KalVista Pharmaceuticals

Corporate Presentation

August 2019

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 Annual Report on Form 10-K, definitive proxy statement and quarterly reports on Form 10-Q that we file with the Securities and Exchange Commission (“SEC”) as well as our other filings and the documents incorporated by reference therein, with the SEC.

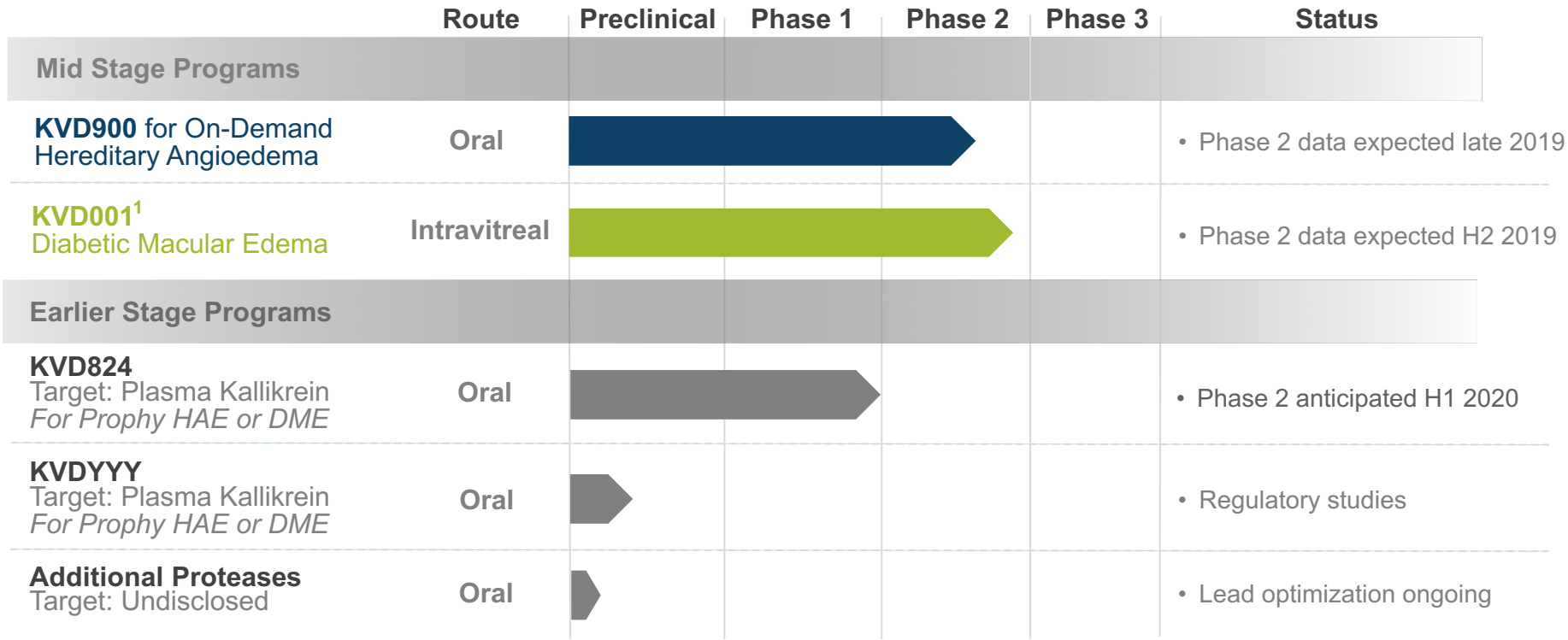
Any forward-looking statement made by us in this presentation and the accompanying oral presentation is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise. Certain information contained in this presentation may be derived from information provided by industry sources. We believe such information is accurate and that the sources from which it has been obtained are reliable. However, we cannot guarantee the accuracy of, and have not independently verified, such information.

This presentation shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of these securities in any state or other jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or other jurisdiction.

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) and diabetic macular edema (DME)
- HAE program KVD900 advanced to Phase 2 as on-demand therapy, with data expected in late 2019
- Collaboration with Merck in DME; lead program KVD001 Phase 2 data H2 2019
- KVD824 Phase 1 complete; Phase 2 expected to initiate H1 2020
- Internal discovery and development capabilities enable high productivity and strong IP positions
- Funded into 2021, with $100.8 million as of April 30, 2019

Product Portfolio



[1] *Under Option Agreement with Merck*

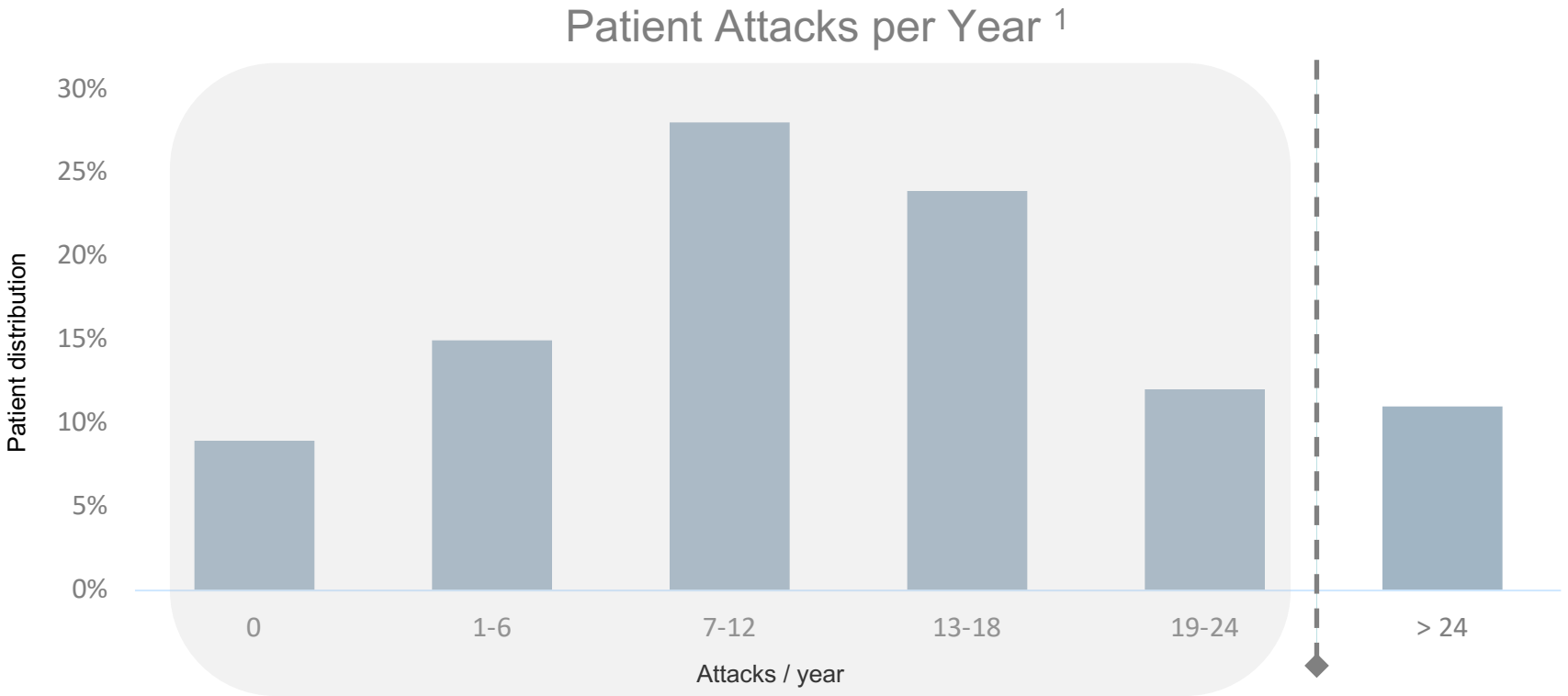
Hereditary Angioedema (HAE)

Hereditary Angioedema (HAE)

- Genetic condition causing painful and dramatic swelling in various parts of the body
- Orphan disease: incidence 1 in 10,000 to 1 in 50,000[1]
- Primarily caused by defect in C1 inhibitor activity which leads to uncontrolled plasma kallikrein activity and excessive bradykinin release
- Approved products target inhibition of plasma kallikrein
- All current approved therapies injected/infused - high unmet need for oral administration
- By 2020, total HAE market estimated to be over $2 billion
- We intend to bring multiple candidates through Phase 1 and target both on-demand and prophylactic segments

[1] *www.haei.org*

90% Patients Have Fewer Than Two Attacks Per Month

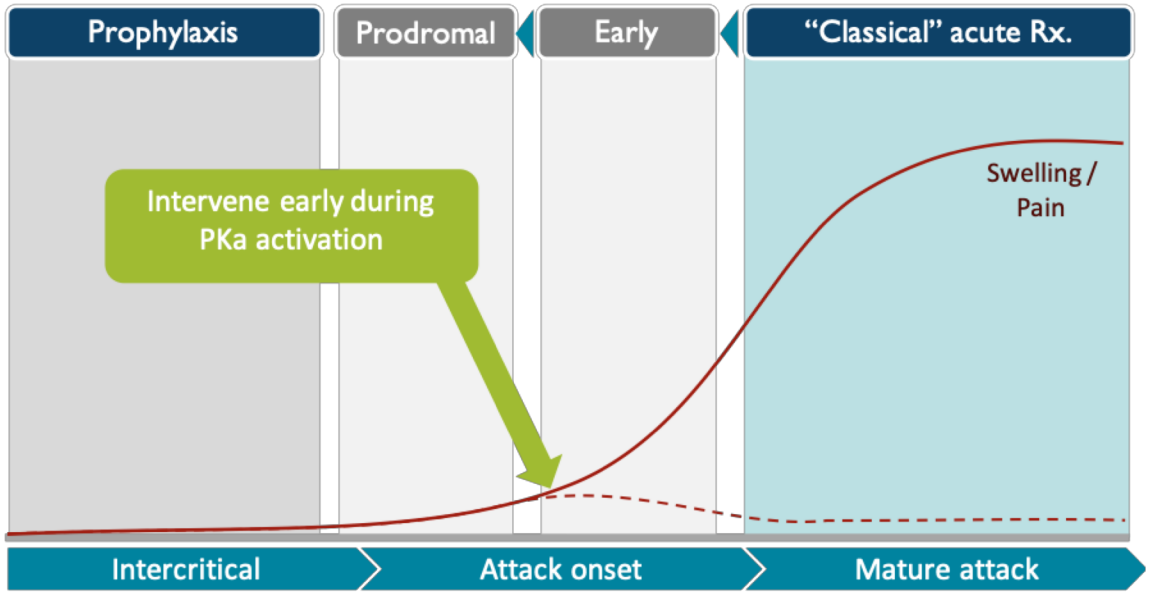


Prophylactic may not be necessary for most patients

[1]*Nordenfelt P et al. Acta Derm Venereol 2016; 96: 540–545. PMID: 26540175*

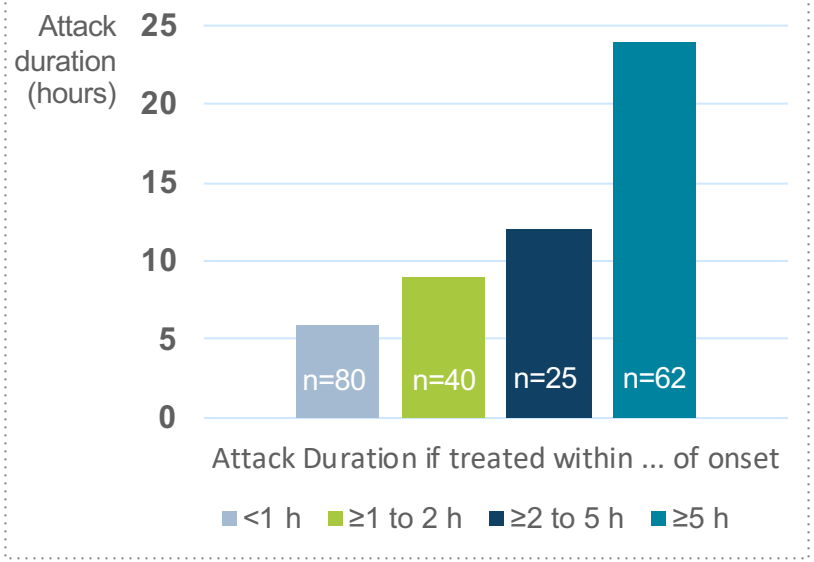
Patients Want A Safe, Efficacious, Oral Therapy

- On-demand therapy can meet the needs of the majority of patients
- Key requirement is rapid absorption to high exposure levels
- Even prophylactic patients need an on-demand back-up in case of breakthrough attacks



Early Treatment Significantly Reduces Attack Duration…

Icatibant Outcome Survey (IOS) – Attack duration by time of treatment initiation (n=207 attacks)[1]



Delaying treatment dramatically extends attack duration

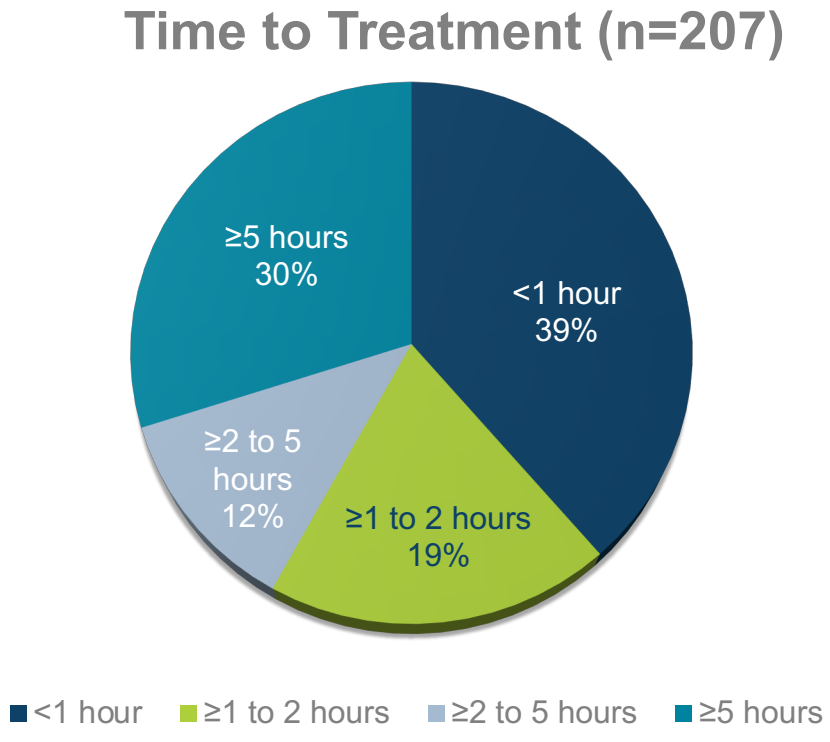
[1]*Maurer M et al. PLoS ONE 8(2): e53773. doi:10.1371/journal.pone.0053773*

…But Majority of Patients Do Not Treat Early Enough

>60% of patients administer their therapy more than one hour after the beginning of an attack, per IOS

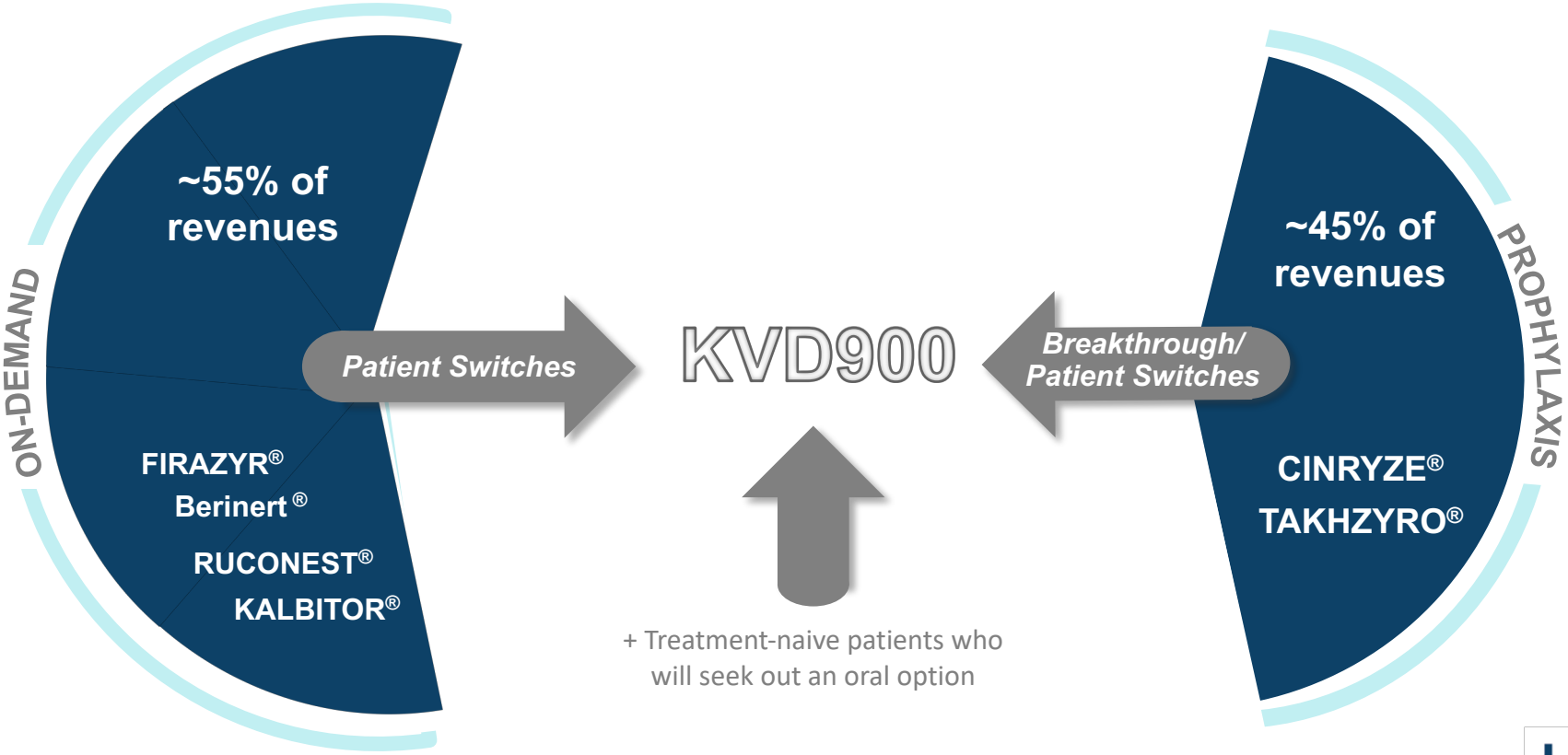
We believe there are several reasons why treatment is delayed:

1. Inconvenient – many therapies require medical professional training
2. Painful – both during and after administration
3. Hope – rather than treat, patients frequently will just hope for a less severe attack

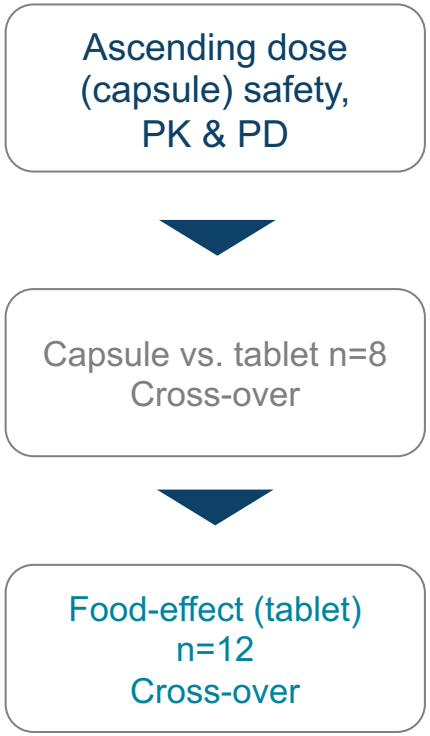


Maurer M et al. PLoS ONE 8(2): e53773. doi:10.1371/journal.pone.0053773

Opportunity: Capture Market Share and Growth of $2B Market



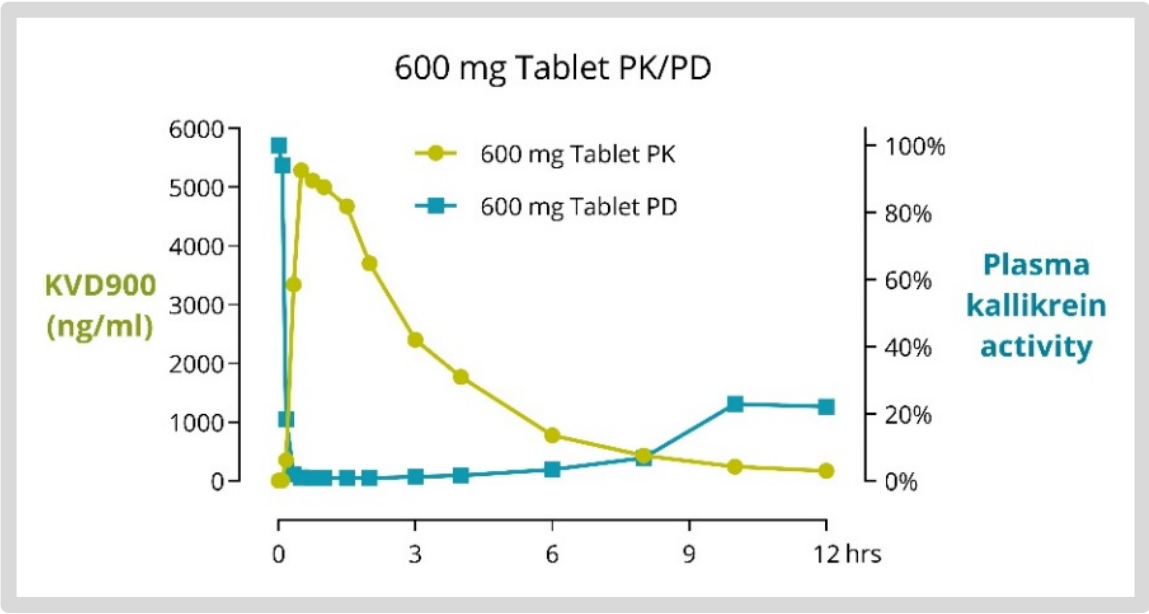
KVD900 Phase 1 Overview



- 68 patients received active treatment
- No severe adverse events (SAEs) reported
- 22/23 treatment emergent adverse events (TEAEs) on active were mild
  - One moderate (headache at 10 mg)
  - Only one GI AE, and unrelated to KVD900
- No clinically significant changes in vital signs, ECG, safety labs
- No subjects withdrew

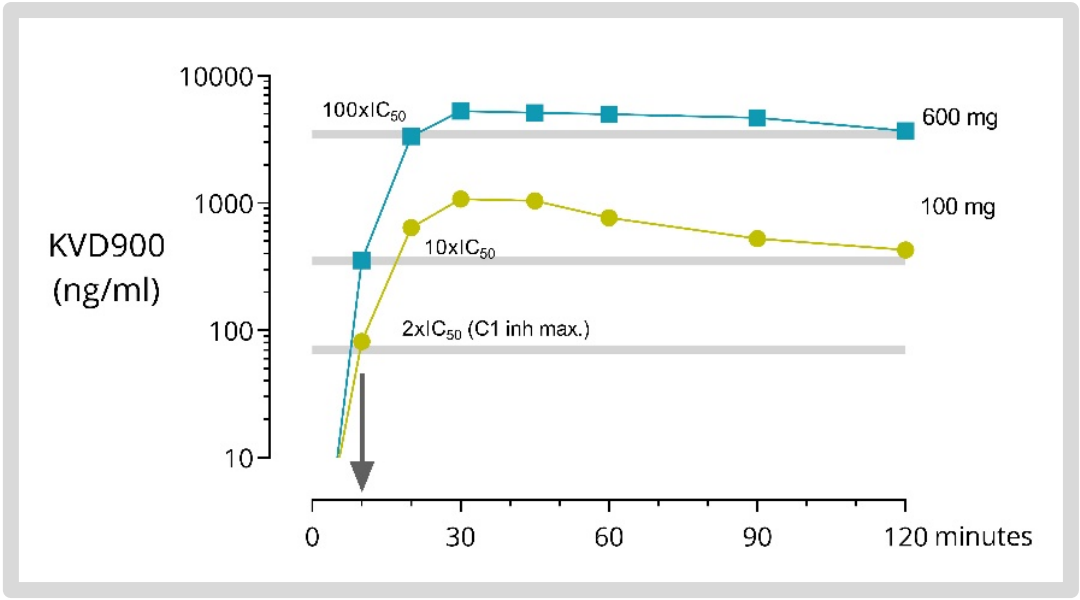
Rapid and Complete Inhibition of Plasma Kallikrein

- Plasma kallikrein assay using whole plasma
- Rapid onset of inhibition
  - 98% inhibition at 20 minutes
  - Inhibition for up to 12 hours
  - Food has no meaningful impact on PD profile of KVD900 tablets
- Phase 2 study and commercial use will be tablet formulation



KVD900 Achieves 100x IC_{50}

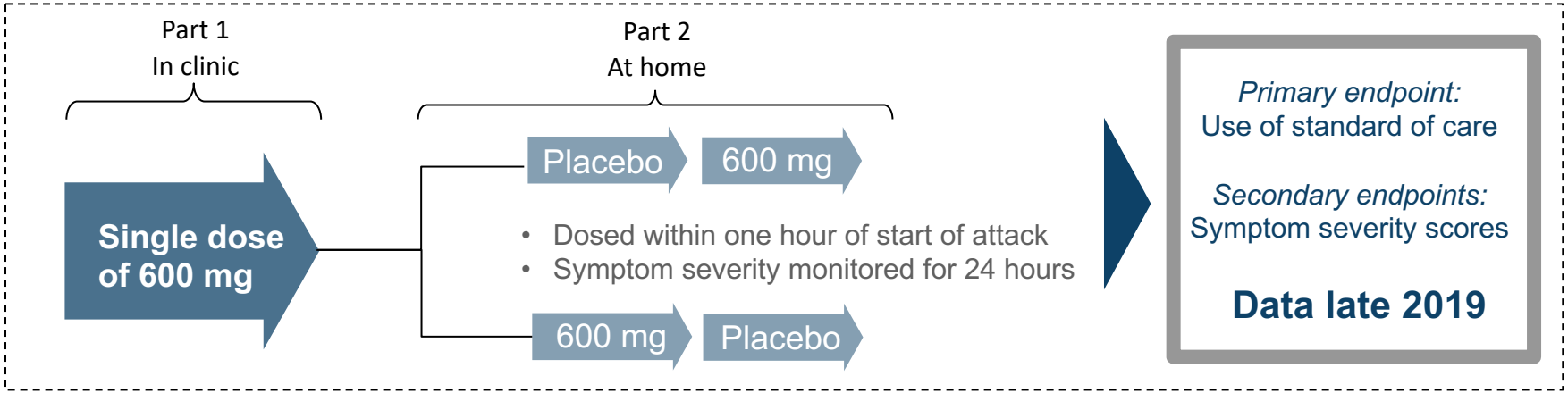
- Multiple dose levels achieve sufficient plasma kallikrein inhibition
  - Based on clinically efficacious doses of C1-INH[1]
- Rapid exposure important for on-demand efficacy
- 2x IC_{50} reached around 10 minutes
  - At least as quickly as C1-INH injection
- 100x IC_{50} before 30 minutes



[1] *IC_{50} of C1-INH in whole plasma is 1700 nM, compared to KVD900 which is 90 nM. Following administration of approved dose of 20 IU/kg of Berinert, C_{max} is »3,000 (0.32 mg/ml) reached within 48 minutes of dosing. Maximal concentration is ≈ 2x IC_{50}.*

KVD900 Phase 2 Efficacy Study Enrolling

- ~50 HAE patients at 10-15 sites in UK, Germany and several other European countries
  - Patients required to have at least 3 attacks in previous 90 days
- Part 1: All patients receive a single dose of KVD900 in clinic for PK/PD assessment
- Part 2: All patients then randomized to treat the first attack with either KVD900 or placebo and then treat a second attack with the alternative treatment



Diabetic Macular Edema (DME)

Diabetic Macular Edema: Over $1 Billion Market

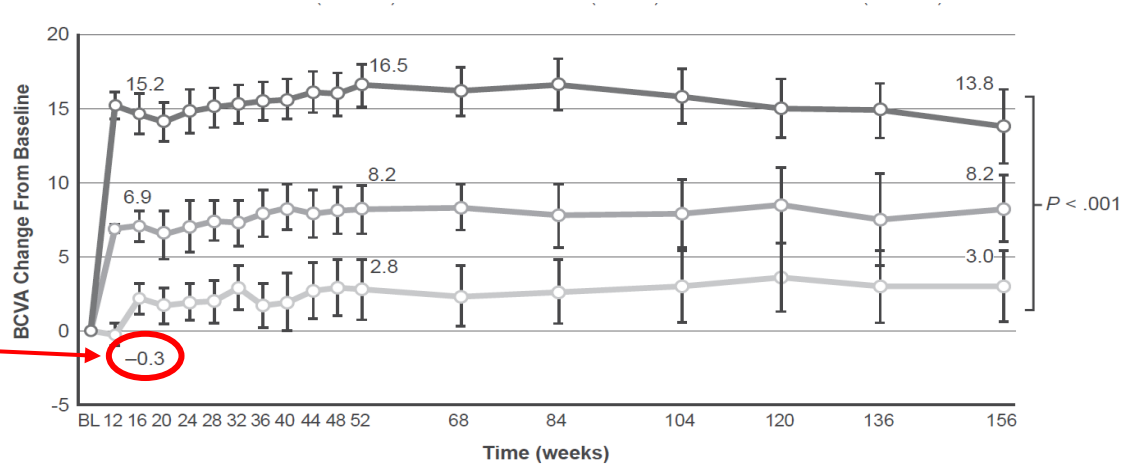
- Retinal swelling due to leaky blood vessels in the macula – a leading cause of blindness
- Approximately 900,000 patients in the United States have active DME and are at serious risk of vision loss
- Standard of care is anti-VEGF injected into the eye – currently there are no oral treatments for DME
- Over 40% of patients do not adequately respond and continue to have impaired visual function and macular edema – significant unmet clinical need
- Plasma kallikrein has been identified as a potential VEGF-independent mediator of DME
- KalVista developed KVD001 as an IVT therapy and is also working to develop an orally delivered plasma kallikrein inhibitor therapy for DME
  - The basis of Merck collaboration announced in October 2017

Over 40% of anti-VEGF Patients are 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)

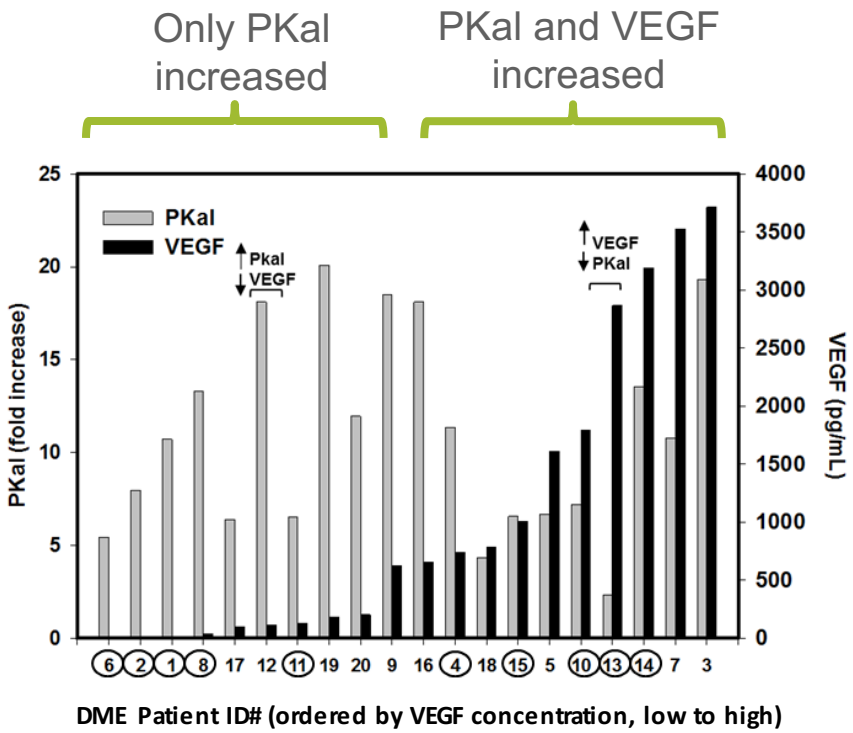
Protocol I analysis of ranibizumab treated eyes (n=340 at 12 wks)



Gonzalez et al 2016 Am J Ophthalmol

Plasma Kallikrein (Pkal) Elevated in DME Vitreous

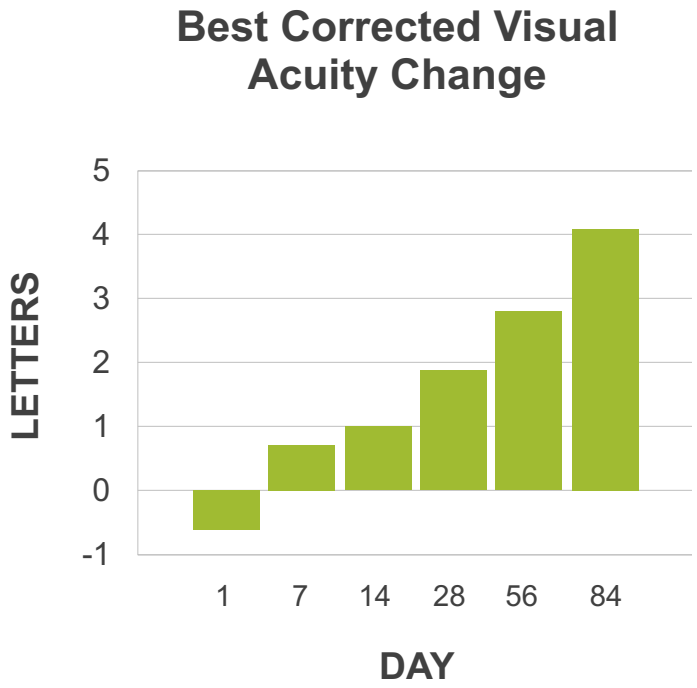
- Vitreous samples from patients with DME show increased Pkal levels
- Significant population has elevated Pkal and low VEGF
  - Patients who may respond well to Pkal inhibition and poorly to anti-VEGF treatment
  - Clear medical need
- Presence of Pkal in addition to VEGF suggests potential utility in broader population



Kita et al, Diabetes 2015

Phase 1 Trial Results

- KVD001: IVT first-in-class plasma kallikrein inhibitor for DME
- Open label, single ascending dose Phase 1 trial in 14 DME patients complete
  - All patients had previously received anti-VEGF treatment
  - Well tolerated
  - Signal of improved visual acuity following single dose
- Duration of animal exposure consistent with signal of improvement



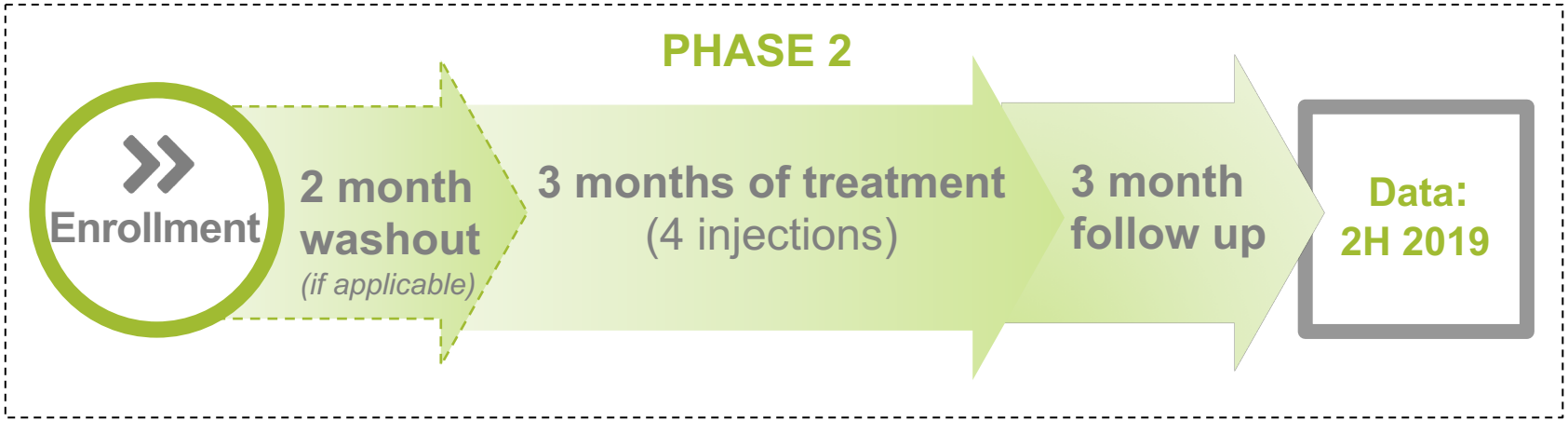
Mean change in visual acuity following a single dose of KVD001
N=14

Option Agreement With Merck on DME Programs

- In October 2017, KalVista and Merck announced a collaboration for KVD001, KalVista's intravitreal DME program, as well as future orally-delivered plasma kallikrein inhibitors for DME developed by KalVista
- Merck has two options, to acquire KVD001 and/or oral DME assets until a specified time following certain data on each
- Until the options are exercised, KalVista retains full ownership and control of the assets
  - KalVista to execute and fund the Phase 2 KVD001 trial and other activities
  - Merck pays all costs post-exercise
- $37 million upfront payment to KalVista
- $715 million in potential additional milestone payments
- Tiered sales royalties on global net sales
- Merck acquired a 9.9% stake in KalVista in a concurrent PIPE

KVD001 Phase 2 Enrollment Complete

- Approximately 123 patients who have discontinued treatment with anti-VEGF therapy and who still have significant edema and reduced visual acuity
- Sham-controlled, double-masked clinical trial will evaluate two doses
- Efficacy endpoints include best corrected visual acuity (BCVA), central subfield thickness (CST), and the diabetic retinopathy severity scale (DRSS)



Upcoming Milestones

KVD001 Phase 2 data	H2 2019
KVD900 Phase 2 data	Late 2019
Merck decision on KVD001	H1 2020
KVD824 Phase 2 in HAE or DME	H1 2020

KalVista Pharmaceuticals

NASDAQ: KALV