

Long-Term Safety and Efficacy of Oral Deucrictibant for Prophylactic and On-Demand Treatment of Hereditary Angioedema Attacks: Results of the Ongoing CHAPTER-1 and RAPIDe-2 Extension Studies

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Conflicts of interest disclosure

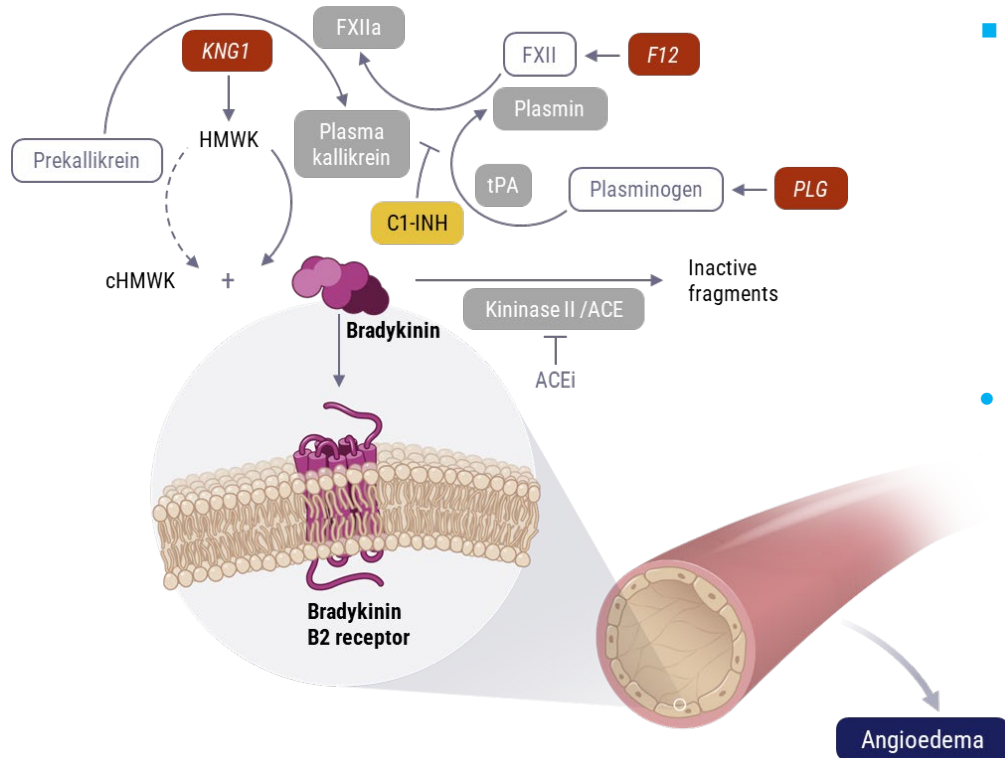
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CHAPTER-1 and RAPIDe-2 are Pharvaris-sponsored clinical trials/studies. ClinicalTrials.gov identifiers: NCT05047185, NCT05396105.

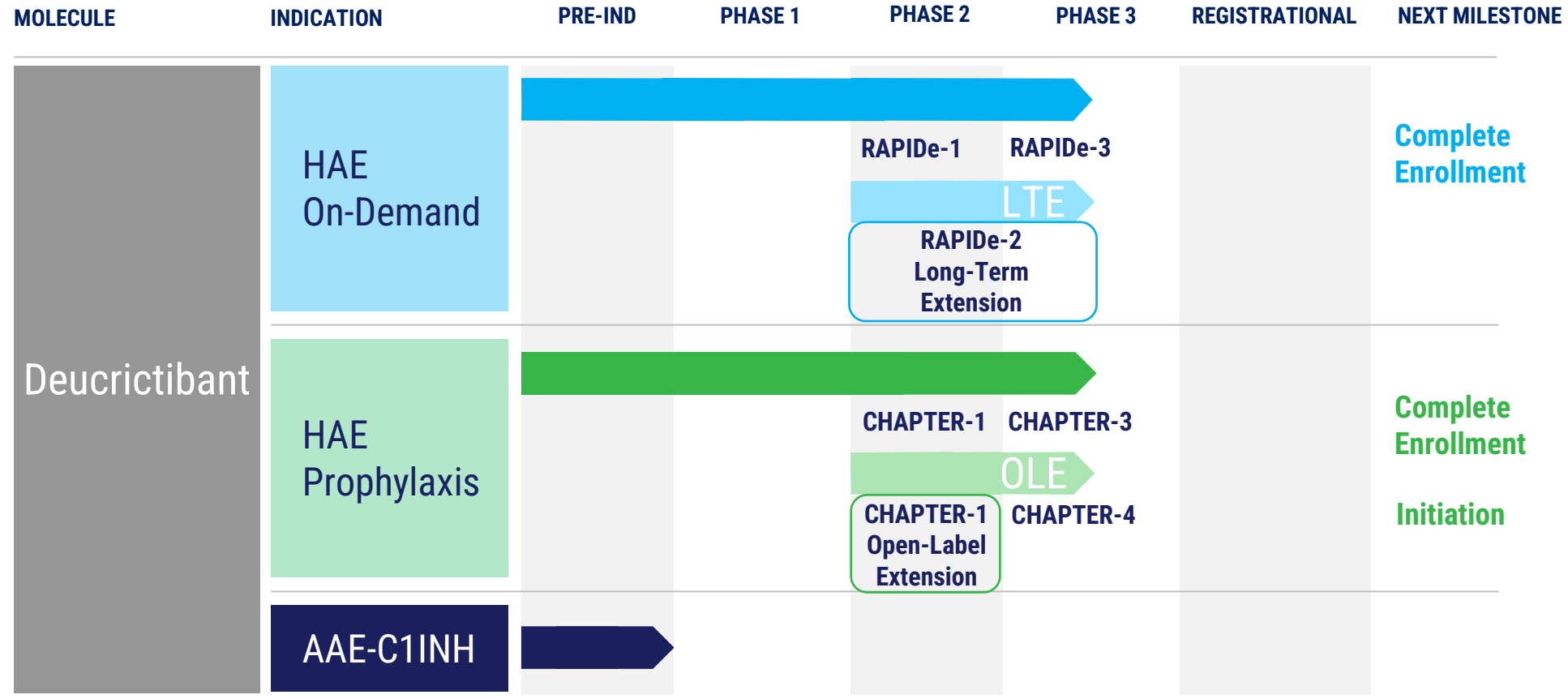
HAE is a bradykinin-mediated condition with unmet medical needs



- An unmet need remains for additional prophylactic therapies combining¹⁻⁴:
 - Ease of administration
 - Injectable-like efficacy
 - A well-tolerated profile
- For on-demand treatment, effective and well-tolerated oral therapies may reduce the treatment burden, thus enabling prompt administration.⁵
 - Guidelines recommend treating HAE attacks as early as possible.⁶⁻⁸
 - Parenteral administration of currently approved on-demand medications⁹⁻¹³ can lead to treatment of a number of HAE attacks being delayed or forgone.^{4,14,15}

ACE, angiotensin converting enzyme; ACEi, ACE inhibitor; C1-INH, C1 inhibitor; cHMWK, cleaved HMWK; F12, gene encoding FXII; FXII, factor XII; FXIIa, factor XIIa; HAE, hereditary angioedema; HMWK, high-molecular-weight kininogen, KNG1, gene encoding HMWK; PLG, gene encoding plasminogen; tPA, tissue plasminogen activator. 1. Bouillet L, et al. *Allergy Asthma Proc.* 2022;43:406-12. 2. Betschel SD, et al. *J Allergy Clin Immunol Pract.* 2023;11:2315-25. 3. Covella B, et al. *Future Pharmacol.* 2024;4:41-53. 4. US Food and Drug Administration, Center for Biologics Evaluation and Research. The voice of the patient – hereditary angioedema. May 2018. <https://www.fda.gov/media/113509/download>. Accessed March 5, 2025. 5. Mendivil J, et al. Presented at: ACAAI; November 9–13, 2023; Anaheim, CA, USA. 6. Betschel SD, et al. *Allergy Asthma Clin Immunol.* 2019;15:72. 7. Busse PJ, et al. *J Allergy Clin Immunol Pract.* 2021;9:132-50. 8. Maurer M, et al. *Allergy.* 2022;77:1961-90. 9. Berinert®. Package insert. Accessed March 5, 2024. <https://labeling.cslbehrling.com/pi/us/berinert/en/berinert-prescribing-information.pdf>. 10. Cinryze®. Summary of product characteristics. Accessed March 5, 2025. https://www.ema.europa.eu/en/documents/product-information/cinryze-epar-product-information_en.pdf. 11. Firazyr®. Package insert. Accessed March 5, 2025. https://www.shirecontent.com/PI/PDFs/Firazyr_USA_ENG.pdf. 12. Kalbitor®. Package insert. Accessed March 5, 2025. https://www.shirecontent.com/PI/PDFs/Kalbitor_USA_ENG.pdf. 13. Ruconest®. Package insert. Accessed March 5, 2025. https://www.ruconest.com/wp-content/uploads/Ruconest_PI_Apr2020.pdf. 14. Radojicic C, et al. *Allergy Asthma Proc.* 2021;42:S4-10. 15. Betschel SD et al. *Allergy Asthma Clin Immunol.* 2024;20:43.

Two oral formulations, same active ingredient for prophylactic and on-demand treatment of bradykinin-mediated angioedema attacks

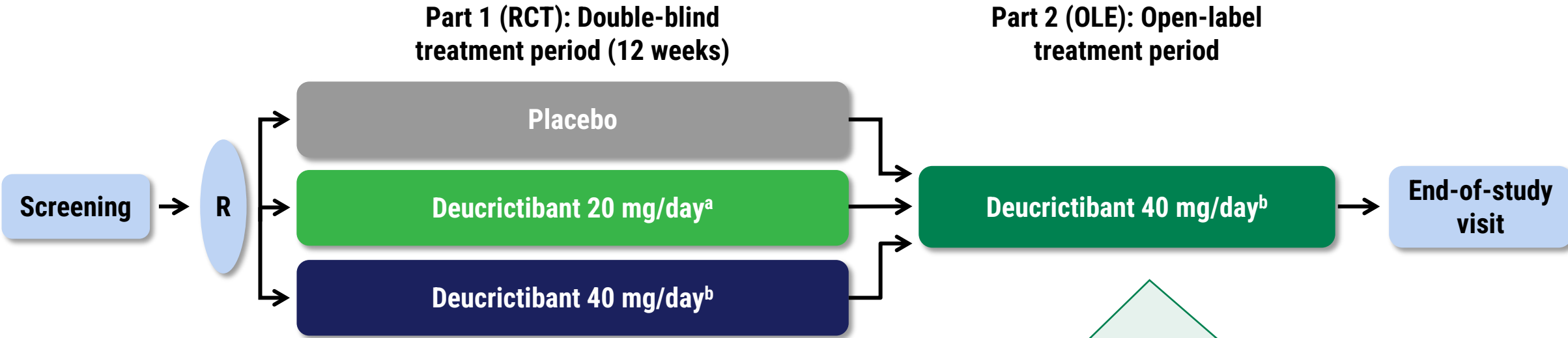


AAE-C1INH, acquired angioedema due to C1-inhibitor deficiency; HAE, hereditary angioedema; LTE, long-term extension; OLE, open-label extension. RAPIDe-1. ClinicalTrials.gov identifier: NCT04618211. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT04618211>. RAPIDe-2. ClinicalTrials.gov identifier: NCT05396105. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT05396105>. RAPIDe-3. ClinicalTrials.gov identifier: NCT06343779. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT06343779>. CHAPTER-1. ClinicalTrials.gov identifier: NCT05047185. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT05047185>. CHAPTER-3. ClinicalTrials.gov identifier: NCT06669754. Accessed March 5, 2025. <https://clinicaltrials.gov/study/NCT06669754>. CHAPTER-4. ClinicalTrials.gov identifier: NCT06679881. Accessed March 5, 2025. <https://clinicaltrials.gov/study/NCT06679881>.

CHAPTER-1: Two-part, Phase 2 trial of deucricitbant for long-term prophylaxis of HAE attacks

Key objectives in OLE:

Evaluate safety (primary objective) and efficacy of deucricitbant administered for long-term prophylaxis against HAE attacks.



OLE snapshot analysis (data cutoff: 10 June 2024)

- Participants: All 30 who completed the RCT.
- Mean exposure to deucricitbant 40 mg/day in the OLE: 12.8 months (maximum: ~20 months).

HAE, hereditary angioedema; OLE, open-label extension; IR, immediate-release; R, randomization; RCT, randomized controlled trial. ^aDeucricitbant IR capsule, 10 mg twice daily. ^bDeucricitbant IR capsule, 20 mg twice daily. CHAPTER-1 is a Pharvaris-sponsored clinical trial. ClinicalTrials.gov identifier: NCT05047185. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT05047185>.

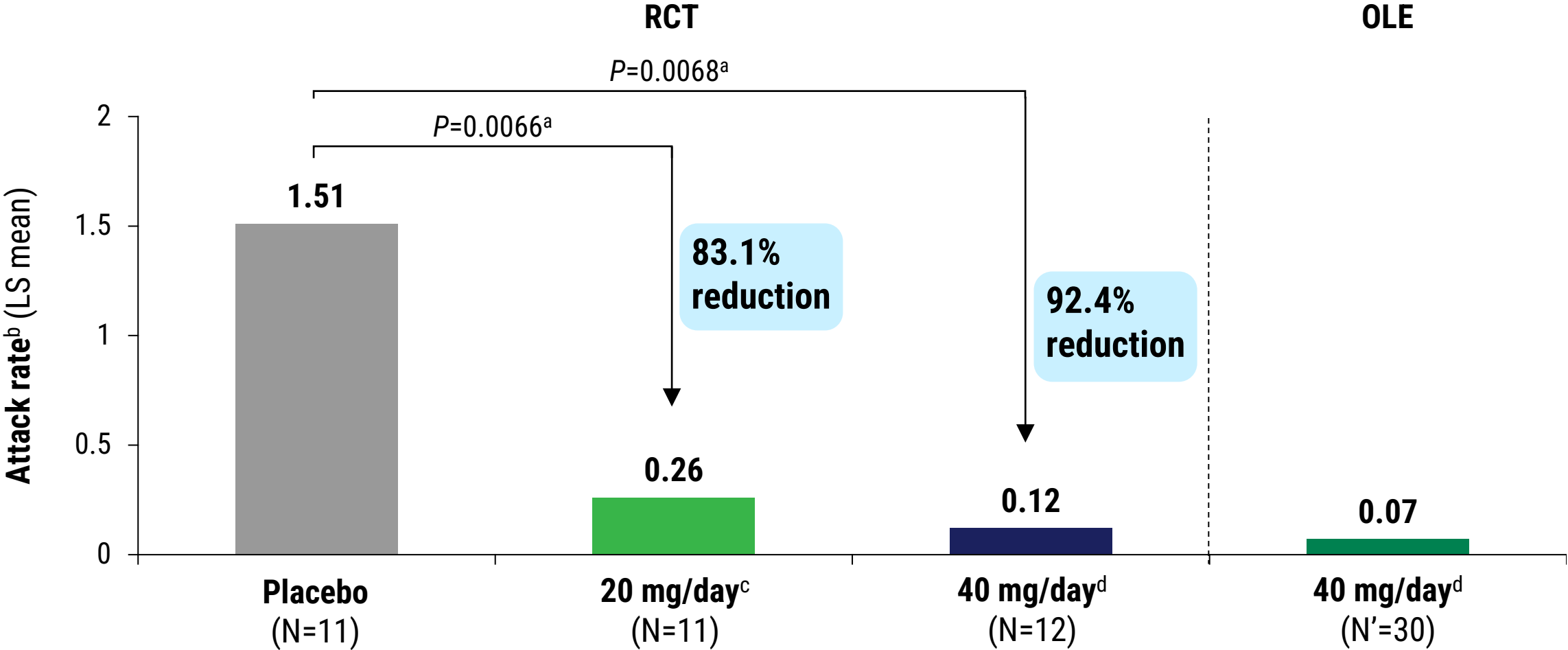
Deucricitibant was well tolerated in the OLE with no safety signals

- Deucricitibant was generally well tolerated.
 - One treatment-related treatment-emergent adverse event (TEAE) of tooth discoloration.
- No treatment-related serious or severe TEAEs. No treatment-related TEAEs in laboratory parameters, vital signs (including blood pressure), or electrocardiogram findings. No TEAEs leading to treatment discontinuation, study withdrawal, or death.

Adverse events in the OLE	Placebo to 40 mg/day ^a (n=9)		20 mg/day ^b to 40 mg/day ^a (n=11)		40 mg/day ^a to 40 mg/day ^a (n=10)		Total (N=30)	
	Participants, n (%)	Events, n	Participants, n (%)	Events, n	Participants, n (%)	Events, n	Participants, n (%)	Events, n
TEAEs	5 (55.6)	25	7 (63.6)	31	6 (60.0)	16	18 (60.0)	72
Treatment-related TEAEs	1 (11.1)	1	0	0	0	0	1 (3.3)	1
Tooth discoloration	1 (11.1)	1	0	0	0	0	1 (3.3)	1
Serious TEAEs	0	0	1 (9.1)	1	1 (10.0)	1	2 (6.7)	2
Tendon injury	0	0	0	0	1 (10.0)	1	1 (3.3)	1
Hip arthroplasty (arthritis)	0	0	1 (9.1)	1	0	0	1 (3.3)	1
Treatment-related serious TEAEs	0	0	0	0	0	0	0	0
TEAEs leading to study drug discontinuation, study withdrawal, or death	0	0	0	0	0	0	0	0

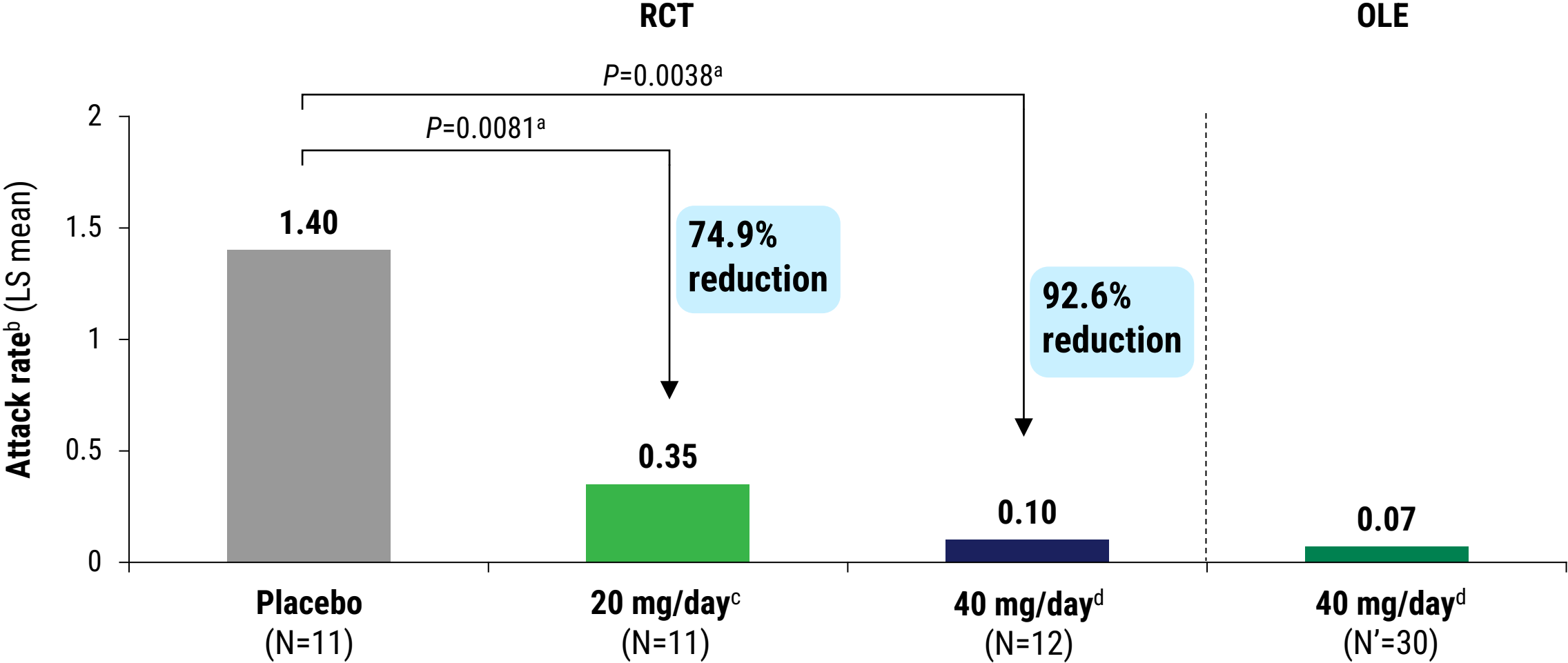
IR, immediate release; OLE, open-label extension; TEAE, treatment emergent adverse event (defined as adverse event occurring during time window from first study drug administration).
n/N= number of participants who received ≥1 dose of study treatment in the OLE by the cutoff date (10 June 2024). ^aDeucricitibant IR capsule, 20 mg twice daily. ^bDeucricitibant IR capsule, 10 mg twice daily.

Reduced rate of “moderate and severe” attacks in the RCT remained low in the OLE



IR, immediate release; LS, least squares; OLE, open-label extension; RCT, randomized controlled trial. N = number of participants randomized in each treatment group in the RCT. N' = number of participants in the OLE. LS mean estimates of attack rate are based on Poisson regression models adjusted for baseline attack rate and time on treatment. No multiplicity adjustment was applied. ^aThe P-values in this figure are nominal. ^bBased on time normalized number of attacks per 4 weeks. ^cDeucricitbant IR capsule, 10 mg twice daily. ^dDeucricitbant IR capsule, 20 mg twice daily.

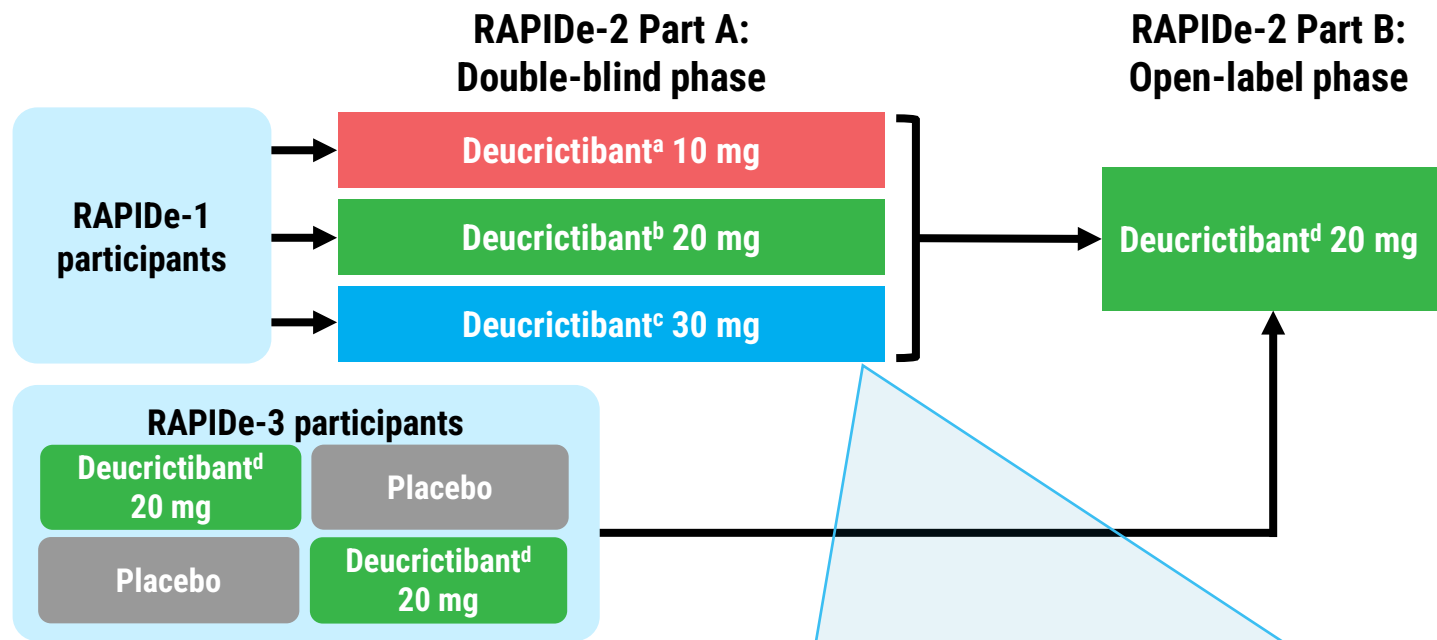
Reduced rate of on-demand–treated attacks in the RCT remained low in the OLE



IR, immediate release; LS, least squares; OLE, open-label extension; RCT, randomized controlled trial. N = number of participants randomized in each treatment group in the RCT. N' = number of participants in the OLE. LS mean estimates of attack rate are based on Poisson regression models adjusted for baseline attack rate and time on treatment. No multiplicity adjustment was applied. ^aThe *P*-values in this figure are nominal. ^bBased on time normalized number of attacks per 4 weeks. ^cDeucricitabant IR capsule, 10 mg twice daily. ^dDeucricitabant IR capsule, 20 mg twice daily.

RAPIDe-2: Two-part, Phase 2/3 extension study of deucricitibant for on-demand treatment of repeat HAE attacks

Key objectives: Evaluate long-term safety and efficacy of deucricitibant for on-demand treatment of repeat HAE attacks.



Part A snapshot analysis

- Participants: Those who had completed RAPIDe-1 continue self-administering the same double-blinded dose received in RAPIDe-1 to treat qualifying attacks including non-severe laryngeal attacks presenting without breathing difficulties.
- Data: Results shown for combined dose group due to dose blinding.

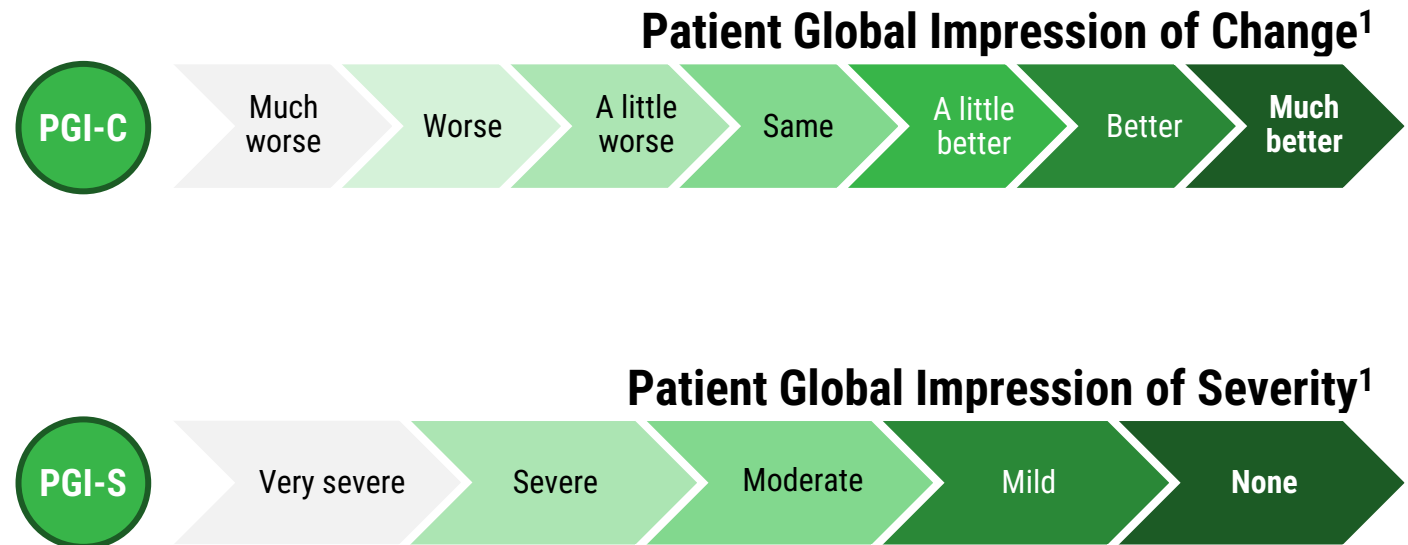
HAE, hereditary angioedema; IR, immediate-release. ^a1x deucricitibant IR capsule 10 mg + 2x placebo capsule. ^b2x deucricitibant IR capsule 10 mg + 1x placebo capsule. ^c3x deucricitibant IR capsule 10 mg. ^d1x deucricitibant IR capsule 20 mg. RAPIDe-1. ClinicalTrials.gov identifier: NCT04618211. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT04618211>. RAPIDe-2. ClinicalTrial.org identifier: NCT05396105. Accessed March 5, 2025. <https://clinicaltrials.gov/study/NCT05396105>. RAPIDe-3. ClinicalTrial.org identifier: NCT06343779. Accessed March 5, 2025. <https://clinicaltrials.gov/study/NCT06343779>. RAPIDe-2 is a Pharvaris-sponsored clinical study.

Study endpoints

- **Primary endpoint:** Safety, including TEAEs, clinical laboratory tests, vital signs, and ECG findings.
- **Efficacy:** Assessed using patient-reported outcome tools.

- **Efficacy endpoints included:**

- **Time to onset of symptom relief:**
PGI-C rating of at least “a little better” for 2 consecutive timepoints by 12 hours post-treatment
- **Time to reduction in attack severity:**
≥1-level reduction in PGI-S from pre-treatment for 2 consecutive timepoints by 12 hours post-treatment
- **Time to substantial symptom relief:**
PGI-C rating of at least “better” for 2 consecutive timepoints by 12 hours post-treatment
- **Proportion of attacks achieving complete attack resolution:**
PGI-S rating of “none” at 24 hours post-treatment



Deucricitibant was well tolerated across all doses

On-demand

337 attacks^a from 19 participants:

- No treatment-related TEAEs.
- No treatment-related serious or severe TEAEs, no treatment-related TEAEs in laboratory parameters, vital signs (including blood pressure), or ECG findings.
- No TEAEs leading to treatment discontinuation, study withdrawal, or death.

TEAEs within 5 days after administration of study drug

Adverse events	Deucricitibant (combined dose group ^b)
Attacks with any TEAE, n (%)	13 (3.9)
Treatment-related TEAEs, n	0
Serious TEAEs, n	1 ^c
Treatment-related serious TEAEs, n	0
TEAEs leading to study drug discontinuation, study withdrawal, or death, n	0

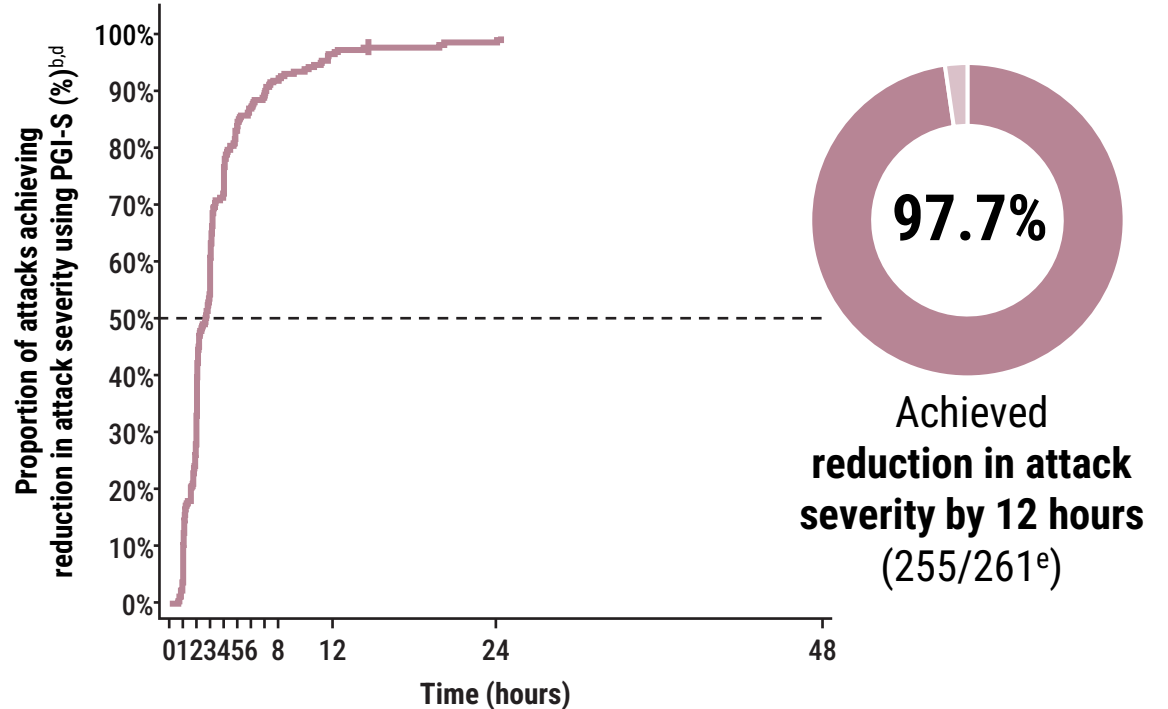
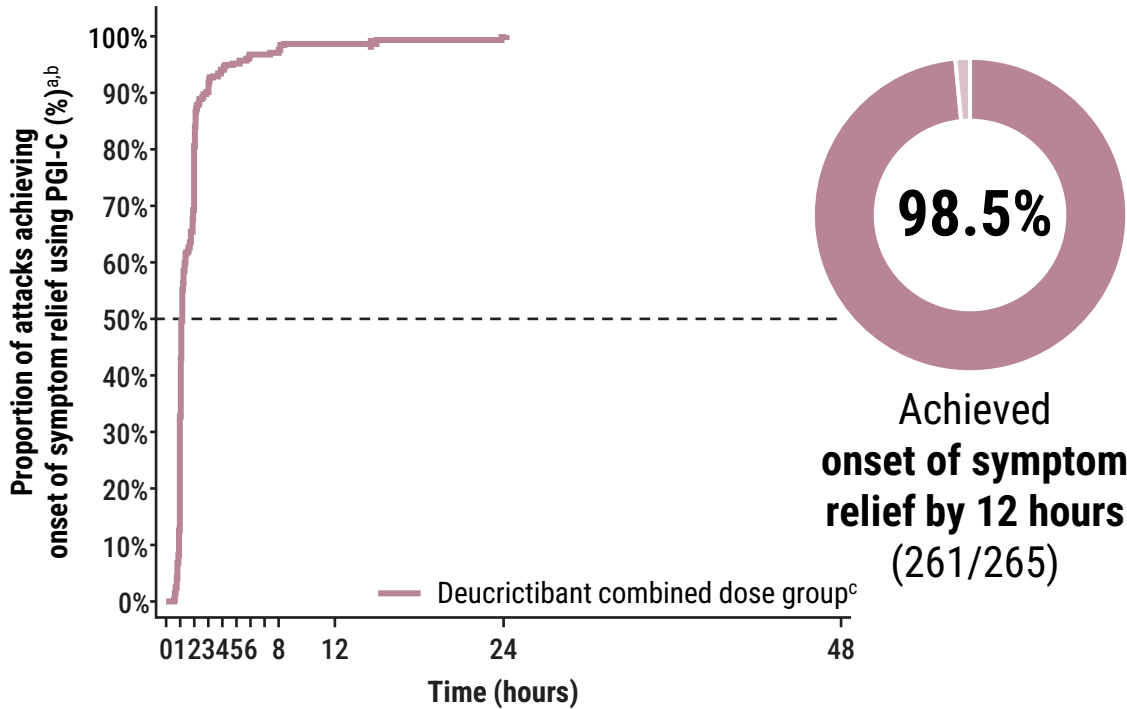
ECG, electrocardiogram; IR, immediate-release; TEAE, treatment-emergent adverse event (defined as adverse event occurring during time window from first study drug administration). ^aNumber in the safety analysis set (data cutoff: 10 June 2024).

^bDeucricitibant IR capsule 10, 20 and 30 mg. ^cTooth caries unrelated to treatment.

1.1 hours to onset of symptom relief and 2.6 hours to reduction in attack severity with deucricitbant

Median time to onset of symptom relief by PGI-C
1.1 hours
 (95% CI, 1.0, 1.2)

Median time to reduction in attack severity by PGI-S
2.6 hours
 (95% CI, 2.0, 2.9)



Number at risk: 160 23 13 7 4 1 0
 Deucricitbant 49 16 9
 combined dose group^c

Number at risk: 228 95 40 20 9 2
 Deucricitbant 151 59 33
 combined dose group^c

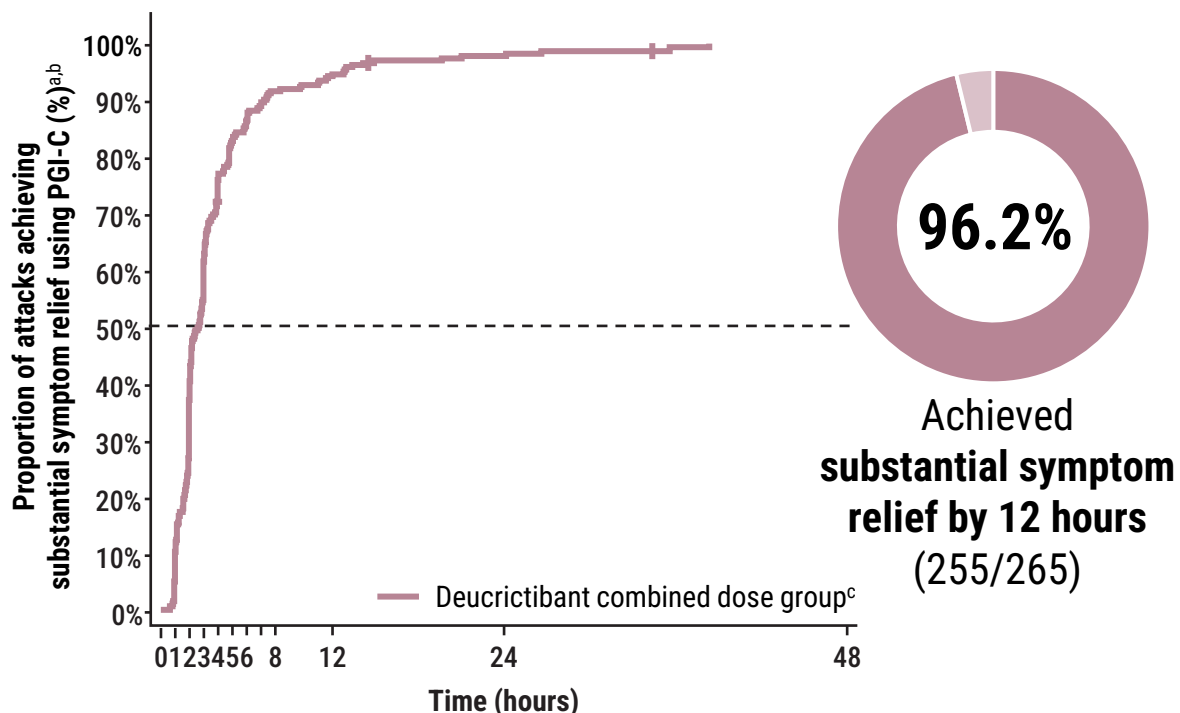
CI, confidence interval; IR, immediate-release; PGI-C, Patient Global Impression of Change; PGI-S, Patient Global Impression of Severity. ^aPGI-C rating of at least “a little better” for 2 consecutive timepoints by 12 hours post-treatment regardless of any missing intervening assessments. ^bWithin-participant correlation was not accounted for in all Kaplan-Meier estimates. ^cIncludes deucricitbant IR capsule 10 mg, 20 mg, and 30 mg dose groups. ^d≥1 point reduction in PGI-S from pre-treatment for 2 consecutive timepoints by 12 hours post-treatment. ^e261 attacks had non-missing pre-treatment PGI-S. Results are shown for the modified intent-to-treat efficacy analysis set (265 attacks in 17 participants; data cutoff: 01 March 2024).

2.7 hours to substantial symptom relief and 11.5 hours to complete attack resolution with deucricitbant

Median time to substantial symptom relief by PGI-C

2.7 hours

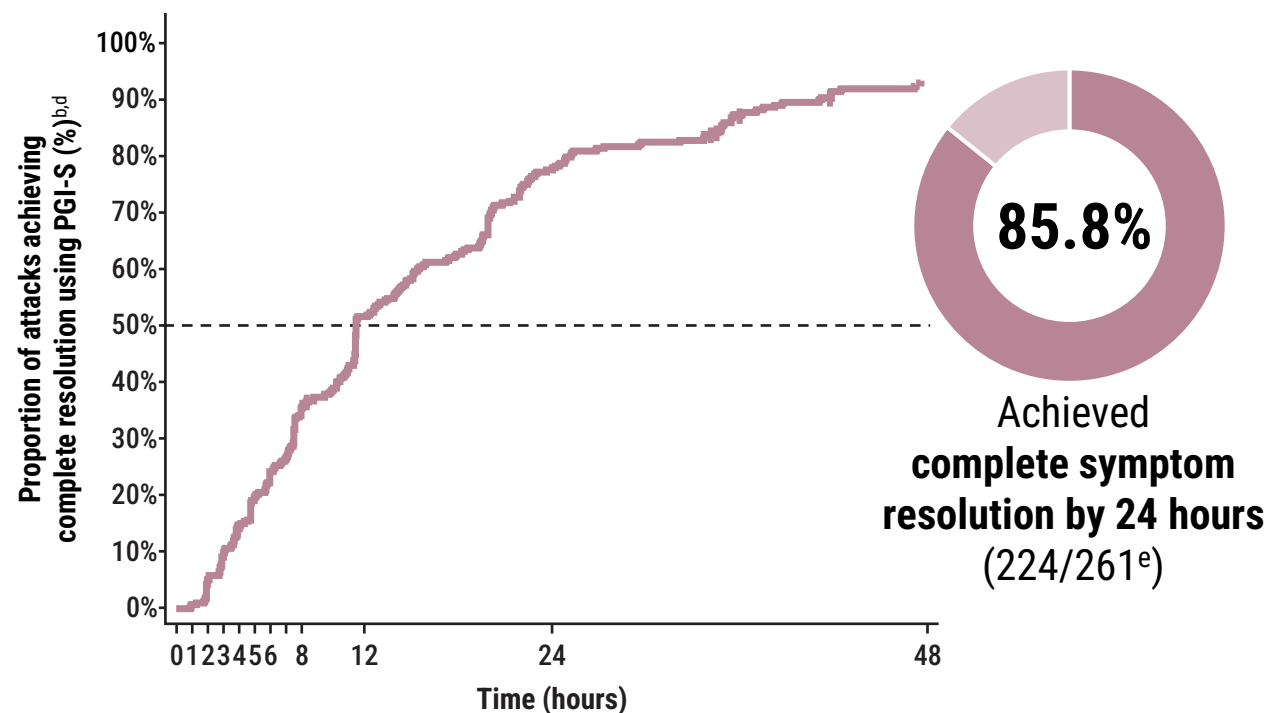
(95% CI, 2.1, 2.9)



Median time to complete attack resolution by PGI-S

11.5 hours

(95% CI, 11.0, 13.0)



CI, confidence interval; IR, immediate-release; PGI-C, Patient Global Impression of Change; PGI-S, Patient Global Impression of Severity. ^aPGI-C rating of at least “better” for 2 consecutive timepoints by 12 hours post-treatment regardless of any missing intervening assessments. ^bWithin-participant correlation was not accounted for in all Kaplan-Meier estimates. ^cIncludes deucricitbant IR capsule 10 mg, 20 mg, and 30 mg dose groups. ^dPGI-S rating of “none” at 24 hours post-treatment. ^e261 attacks had non-missing pre-treatment PGI-S. Results are shown for the modified intent-to-treat efficacy analysis set (265 attacks in 17 participants; data cutoff: 01 March 2024).

Conclusions

Prophylaxis: CHAPTER-1 OLE

On-demand: RAPIDe-2

Overall results:

- Evidence on the long-term safety and efficacy of deucricitibant for prevention and treatment of HAE attacks.
- Support further development of deucricitibant as a potential prophylactic and on-demand therapy for HAE.

Safety: All studied doses of deucricitibant were well tolerated, with no safety signals observed.

Efficacy:

Deucricitibant 40 mg treatment:

- Reduced attack rate in the OLE vs RCT baseline by 93.1%.
- “Moderate and severe” attack rate was 0.07.
- On-demand-treated attack rate was 0.07.

Efficacy:

Combined dose group (deucricitibant 10, 20 and 30 mg):

Median times to

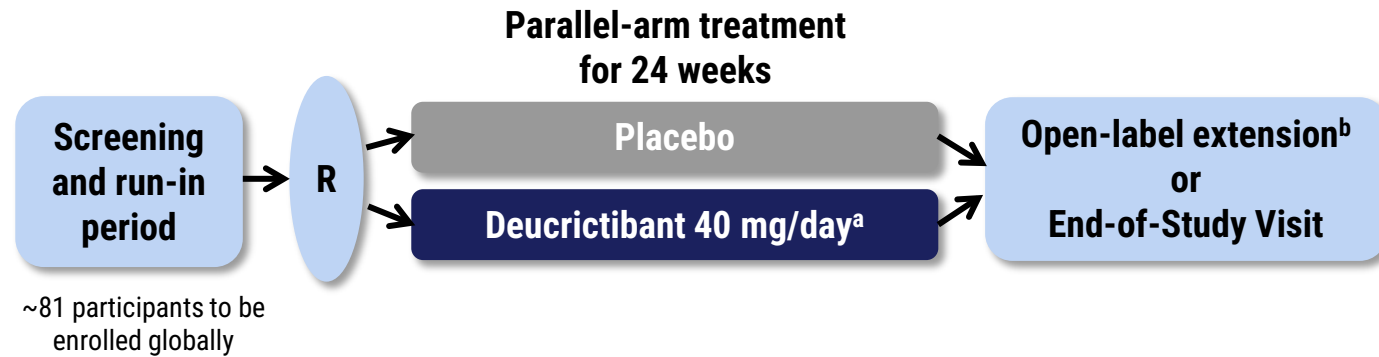
- Onset of symptom relief: 1.1 hours
98.5% of attacks by 12 hours.
- Reduction in attack severity: 2.6 hours
97.7% of attacks by 12 hours.
- Substantial symptom relief: 2.7 hours
96.2% of attacks by 12 hours.
- Complete attack resolution: 11.5 hours
85.8% of attacks by 24 hours.

The Authors and the Sponsor would like to thank all the people with HAE as well as all study site staff who have been participating in the CHAPTER-1 trial and RAPIDe-2 study.

Phase 3 trials investigating efficacy and safety of deucricitbant for prophylactic and on-demand treatment of HAE attacks

CHAPTER-3

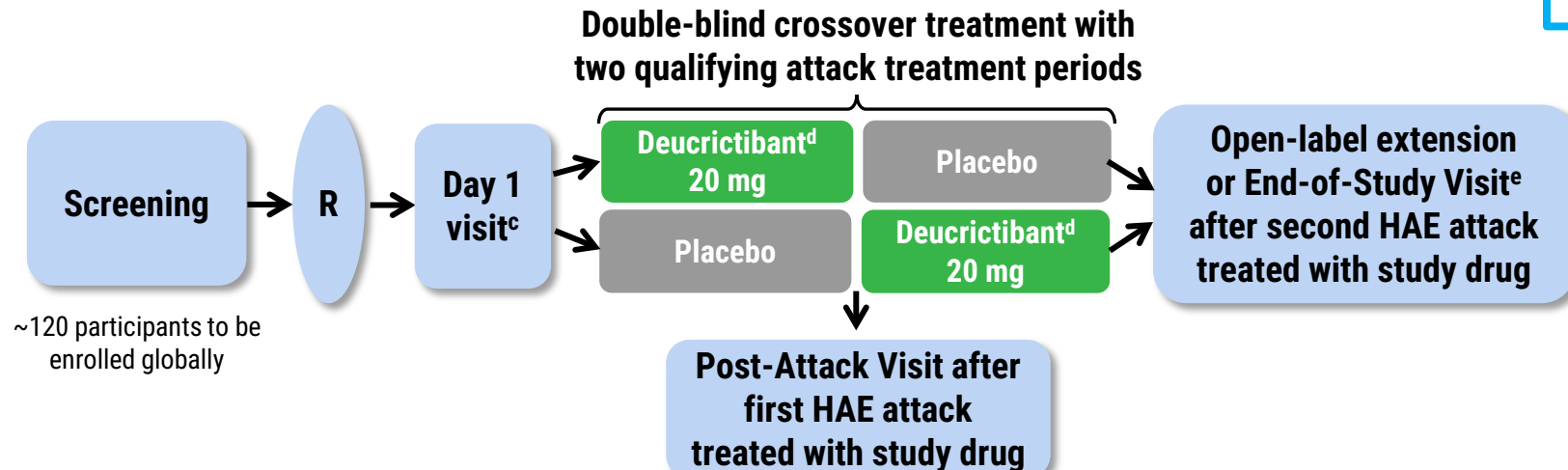
Deucricitbant extended-release (XR) tablet



Prophylaxis

RAPIDe-3

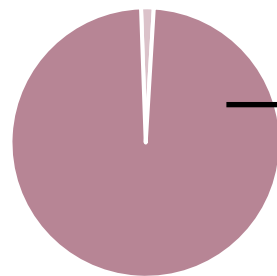
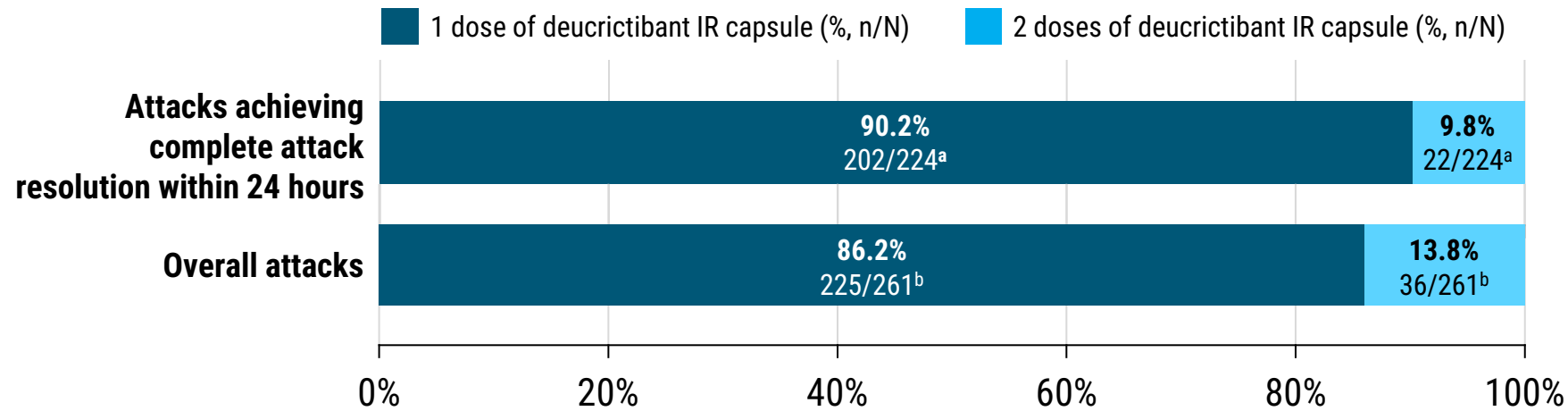
Deucricitbant immediate-release (IR) capsule



On-demand

HAE, hereditary angioedema; R, randomization. ^aDeucricitbant XR tablet 40 mg once daily. ^bAll participants who complete the parallel-arm treatment period are eligible for the open-label extension. ^cAdolescent participants receive a non-attack dose for pharmacokinetic sampling at Day 1 Visit prior to randomization. ^dDeucricitbant IR capsule 20 mg. ^eData from the End-of-Study Visit may be used to qualify the participant for an open-label extension study with deucricitbant. Pharmacokinetics of deucricitbant 40 mg XR tablet will be assessed in CHAPTER-3. CHAPTER-3. ClinicalTrials.gov identifier: NCT06669754. Accessed March 5, 2025. <https://clinicaltrials.gov/study/NCT06669754>. RAPIDe-3. ClinicalTrials.gov identifier: NCT06343779. Accessed March 5, 2025. <https://www.clinicaltrials.gov/study/NCT06343779>.

Majority of attacks treated with a single dose of deucricitabant and did not use rescue medication



98.5%
of attacks treated with deucricitabant IR capsule
did not use rescue medication
(261/265)

IR, immediate-release; PGI-S, Patient Global Impression of Severity. ^aNumber of 224 attacks achieving complete attack resolution, defined as PGI-S score of 'none' by 24 hours. ^bNumber of attacks that were not treated with rescue medication. Rescue medication was used for four attacks: three after 1 dose of deucricitabant and one after 2 doses of deucricitabant.