



KalVista
Pharmaceuticals

Corporate Presentation

November 2019



Forward-Looking Statements

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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 in Phase 2, anticipated to complete enrollment in 2019 with data in 2020
- Collaboration with Merck in DME; lead program KVD001 Phase 2 data in Q4 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 \$100.4 million as of July 31, 2019



Product Portfolio

	Route	Preclinical	Phase 1	Phase 2	Phase 3	Status
Mid Stage Programs						
KVD900 for On-Demand Hereditary Angioedema	Oral					<ul style="list-style-type: none">Phase 2 data expected 2020
KVD001¹ Diabetic Macular Edema	Intravitreal					<ul style="list-style-type: none">Phase 2 data expected Q4 2019
Earlier Stage Programs						
KVD824 Target: Plasma Kallikrein <i>For Prophy HAE or DME</i>	Oral					<ul style="list-style-type: none">Phase 2 anticipated H1 2020
Multiple Additional Molecules Target: Plasma Kallikrein	Oral					<ul style="list-style-type: none">Regulatory studies
Other Proteases Target: Undisclosed	Oral					<ul style="list-style-type: none">Lead optimization ongoing





Hereditary Angioedema (HAE)

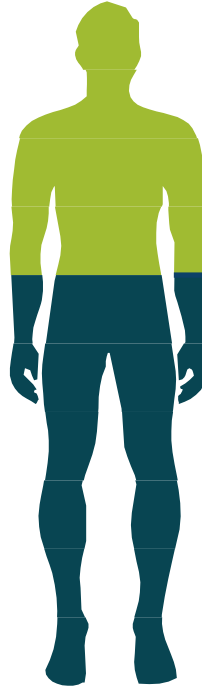
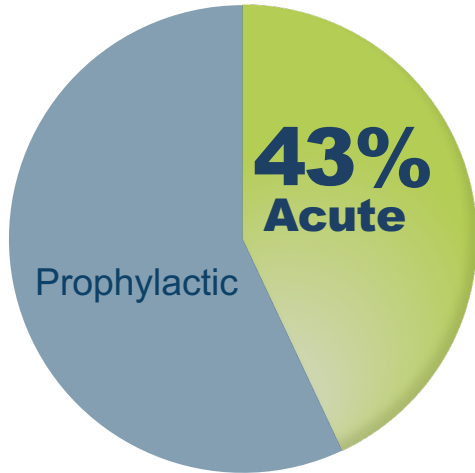
Hereditary Angioedema (HAE)

- Genetic condition causing painful and dramatic swelling in various parts of the body
- Orphan disease: incidence 1 in 10,000 to 1 in 50,000¹
- 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



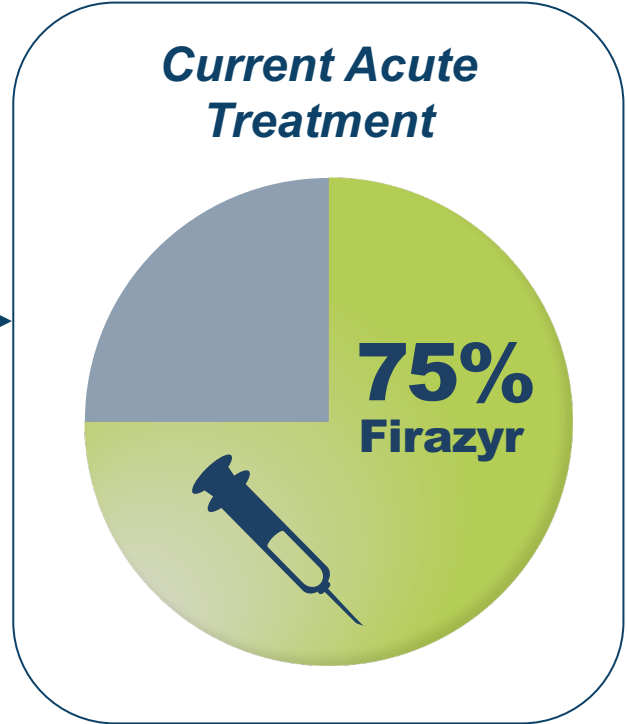
US HAE Market Landscape

Patient Distribution



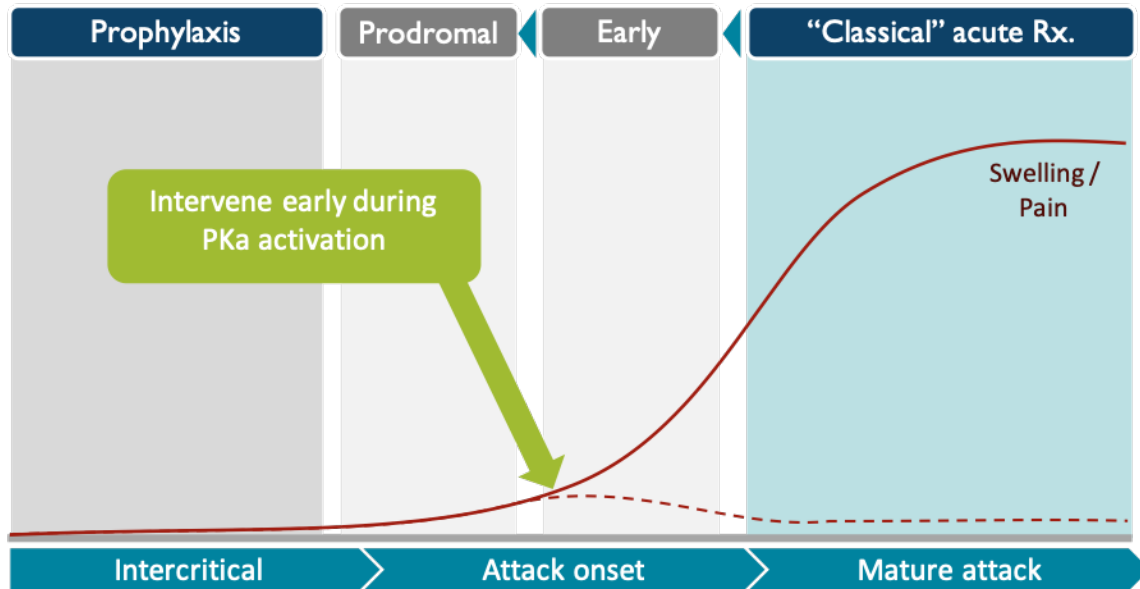
Only ~62% of
HAE patients treat
all attacks

Current Acute Treatment



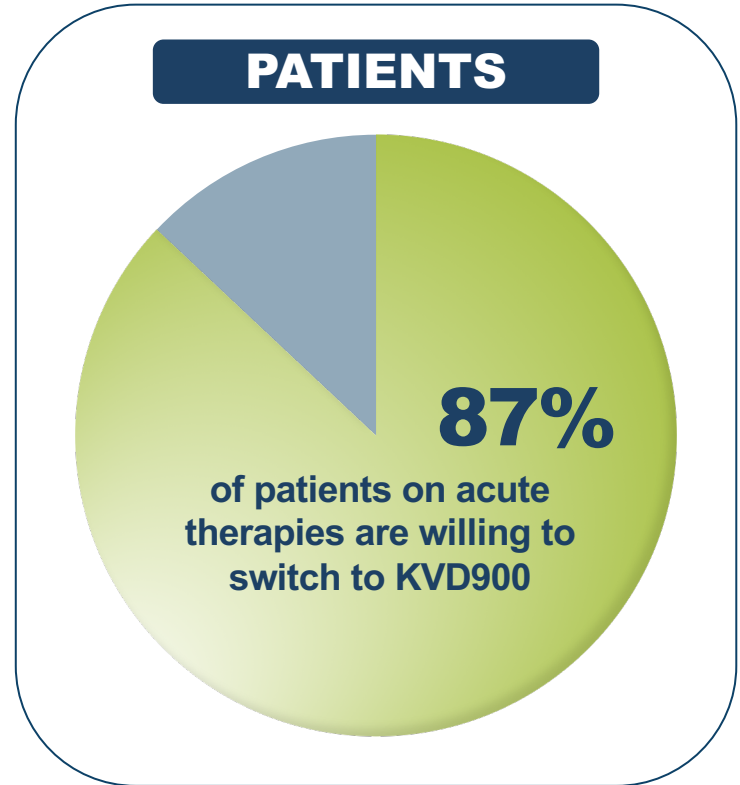
Patients Want A Safe, Efficacious, Oral Therapy

- 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



Patients Would Switch to KVD900

- Most patients are willing to switch to KVD900 even though current injectables have high efficacy
- Patients will not accept substantially lower efficacy for oral
- Pricing is not a driver for patients

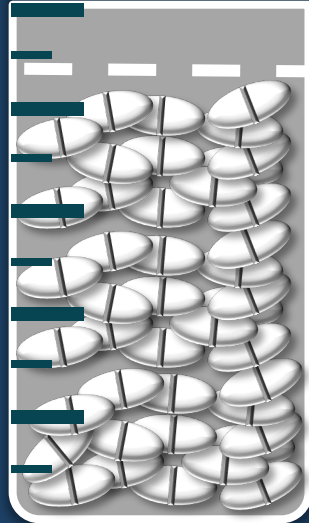


Positive Payer and Physician Reaction to KVD900

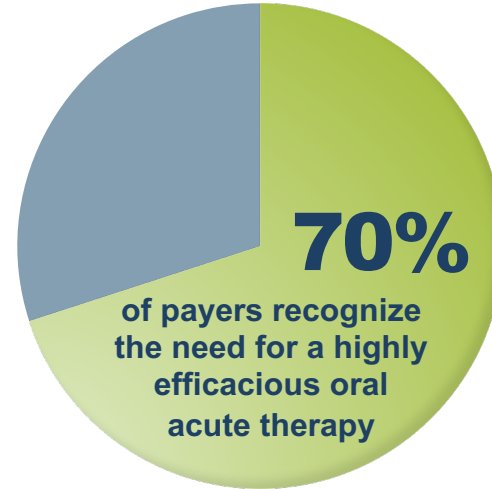
Physicians Likely to Prescribe KVD900

89%

KVD900



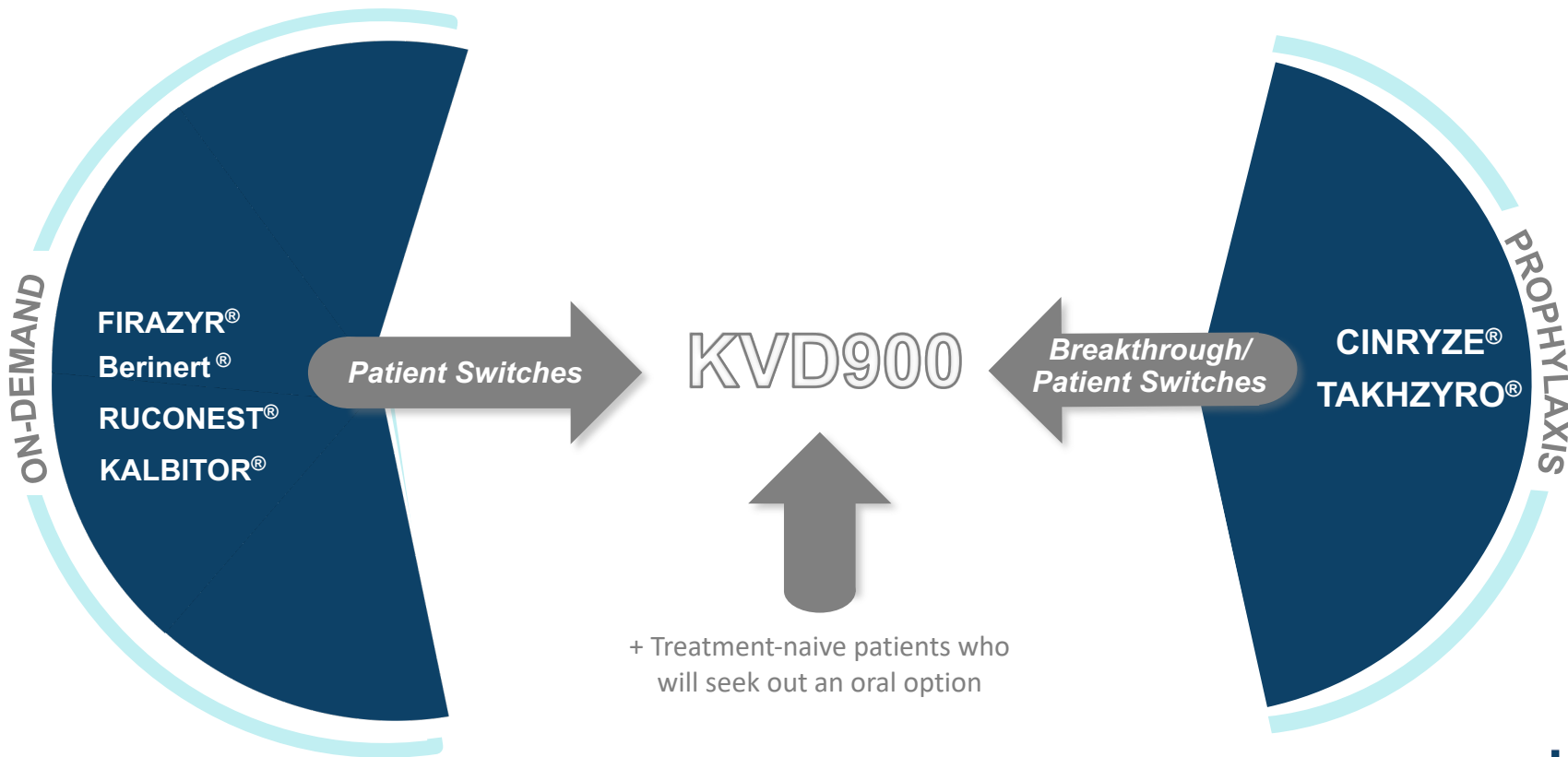
PAYERS



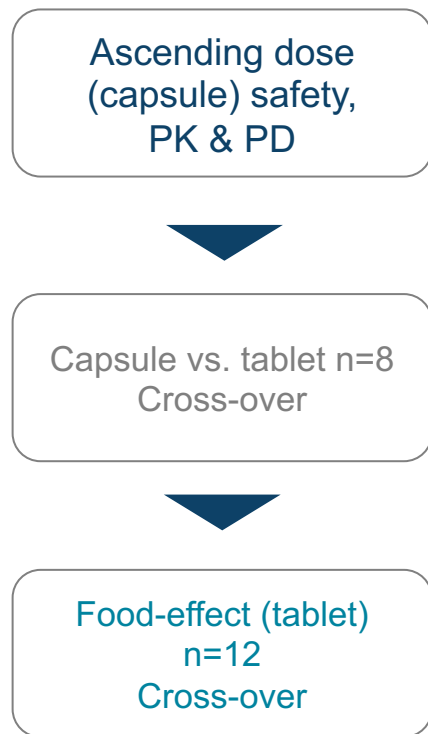
- Value proposition supports premium pricing
- Generic icatibant launch does not reduce interest in oral acute therapy



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



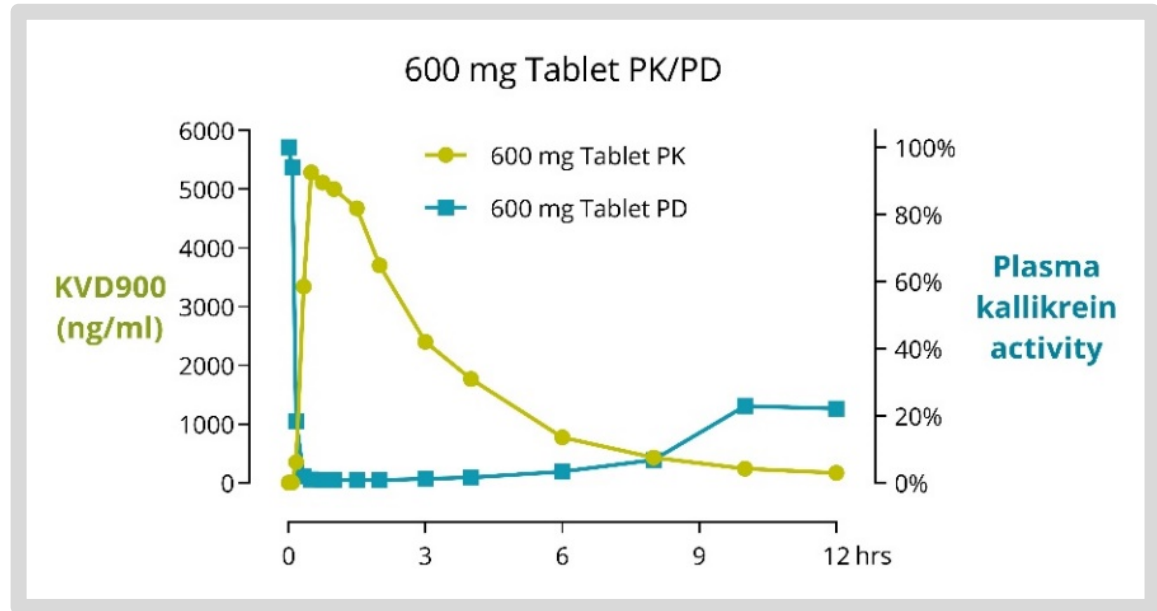
KVD900 Phase 1 Overview



- 68 subjects 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

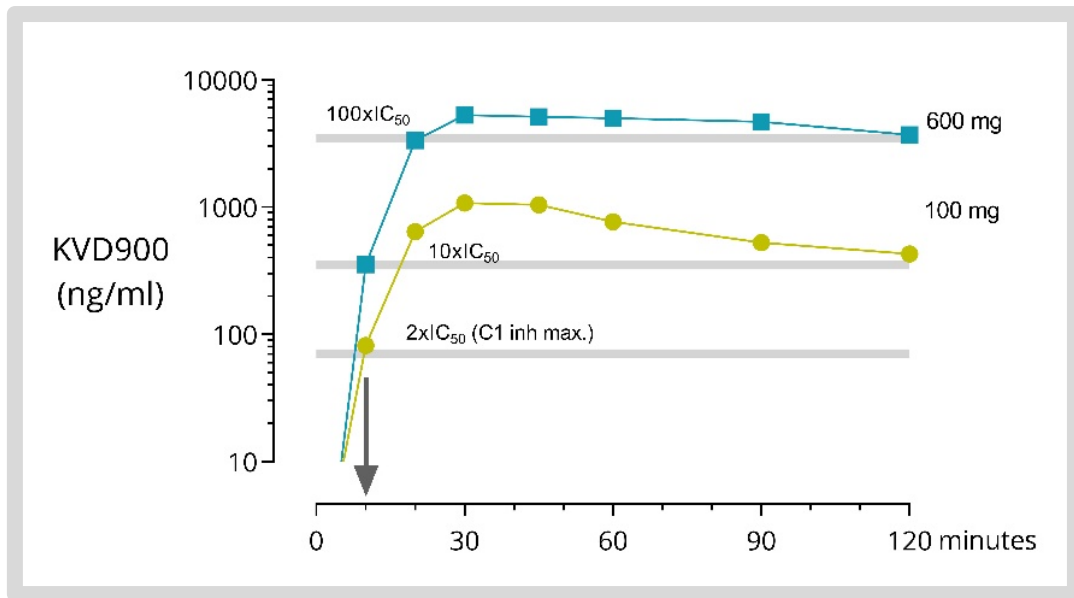
Rapid and Complete Inhibition of Plasma Kallikrein

- 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 IC₅₀

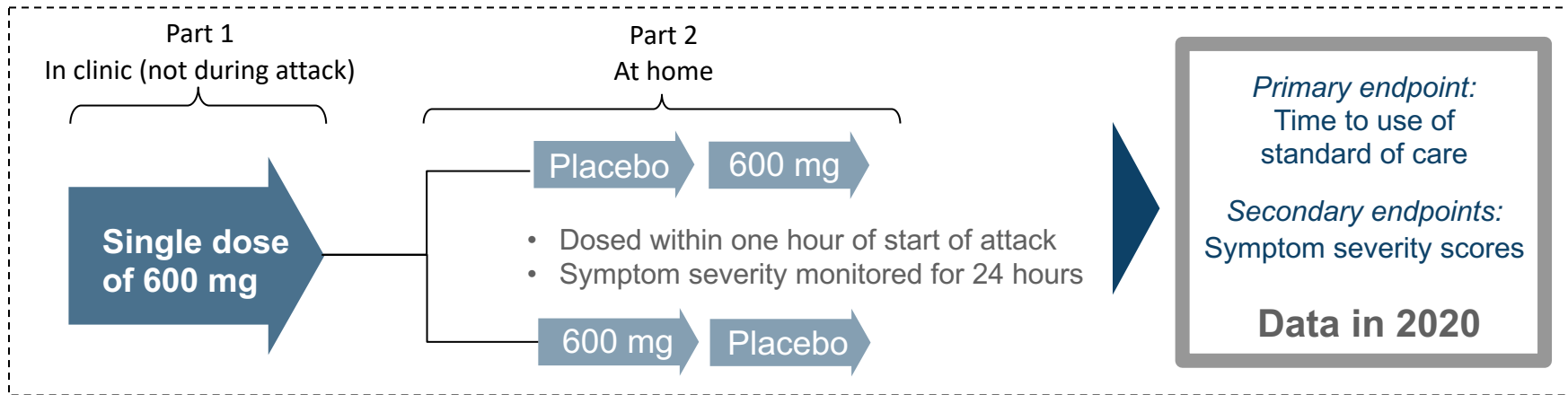
- Multiple dose levels achieve sufficient plasma kallikrein inhibition
 - Based on clinically efficacious doses of C1-INH¹
- Rapid exposure important for on-demand efficacy
- 2x IC₅₀ reached around 10 minutes
 - At least as quickly as C1-INH injection
- 100x IC₅₀ before 30 minutes



¹IC₅₀ 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 IC₅₀.

KVD900 Phase 2 Efficacy Study Enrolling

- ~50 HAE patients at 10-15 sites in Europe and US
- 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

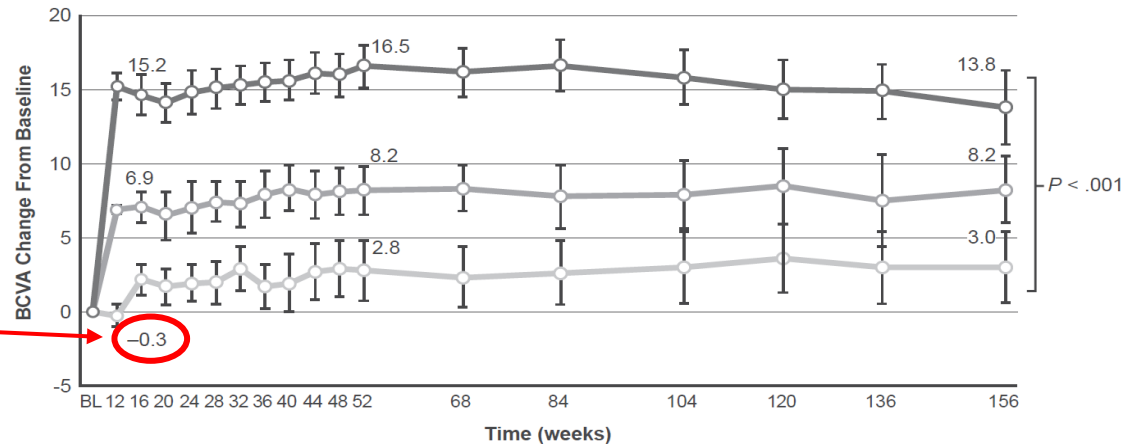


Over 40% of anti-VEGF Patients are Not Adequately Treated

- 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

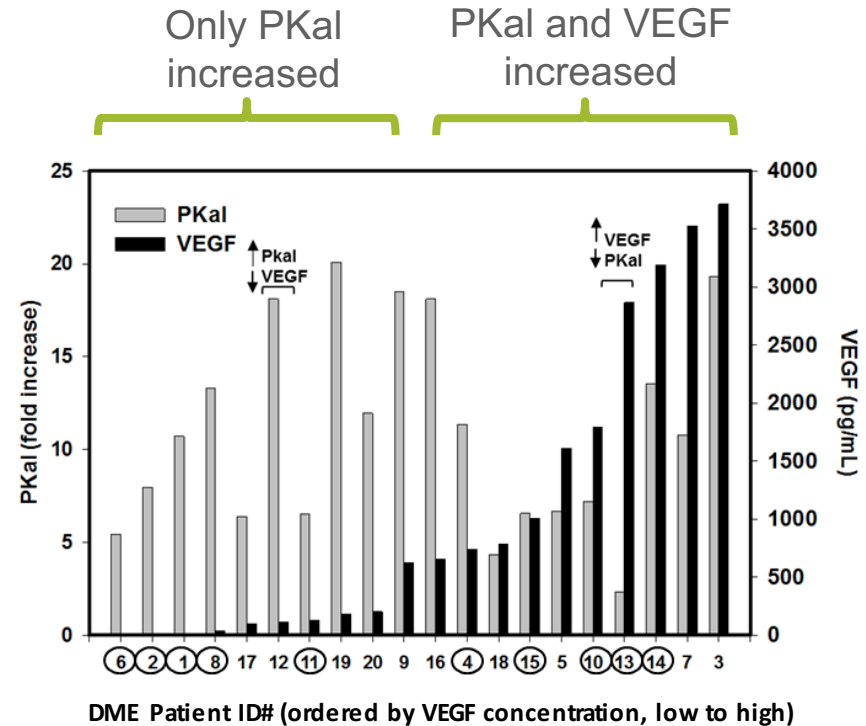
Protocol I analysis of ranibizumab treated eyes (n=340 at 12 wks)

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)



Plasma Kallikrein (Pkal) Elevated in DME Vitreous

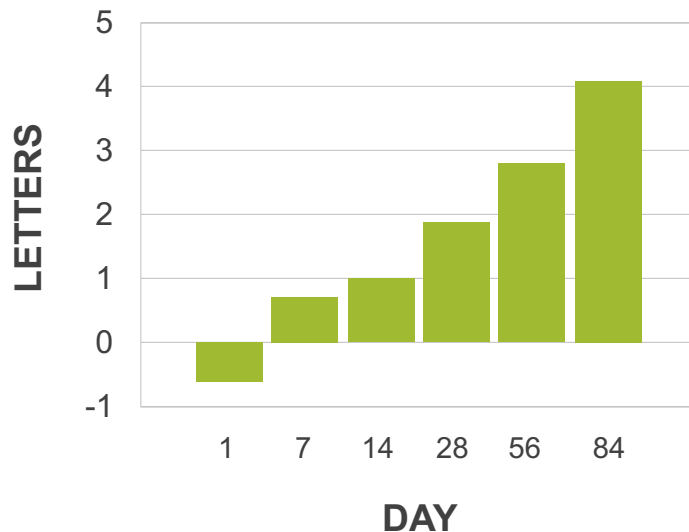
- Vitreous samples from patients with DME show increased Pkal levels
- Significant population has elevated Pkal and low VEGF
 - Patients who may respond well to Pkal inhibition and poorly to anti-VEGF treatment
 - Clear medical need
- Presence of Pkal in addition to VEGF suggests potential utility in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



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

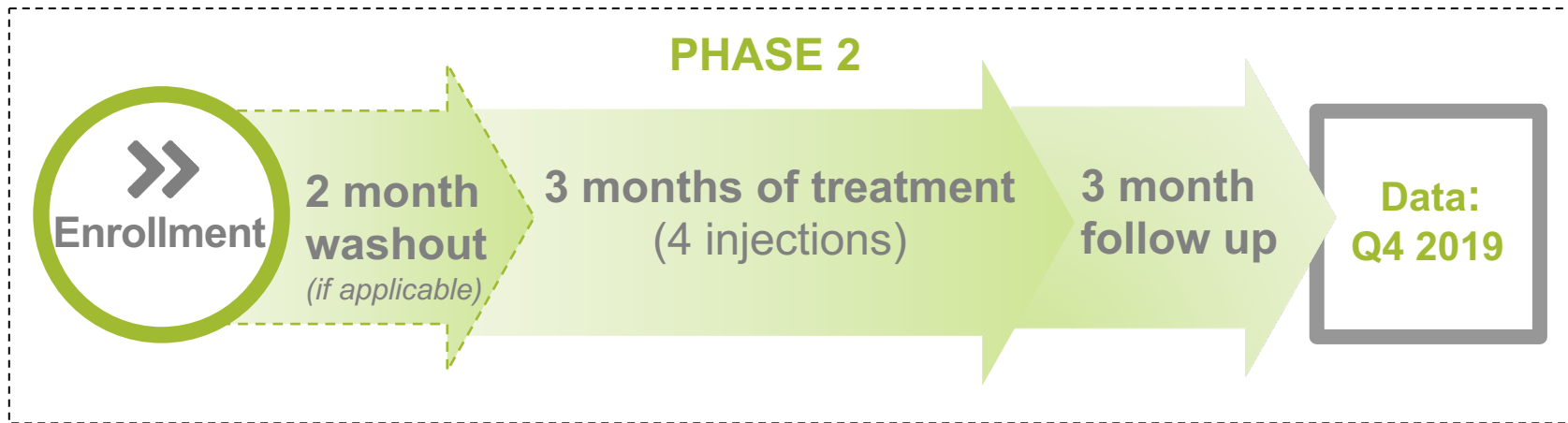
Best Corrected Visual Acuity Change



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

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)



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



Upcoming Milestones

KVD001 Phase 2 data

Q4 2019

KVD900 Phase 2 data

2020

Merck decision on KVD001

H1 2020

KVD824 Phase 2 in HAE or DME

H1 2020





NASDAQ: KALV