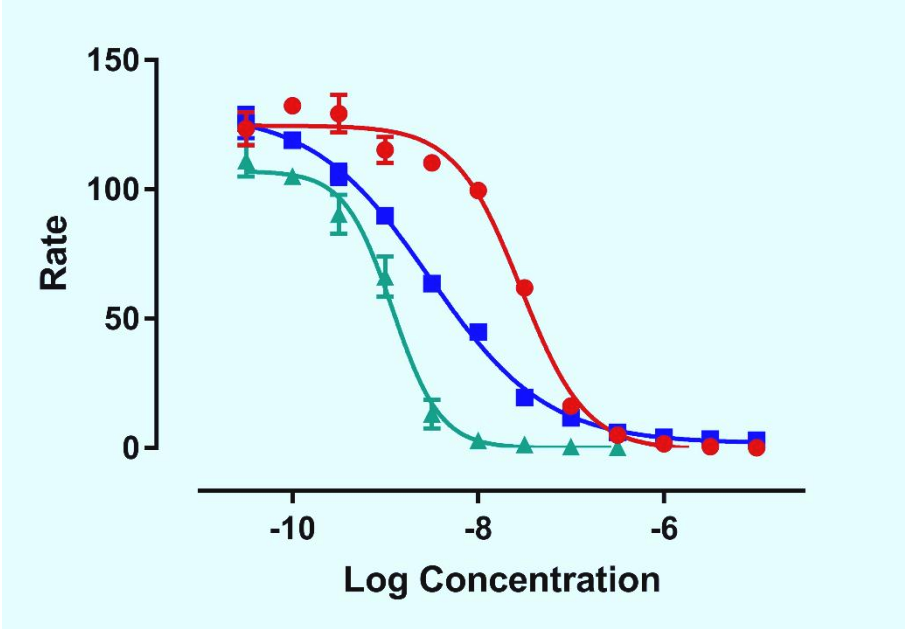
- Plasma kallikrein inhibition is a validated method for the treatment of HAE – product approved targeting this pathway
- We believe pharmacokinetic and pharmacodynamic data from Phase 1 studies will be highly predictive of efficacy in later trials
- We are pursuing a portfolio strategy to offer a best-in-class oral molecule
  - Multiple molecules through Phase 1
  - Front load development time and risk in less expensive trials
  - Potentially pursue different market segments based on differing product profiles
- This approach is intended to de-risk later stage trials without delaying time to NDA filing

Portfolio Approach



Potent Inhibition of Plasma Kallikrein in Plasma

- Degree of inhibition of plasma kallikrein in plasma is a key determinant of efficacy
- We have a structurally diverse series of potent and selective, orally delivered plasma kallikrein inhibitors in development
- Because numerous other variables influence efficacy and safety in humans, we will advance multiple candidates through early stage trials to select the one(s) with the best profile



Plasma kallikrein inhibition by KalVista drug candidates

Portfolio Update

- KVD818:
  - Ongoing first-in-human study exploring multiple doses and formulations
  - Achieves good exposures in subjects and has been generally well-tolerated
  - We plan to continue exploring the properties of KVD818 to support decisions on further development
- KVD900:
  - Is a potent and selective inhibitor of plasma kallikrein displaying 50% inhibition with a concentration of 6nM
  - Plan to have enabled the first-in-human study before the end of the year
- Additional oral candidates
  - Multiple additional candidates in pre-clinical development
  - Intention to progress at least one additional candidate to the clinic in 2018

Diabetic Macular Edema (DME)

Diabetic Macular Edema: Over $1 Billion Market

- Retinal swelling due to leaky blood vessels in the macula – a leading cause of blindness
- Approximately 900,000 patients in the United States have active DME and are at serious risk of vision loss – affects over 16% of diabetes patients[1]
- Standard of care is anti-VEGF injected into the eye but a significant percentage of patients do not fully respond and continue to have impaired visual function and macular edema
- Unmet clinical need in poor responders to anti-VEGF treatment
- Currently there are no oral treatments for DME
- Plasma kallikrein has been identified as a potential VEGF-independent mediator of DME
- We believe it may be possible to develop an orally delivered plasma kallikrein inhibitor therapy for DME, in addition to our current intravitreal program

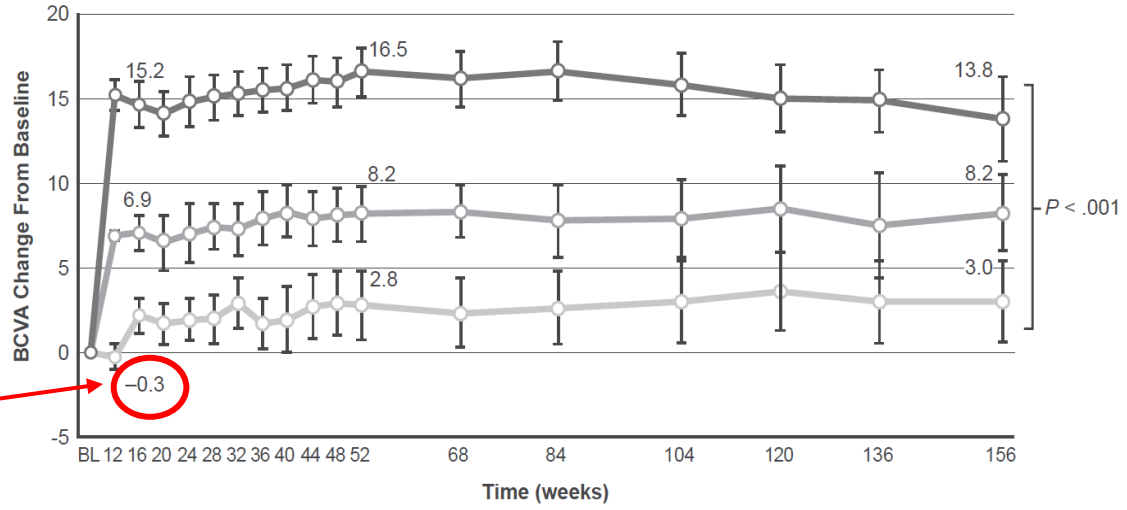
[1] *Diabetes Care, 2012*

40% anti-VEGF Patients Not Adequately Treated

- Large well controlled trial (DRCR Protocol I) of anti-VEGF treatment in DME patients evaluated 854 eyes
- 40% of eyes showed -0.3 letters of improvement in mean BCVA after 3 injections

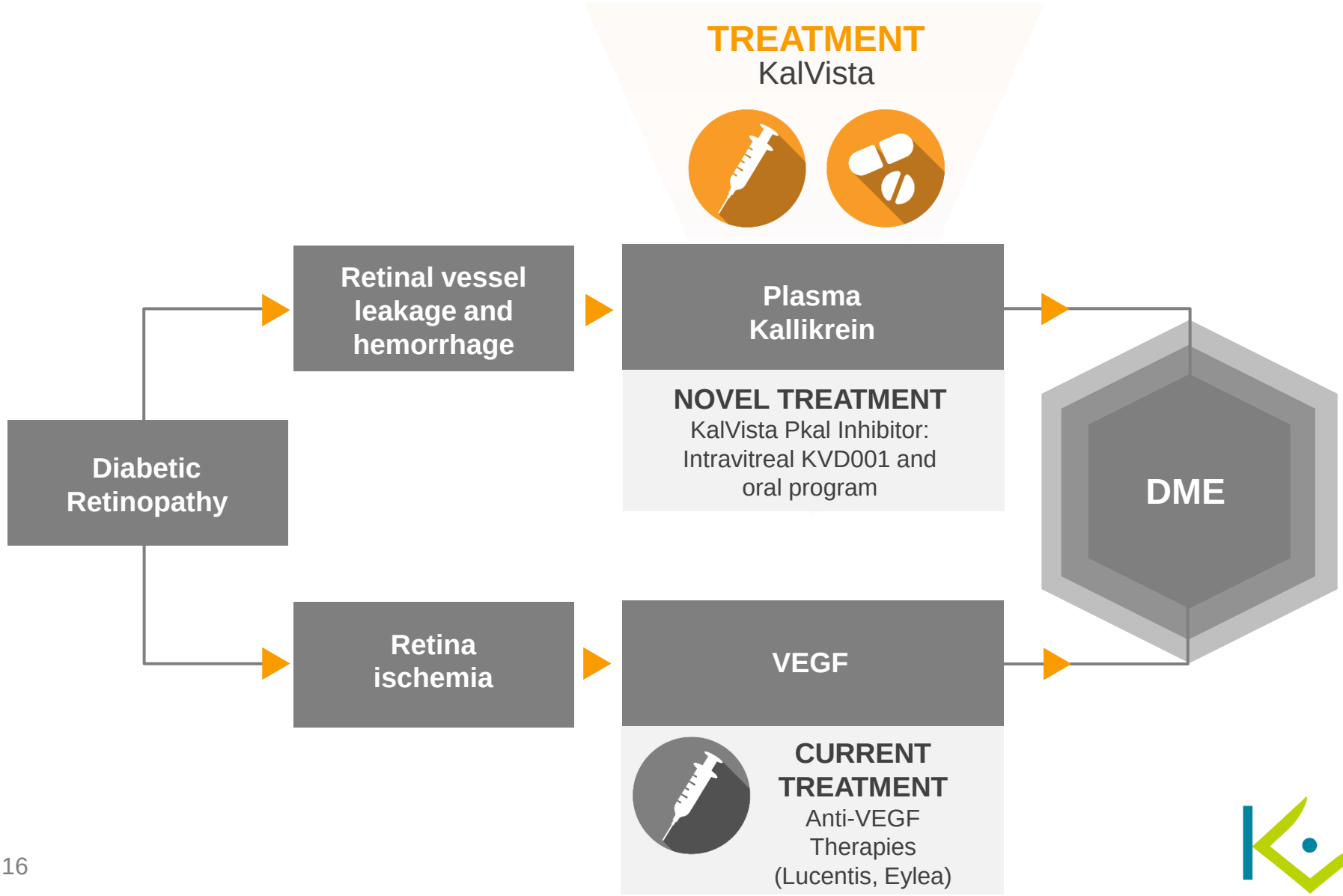
Mean Change: 12 weeks	Eyes
15.2 letters	37% (126 of 340)
6.9 letters	23% (79 of 340)
-0.3 letters	40% (135 of 340)

Protocol I analysis of ranibizumab treated eyes (n=340 at 12 wks)



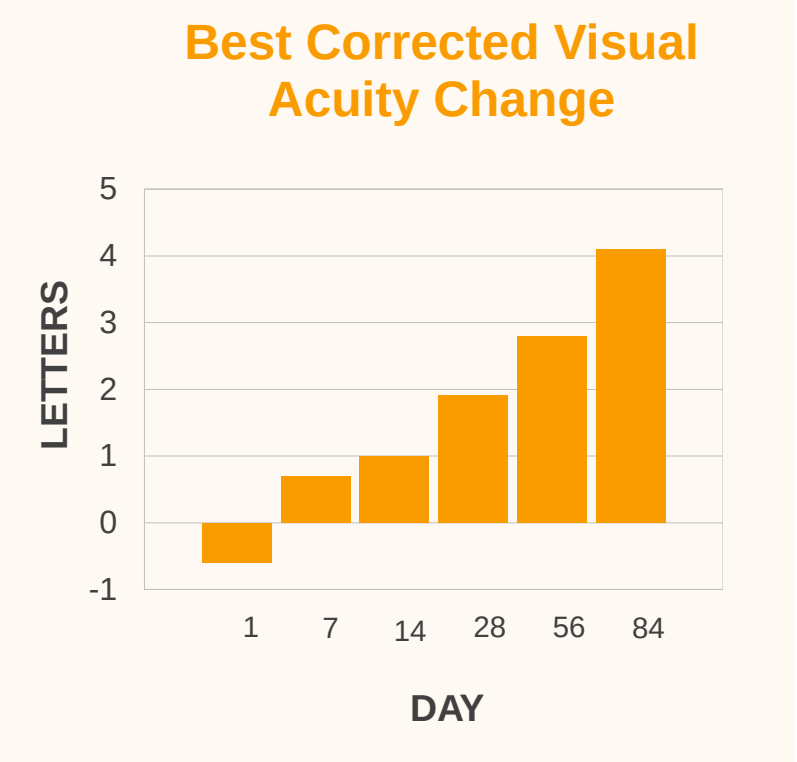
Gonzalez et al 2017 Am J Ophthalmol

KalVista Offers a Novel Therapeutic Approach



Phase 1 Trial Results

- KVD001: IVT first-in-class plasma kallikrein inhibitor for DME
  - Patients with sub-optimal response to current therapies
- Exposure maintained for at least 6 weeks in animal studies after single dose
- Open label, single ascending dose Phase 1 trial in 14 DME patients complete
  - Well tolerated
  - Signals of improved visual acuity following single dose
- Phase 2 initiation anticipated 2017



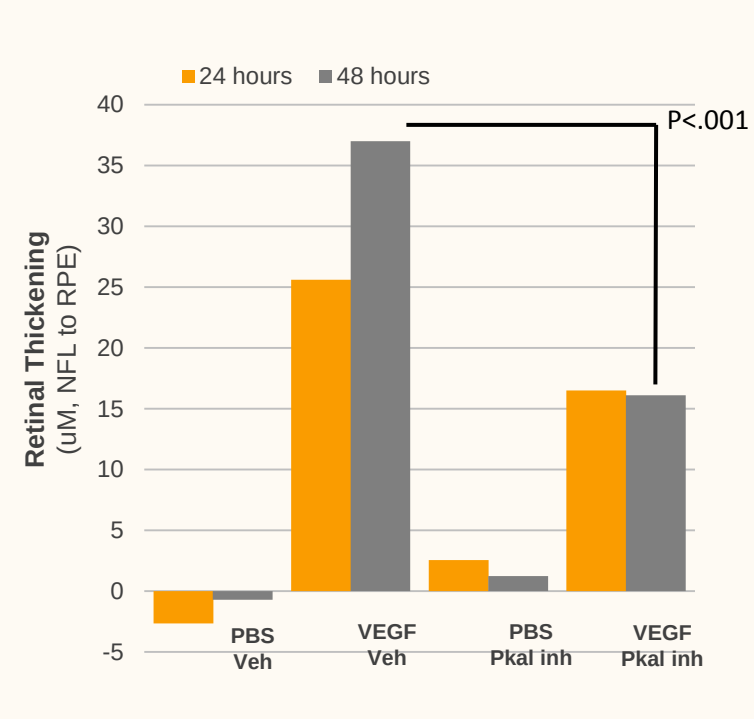
Mean change in visual acuity following a single dose of KVD001
N=14

DME Phase 2 Trial Expected to Begin in 2017

- Will consist of four injections over a period of three months
- Includes a control group
- We intend to select patients who have previously been treated with anti-VEGF therapies but have experienced insufficient response
- Primary outcome will be a change in visual acuity following the final injection

Development of Oral Therapy for DME

- Potential for safe, long term systemic dosing in DME patients
- Publication in *Investigative Ophthalmology & Visual Science* demonstrating KalVista plasma kallikrein inhibitor decreased retinal edema
- Oral therapy in DME could offer significant pharmacoeconomic and patient convenience advantages
- Oral administration of plasma kallikrein inhibitor could provide an opportunity to inhibit both VEGF-independent and VEGF-mediated pathways of DME
- Reduced plasma kallikrein activity is not associated with adverse effects in animals and humans



Plasma kallikrein inhibition by VA999272 administered systemically reduces retinal thickening induced by intravitreal injection of VEGF in mice

Company Achievements and Milestones

KVD818 Phase 1	✓
KVD900 selected as 2nd candidate	✓
Start DME Phase 2	2017
KVD900 Regulatory filing	2017
Additional HAE molecule to clinic	2018

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NASDAQ: KALV