



2024 SABCS – RLY-2608 Data Update

December 2024

Disclaimer



This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including, without limitation, implied and express statements regarding Relay Therapeutics' strategy, business plans and focus; the progress and timing of the clinical development of the programs across Relay Therapeutics' portfolio; the expected therapeutic benefits and potential efficacy and tolerability of RLY-2608, both as a monotherapy and in combination with other agents, and its other programs, including lirafugratinib as well as the clinical data for RLY-2608; the interactions with and approval of regulatory authorities and any related approvals; the potential market opportunity for RLY-2608; and the expected strategic benefits under Relay Therapeutics' clinical trial collaboration with Pfizer; the cash runway projection and the expectations regarding Relay Therapeutics' use of capital and expenses. The words "may," "might," "will," "could," "would," "should," "anticipate," "intend," "believe," "expect," "estimate," "seek," "predict," "future," "project," "potential," "continue," "target" and similar words or expressions, or the negative thereof, are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

Any forward-looking statements in this presentation are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forward-looking statements contained in this presentation, including, without limitation, risks associated with: the impact of global economic uncertainty, geopolitical instability and conflicts, or public health epidemics or outbreaks of an infectious disease on countries or regions in which we have operations or do business, as well as on the timing and anticipated results of our clinical trials, strategy, future operations and profitability; the delay or pause of any current or planned clinical trials or the development of our drug candidates; the risk that the preliminary or interim results of our preclinical or clinical trials may not be predictive of future or final results in connection with future clinical trials of our product candidates and that interim and early clinical data may change as more patient data become available and are subject to audit and verification procedures; our ability to successfully demonstrate the safety and efficacy of our drug candidates; the timing and outcome of our planned interactions with regulatory authorities; and obtaining, maintaining and protecting our intellectual property. These and other risks, uncertainties and important factors are described in the section entitled "Risk Factors" in our most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q, as well as any subsequent filings with the Securities and Exchange Commission. Any forward-looking statements or otherwise. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. No representations or warranties (expressed or implied) are made about the accuracy of any such forward-looking statemen

Certain information contained in this presentation relates to or is based on studies, publications, surveys and other data obtained from third-party sources and our own internal estimates and research. While we believe these third-party studies, publications, surveys and other data to be reliable as of the date of this presentation, we have not independently verified, and make no representation as to the adequacy, fairness, accuracy or completeness of, any information obtained from third-party sources. In addition, no independent source has evaluated the reasonableness or accuracy of our internal estimates or research and no reliance should be made on any information or statements made in this presentation relating to or based on such internal estimates and research.

This presentation contains trademarks, trade names and service marks of other companies, which are the property of their respective owners

Agenda



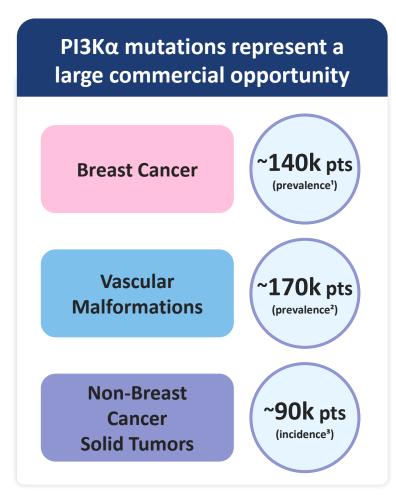
- ReDiscover Trial Update RLY-2608 + Fulvestrant Doublet Data
 - Dr. Sammons overview of evolving treatment landscape
 - Data summary

- 2 RLY-2608 Other Updates
- 3 Next steps

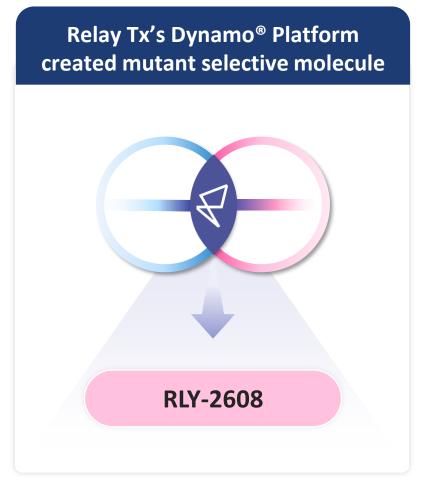
RLY-2608 data presented at 2024 San Antonio Breast Cancer Symposium

PI3Kα Mutations Represent a Large Commercial Opportunity





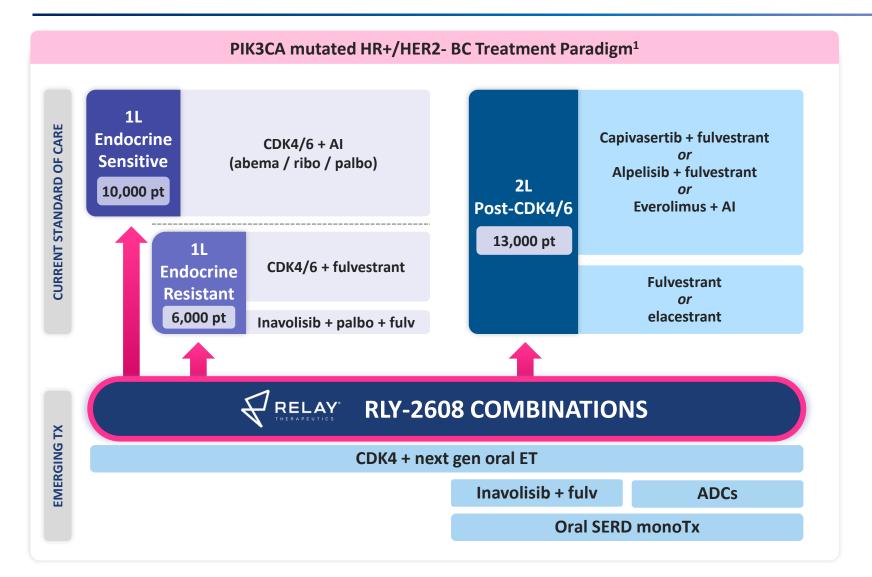




^{1.} Prevalent US patient population with a PIK3CA mutation in each line of therapy, excluding PTEN co-mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. Prevalent US patient population of vascular malformation patients with a PIK3CA mutation (multiple sources); 3. Incident US patient population solid tumors annually with a PIK3CA mutation, excluding PTEN and KRAS co-mutations (SEER; 3rd party source for alteration rate, May 2024)

Breast Cancer – Large Market for Mutant-Selective PI3Kα Targeted Therapies



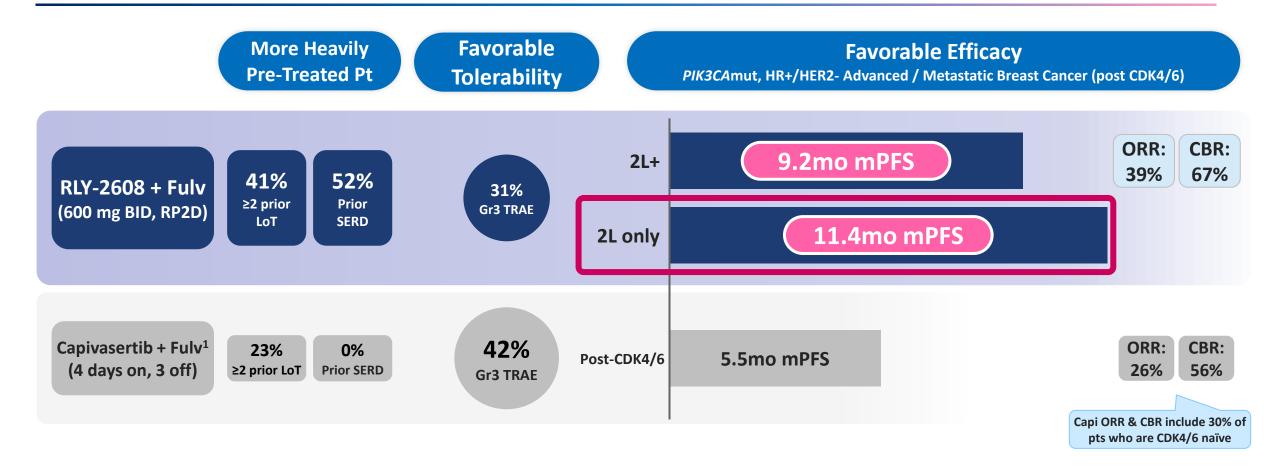




^{1.} Prevalent US patient population with a PIK3CA mutation in each line of therapy, excluding PTEN co-mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. Relay Tx PIK3CA internal market forecast (patient-based – US, EUS, Japan). Forecast includes estimates for genetic testing, class share, market access, compliance, duration of therapy and assumes current PIK3CA therapy net price (primary sources: SEER; GloboCan; Global Data; Evaluate Pharma; DRG Market Forecast; PIK3CAi PIs)

RLY-2608 – Interim Clinical Data Continue to Show Clinically Meaningful PFS



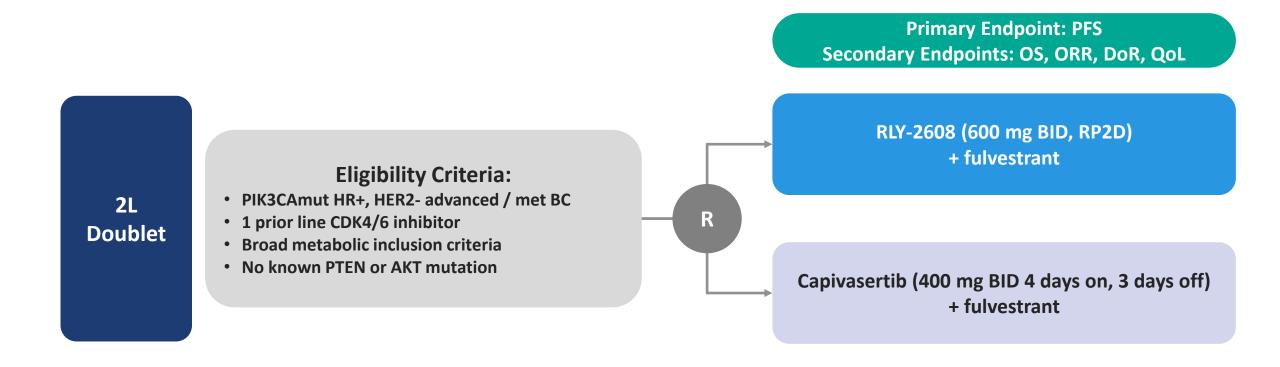


Interim RLY-2608 safety and efficacy data supportive of pivotal trial in 2L Breast Cancer against capivasertib

^{1.} CAPItello-291: Turner N Engl J Med 2023; 388:2058-2070; 2. In CAPItello-291, CBR and ORR not reported for CDK4/6-experienced patient population; ORR = objective response rate, mPFS = median progression free survival, LoT = line of therapy (metastatic setting), SoC = Standard of Care, TRAE = treatment related adverse effects, RP2D = recommended Phase 2 dose, CBR = clinical benefit rate, SERD = selective estrogen receptor degrader; Note: data shown are not from head-to-head studies, and no head-to-head studies have been conducted.

RLY-2608 – Initial Pivotal Trial Planned for 2L Doublet in 2025*

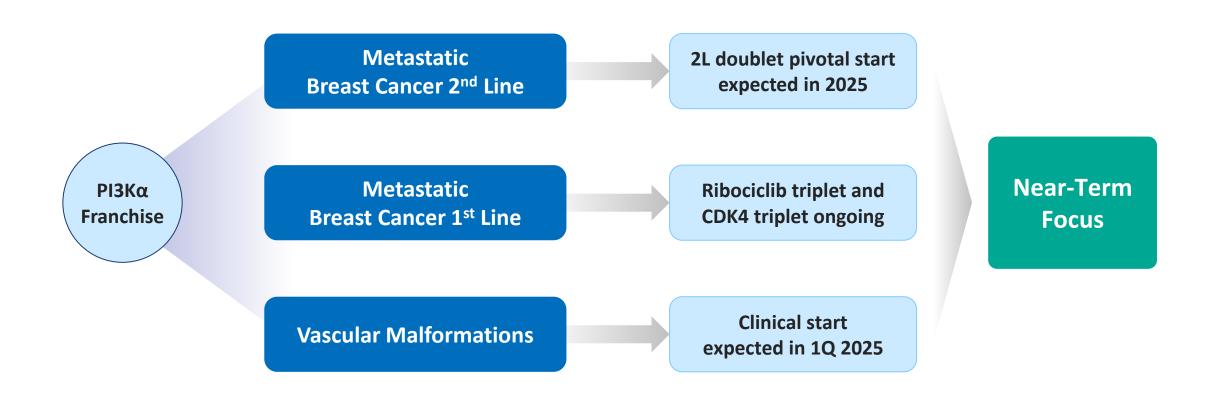




2L doublet pivotal start expected in 2025

RLY-2608 – Multiple Mutant-Selective PI3Kα Opportunities

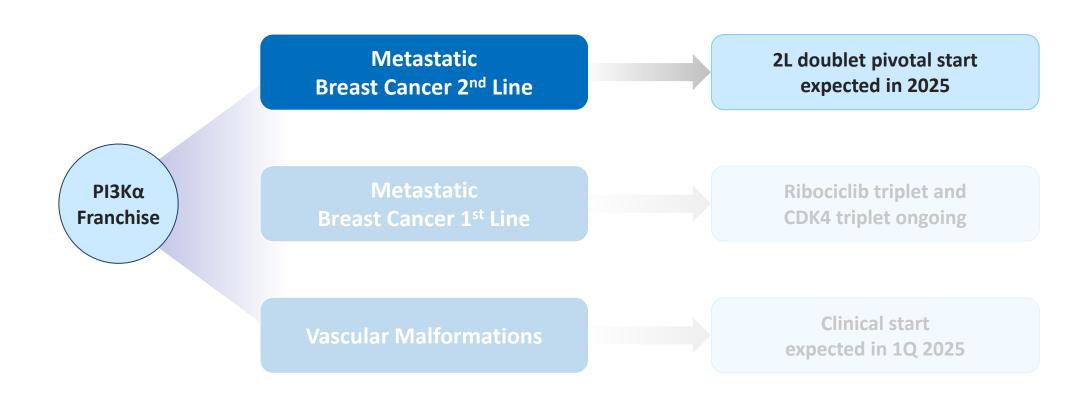




Team and Capital to Execute

RLY-2608 – Multiple Mutant-Selective PI3Kα Opportunities



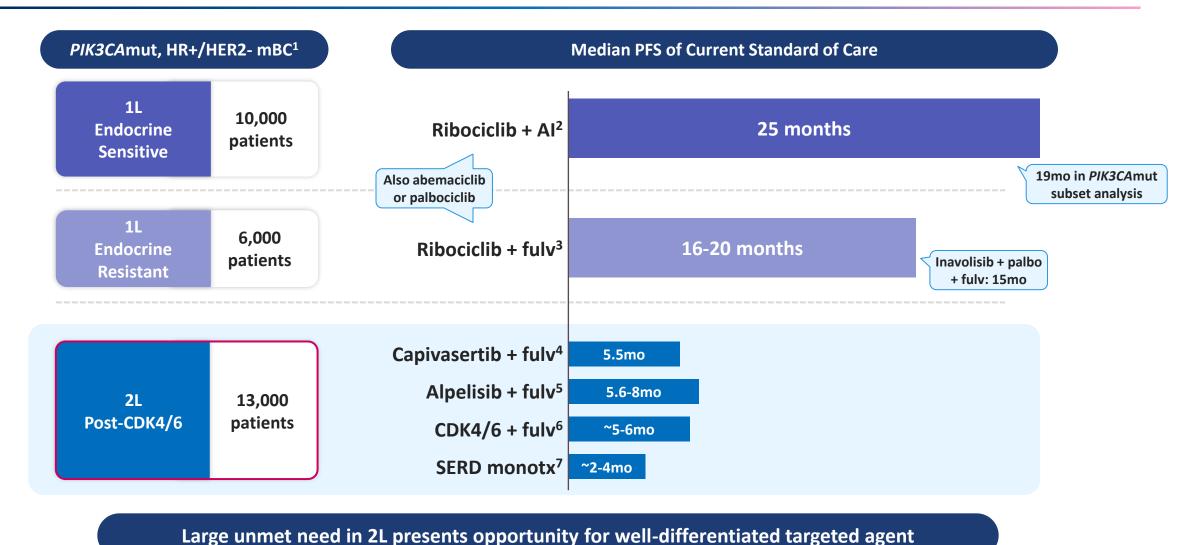


Team and Capital to Execute

Large Unmet Need in Metastatic Breast Cancer



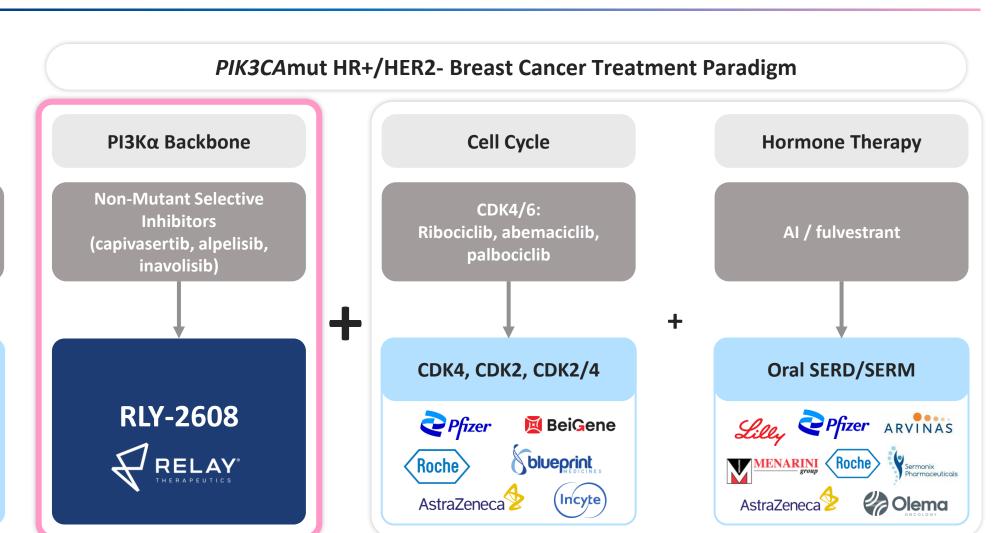
10



Notes: 1. Prevalent US patient population with a PIK3CA mutation in each line of therapy, excluding PTEN co-mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mut sub-group, MONALEESA-3; 4. Turner N Engl J Med 2023; 388:2058-2070 (n=355); 5. Rugo 2021 Lancet Oncol 22:489, SABCS 2021 #P1-18-03; 6. MAINTAIN: Kalinsky 2024 ASCO; 7. Elacestrant Prescribing Information

RLY-2608 – Mutant-Selective PI3Kα Additive to Many Potential Combinations





Current Standard of Care

Emerging Options for Future Standard of Care

RLY-2608 – ReDiscover Trial Overview

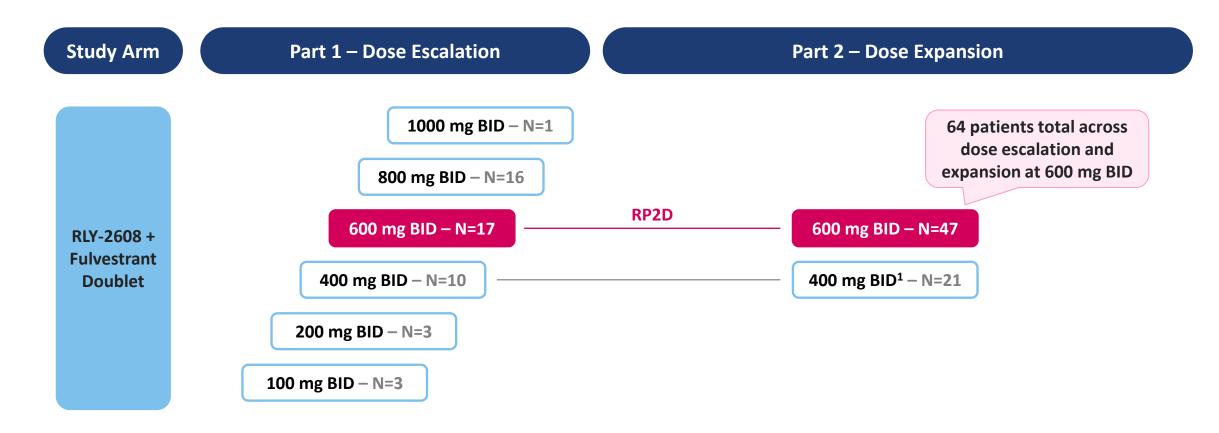


Study Arm Part 1 – Dose Escalation Part 2 – Dose Expansion **PIK3CAmut Advanced Solid Tumors PIK3CAmut Advanced Solid Tumors** MTD/RP2D Mono **RLY-2608** (CCOC, HNSCC, cervical, other¹, double PIK3CA mutants²) (mixed histologies) Focus of Following Data PIK3CAmut, HR+/HER2-RLY-2608 + PIK3CAmut, HR+/HER2- Advanced / Metastatic Breast Cancer **Doublet** MTD/RP2D **Advanced / Metastatic Breast Cancer Fulvestrant** (post-CDK4/6) PIK3CAmut, HR+/HER2-**Advanced / Metastatic Breast Cancer** RLY-2608 + Fulvestrant + PIK3CAmut, HR+/HER2- Advanced / Metastatic Breast Cancer **Triplet** Ribociclib (CDK4/6) MTD/RP2D CDK4/6 & (post-CDK4/6) CDK4i *Pfizer* Atirmociclib (CDK4) MTD/RP2D

^{1.} Excludes PIK3CAmut clear cell OvCA, HNSCC, Cervical cancer, and colorectal patients; 2. Double mutation defined as one major PIK3CA mutation (E542X, E545X, H1047X) + ≥1 additional PIK3CA mutation per local assessment; CCOC = clear cell ovarian cancer © 2024 Relay Therapeutics

RLY-2608 – ReDiscover Trial Enrollment





Safety Database – 118 patients across all doses Efficacy Database at 600mg BID – 52 patients (excludes 12 PTEN / AKT co-mutation patients²)

RLY-2608 – ReDiscover Trial Baseline Demographics



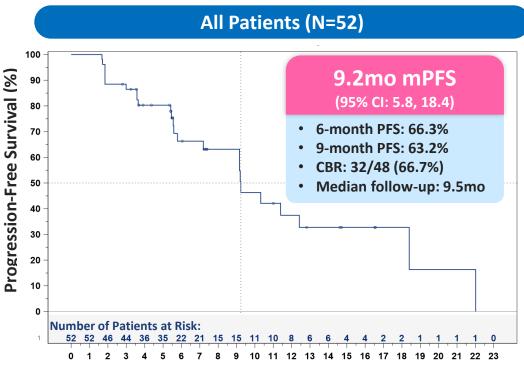
	All Patients (N=118)		
		600 mg BID (RP2D, N=64)	
Age, Median (Range), Years	59.0 (34, 85)	59.0 (34, 80)	
ECOG, 0 / 1, n (%)	69 (58.5) / 49 (41.5)	38 (59.4) / 26 (40.6)	
Local PIK3CA Baseline Results			
Kinase Mutation, n (%)	57 (48.3)	31 (48.4)	
Non-Kinase Mutations, n (%)	61 (51.7)	33 (51.6)	
BMI <u>></u> 30 or HbA1c <u>></u> 5.7%, n (%)	44 (37.3)	22 (34.4)	
Measurable Disease, n (%)	83 (70.3)	42 (65.6)	
Patients with Visceral Metastases, n (%) ¹	75 (63.6)	38 (59.4)	
Prior Lines of Therapy in Advanced Setting			
1, n (%)	62 (52.5)	38 (59.4)	
2+, n (%)	56 (47.5) 26 (40.6		
Prior Therapies in Advanced Setting			
CDK4/6, n (%) ²	118 (100.0) 64 (100.0)		
Fulvestrant or Novel SERD, n (%)	66 (55.9) 33 (51.6)		
Chemo / ADC, n (%)	30 (25.4) 16 (25.0)		
ESR1 Mutation (Central Read) ³ , n (%)	40 (35.4)	18 (28.6)	

^{1.} Visceral metastatic sites include brain, lung, liver, pleural, peritoneal involvement; 2. Three patients received prior CDK4/6 in the adjuvant setting which is allowed per protocol; 3. Percentage was based on pts with evaluable ctDNA data at baseline; ECOG = Eastern Cooperative Oncology Group performance status

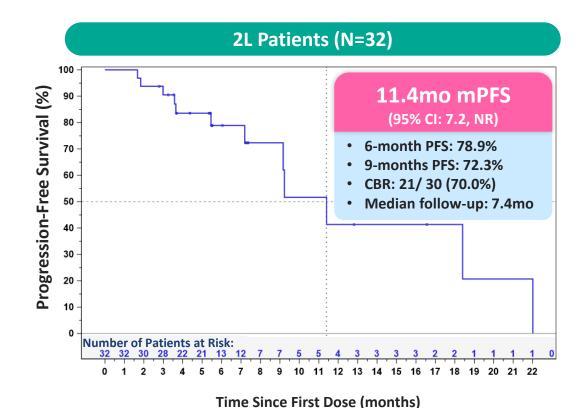
RLY-2608 - Efficacy: Median PFS 9.2 Months in All Patients & 11.4 Months in 2L



RLY-2608 600 mg BID (RP2D) + Fulvestrant **Excluding PTEN / AKT Co-Mutations**

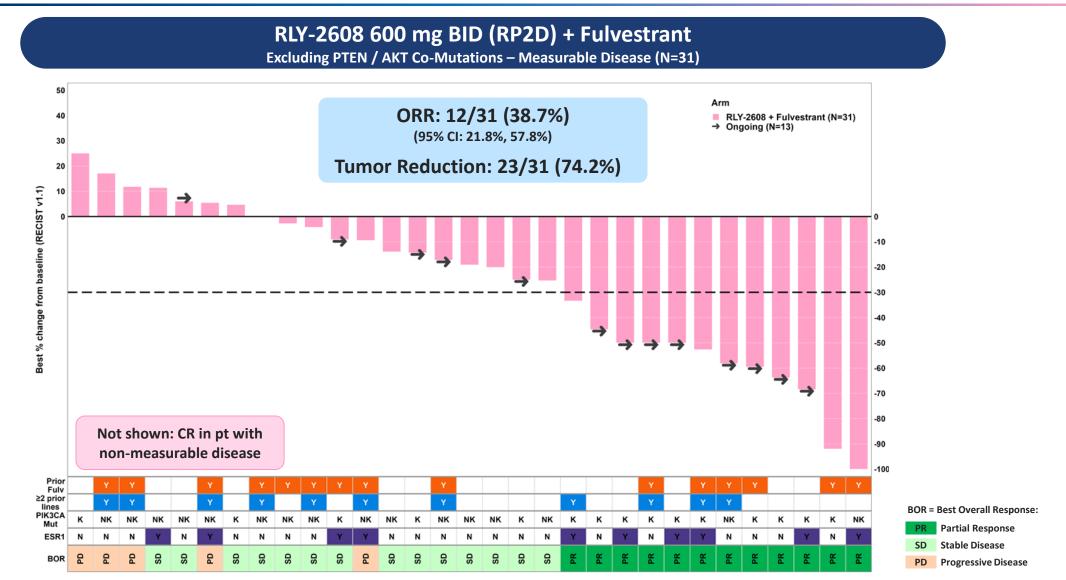






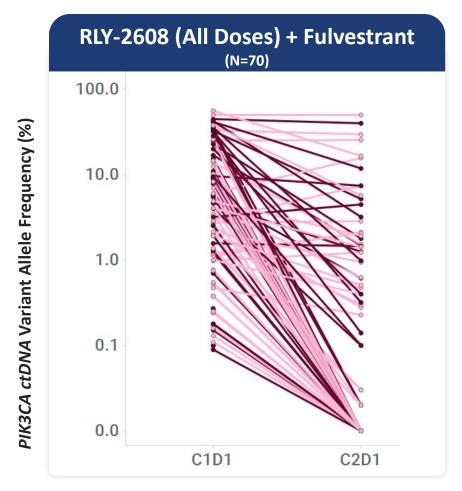
RLY-2608 – Efficacy: Confirmed ORR 39%

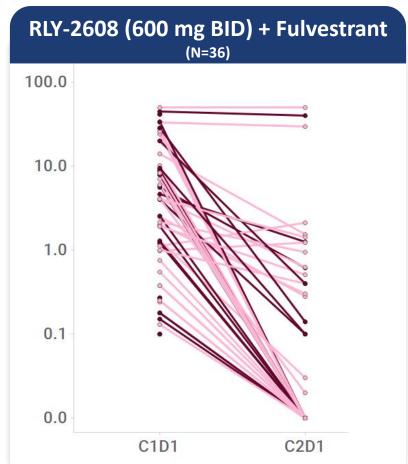




RLY-2608 – Efficacy: ctDNA Clearance







At 600 mg BID¹ (RP2D):

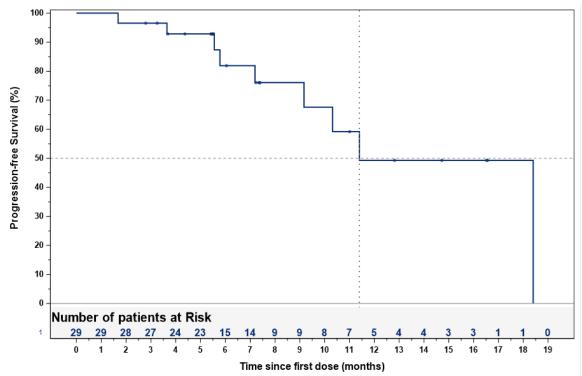
- 35 (97.2%) patients had decline in PIK3CA ctDNA
- 19 (52.8%) patients completely cleared PIK3CA ctDNA by C2D1
 - Kinase
 - Non-Kinase

RLY-2608 – Efficacy: Kinase Mutations mPFS 11.4 Months & Confirmed ORR 67%



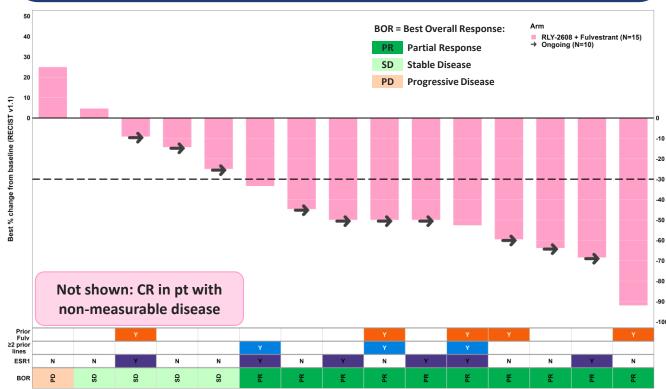
RLY-2608 600 mg BID (RP2D) + Fulvestrant

Excluding PTEN / AKT co-mutations (N=29)



RLY-2608 600 mg BID (RP2D) + Fulvestrant

Excluding PTEN / AKT – Measurable Disease (N=15)



11.4 mo mPFS

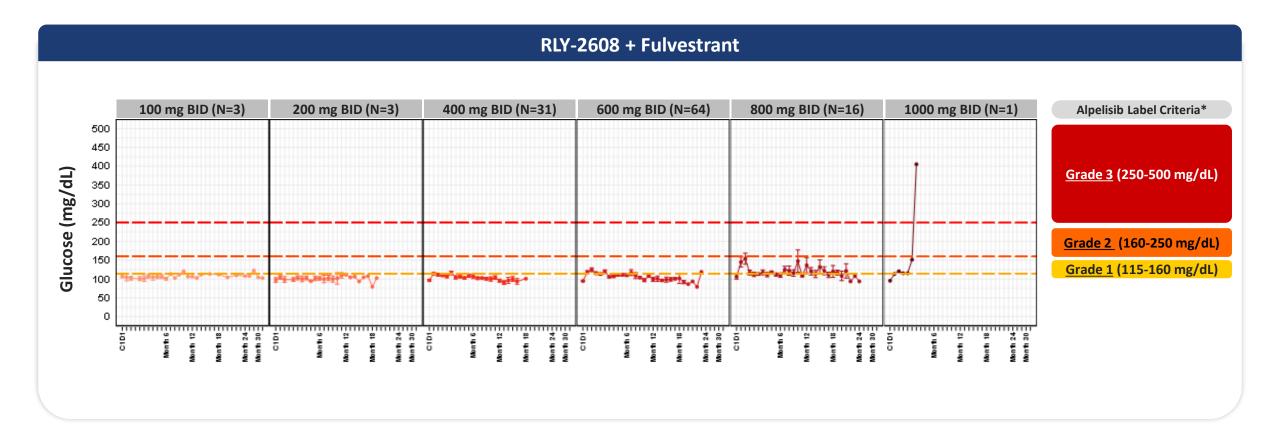
(95% CI: 9.2, NR)

66.7% ORR

(10/15 pt, 95% CI: 38.4%, 88.2%)

RLY-2608 – Tolerability: Limited Observed Impact on Glucose Homeostasis





RLY-2608 – Tolerability: TRAEs



		All Patients (N=118)		600mg BID (RP2D, N=64)	
		All Gr	Gr3	All Gr	Gr3
Any TRAE		92.4%	25.4%	93.8%	31.3%
TRAEs ≥15% of 600 mg BID	Hyperglycemia ¹	42.4%	2.5%	46.9%	3.1%
	Nausea	41.5%	0.8%	50.0%	1.6%
	Fatigue ¹	40.7%	8.5%	35.9%	9.4%
	Creatinine Increased	34.7%	0.8%	34.4%	1.6%
	Diarrhea	30.5%	1.7%	35.9%	3.1%
	Decreased Appetite	16.9%	0%	20.3%	0%
	Headache	15.3%	0.8%	20.3%	0%
	Hypokalaemia¹	15.3%	1.7%	17.2%	1.6%
	Vomiting	12.7%	0%	15.6%	0%
Other select TRAEs	Rash ¹	11.9%	0.8%	10.9%	1.6%
	Stomatitis	3.4%	0.8%	4.7%	0%

27% Gr1 hyperglycemia (no intervention required)

No Gr4-5 TRAEs

^{1:} Hyperglycemia includes the MedDRA v26.0 Preferred Terms (PT): Hyperglycemia, Blood Glucose Increased, Glucose Tolerance Impaired; Fatigue includes the PTs: Fatigue, Asthenia; Hypokalemia includes the PTs: Hypokalemia and blood potassium decreased; Rash includes the PTs: Rash, Rash Macular, Rash Maculo-Papular

RLY-2608 – Tolerability: Dose Intensity and Modifications



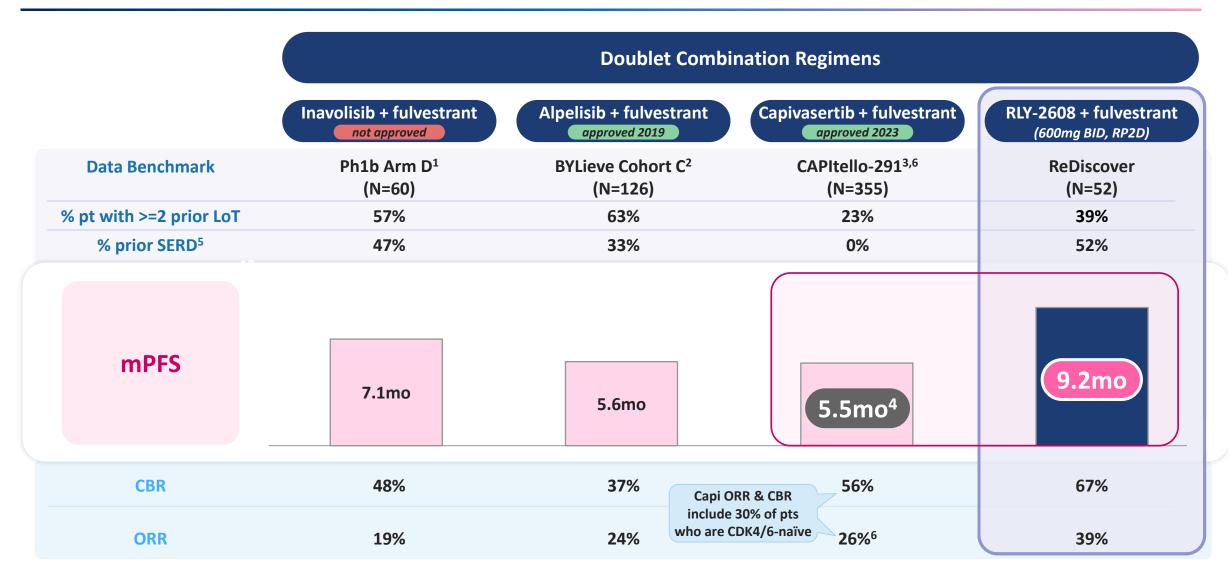
		All Patients (N=118)	600mg BID (RP2D, N=64)
Dose Intensity	Relative Dose Intensity (%), Median	97%	94%
Dose Modifications Due to TRAE	Dose Reduction, n (%)	38 (32.2)	25 (39.1)
	Dose Interruption, n (%)	56 (47.5)	33 (51.6)
	Dose Discontinuation, n (%)	7 (5.9)	2 (3.1)
TRAEs Leading to Dose Reduction	Fatigue ¹	12 (10.2)	6 (9.4)
	Blood Creatinine Increased	8 (6.8)	3 (4.7)
	Diarrhea	6 (5.1)	3 (4.7)

Grade 1 pruritis; Grade 1 nausea and loss of appetite

Maintained 94% dose intensity with very low TRAE discontinuations at 600mg BID

PI3Kα Inhibitors – Efficacy Profiles





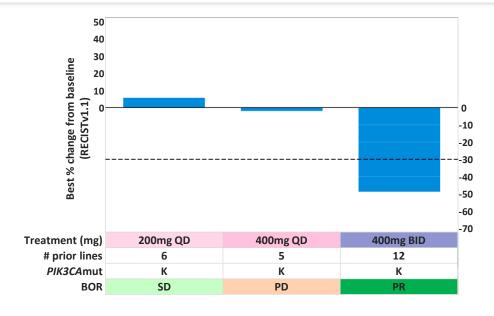
^{1.} SABCS 2021 #P5-17-05 (n=60); 2. SABCS 2021 #PD-13-05; 3. Turner N Engl J Med 2023; 388:2058-2070 (n=355); 4. 5.5mo mPFS reported in CDK4/6-experienced patient sub-population of CAPItello-291; 5. Prior SERD includes fulvestrant and next-generation SERDs; 6. FDA Prescribing Information. Note: These data are derived from different clinical trials at differences in molecule composition, trial design and patient populations. As a result, cross-trial comparisons cannot be made, and no head-to-head clinical trials have been conducted.

RLY-2608 – Monotherapy Activity in Breast Cancer



RLY-2608 Active as Monotherapy

All HR+/HER2- Breast Cancer Patients Across All Doses (N=3)*

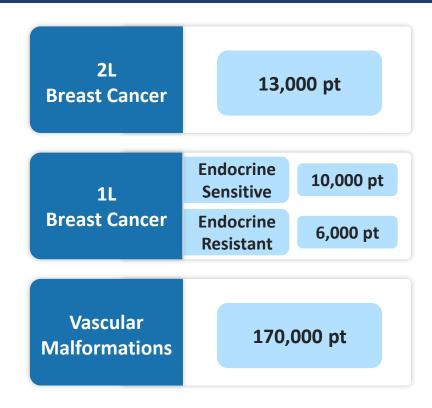


ORR: 1/3 (33%)

DCR: 2/3 (67%)

No endometrial patients dosed*

Relay Tx Focus on Significant Commercial Opportunities



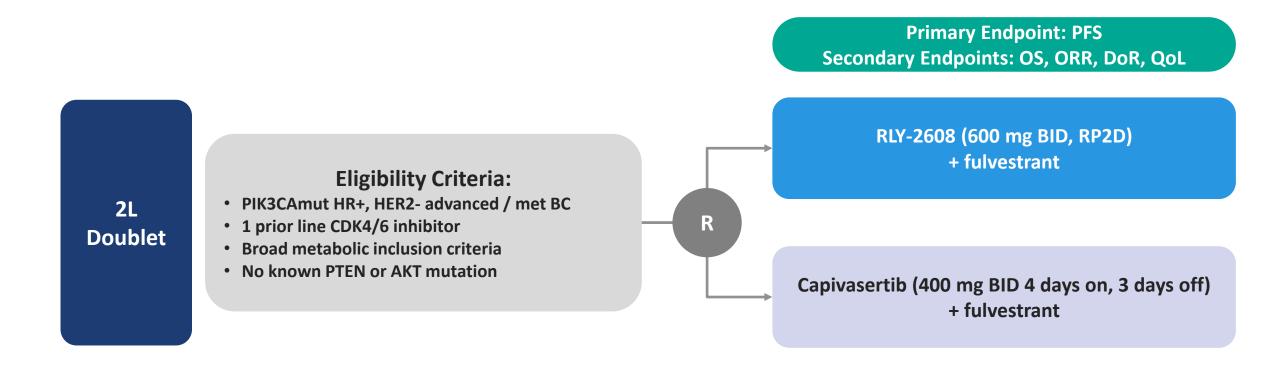
BC combinations & VMs are near-term development focus; other solid tumor development currently deprioritized

^{*} Within efficacy evaluable population, which excludes PTEN co-mutated patients

RLY-2608 – Initial Pivotal Trial Planned for 2L Doublet in 2025*



24

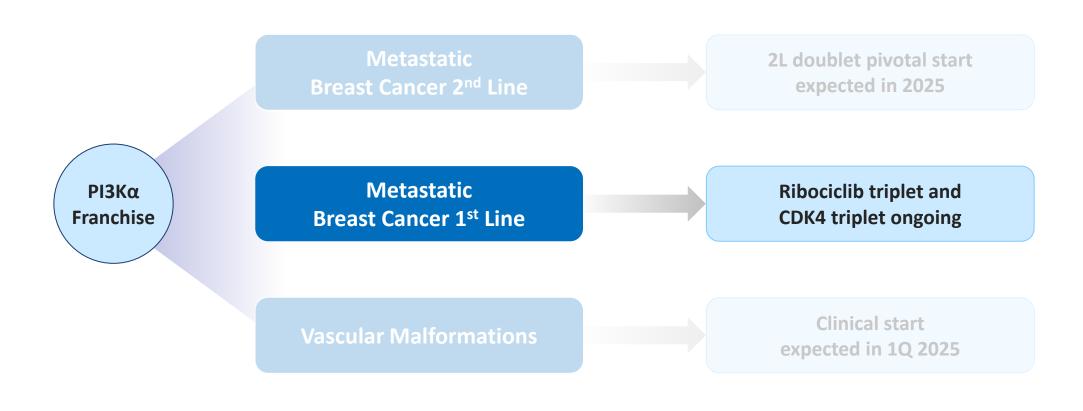


2L doublet pivotal start expected in 2025

*Subject to discussions with regulators; eligibility criteria, endpoints, RP2D, and other aspects of trial design have not yet been finalized; OS = overall survival, DoR = duration of response, QoL = quality of life, met BC = metastatic Breast Cancer; 2L = 2nd line

RLY-2608 – Multiple Mutant-Selective PI3Kα Opportunities

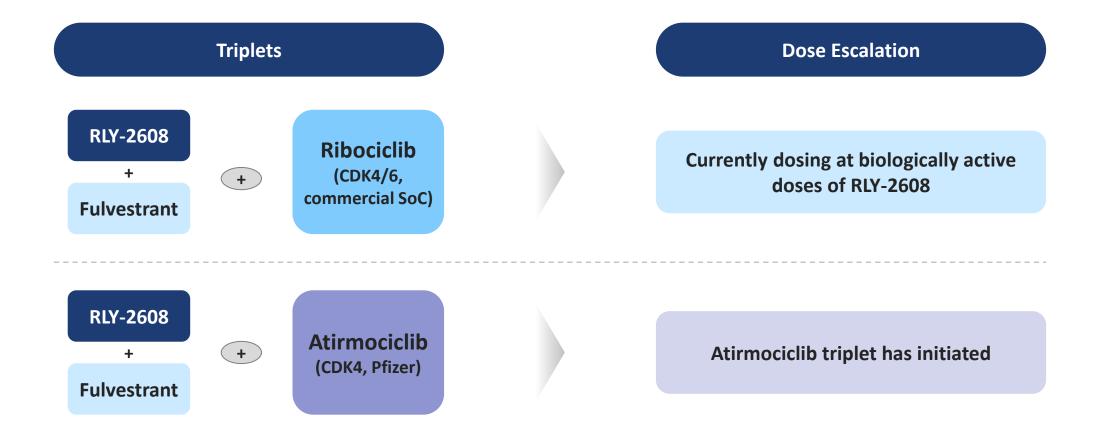




Team and Capital to Execute

RLY-2608 – On Track to Realize 1L Potential with Triplet Combinations

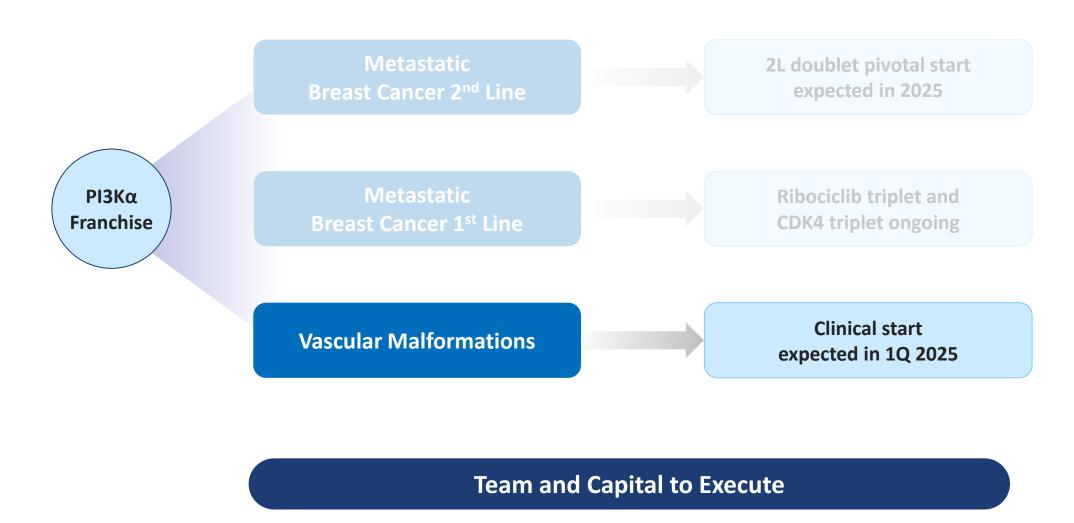




Phase 1 Aim for Triplets: Demonstrate safety, tolerability and preliminary efficacy with both current generation CDK4/6 and next-gen CDK4 to enable pivotal development potential in both

RLY-2608 – Multiple Mutant-Selective PI3Kα Opportunities

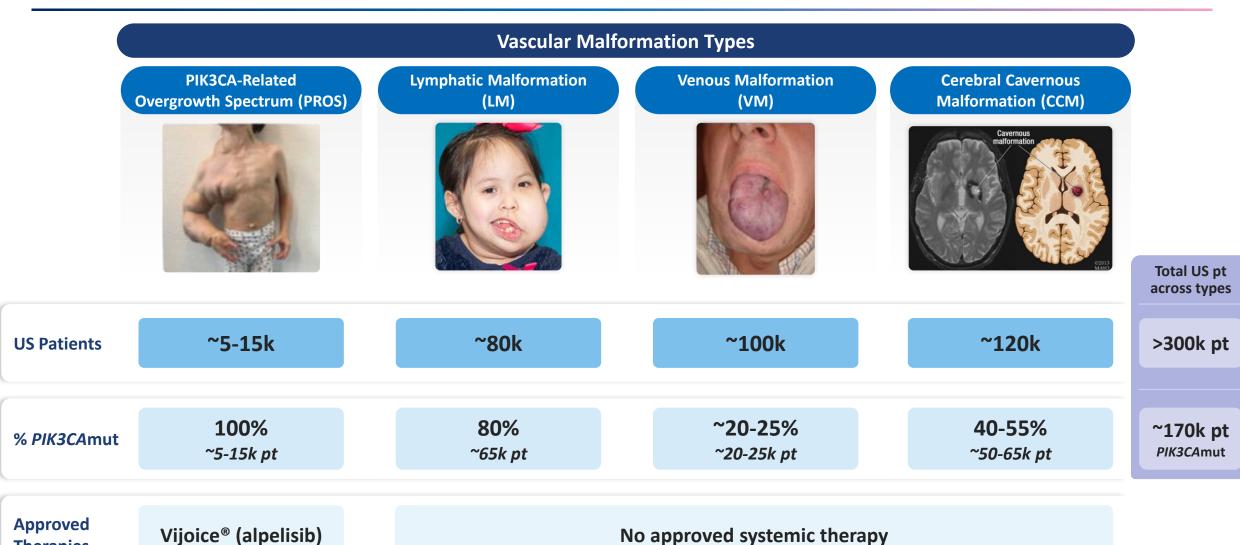




Vascular Malformations – Over 170,000 US Patients

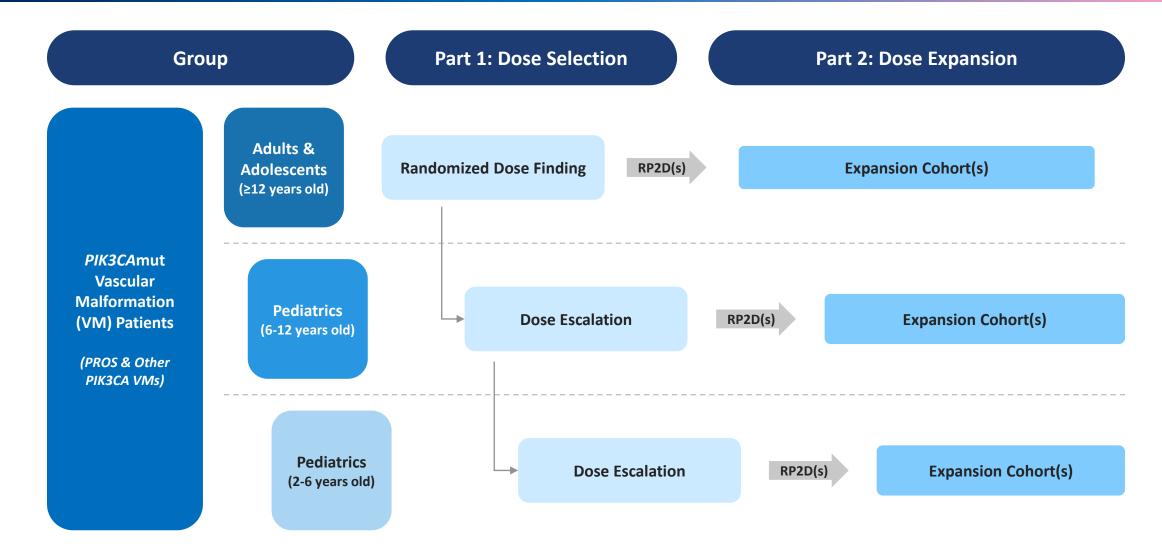
Therapies





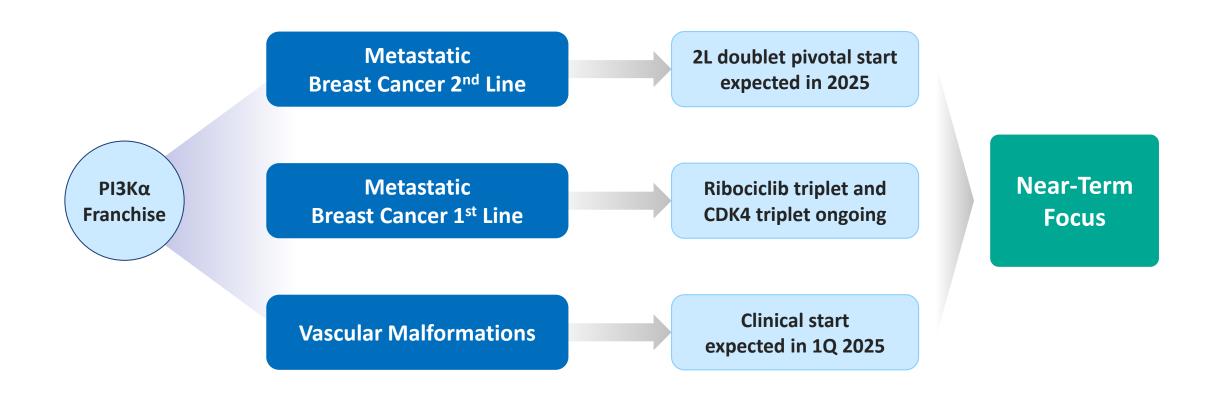
Vascular Malformations – Proposed Study Design





RLY-2608 – Multiple Mutant-Selective PI3Kα Opportunities

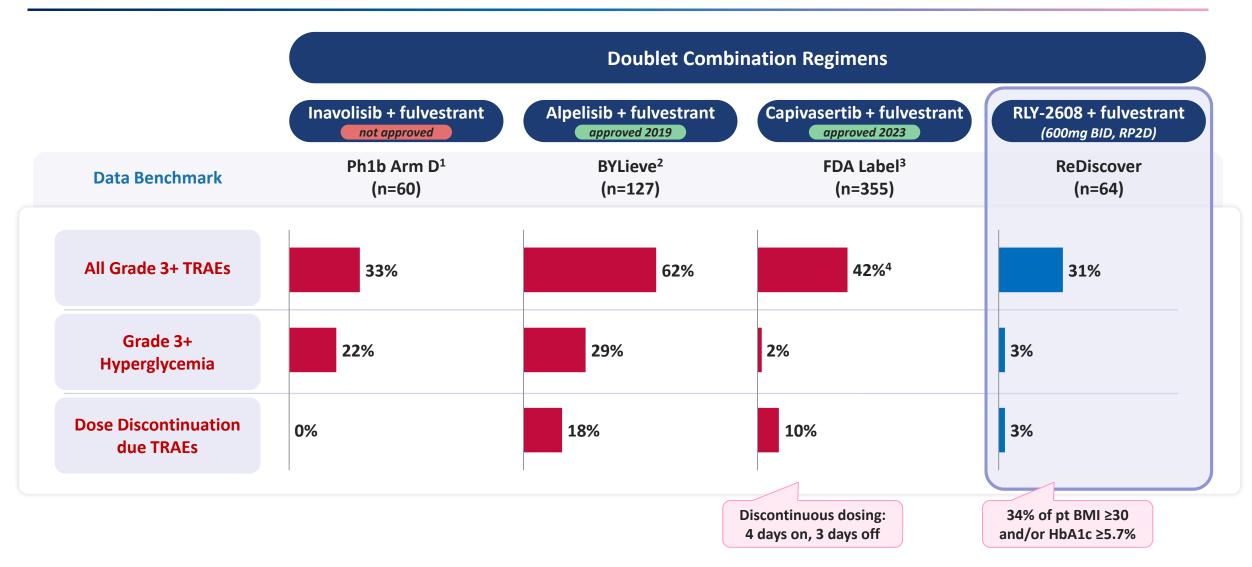




Team and Capital to Execute

PI3Kα Inhibitors – Tolerability Profiles





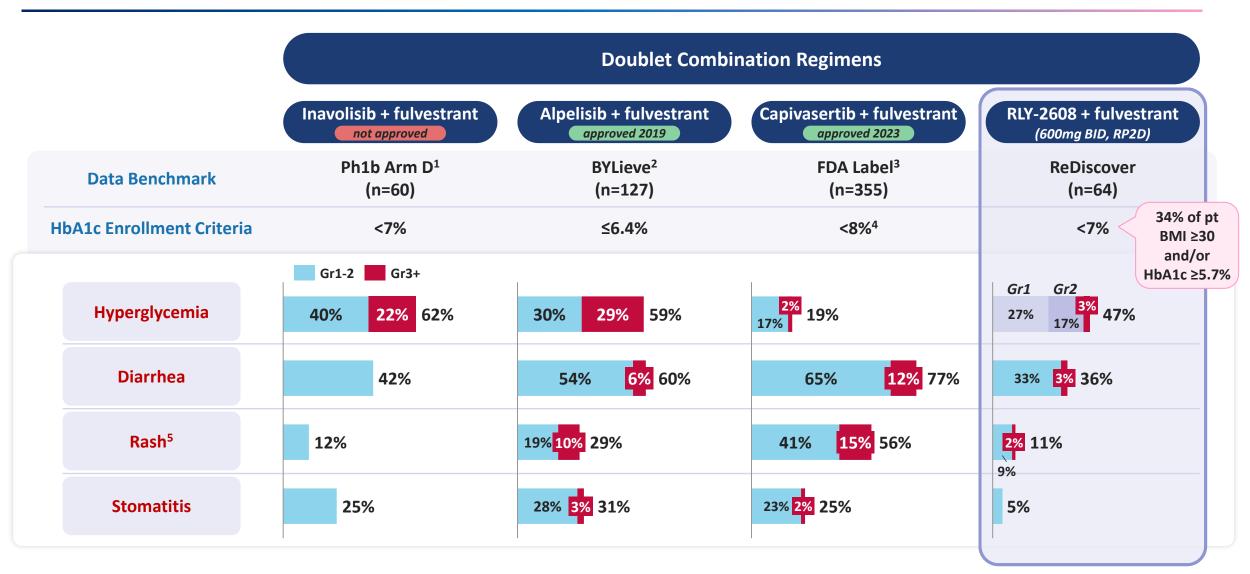
^{1.} SABCS 2021 #P5-17-05; 2. Rugo 2021 Lancet Oncol 22:489; 3. FDA Prescribing Information; 4. CAPItello-291: Turner N Engl J Med 2023; 388:2058-2070.

Note: These data are derived from different clinical trials at different points in time, with differences in molecule composition, trial design and patient populations. As a result, cross-trial comparisons cannot be made, and no head-to-head clinical trials have been conducted.

ReDiscover preliminary data as of 11/04/2024 31

PI3Kα Inhibitors – Tolerability Profiles

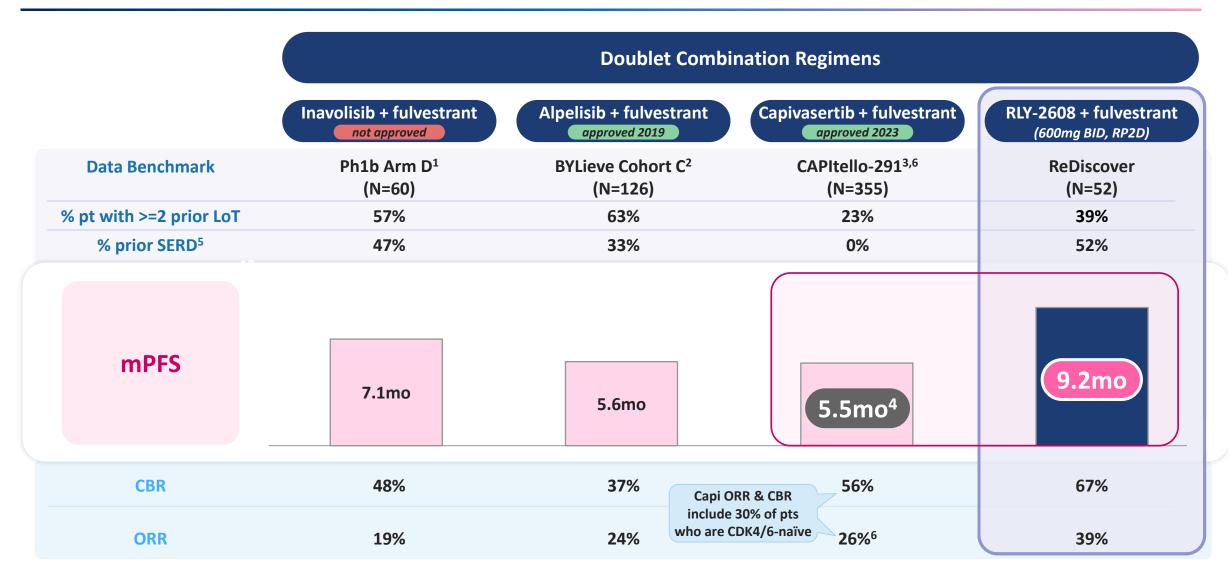




^{1.} SABCS 2021 #P5-17-05; 2. Rugo 2021 Lancet Oncol 22:489; 3. FDA Prescribing Information; 4. per CAPItello-291 enrollment criteria; 5. Rash for capivasertib references Cutaneous Adverse Reactions grouped term includes a number of preferred terms listed in FDA Prescribing Information. Note: These data are derived from different clinical trials at different points in time, with differences in molecule composition, trial design and patient populations. As a result, cross-trial comparisons cannot be made, and no head-to-head clinical trials have been conducted.

PI3Kα Inhibitors – Efficacy Profiles

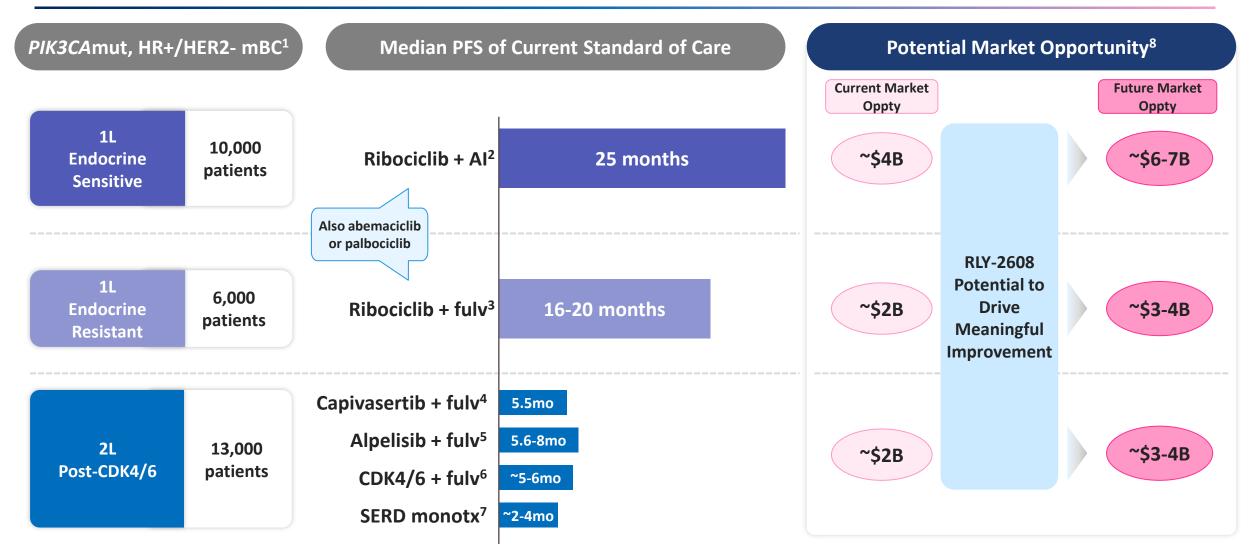




^{1.} SABCS 2021 #P5-17-05 (n=60); 2. SABCS 2021 #PD-13-05; 3. Turner N Engl J Med 2023; 388:2058-2070 (n=355); 4. 5.5mo mPFS reported in CDK4/6-experienced patient sub-population of CAPItello-291; 5. Prior SERD includes fulvestrant and next-generation SERDs; 6. FDA Prescribing Information. Note: These data are derived from different clinical trials at differences in molecule composition, trial design and patient populations. As a result, cross-trial comparisons cannot be made, and no head-to-head clinical trials have been conducted.

Large Unmet Need in Metastatic Breast Cancer

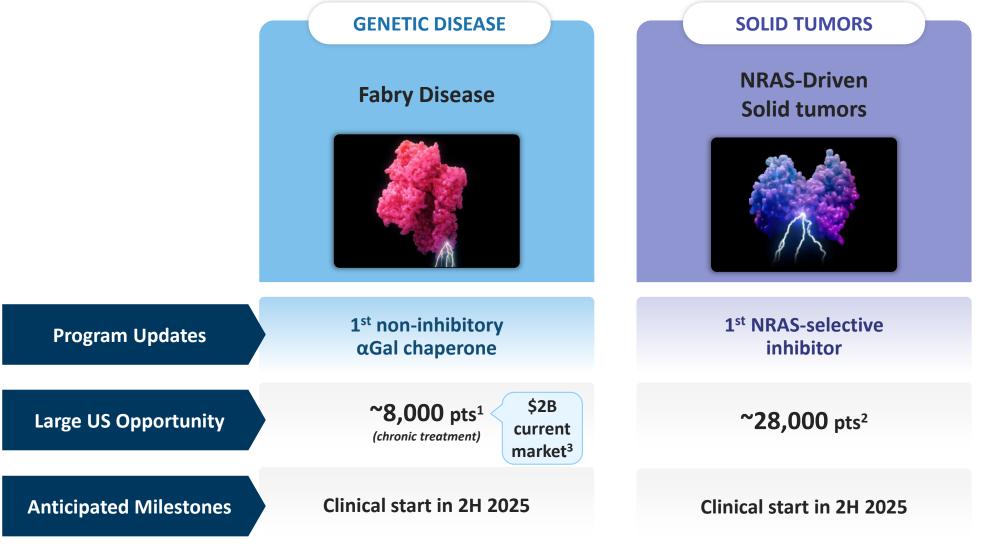




Notes: 1. Prevalent US patient population with a PIK3CA mutation in each line of therapy, excluding PTEN co-mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutations (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. All-comers and PIK3CA mutation rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate (Global Data HR+/HER2- Breast Cancer G MONALEESA-2; 3. All-comers and PIK3CAmut sub-group, MONALEESA-3; 4. Turner N Engl J Med 2023; 388:2058-2070 (n=355); 5. Rugo 2021 Lancet Oncol 22:489, SABCS 2021 #P1-18-03; 6. MAINTAIN: Kalinsky 2023 J Clin Oncol 41:4004, postMONARCH: Kalinsky 2024 ASCO; 7. Elacestrant Prescribing Information; 8. Informed by qualitative and quantitative primary market research performed in Q2 2024 34

Relay Tx – Additional Near-Term Clinical Programs





^{1.} Prevalence of Fabry patients, 2025 (National Fabry Disease Foundation, Nov 2024); 2. Newly diagnosed (incident) solid tumors with an NRAS mutation, excluding melanoma stages 0-II (SEER, 3rd party source for alteration rate, Jan 2024);

^{3.} Fabry disease forecasted 2024 market size per EvaluatePharma, includes Galafold® and ERTs (May 2024)

Relay Tx – Broad Precision Medicine Pipeline



	Target	Program		Preclinical	Early Clinical	Late Clinical
BREAST CANCER	ΡΙ3Κα	RLY-2608 (PI3Κα ^{PAN})	Endocrine Tx (ET) doublet			
			Ribociclib + ET triplet			
			CDK4i + ET triplet			
			Other Novel Combinations			
	CDK2	RLY-2139		Paused; IND ready		
	ΕRα	RLY-1013 (D	egrader)	Advance to IND-ready		
GENETIC DISEASE	Fabry Disease	αGal Chaperone				
	Vascular	RLY-2608 (PI3Kα ^{PAN})				
	Malformations Other PI3Ko	PAN				
SOLID TUMORS	NRAS	NRAS-selective Inhibitor				
	ΡΙ3Κα	RLY-2608				
	FGFR2	Lirafugratinib (RLY-4008)		Global Outlicense to Elevar	Therapeutics	



Relay Tx – Capital, Team & Execution Focus to Deliver on Milestones



Anticipated 2025 Corporate Objectives

Breast Cancer RLY-2608

- 2L pivotal trial start 2025
- Full Ph1-2 data 2025

Vascular Malformations *RLY-2608*

Clinical start – 1Q 2025

Fabry Disease
Pre-clinical

Clinical start – 2H 2025

NRAS
Pre-clinical

Clinical start – 2H 2025

Significant Capital to Achieve Goals

~\$840M

Cash as of the end of 3Q 2024

Expected to fund current operating plan into 2H 2027



DYNAMO® PLATFORM

5 unnamed research programs



RLY-2608 – Efficacy: CBR 67%



