December 2, 2024

RLYB116

Clinical Program Update

Moving C5 inhibition into a convenient autoinjector

Rallybio

Forward-Looking Statements

This presentation contains forward-looking statements that are based on management's beliefs and assumptions and on information currently available to management. All statements other than statements of historical facts contained in this presentation are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "anticipate," "could," "intend," "target,", "seek," "goal," "project," "contemplate," "believe," "estimate," "predict," "potential" or "continue" or the negative of these terms or other similar expressions, although not all forward-looking statements contain these words. Forward-looking statements include, but are not limited to, statements concerning: the initiation, timing, progress, results, and cost of our research and development programs, and our current and future preclinical and clinical studies, including statements regarding the timing of initiation of the planned RLYB116 confirmatory clinical PK/PD study; the expected dosing for RLYB116 in future clinical trials and whether RLYB116 will produce complete and sustained inhibition; the frequency of administration of RLYB116; whether RLYB116 will be a best-in-class C5 inhibitor; whether the RLYB116 manufacturing process enhancements will improve tolerability or be successful at the desired doses; our characterization of the actual level of complement inhibition delivered by RLYB116; our ability to compete with companies currently marketing or engaged in the development of treatments for diseases that our product candidates are designed to target; our estimates of the market opportunity for RLYB116; our ability to successfully identify and implement alternative and acceptable options to further advance our programs; the potential benefits of strategic collaboration agreements; and our cash runway and our financial performance. The forward-looking statements in this presentation are only predictions and are based largely on management's current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this presentation and are subject to a number of known and unknown risks, uncertainties and assumptions, including but not limited to, our ability to successfully initiate and conduct our planned clinical studies and complete such clinical studies and obtain results on our expected timelines, or at all, whether our cash resources will be sufficient to fund our operating expenses and capital expenditure requirements and whether we will be successful raising additional capital, competition from other biotechnology and pharmaceutical companies, and those risks and uncertainties described in our filings with the Securities and Exchange Commission (the "SEC"), including under the heading "Risk Factors" in our Form 10-Q for the period ending September 30, 2024, and any subsequent filings with the SEC.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as guarantees of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual future results, levels of activity, performance and events and circumstances could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risks and uncertainties may emerge from time to time, and it is not possible for management to predict all risks and uncertainties. Except as required by applicable law, we are not obligated to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

Rallybio

Translating scientific advances into transformative therapies for patients with devastating rare diseases

Agenda

8:30am – 9:10am	RLYB116 Program Update	Steve Uden, M.D., CEO
9:10am – 9:30am	Q&A	

Participants

Steve Uden, M.D., Chief Executive Officer

Jonathan Lieber, Chief Financial Officer

Steve Ryder, M.D., Chief Medical Officer

Executive Summary

PROGRAM UPDATE

RLYB116 has the potential to be a **best-in-class C5 inhibitor**

Manufacturing process enhancements completed in 3Q 2024 are expected to further **improve tolerability** of RLYB116

Biomarker characterization analyses indicate that **RLYB116 led to a greater degree of complement inhibition** in the Phase 1 MAD study than initially reported

NEXT STEPS FOR RLYB116

Rallybio plans to **advance RLYB116 into a confirmatory clinical PK/PD study** to demonstrate improved tolerability as well as complete and sustained inhibition of terminal complement

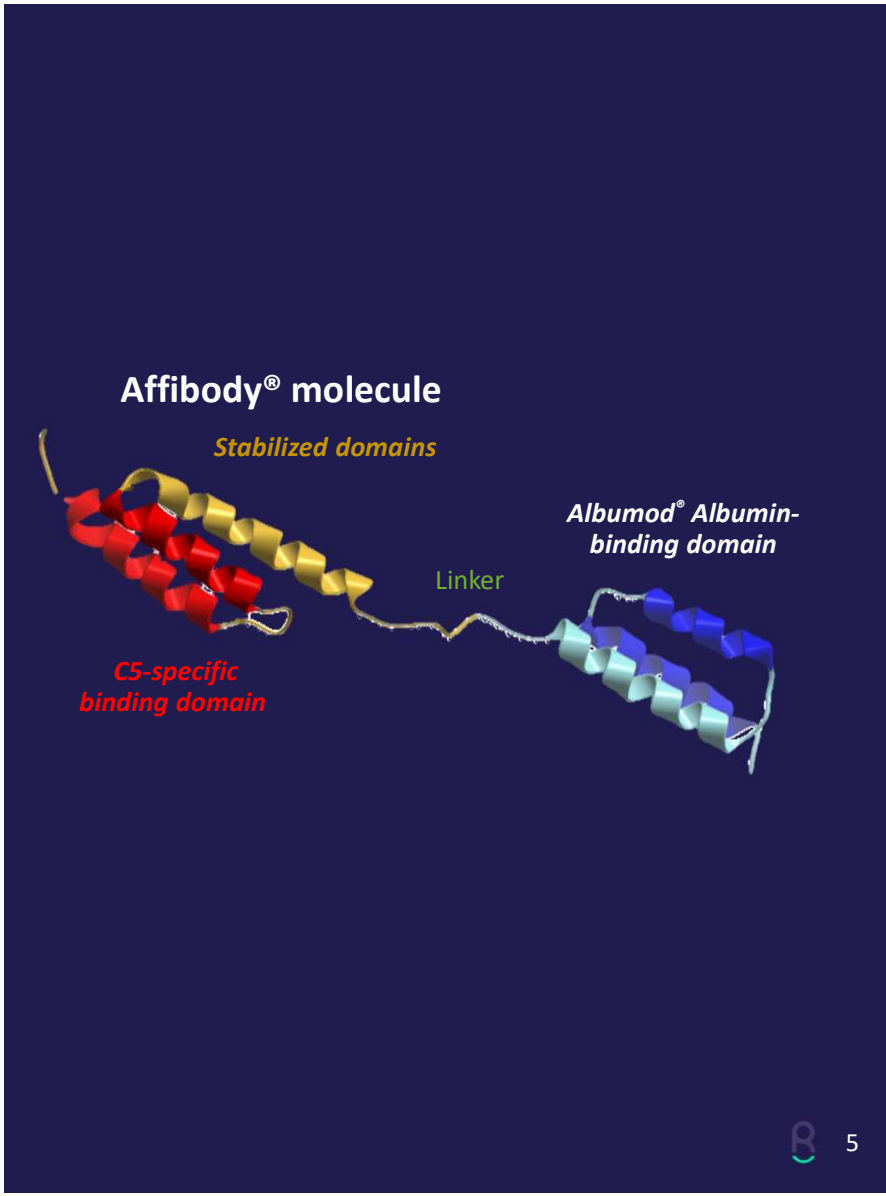
MARKET OPPORTUNITY

RLYB116 has the potential to address **significant unmet need for patients across PNH, APS, and gMG**, representing a **commercial opportunity of ~$6B** in these three indications alone

PNH = Paroxysmal Nocturnal Hemoglobinuria; APS = Antiphospholipid Syndrome; gMG = Generalized Myasthenia Gravis

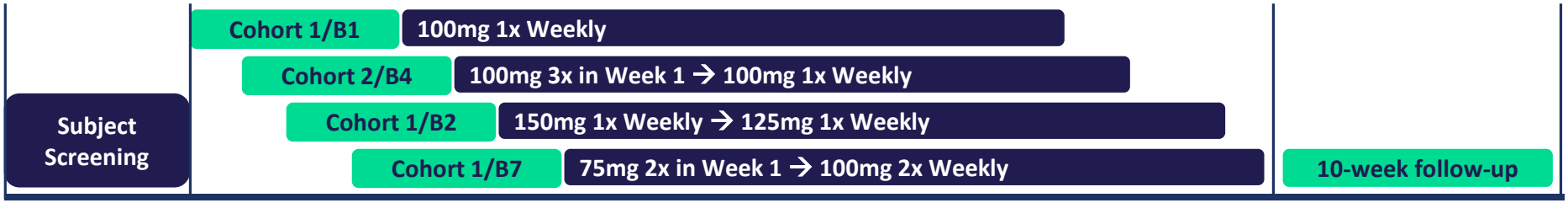
RLYB116 is a novel, differentiated inhibitor of C5 designed to treat patients with complement-mediated diseases

- C5 is a proven therapeutic target with the potential to address a broad range of complement-mediated diseases
- RLYB116 is designed to meet patient preference for a once-weekly, small volume, subcutaneous therapeutic that is self-administered via autoinjector
- Phase 1 SAD/MAD data have demonstrated ability to achieve clinically meaningful C5 inhibition
- RLYB116 can address significant unmet patient need in PNH, APS, and gMG, with a peak commercial opportunity of ~$6B in these three indications alone



PNH = Paroxysmal Nocturnal Hemoglobinuria; APS = Antiphospholipid Syndrome; gMG = Generalized Myasthenia Gravis

Completed RLYB116 Phase 1 MAD study design



STUDY DESIGN

Adaptive single-blind multiple ascending dose study

Participants randomized 5:1 to receive RLYB116 or placebo administered subcutaneously, with 12 in each of 4 cohorts

Evaluating a 4-week treatment duration and a 10-week follow-up period

PRIMARY OBJECTIVE

To evaluate the safety and tolerability of RLYB116

SECONDARY OBJECTIVE

To characterize the pharmacodynamic, immunogenicity, pharmacokinetic properties of RLYB116

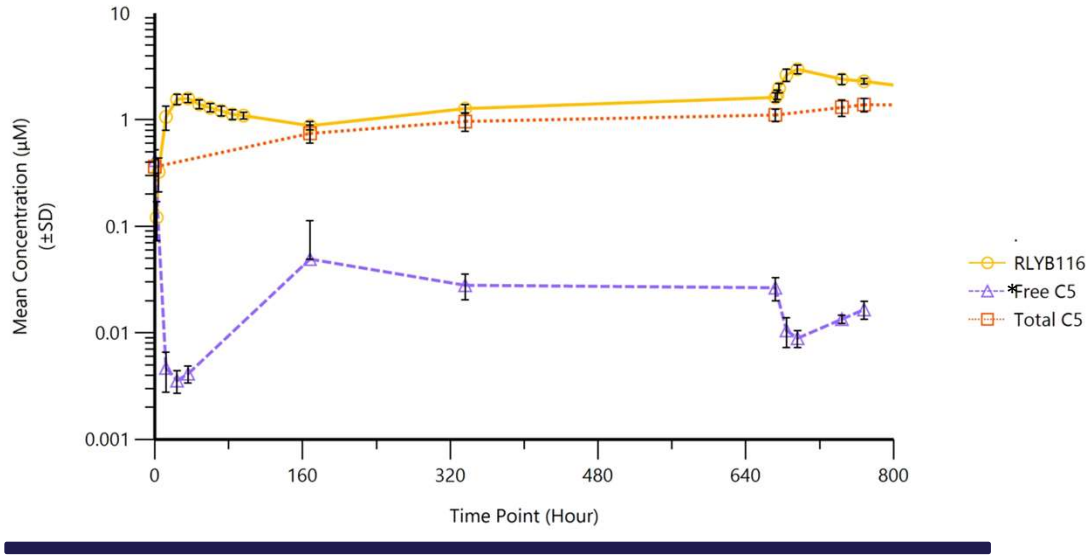
SAD results and design are available but not shown on this slide.

RLYB116 demonstrated significant inhibition of terminal complement

PHASE 1 MAD STUDY RESULTS

- RLYB116 administered subcutaneously at 100mg Q1W resulted in measured free C5 reductions >99% at 24 hours and sustained reductions >93% at Day 29
- Increasing doses of RLYB116 resulted in a higher ratio of RLYB116 to total C5
- While no severe adverse events (AEs) were observed, mild-to-moderate toleration AEs, mostly GI in nature, were seen at and above doses of 150mg
- No apparent impact of ADA formation on pharmacokinetics (PK), pharmacodynamics (PD), or safety

Cohort 1: 100mg Q1W PK/PD to Day 29



Complement inhibition did not appear to be sustained at >99% through Day 29, and AE profile suggested process enhancements could be beneficial

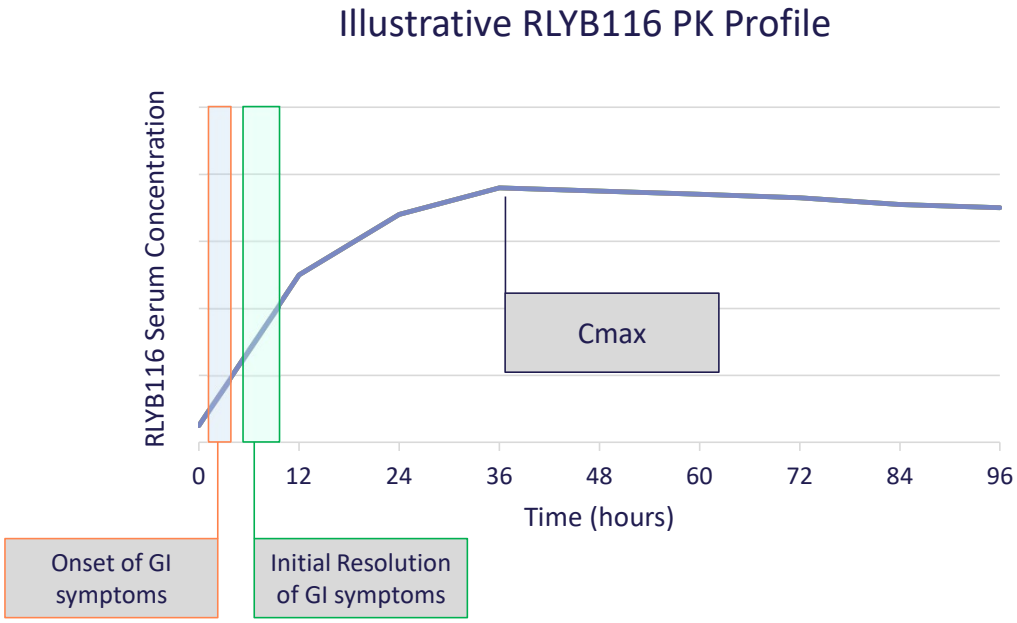
Source: RLYB116 IPC2001

RLYB116 Manufacturing Update

RLYB116 process enhancements completed in 3Q 2024 are expected to improve tolerability

The timing of onset of adverse events in the RLYB116 Phase 1 SAD/MAD study supports that the adverse events are not related to the RLYB116 molecule itself

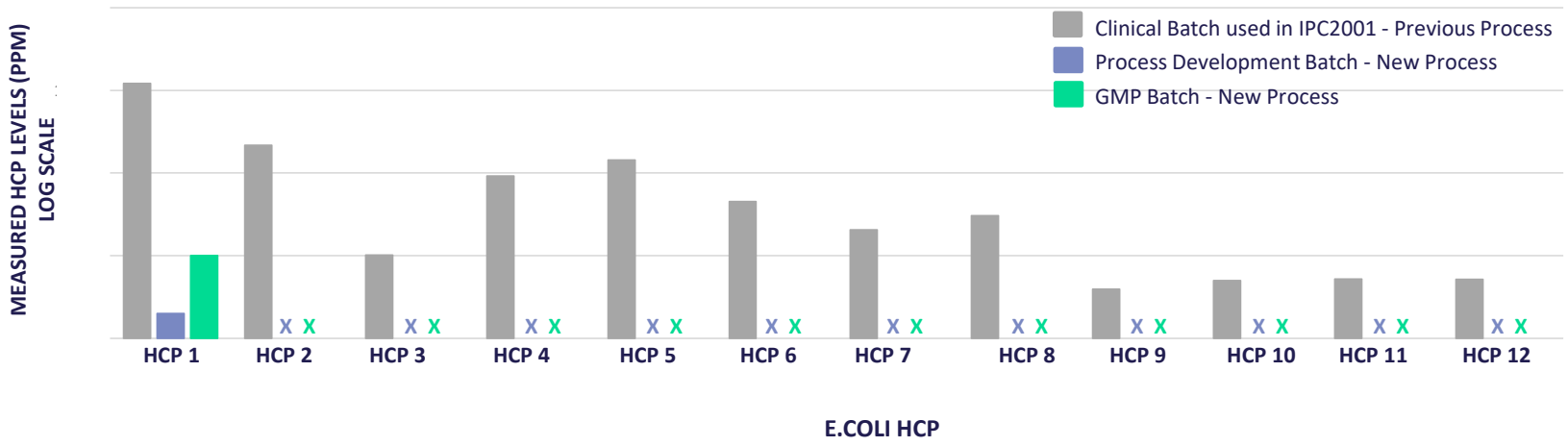
- The temporal occurrence of GI-related AEs relative to RLYB116's Tmax supports that the AEs are not related to the RLYB116 molecule itself
- RLYB116 has a Tmax (time to reach maximal concentration) of 36 – 48 hours
- GI symptoms occurred within hours of dosing, with initial resolution of symptoms generally beginning prior to Cmax (maximum plasma concentration)



Source: RLYB116 IPC2001

Impact of manufacturing process improvements on RLYB116 drug substance

Enhanced analytical techniques including mass spectrometry data demonstrate impact of process improvements



Process improvements are expected to improve tolerability of RLYB116

Rallybio data on file

RLYB116 Biomarker Analysis Update

Biomarker characterization analyses indicate that RLYB116 led to a greater degree of terminal complement inhibition in the Phase 1 MAD study than initially suggested

RLYB116 has the potential to be a best-in-class C5 inhibitor for patients with complement-mediated diseases

1. Preclinical hemolysis assays demonstrate **RLYB116** has **comparable/superior potency to two commercially available complement inhibitors**

2. Phase 1 MAD data suggested **that RLYB116 achieved >99% reduction in free C5 at 24 hours, and sustained reductions of 93%**

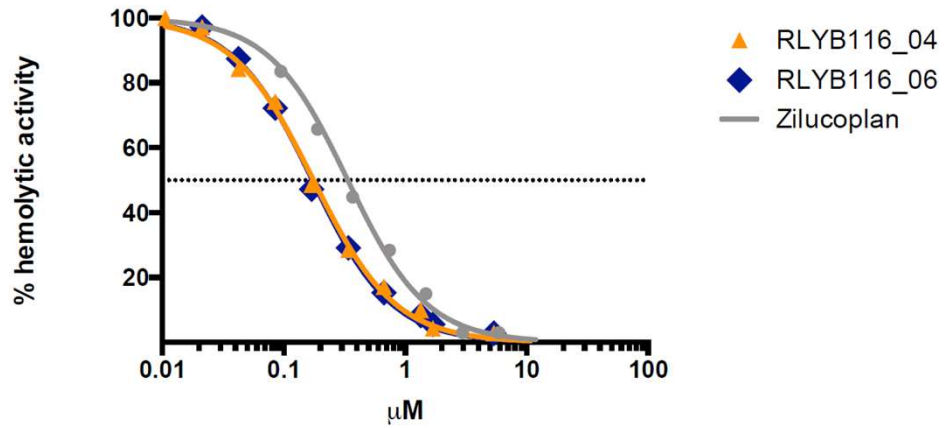
3. Additional characterization of free C5 assay indicates that **the assay is meaningfully overestimating the amount of free C5**

4. This data indicates that **RLYB116 achieved greater complement inhibition in the Phase 1 SAD/MAD study than previously suggested**

Rallybio plans to advance RLYB116 into a confirmatory clinical PK/PD study in 2Q 2025

Preclinical hemolytic assay demonstrates that RLYB116 has comparable/superior potency to research-grade zilucoplan

Hemolytic Assay: RLYB116 vs. Zilucoplan



	Zilucoplan	RLYB116_04	RLYB116_06
IC50	0.3368	0.1761	0.1722

RLYB116 demonstrates a lower IC50 relative to research-grade zilucoplan in a hemolytic assay measuring classical complement pathway activity

IC50 = half-maximal inhibitory concentration

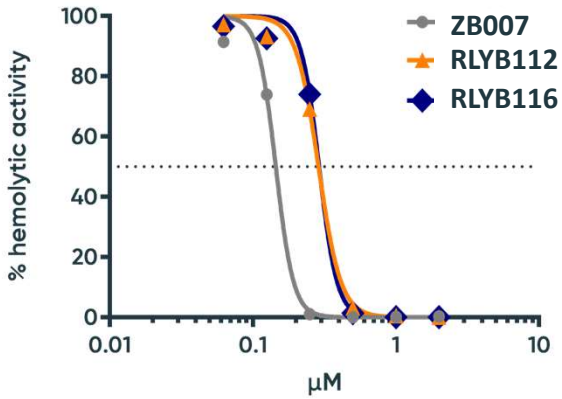
Rallybio data on file; Study conducted under matching conditions to zilucoplan published data (1% sera) per Tang 2023

Preclinical hemolytic assay demonstrates that RLYB116 has comparable potency to ravulizumab

RLYB116 demonstrates a similar IC50 relative to ravulizumab in a hemolytic assay measuring classical complement pathway activity

IC50 = half-maximal inhibitory concentration

Hemolytic Assay: RLYB116 vs. Ravulizumab (ZB007)



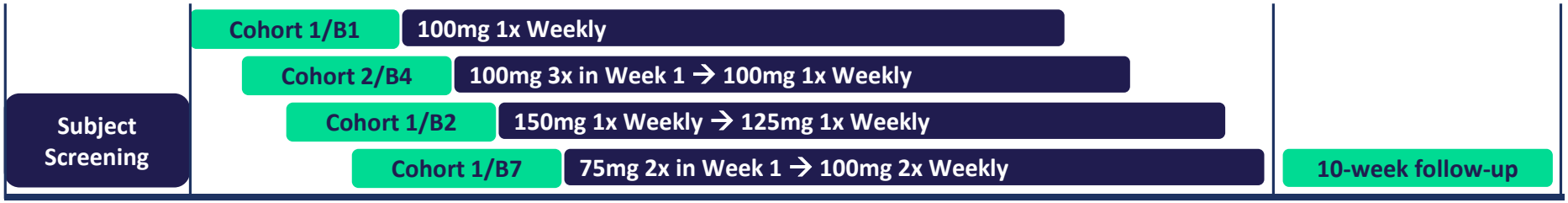
	ZB007	RLYB112	RLYB116
IC_{50}	0.1447	0.2869	0.2907

Note: The RLYB116 curve being offset by a factor of 2 reflects the number of C5 binding sites on ravulizumab (2) and RLYB116 (1)

*Data are not adjusted for the number of binding sites

Rallybio data on file; RLYB112 is a precursor molecule to RLYB116

Based on compelling preclinical data, RLYB116 was taken into a Phase 1 SAD/MAD study



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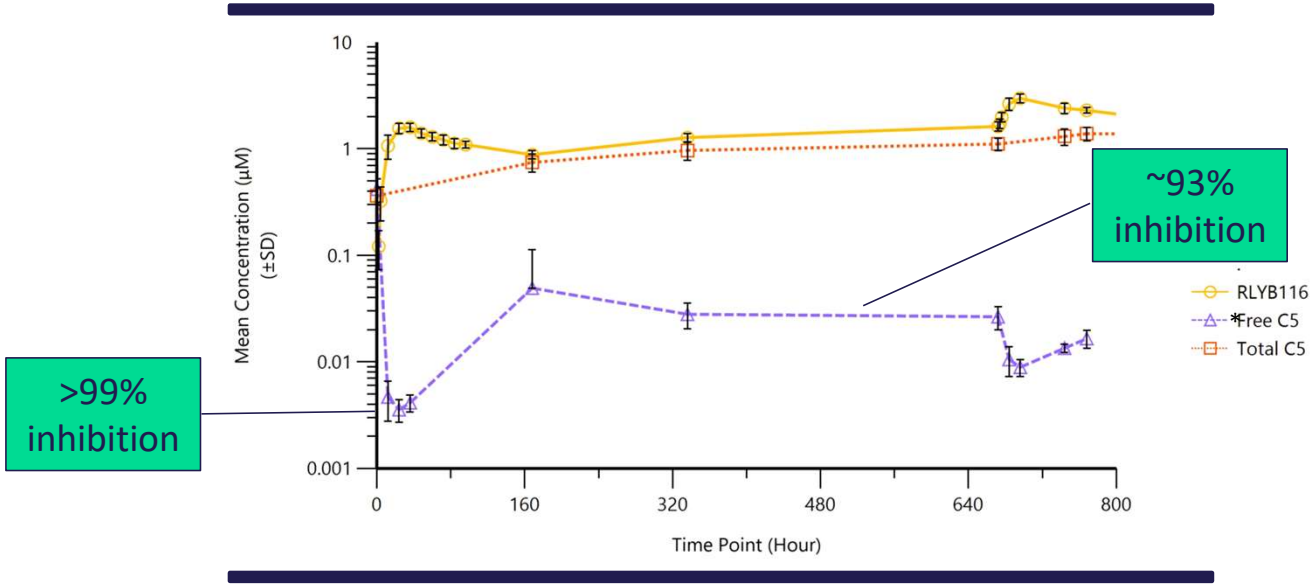
RLYB116 appeared to achieve >99% reduction of free C5 at 24 hours and sustained reductions of 93%

PHASE 1 MAD STUDY RESULTS

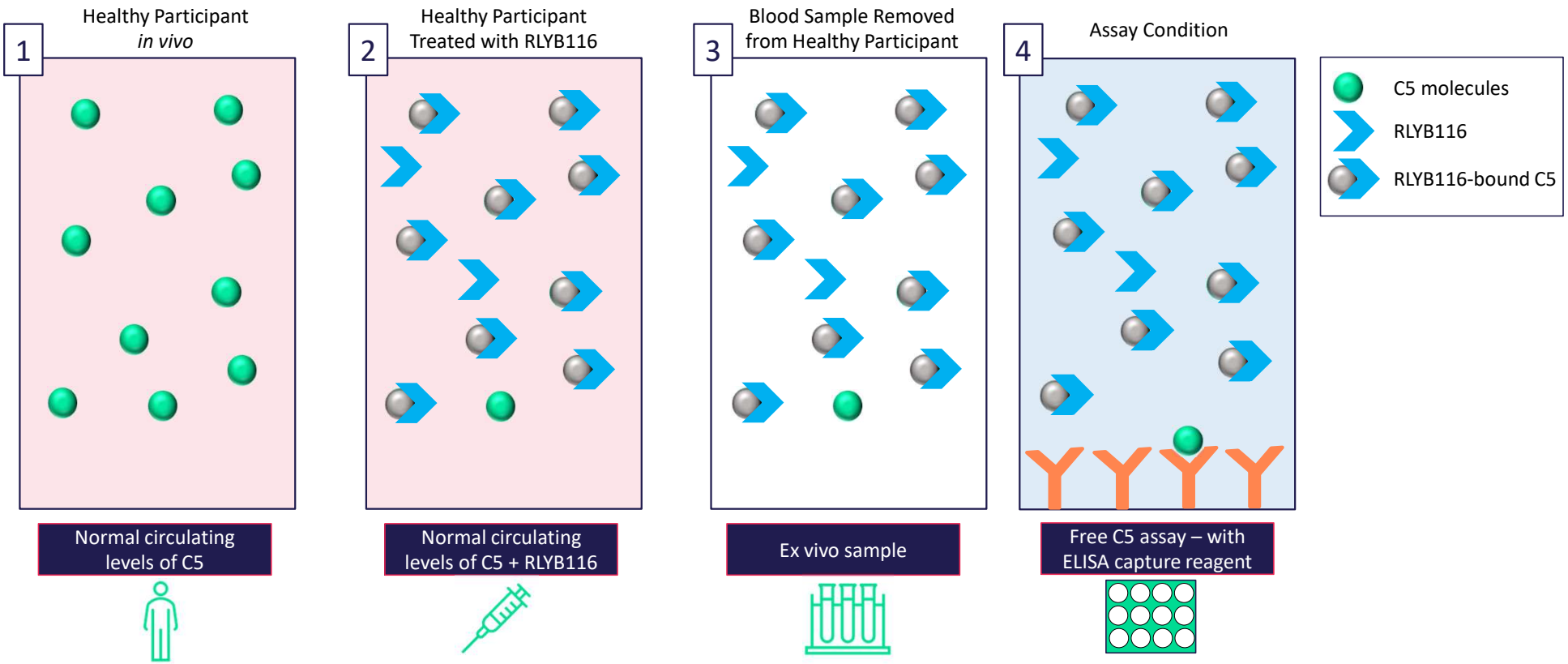
Cohort 1: 100mg Q1W PK/PD to Day 29



These results are inconsistent with both the affinity of RLY116 for C5 and *in vitro* potency results

Source: RLYB116 IPC2001

Complexities of the RLYB116 free C5 assay explain the discrepancy between preclinical results and Phase 1 measured free C5 results



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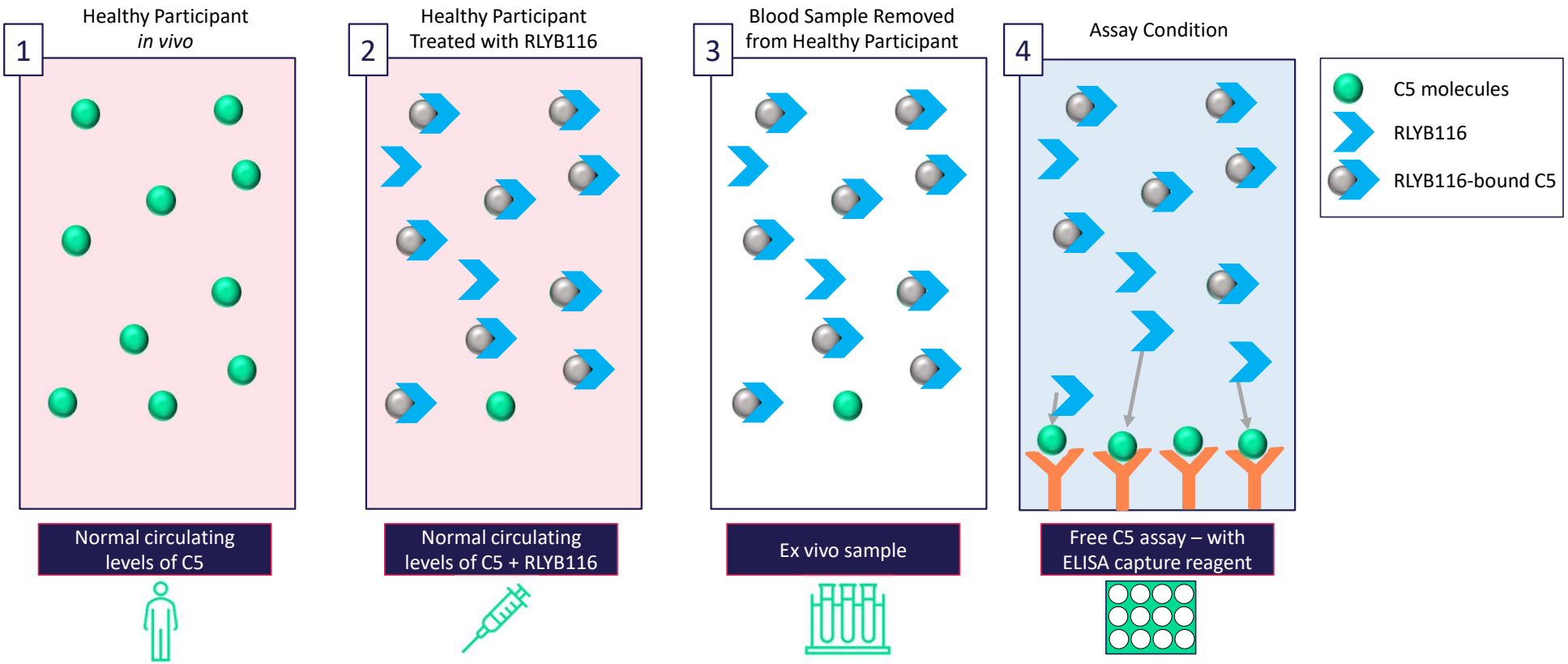


Data from additional biomarker characterization studies suggest the RLYB116 free C5 assay overestimates free C5 levels

Hemolysis assay was conducted to compare the ability of RLYB116 and ravulizumab to inhibit complement

1

This experiment was performed by "spiking" C5 and RLYB116 or ravulizumab in C5-depleted human serum

2

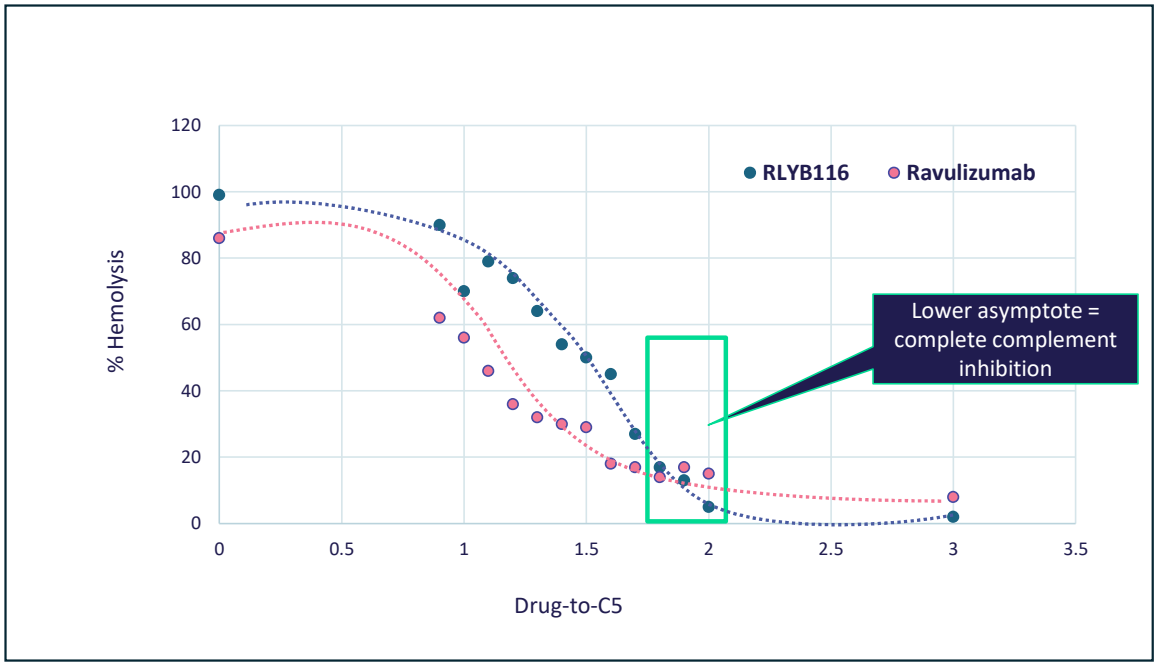
Titration curves within a narrow range of RLYB116 and ravulizumab concentrations were added to a fixed concentration of C5

Drug-to-C5 Ratio
0
0.9
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
3.0

3

Then, complement inhibition was assessed by the level of hemolysis

The new hemolysis assay demonstrates that RLYB116 and ravulizumab can effect complete complement inhibition at similar drug-to-C5 ratios



As predicted and consistent with prior analyses, similar ratios of drug-to-C5 produced similar inhibition of hemolysis

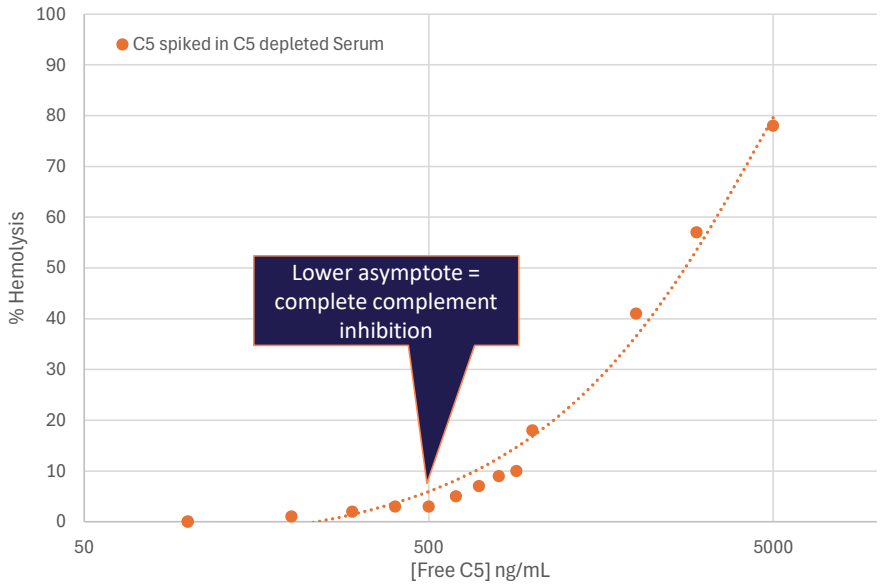
Further studies were conducted to understand the apparent discrepancy between degree of hemolysis inhibition produced by RLYB116 in preclinical assays and the degree of complement inhibition demonstrated in the Phase 1 MAD study

Hemolytic assay to reconfirm the concentration of free C5 at which hemolysis occurs

1

To establish the level of free C5 at which hemolysis occurs, C5-depleted serum was "spiked" with known amounts of C5

Then, the amount of hemolysis was measured



- The concentration of C5 at the lower asymptote (i.e., the point at which hemolysis occurs) is ~0.5µg/mL
- This is consistent with the observed threshold for complete inhibition of complement with ravulizumab/eculizumab

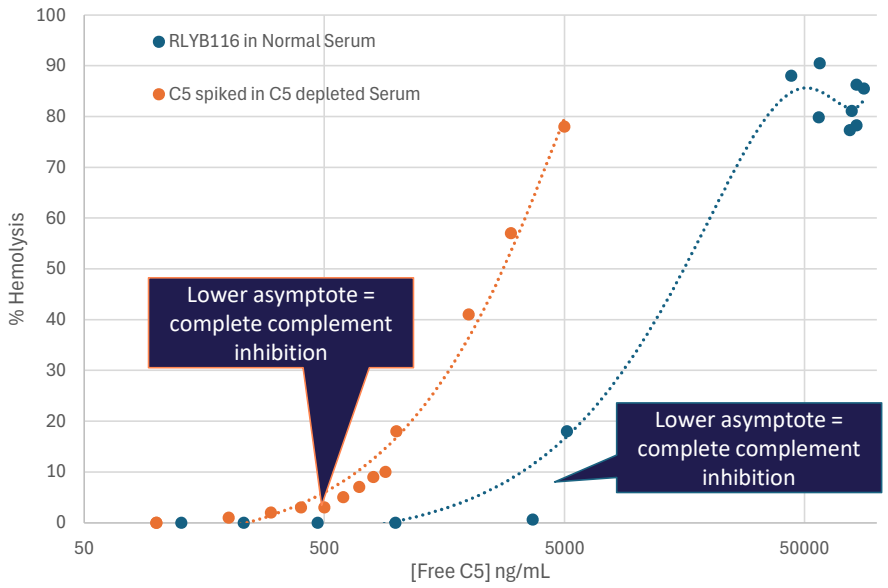
This analysis demonstrates that the threshold below which hemolysis is inhibited is ~0.5µg/mL

Using the RLYB116 Phase 1 free C5 assay with increasing concentrations of RLYB116 to assess the level at which hemolysis is inhibited

2

We next assessed the levels of measured free C5 at which hemolysis is inhibited in the presence of increasing amounts of RLYB116

This analysis uses the RLYB116 free C5 assay used in the Phase 1 study



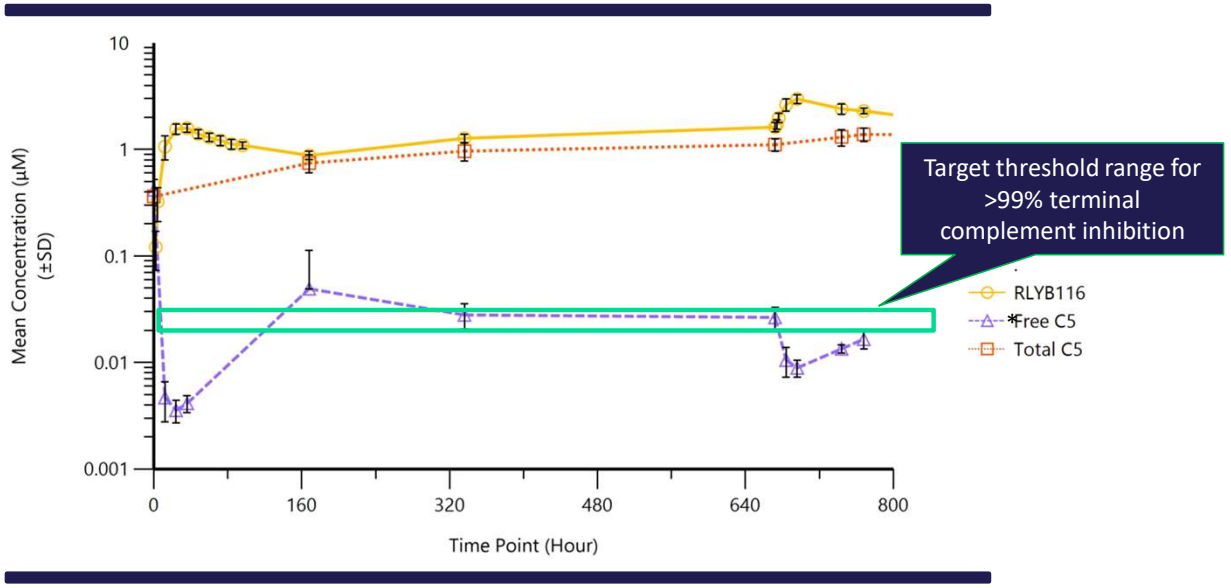
In this analysis, the C5 concentration required to inhibit hemolysis in the free C5 assay is measured as between 3.5 – 5.0 µg/mL, despite the fact that multiple analyses have shown that the true C5 concentration at which hemolysis occurs is ~0.5 µg/mL

Based on hemolytic activity, this analysis indicates that the RLYB116 free C5 assay significantly **overestimated** the amount of free C5 (~ 10-fold)

The extent of overestimation of free C5 indicates that RLYB116 produced sustained inhibition of terminal complement >99% in the Phase 1 MAD

PHASE 1 MAD STUDY RESULTS

Cohort 1: 100mg Q1W PK/PD to Day 29



Source: RLYB116 IPC2001

Advancing RLYB116 into a confirmatory clinical PK/PD study to demonstrate improved tolerability and complete and sustained inhibition of terminal complement

STUDY DESIGN

Single-blind multiple ascending dose study evaluating a 4-week treatment duration, 3:1 assignment to RLYB116 or placebo, 8 participants in each of 2 cohorts, and a 10-week follow-up period

PRIMARY OBJECTIVE

To evaluate the safety and tolerability of RLYB116 in healthy participants following multiple dose administration

SECONDARY OBJECTIVE

To characterize the pharmacodynamics (free C5, total C5, hemolytic activity), immunogenicity, pharmacokinetic properties of RLYB116 following multiple administration

Patient preference for a QW autoinjector strongly supports a significant commercial opportunity in PNH and gMG

PNH Survey Findings (n=72)

Ranking by patients with PNH[1]	% Ranking Regimen 1st Choice
1 SC Autoinjector (QW) *<10 seconds per injection*	64%
2 SC Self-infusion (2x a wk.) *~1 hour per infusion*	15%
3 IV Infusion (Q8W) *0.5 – 3.3 hrs. per infusion*	13%
4 Oral Pill (2x a day)[2]	8%
5 IV Infusion (Q2W) *~35 minutes per infusion*	0%

"Self-administering auto-injector once a week is like the best possible treatment for any sort of disease."
– patient with PNH

gMG Survey Findings (n=76)

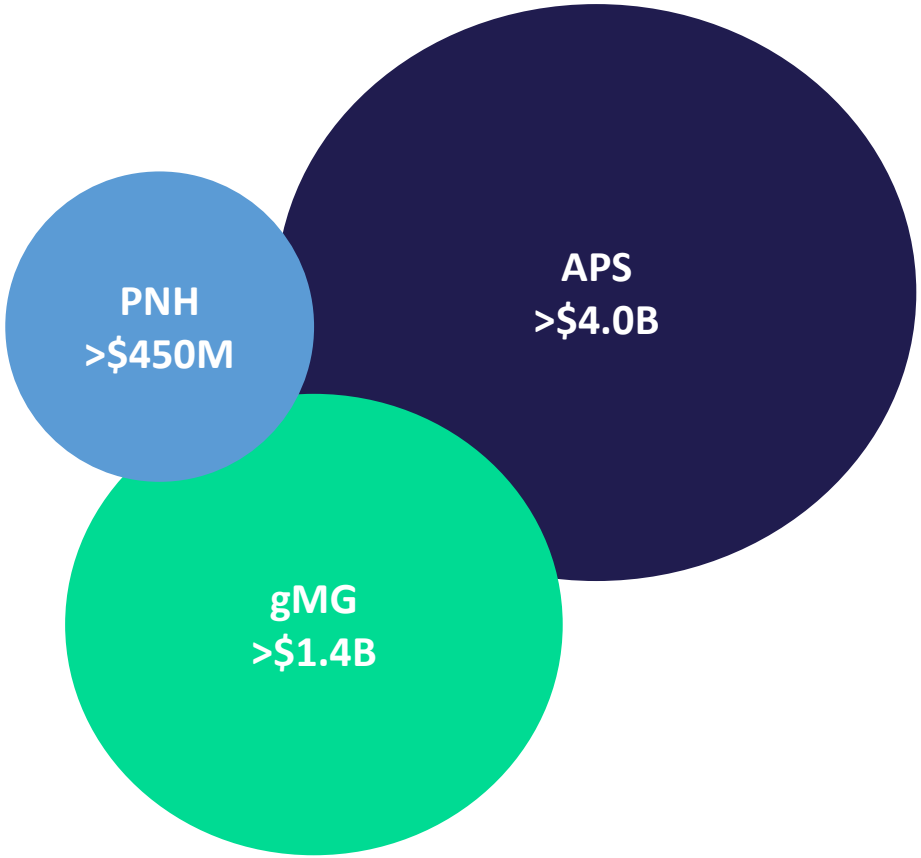
Ranking by patients with gMG[1]	% Ranking Regimen 1st Choice
1 SC Autoinjector (QW) *<10 seconds per injection*	74%
2 IV Infusion (Q8W) *0.5 – 3.3 hrs. per infusion*	20%
3 IV Infusion (Cycles of QW) *~1 hour per infusion*	4%
4 IV Infusion (Q2W) *~35 minutes per infusion*	2%

"IV infusions every 8 weeks sounds scary to me because of how strong the dose would have to be."
– patient with gMG

Source: Quantitative Online Patient Survey; Bluestar Analysis 2023. [1] Assuming equal efficacy and tolerability across all dosing regimens.
[2] Oral pill regimen was displayed as an option in the survey for patients with PNH but not for patients with gMG, in alignment with corresponding late-stage competitive landscapes.

RLYB116 represents a ~$6B market opportunity

- Patient demand for a once-weekly, small volume self-administered, subcutaneously injected C5 inhibitor positions RLYB116 at a potentially best-in-class treatment options for patients with PNH and gMG
- RLYB116 has blockbuster potential in APS, given a lack of effective treatment options for patients who are refractory to anti-coagulants



PNH = Paroxysmal Nocturnal Hemoglobinuria; APS = Antiphospholipid Syndrome; gMG = Generalized Myasthenia Gravis

RLYB116 Summary & Plan Forward

- **Manufacturing process enhancements** have achieved the desired results and **are expected to improve tolerability**
- Biomarker characterization analysis conducted following the MAD study suggests that **RLYB116 achieved greater complement inhibition than initially indicated**
- Based on the totality of *ex-vivo* and clinical results to date, **RLYB116 demonstrates potency comparable to ravulizumab but in a more patient-friendly presentation suitable for a once-weekly, small volume, self-administered subcutaneous autoinjector**
- Market research demonstrates **significant patient demand for a C5 inhibitor that can be self-administered once-weekly in a subcutaneous autoinjector**

NEXT STEPS

Rallybio plans to conduct a confirmatory clinical PK/PD study in healthy volunteers in 2025 **to demonstrate that RLYB116**:

1) Can produce **complete and sustained complement inhibition**
2) Has an **improved tolerability profile**

Q&A