

# RELAY® THERAPEUTICS

# **New Program & Platform Event**

June 2024

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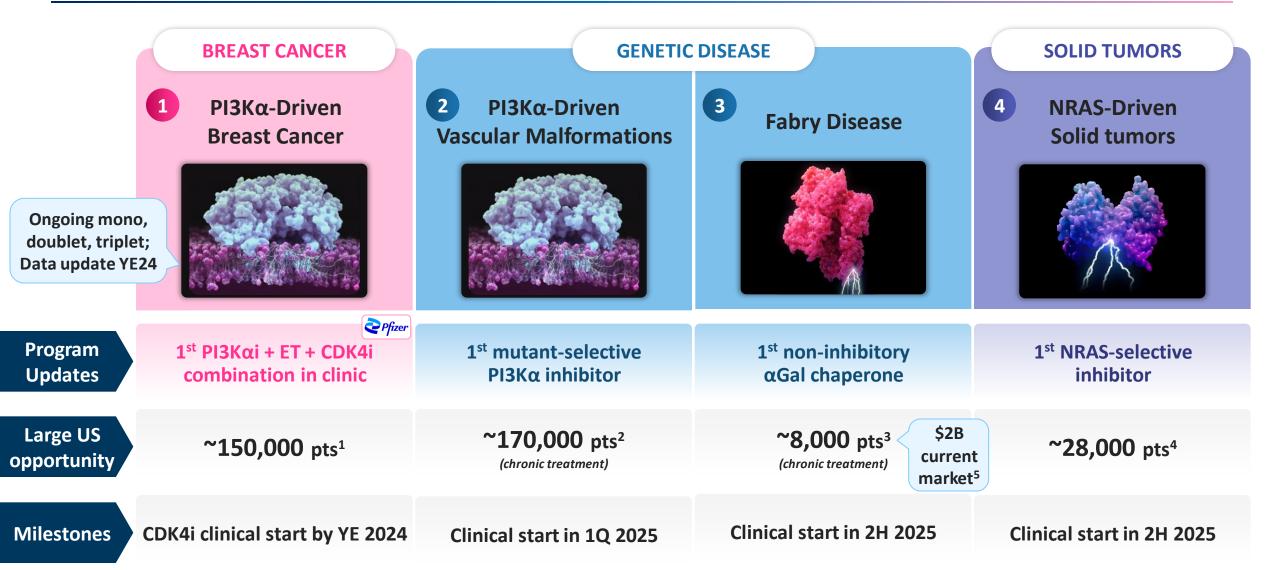
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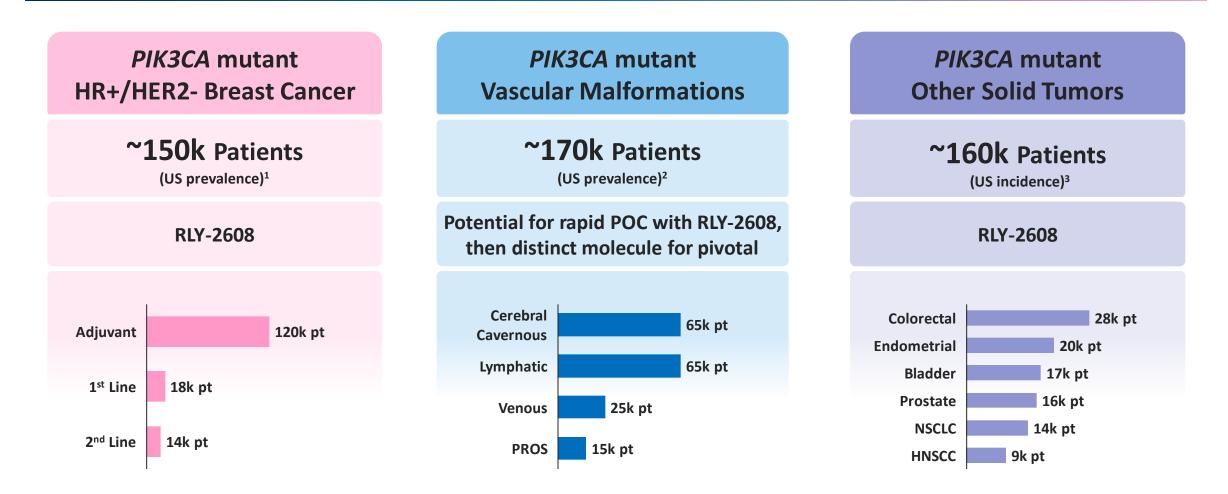
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1. Prevalent US patient population with a PIK3CA mutation in adjuvant, first line metastatic and second line metastatic settings (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. Prevalence of vascular malformations with a PIK3CA mutation (Gallagher et al 2022 and several other sources); 3. Prevalence of Fabry patients (National Fabry Disease Foundation, Jan 2024); 4. Newly diagnosed (incident) solid tumors with an NRAS mutation, excluding melanoma stages 0-II (SEER, 3rd party source for alteration rate, Jan 2024); 5. Fabry disease forecasted 2024 market size per EvaluatePharma, includes Galafold® and ERTs (May 2024)

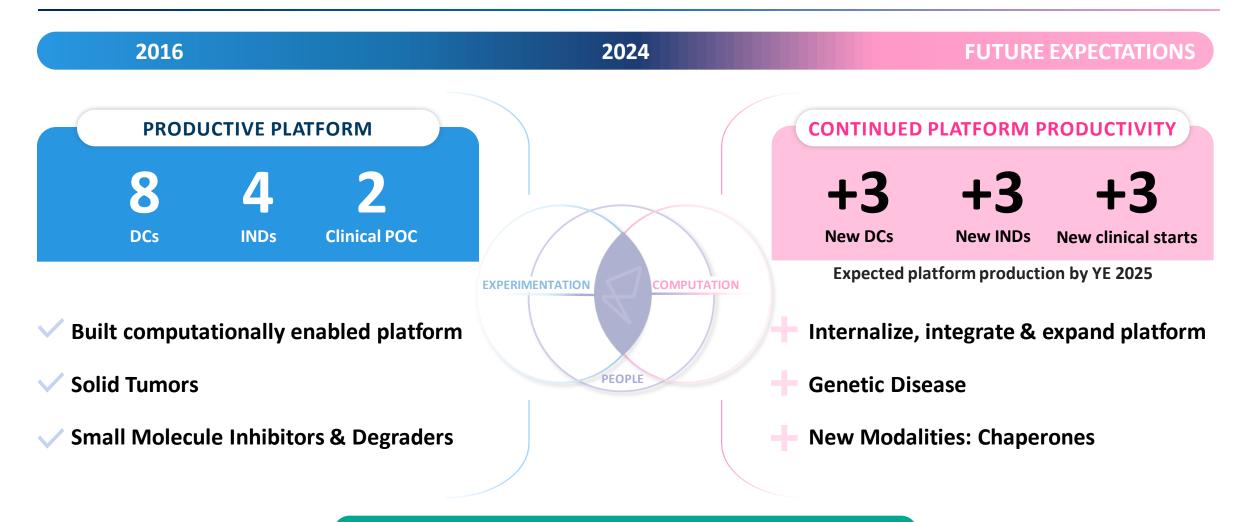




#### **Relay Tx's PI3Kα Franchise has the potential to address wide range of large disease indications**

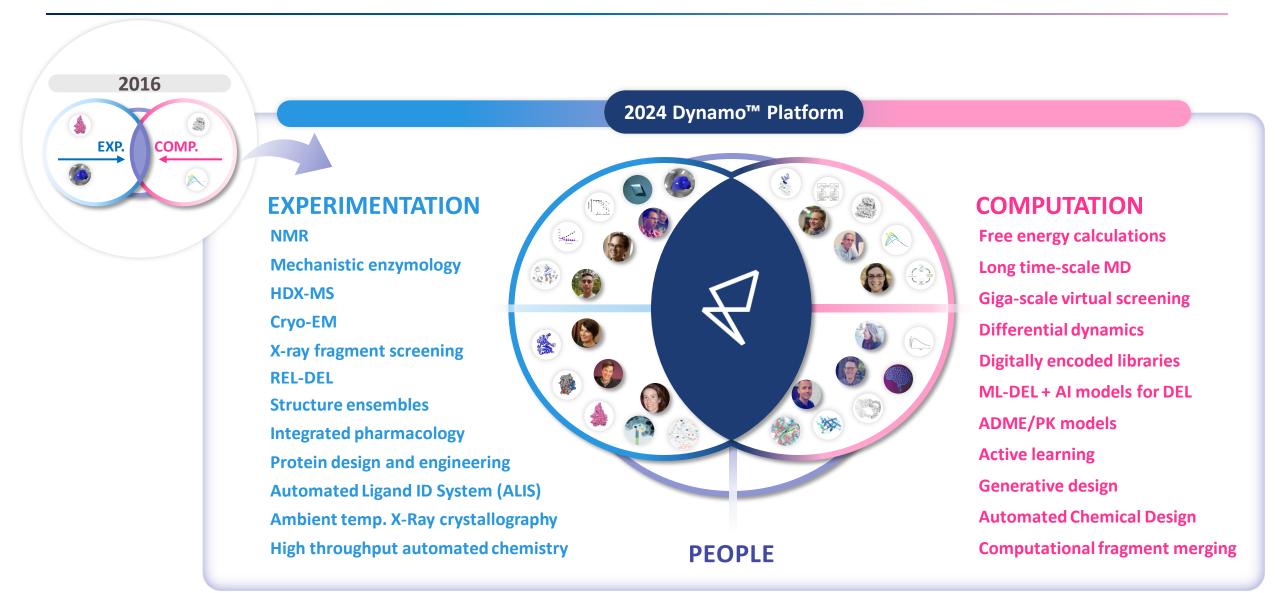
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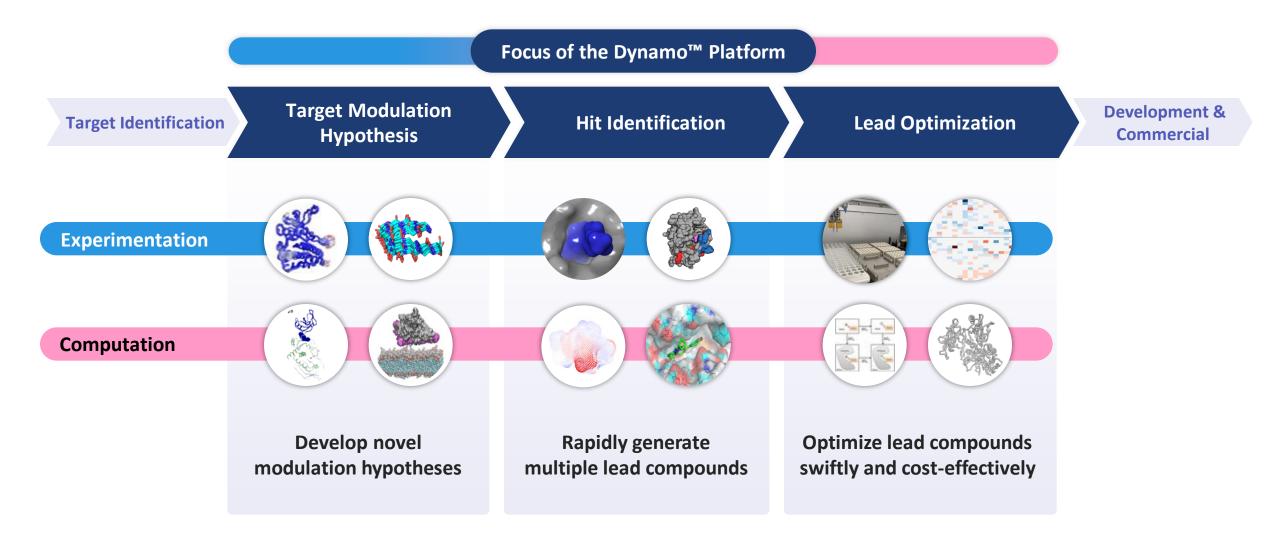
~\$750M Cash as of end Q1 2024 Expected to fund current operating plan into 2H 2026



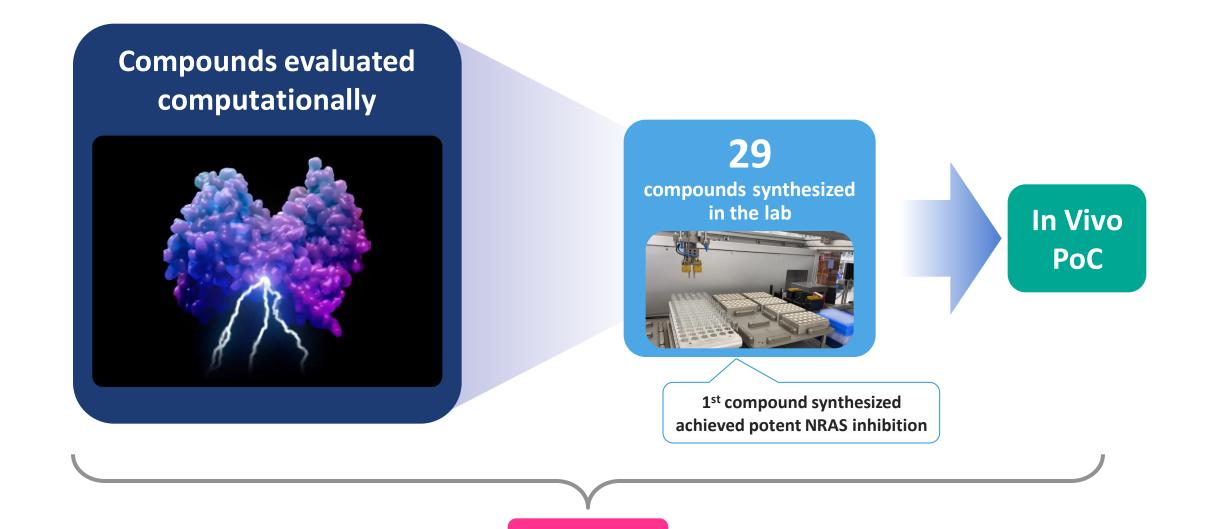


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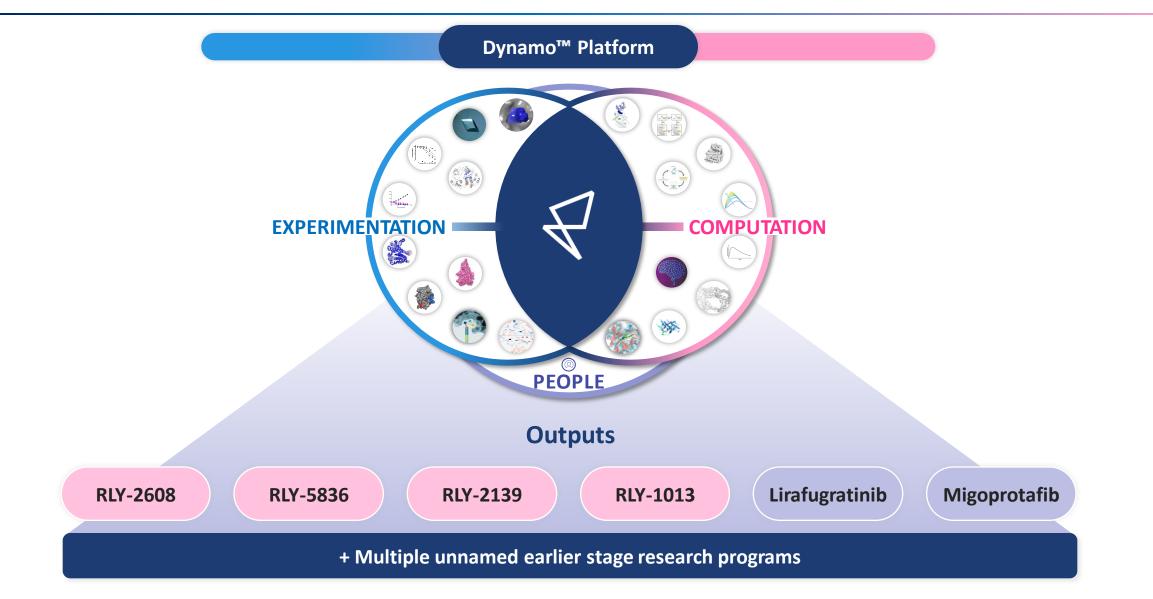




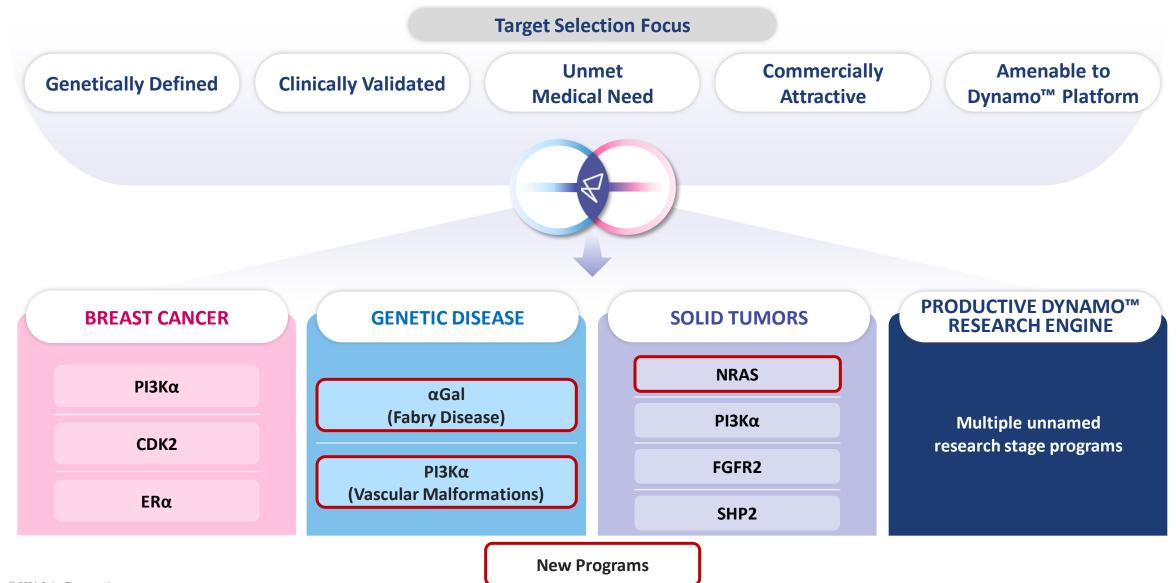
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# **Relay Tx's Dynamo<sup>™</sup> – Focused on Output**







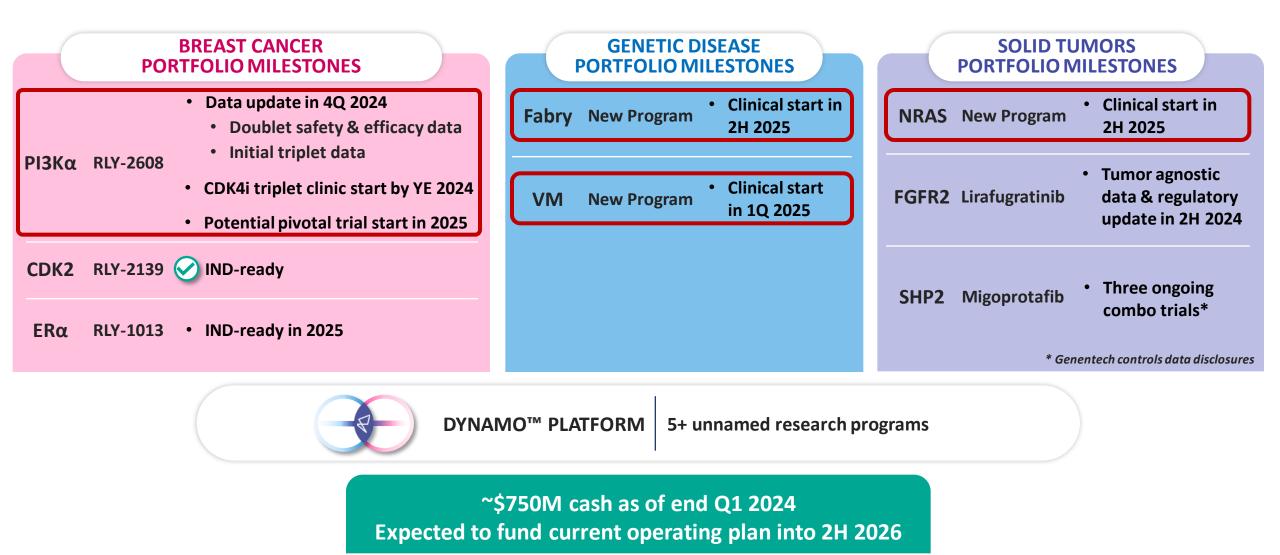




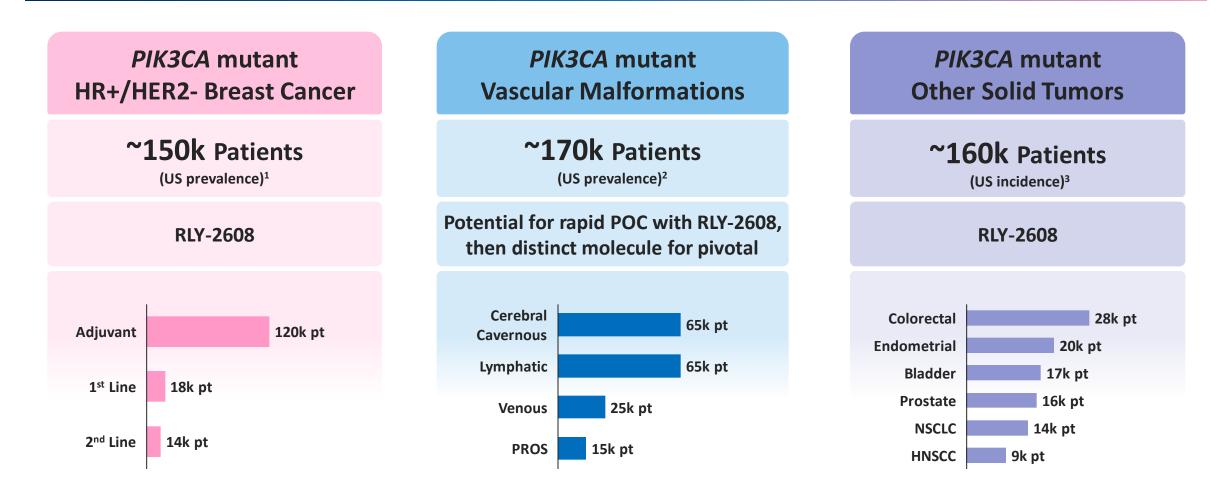
	Target		Program	Preclinical	Early Clinical	Late Clinical
BREAST CANCER	ΡΙ3Κα		Endocrine Tx (ET) doublet			
		RLY-2608 (ΡΙ3Κα <sup>ΡΑΝ</sup> )	Ribociclib + ET triplet			
			CDK4i + ET triplet		CDK4i triplet to initiate in 2024	
			Other Novel Combinations			
	CDK2	RLY-2139		Paused; IND ready		
	ΕRα	RLY-1013 (Degrader)		Advance to IND-ready		
GENETIC DISEASE	Fabry Disease	αGal Chaperone				
	Vascular Malformations	RLY-2608 (PI3Kα <sup>PAN</sup> )		New		
		Other ΡΙ3Κα <sup>PAN</sup>			Programs	
SOLID TUMORS	NRAS	NRAS-selective Inhibitor				
	ΡΙ3Κα	RLY-2608 Monotherapy				
	FGFR2	Lirafugratinib (RLY-4008)				
	SHP2 Genentech A Member of the Roche Group	Migoprotafib (GDC-1971)		3 ongoing combo studies (GNE)		

5+ additional unnamed research programs







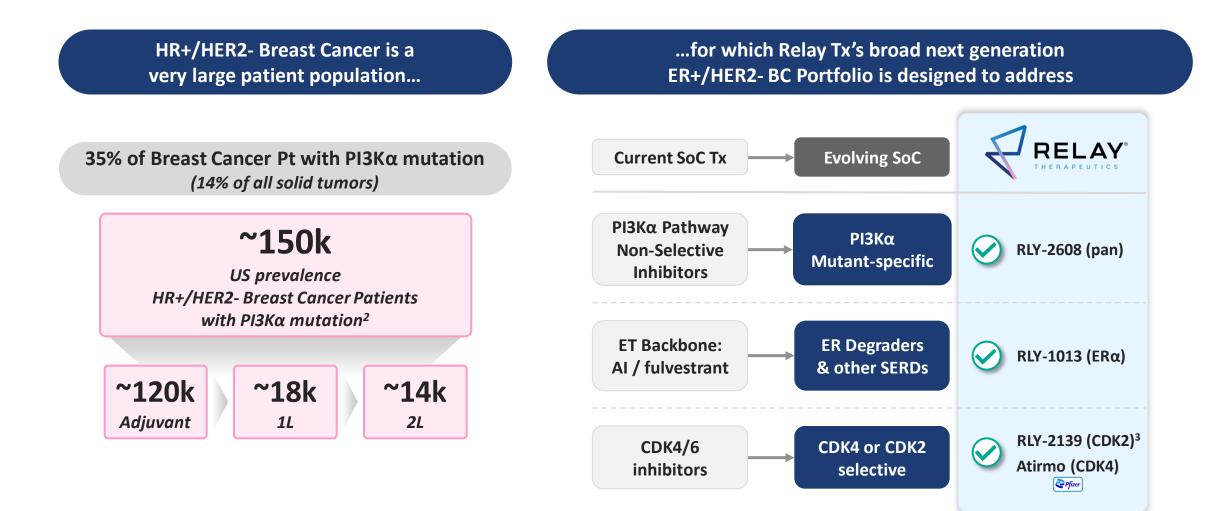


#### **Relay Tx's PI3Kα Franchise has the potential to address wide range of large disease indications**

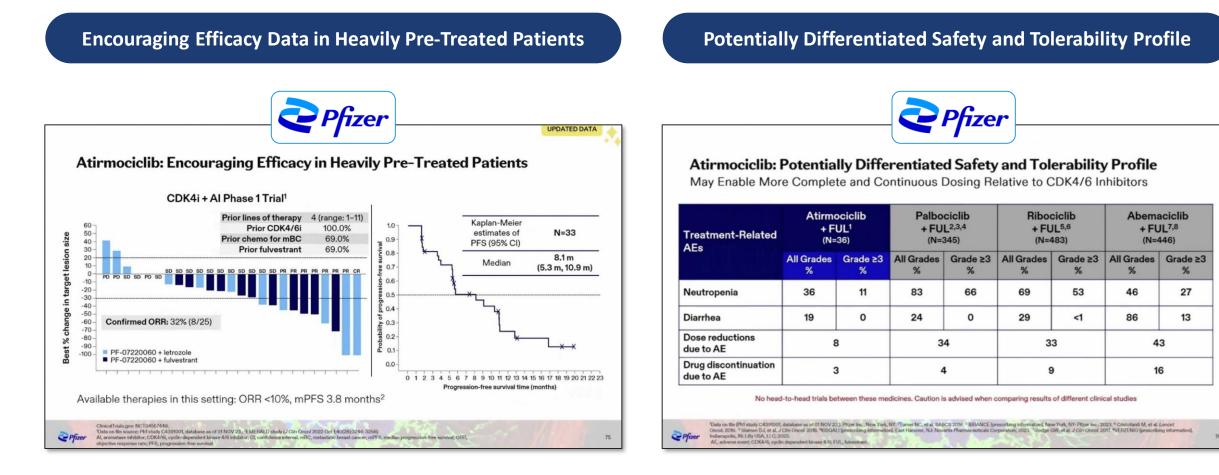
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Relay Tx – Extensive Breast Cancer Portfolio in Validated Market Expected to Grow to ~\$27B by 2030<sup>1</sup>





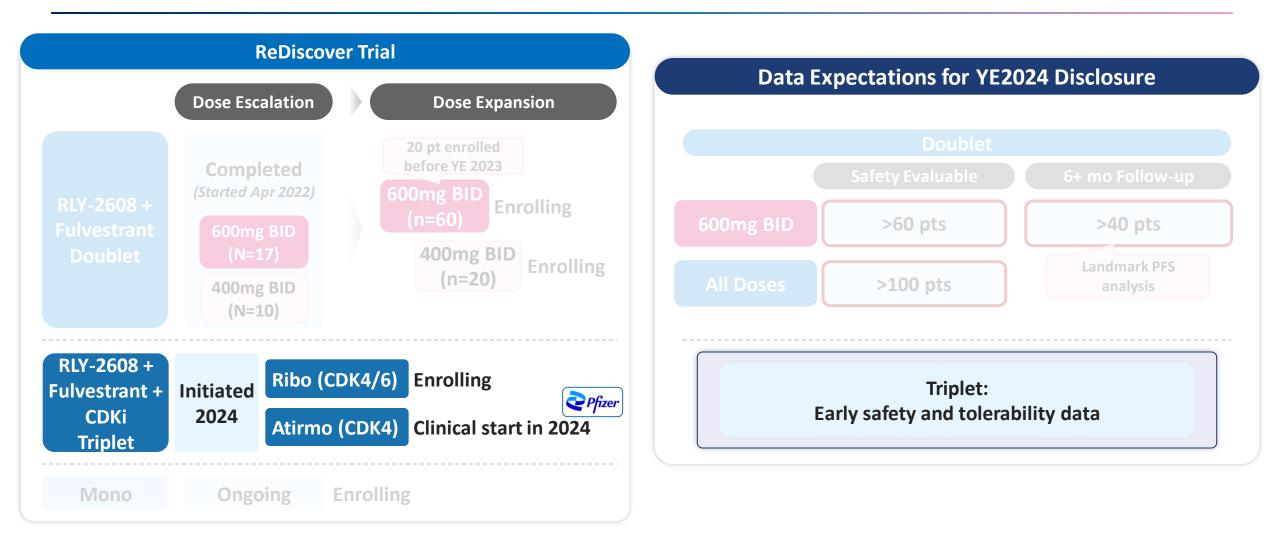




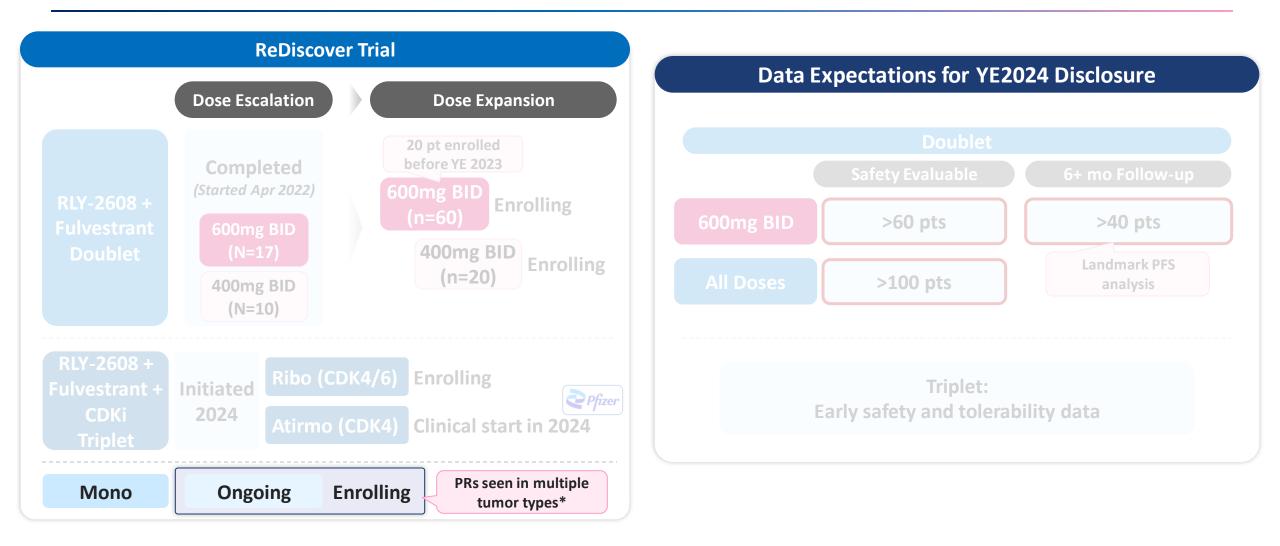




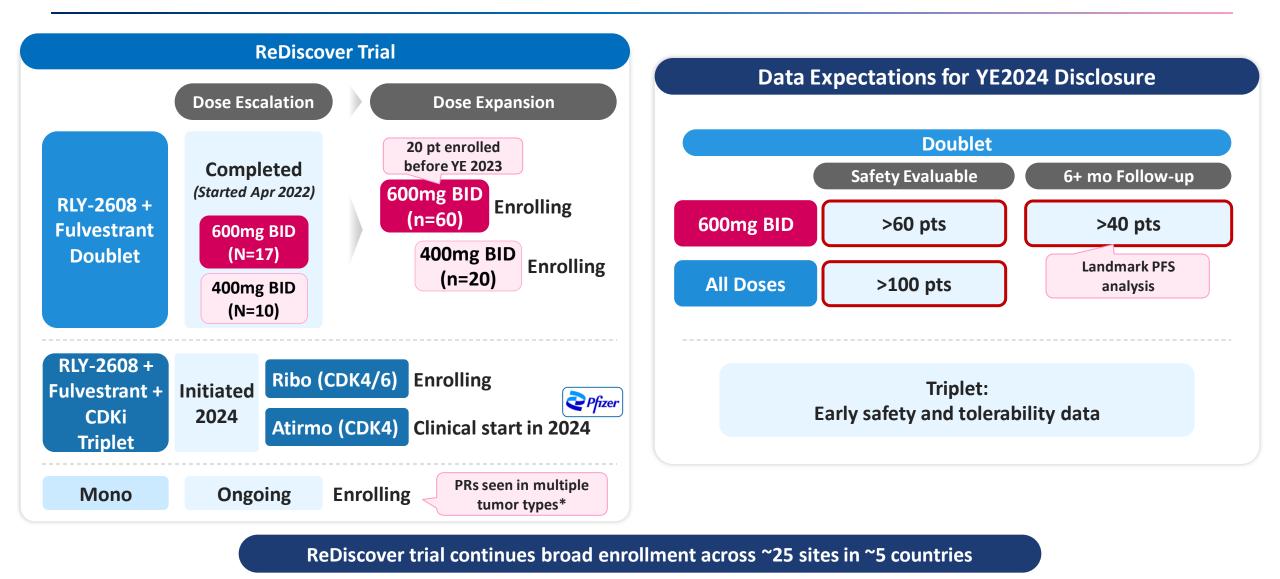




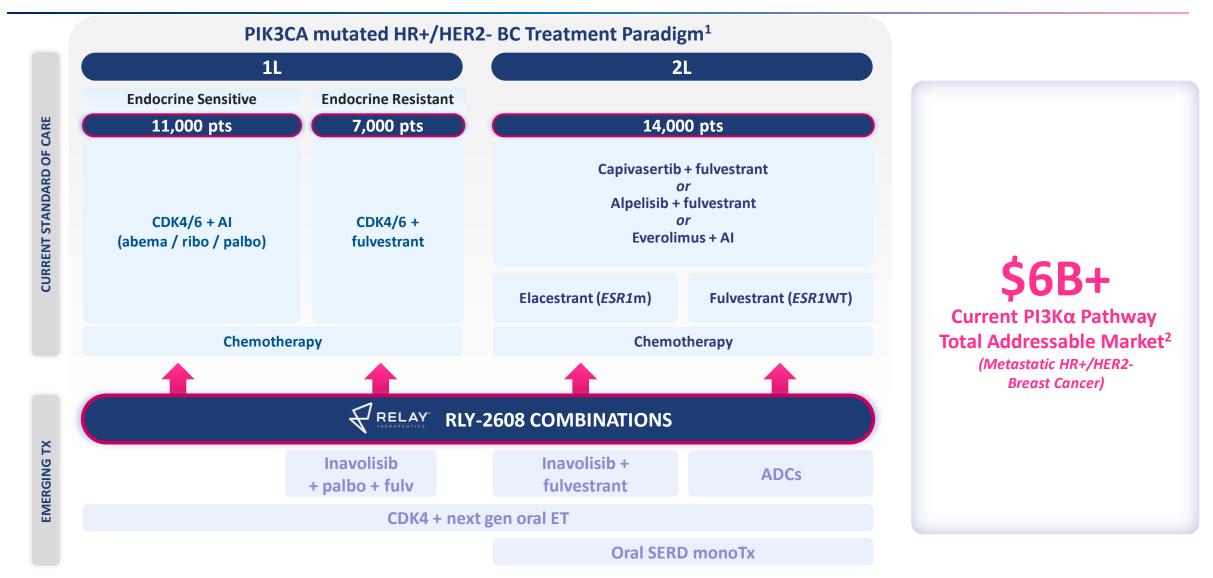






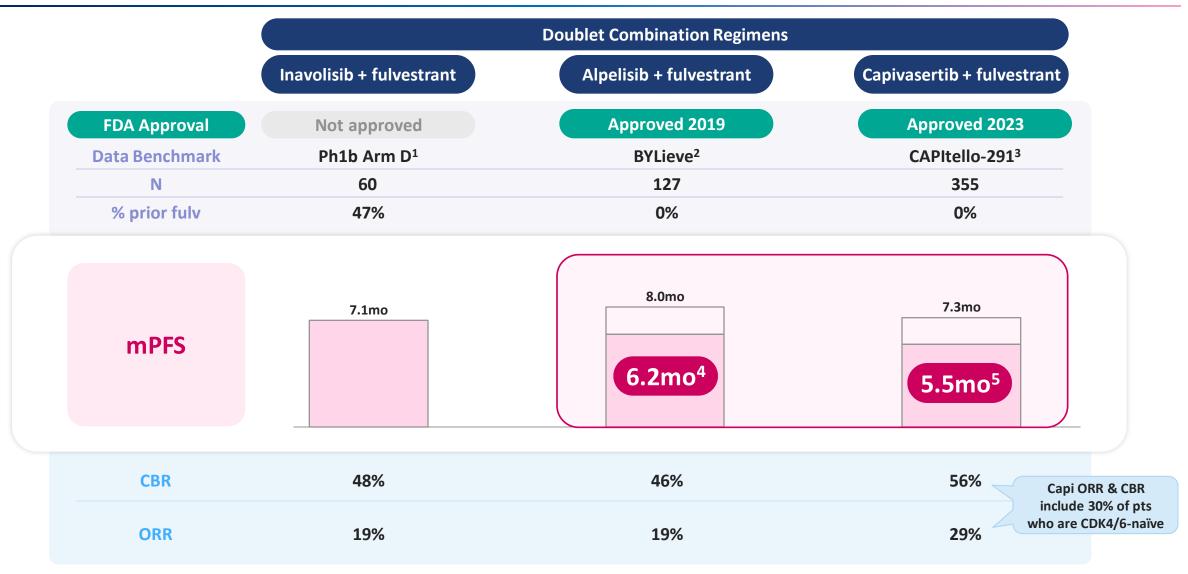






1. Prevalent US patient population with a PIK3CA mutation in each line of therapy (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. Relay Tx PIK3CA internal market forecast (patient-based – US, EU5, Japan). Forecast includes estimates for genetic 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)

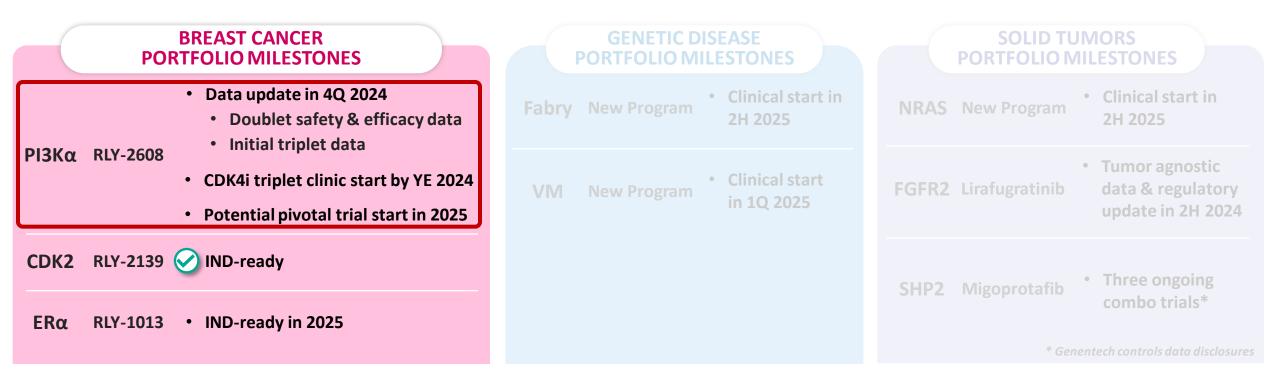




1. SABCS 2021 #P5-17-05; 2. Rugo 2021 Lancet Oncol 22:489, ASCO 2023 1078; 3. Turner N Engl J Med 2023; 388:2058-2070; 4. Based on 4.0-6.2mo mPFS reported in Novartis-sponsored real-world evidence study for alpelisib + fulvestrant (ASCO 2022 #1055); 5. 5.5mo mPFS reported in CDK4/6-experienced patient sub-population of CAPItello-291

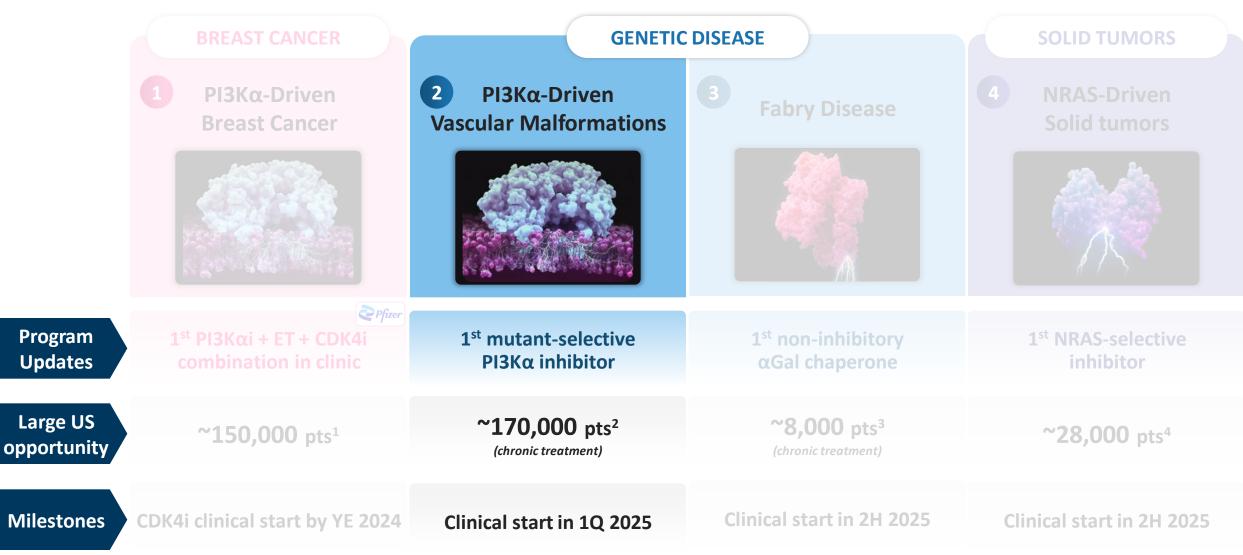
Note: These data are derived from different clinical trials at different points in time, with differences in trial design and patient populations. As a result, cross-trial comparisons cannot be made, and no head-to-head clinical trials have been conducted.







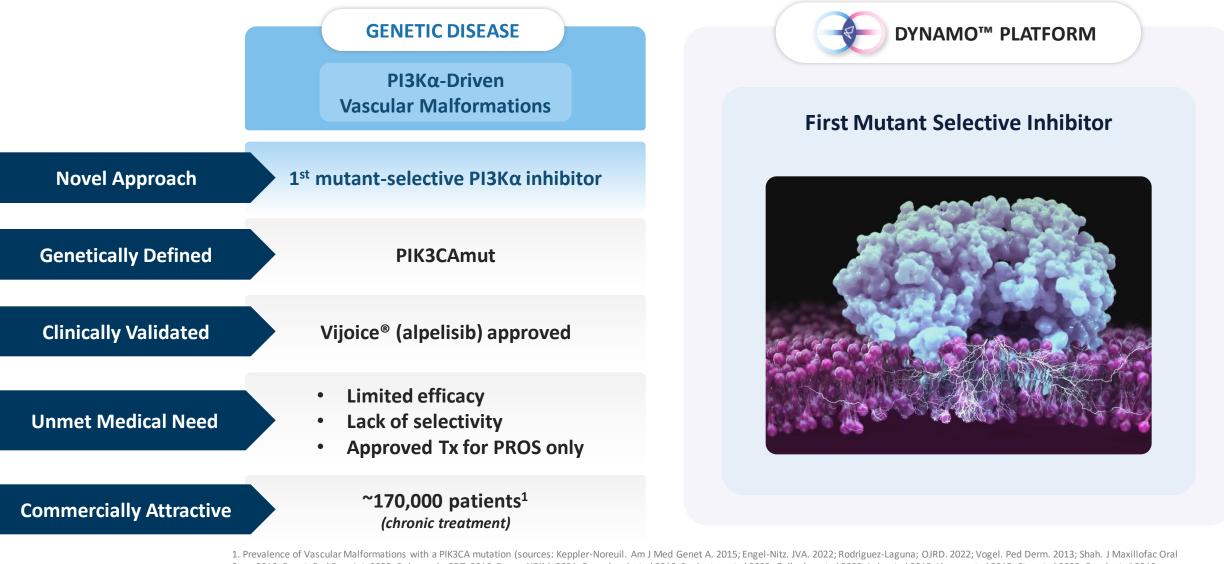




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## **PI3Kα-Driven Vascular Malformations – Significant Unmet Need**





© 2024 Relay Therapeutics Choquet et al 2015; Venot et al. 2018; Pagliazzi et al 2021)

Surg. 2010; Poget. Ped Surg Int. 2023; Behravesh; CDT. 2016; Peyre. NEJM. 2021; Fereydooni et al 2019; Penington et al 2023; Gallagher et al 2022; Luks et al 2015; Limave et al 2015; Stor et al 2023; Broek et al 2019;



- PhD in Cell Regulation
  - "Asymmetric cell division results in differential apoptotic cell fates in a B-cell lymphoma model of tumor dormancy"
- Board certified in Pediatrics and Pediatric Hematology-Oncology
- Certificate in Clinical and Translational Research
- Working in vascular anomalies since 2009
- Serving as
  - Research Director of the Hemangioma & Vascular Malformations Center (HVMC)
  - Director, Cincinnati HHT Center of Excellence
  - Director, Cincinnati Sturge-Weber Center of Excellence/Clinical Care Network Center



## **Vascular Anomalies**





- Anomalies is an umbrella term for many different diagnoses
  - Includes TUMORS "things that grow" and **MALFORMATIONS** "present since birth"

ISSVA

- Distinction less clear than it used to be, a few "unclassified"
- Vascular Anomalies overall not rare due to high frequency of hemangiomas
  - But many of the individual diagnoses are quite rare

ISSVA classification for vascular anomalies ©

(Approved at the 20th ISSVA Workshop, Melbourne, April 2014, last revision May 2018)

This classification is intended to evolve as our understanding of the biology and genetics of vascular malformations and tumors continues to grow

Vascular anomalies								
Vascular tumors	Vascular malformations							
	Simple	Combined °	of major named vessels	associated with other anomalies				
Benign Locally aggressive or borderline Malignant	Capillary malformations Lymphatic malformations Venous malformations Arteriovenous malformations* Arteriovenous fistula*	CVM, CLM LVM, CLVM CAVM* CLAVM* others	<u>See details</u>	<u>See list</u>				





 Vascular malformations can include a single type of malformed vessel, or combinations of vessels



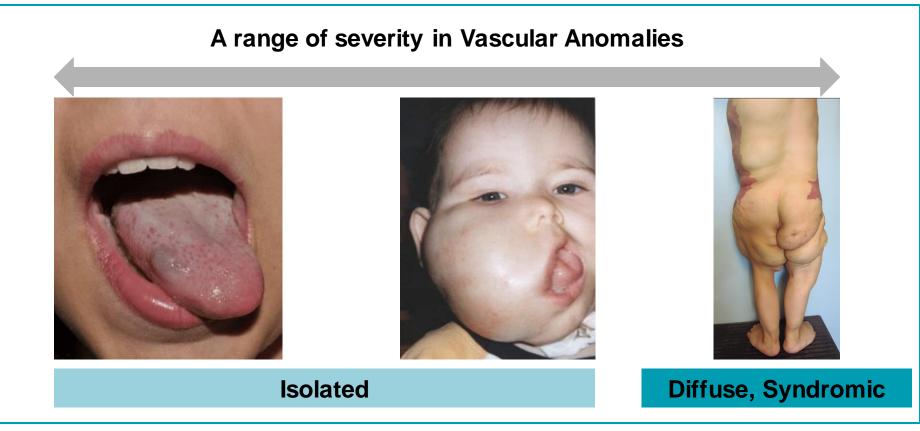
ISSVA

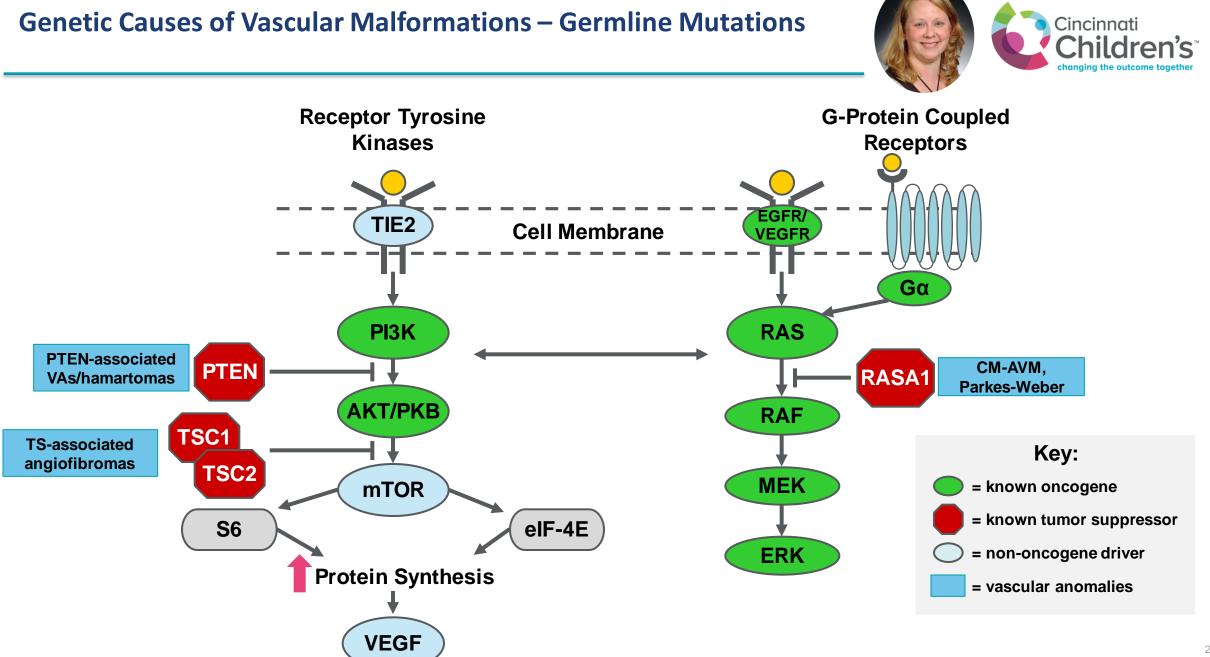
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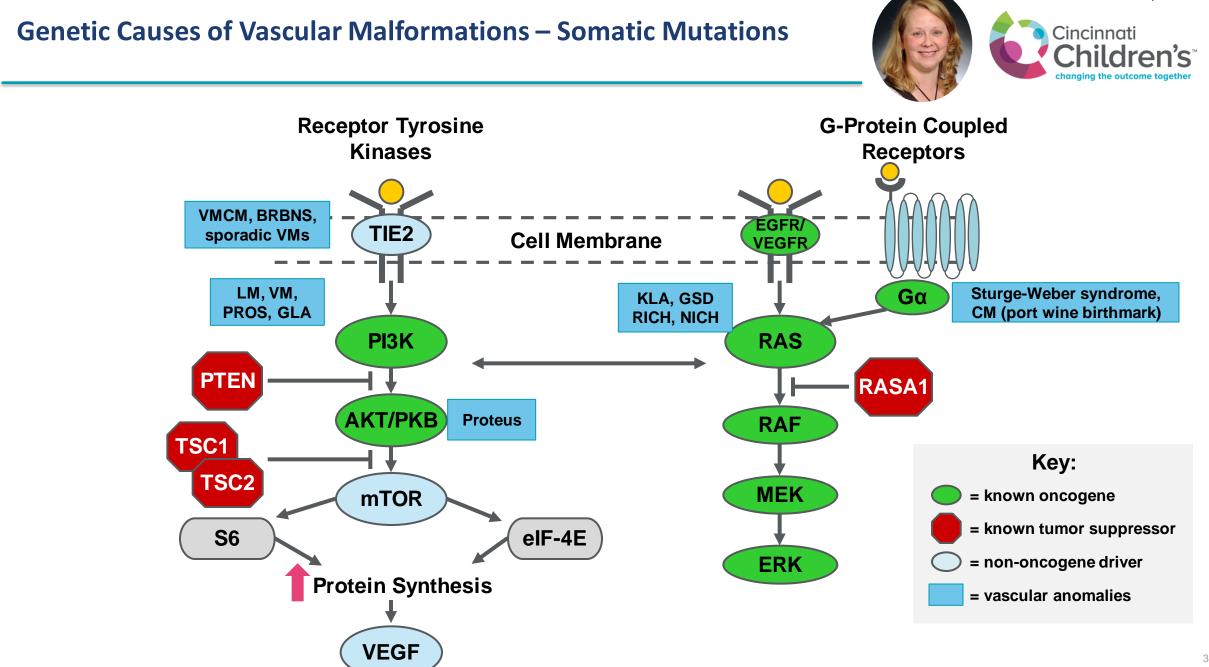
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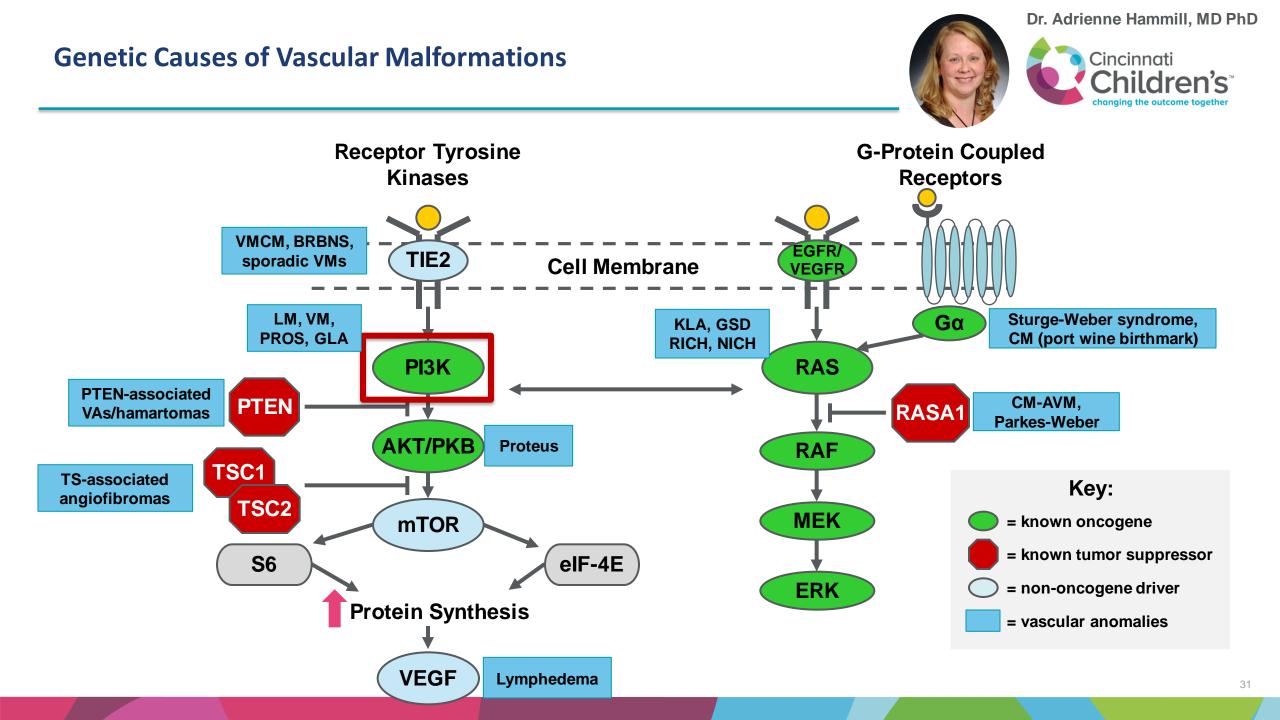
Vascular malformations								
Simple	Combined °	of major named vessels	associated with other anomalies					
<u>Capillary malformations</u> <u>Lymphatic malformations</u> <u>Venous malformations</u> <u>Arteriovenous malformations</u> * <u>Arteriovenous fistula</u> *	<u>CVM, CLM</u> <u>LVM, CLVM</u> <u>CAVM*</u> <u>CLAVM*</u> <u>others</u>	<u>See details</u>	<u>See list</u>					

- Vascular malformations can be localized ("isolated"), diffuse/multifocal, or part of a syndrome with other findings
  - Most frequent syndromic association is overgrowth, particularly in "combined vascular malformations"













- Megalencephaly-capillary malformation (MCAP) syndrome
- Dysplastic megalencephaly (DMEG), hemimegalencephaly (HMEG) and focal cortical dysplasia (FCD)
- Congenital lipomatous overgrowth, vascular malformations, epidermal nevi, scoliosis/skeletal and spinal (CLOVES) syndrome
- Klippel-Trenaunay syndrome (KTS)
- Capillary malformation of the lower lip, Lymphatic malformation of the face and neck, Asymmetry of face and limbs, Partial/generalized Overgrowth (CLAPO) syndrome
- Fibroadipose hyperplasia or overgrowth (FAO)
- Hemihyperplasia multiple lipomatosis (HHML) .
- Facial infiltrating lipomatosis (FIL)
- Macrodactyly
- Isolated tissue dysplasia/overgrowth phenotypes: lymphatic malformations, venous malformations, lipomatosis

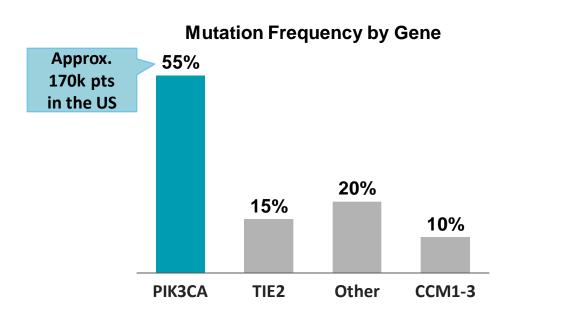
Sources: Mirzaa G et al. PIK3CA-Related Overgrowth Spectrum. 2013 Aug 15 [Updated 2023 Apr 6]. In: GeneReviews® [Internet]

# **PI3Kα-Driven Vascular Malformations – Overview of Biology**

Dr. Adrienne Hammill, MD PhD

Cincinnati

~300k US patients affected by Vascular Malformations, driven by prenatal somatic mutations



Abnormal development of lymphatic and/or blood vessels leads to a wide range of symptoms

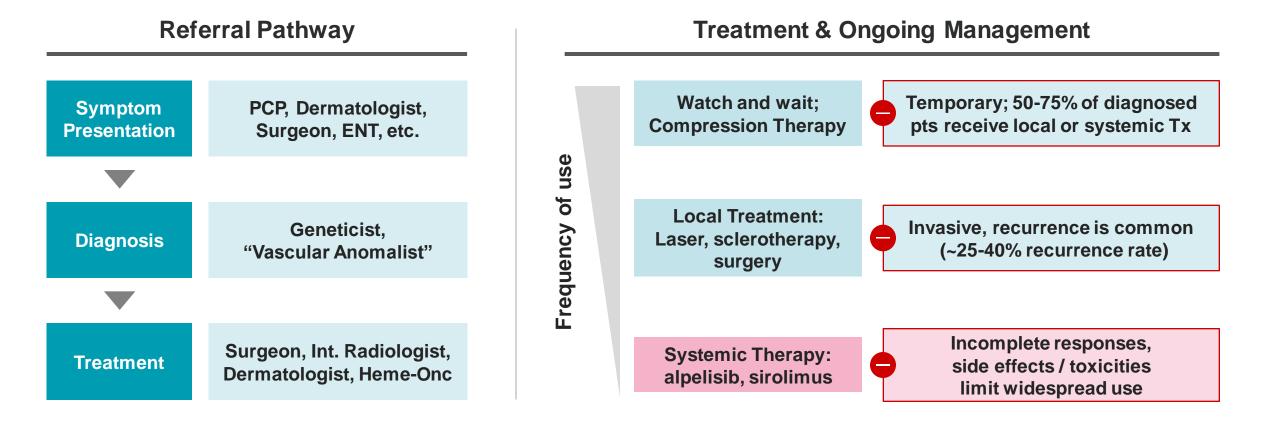


#### Malformations may involve one or more types of vasculature

Sources: Fereydooni et al 2019, Penington et al 2023, Gallagher et al 2022, Luks et al 2015, Limaye et al 2015, Stor et al 2023, Broek et al 2019, Choquet et al 2015, Venot et al. 2018, Pagliazzi et al 2021; Photo sources: Delestre et al 2021, Pagliazzi et al, 2021 Note: TIE2 gene also refers to *TEK* gene

## **PI3Kα-Driven Vascular Malformations – Patient Treatment Journey**





Current unmet need for selective, systemic therapy for Vascular Malformations

# **PI3Kα-Driven Vascular Malformations – Over 170,000 US Patients**



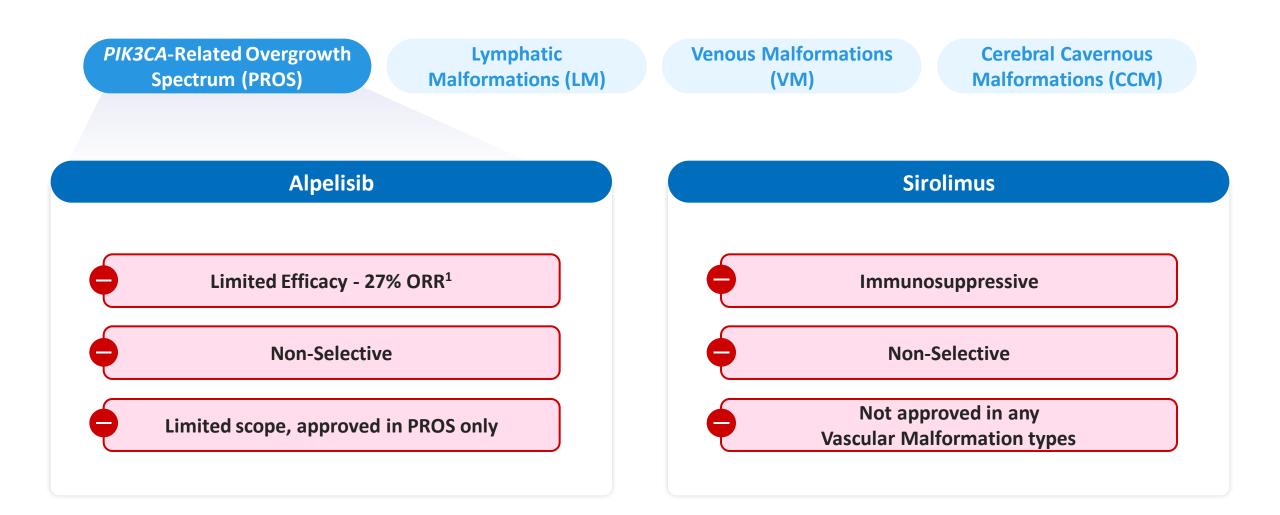
Cincinnati

#### PIK3CA-Related Overgrowth Lymphatic **Venous Malformation Cerebral Cavernous Spectrum (PROS) Malformation (LM)** (VM) **Malformation (CCM)** Total US pt across types **US** Patients ~5-15k ~80k ~100k ~120k >300k pt 100% 80% ~20-25% 40-55% ~170k pt % PIK3CAmut ~5-15k pt ~65k pt ~20-25k pt ~50-65k pt PIK3CAmut Approved Vijoice<sup>®</sup> (alpelisib) No approved systemic therapy Therapies

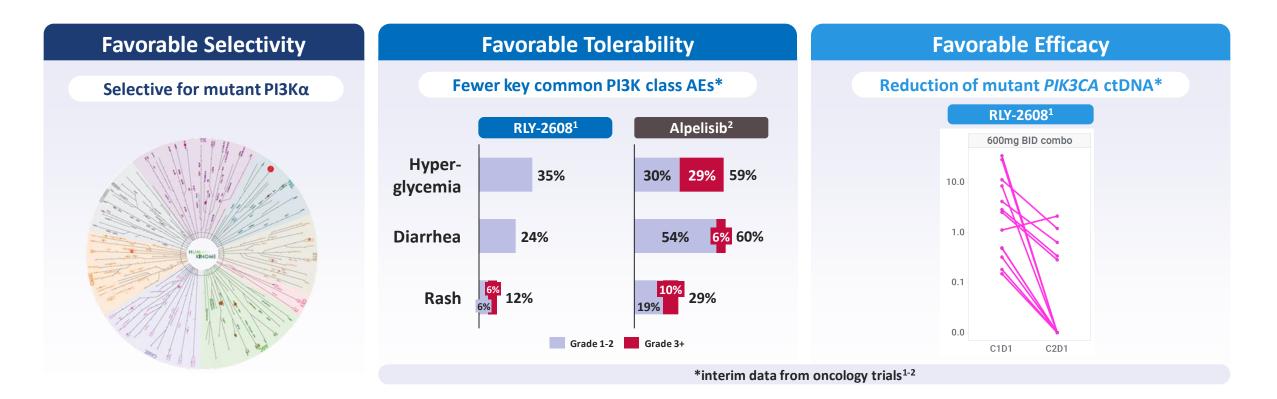
Sources: ISSVA classification, NORD, Mayo Clinic, Novartis, Penington et al 2023, Gallagher et al 2022, Luks et al 2015, Limaye et al 2015, Peyre et al 2021, Hong et al 2021. Photo sources: Venot et al. Nature 2018, Wenger et al Genet Med 2022, Limaye et al Nature Genetics 2008, Mayo Clinic

#### **Vascular Malformation Types**

PI3Kα-Driven Vascular Malformations – Systemic Tx Limited by Non-Selective SoC  $\leftarrow$  RELA



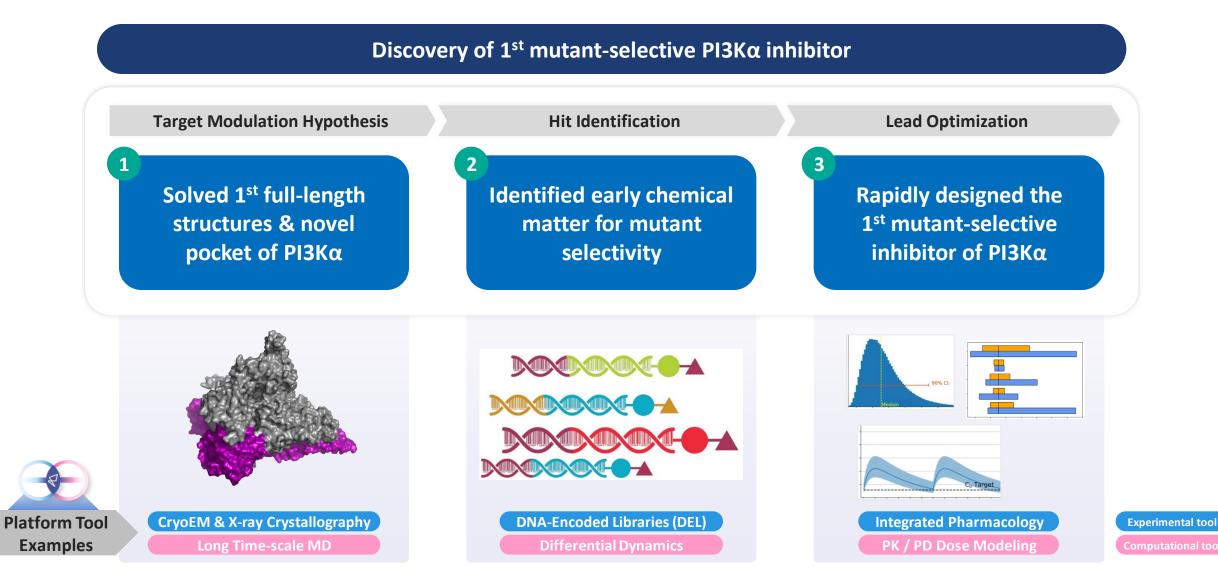




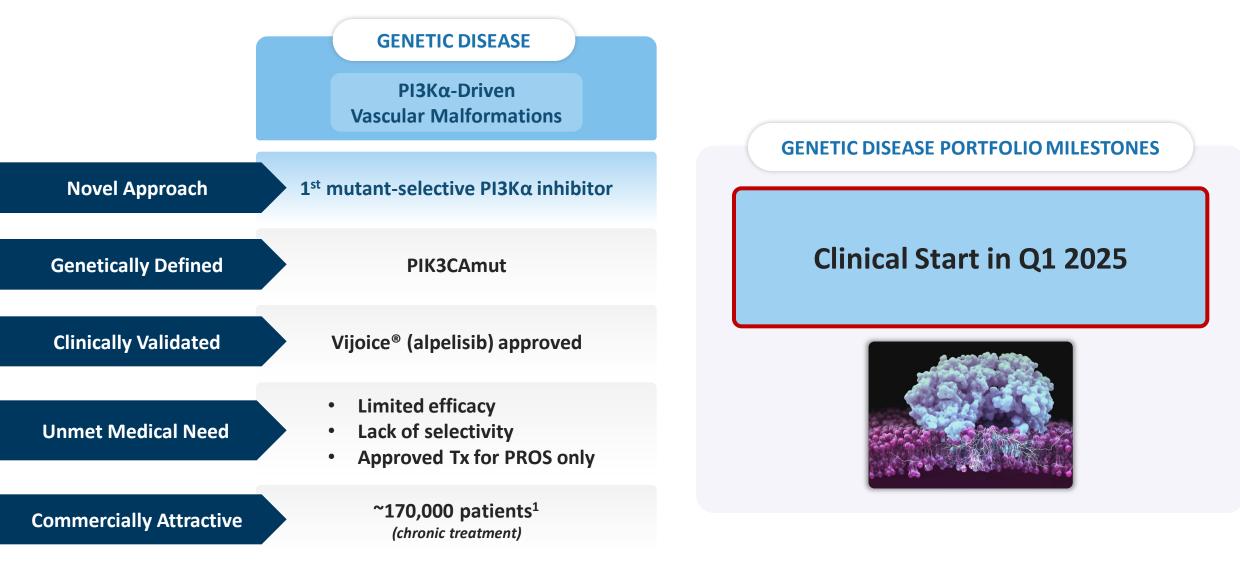
#### Potential for rapid POC with RLY-2608, then use a distinct molecule for pivotal studies



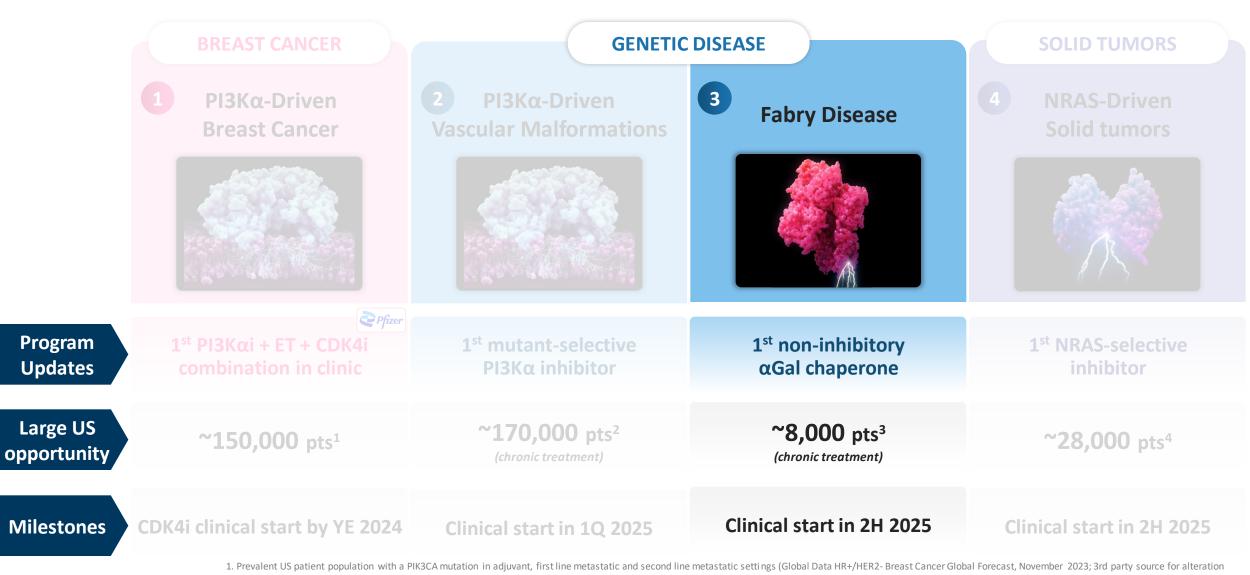






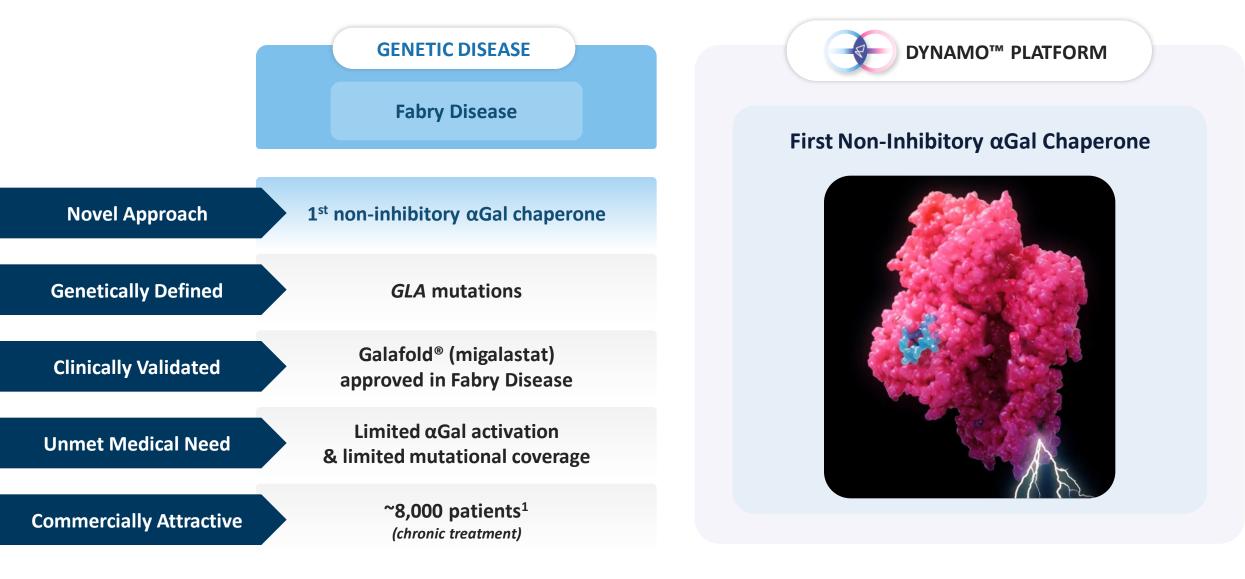






© 2024 Relay Therapeutics a classical control of a prevalence of vascular malformations with a PIK3CA mutation (Gallagher et al 2022 and several other sources); 3. Prevalence of Fabry patients (National Fabry Disease Foundation, Jan 2024); 4. Newly diagnosed (incident) solid tumors with an NRAS mutation, excluding melanoma stages 0-II (SEER, 3<sup>rd</sup> party source for alteration rate, Jan 2024)

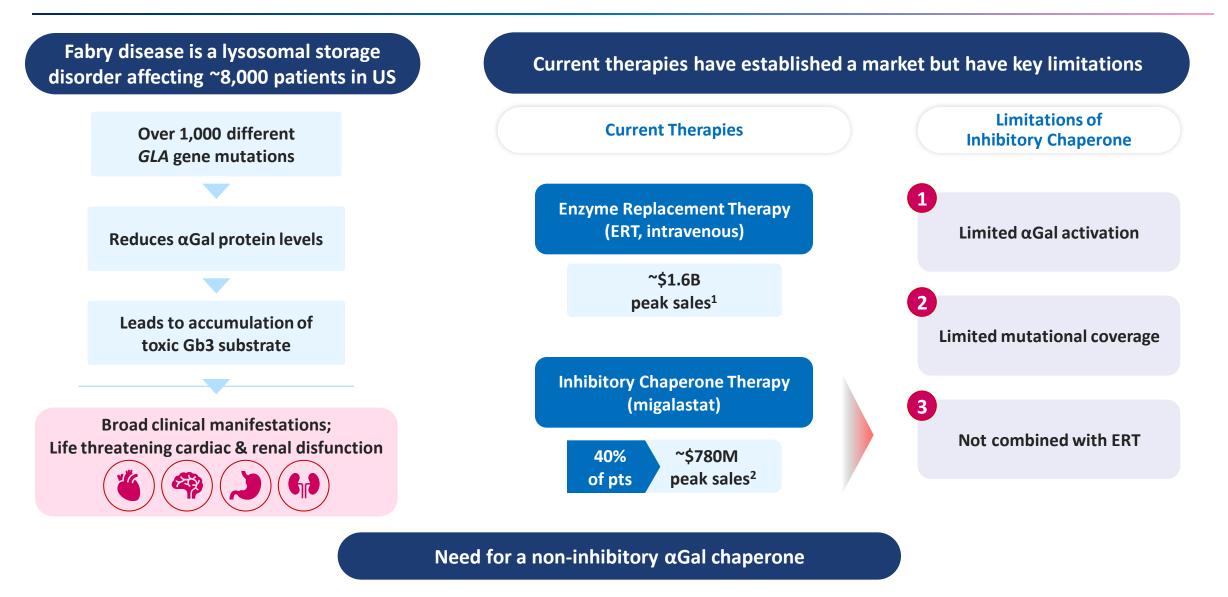




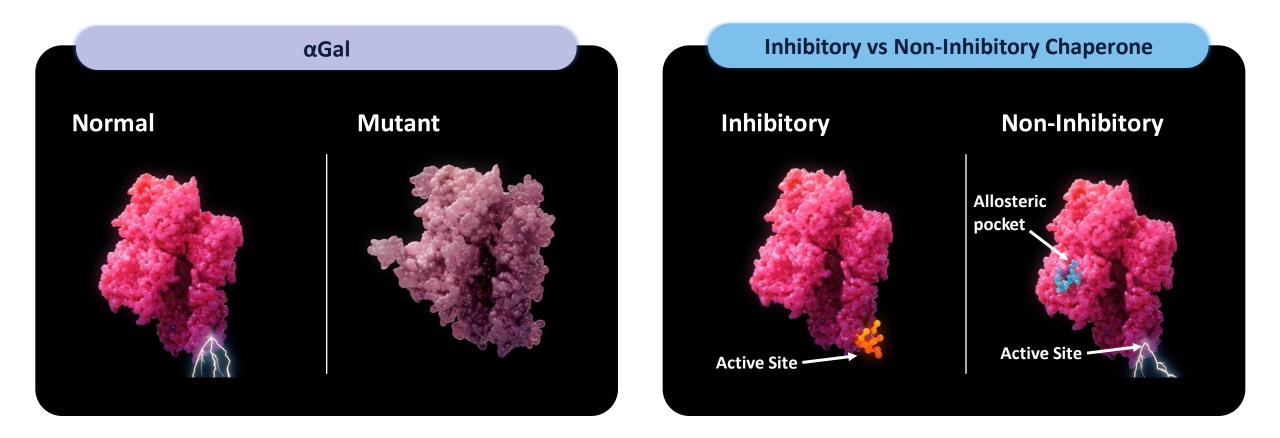
1. Prevalence of Fabry patients (National Fabry Disease Foundation, Jan 2024)

### Fabry Disease – Large Validated Market With Significant Unmet Need

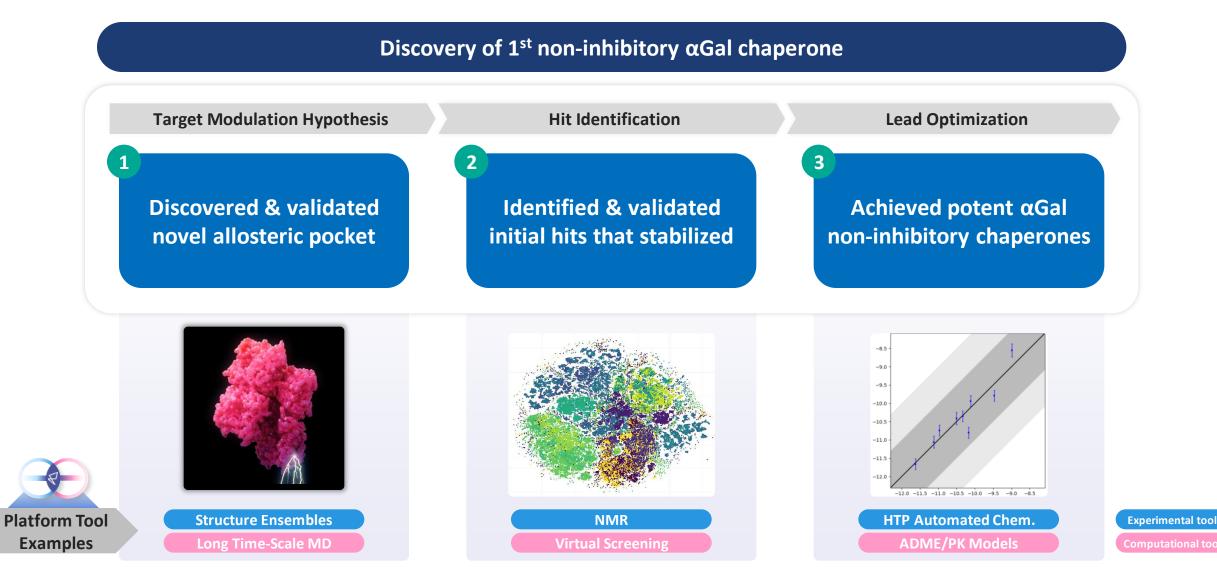




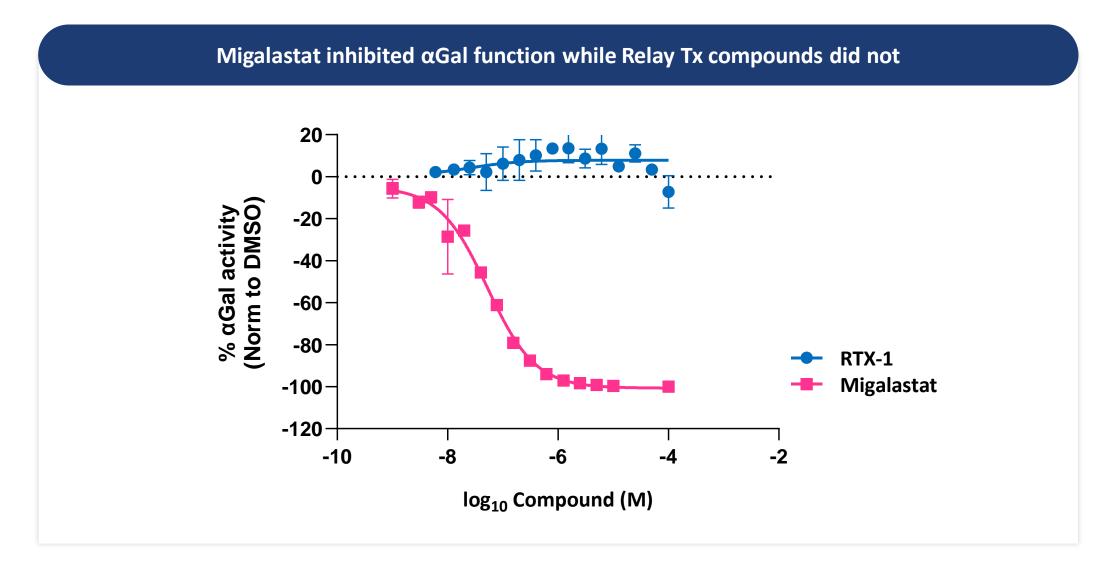




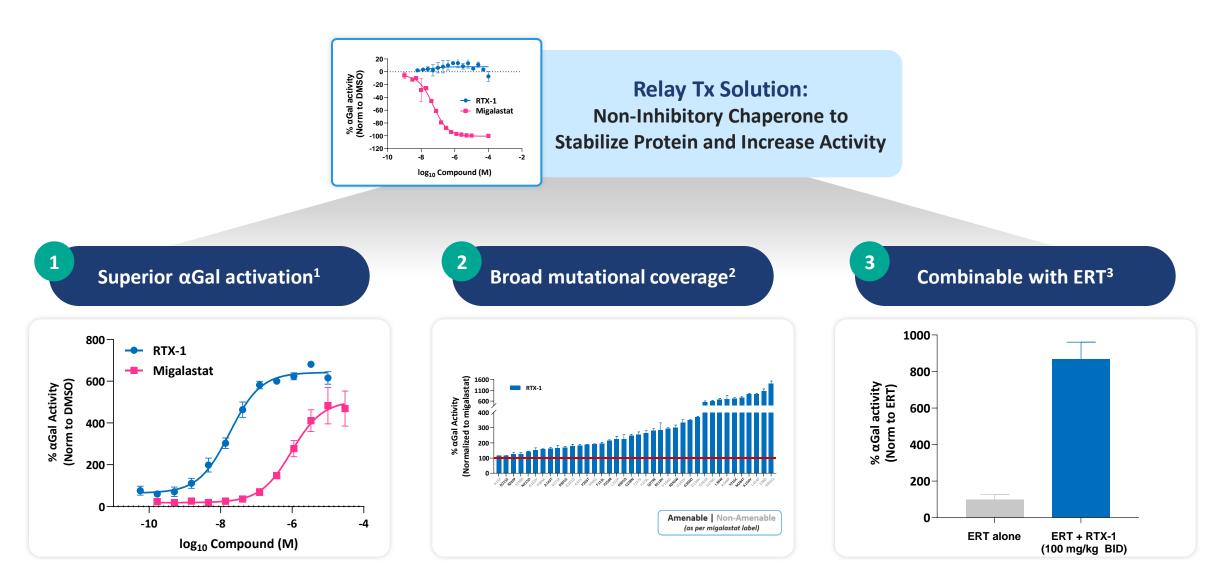








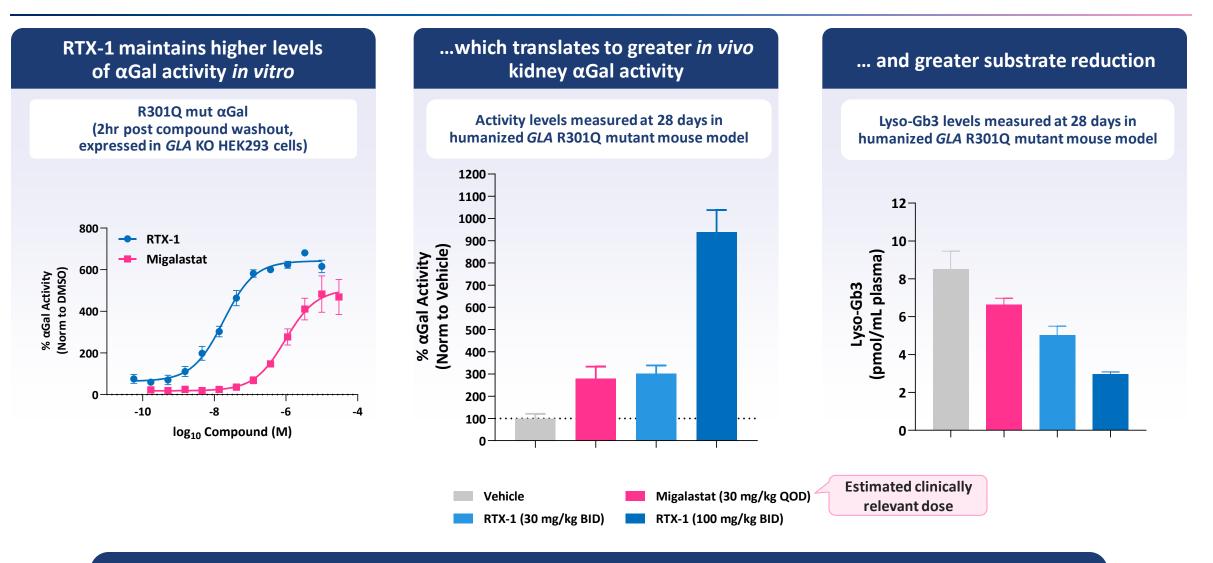




Notes: 1. R301Q mut αGal (2hr post compound washout, expressed in *GLA* KO HEK293 cells); In vitro αGal activity assay (4MU) across multiple GLA mutations expressed in HEK293 GLA KO cells (assessed at 1uM); 3. *GLA* KO mouse model, activity assessed following single dose of ERT and 14-day treatment with RTX-1

# Relay Tx Non-Inhibitory Chaperones Can Lead to Higher Levels of In Vivo Activity

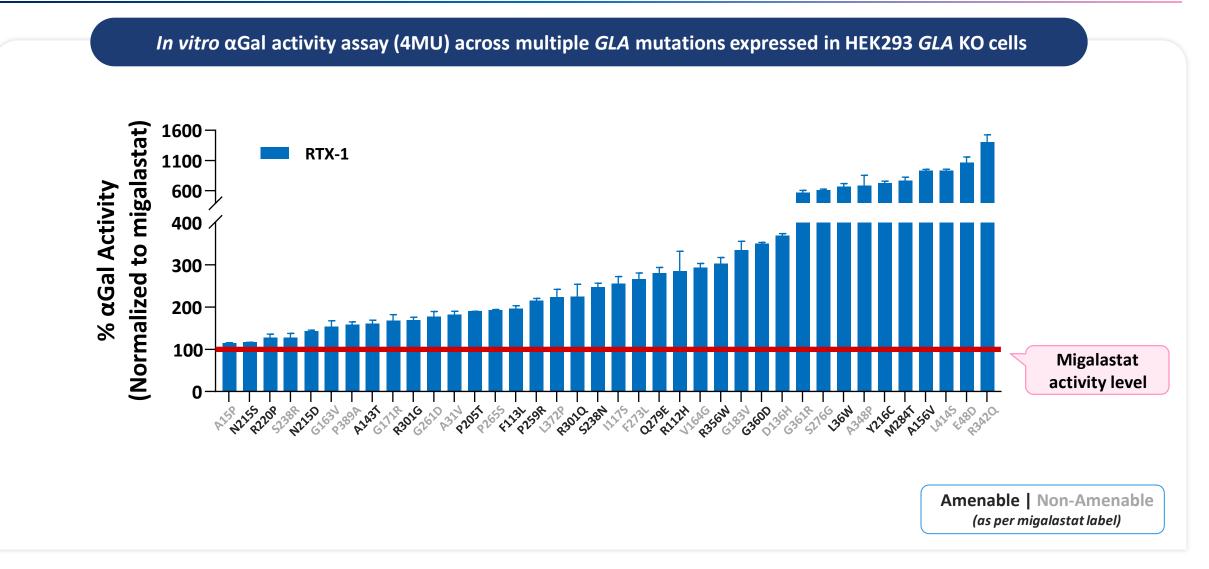




There were no adverse findings in an exploratory rat toxicology study of RTX-1 at exposures equivalent to 100 mg/kg BID

# Relay Tx Non-Inhibitory Chaperones Have Broad Mutational Coverage

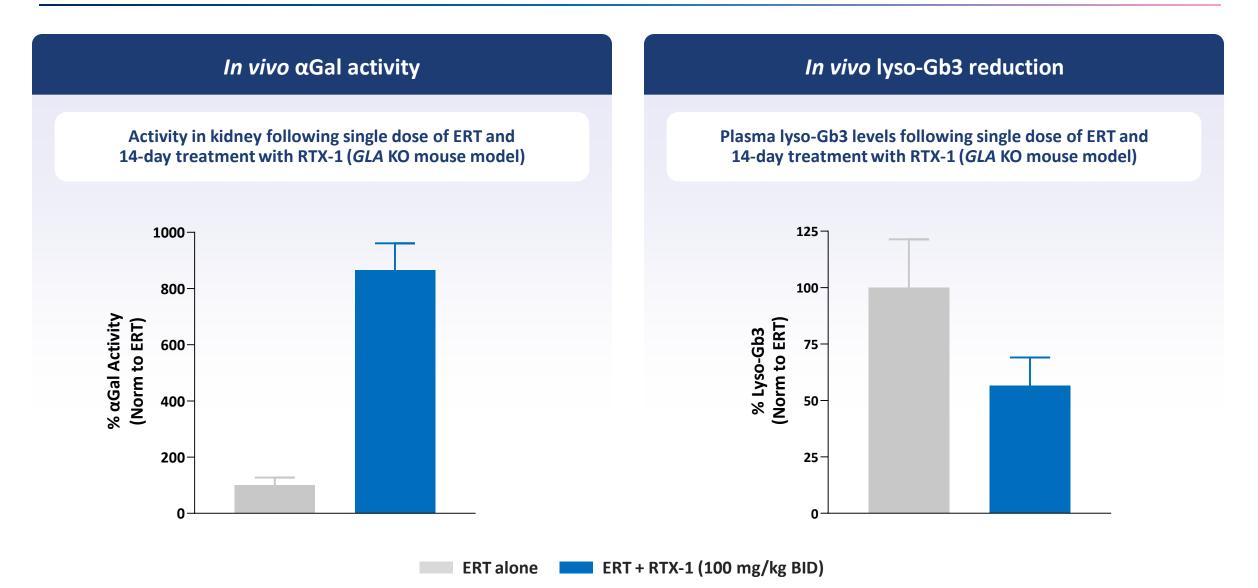




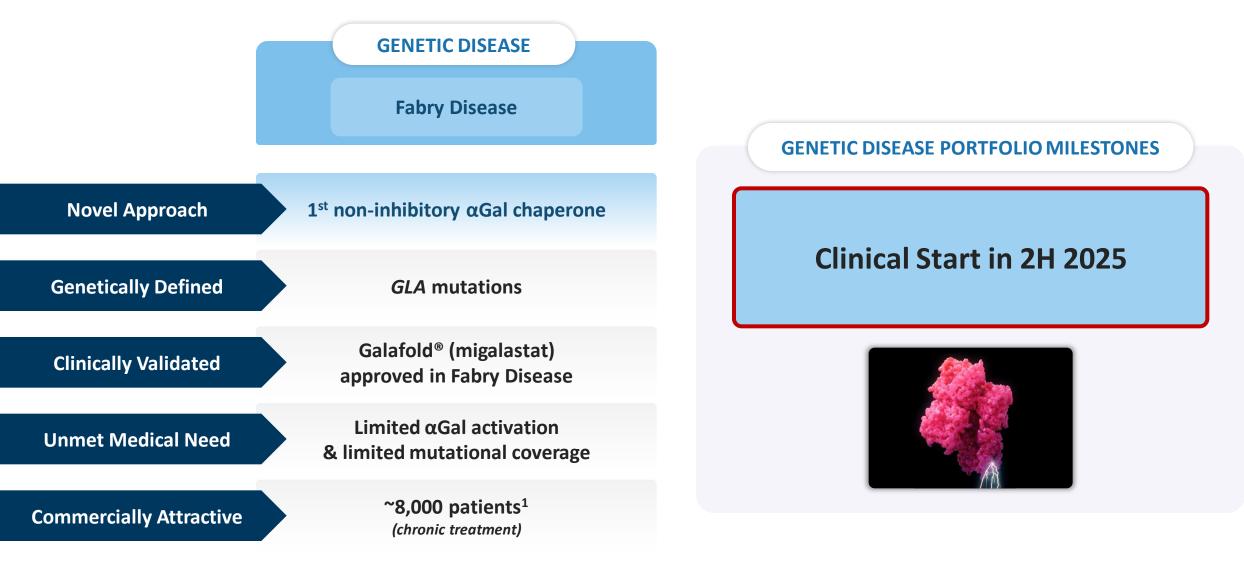
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## **Relay Tx Non-Inhibitory Chaperones Combinable with ERT**

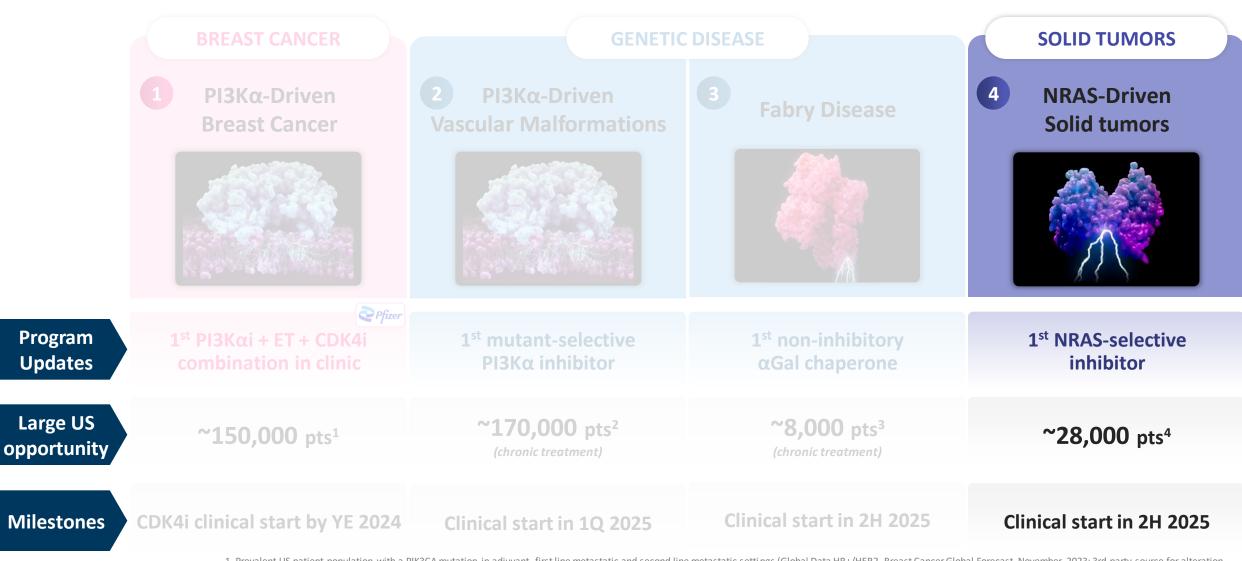








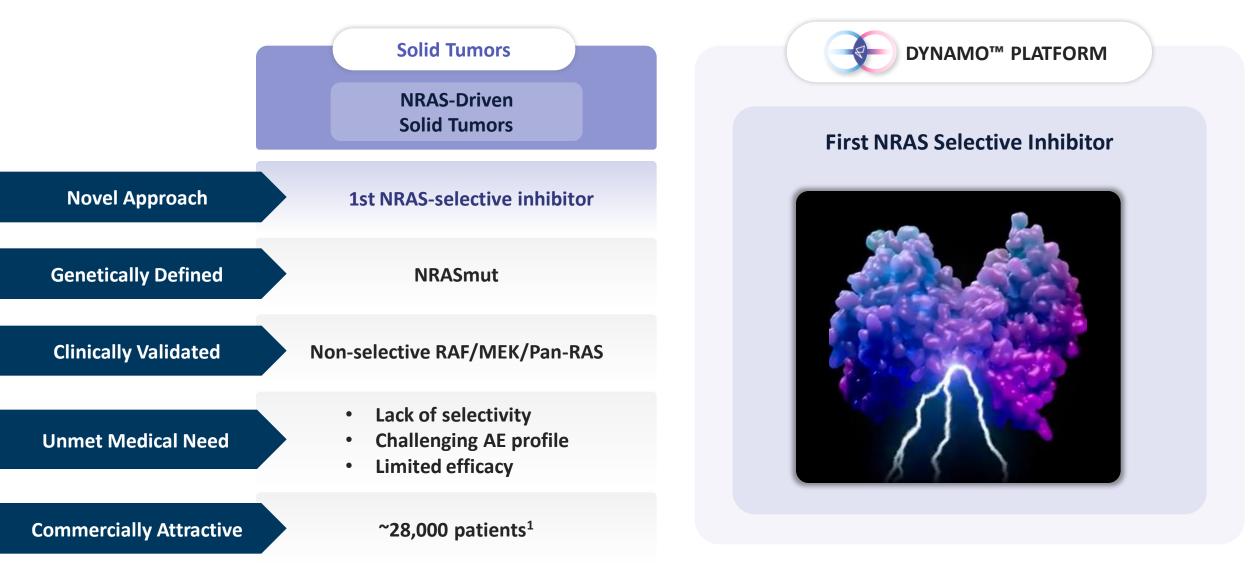




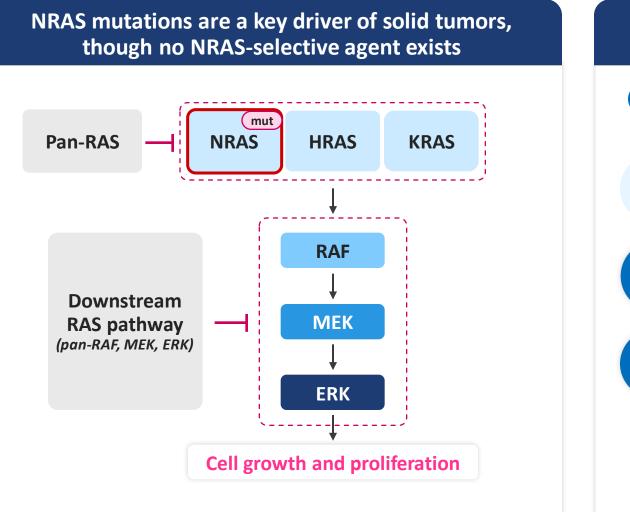
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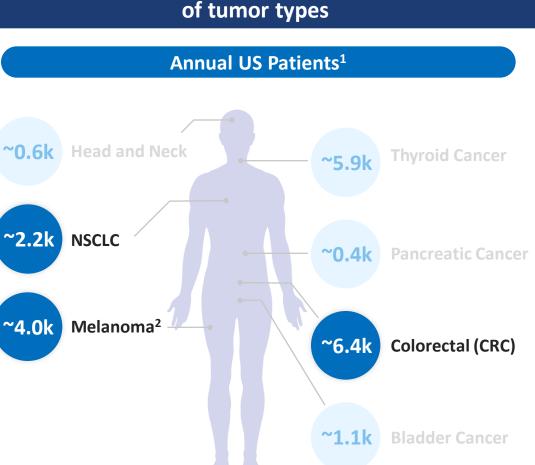
### NRAS – Large Validated Market With Significant Unmet Need









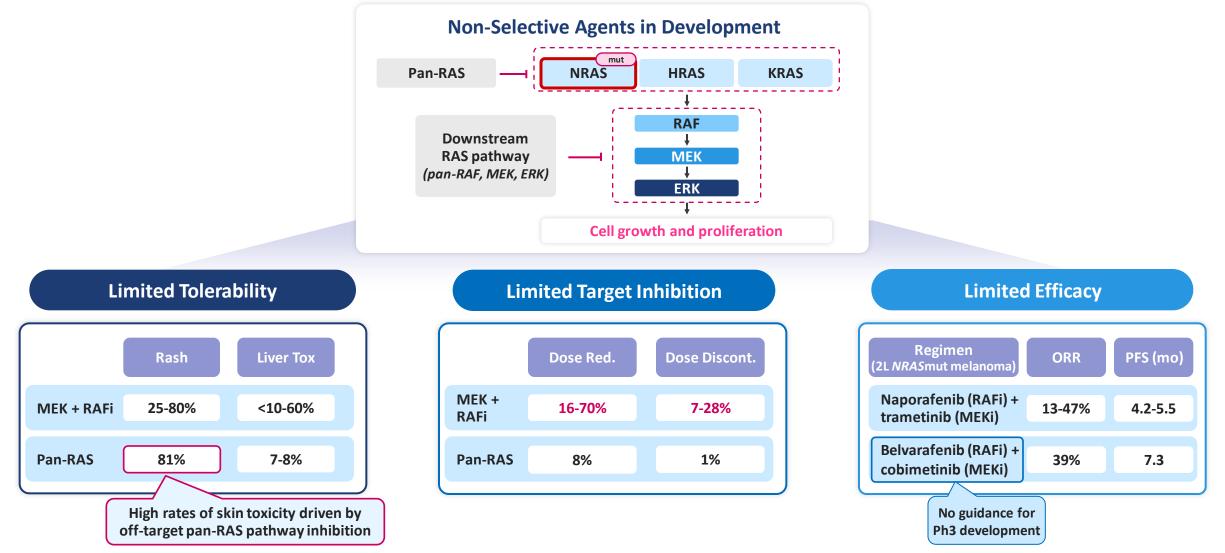


NRAS mutations observed in broad range

1. Newly diagnosed (incident) patients with an NRAS mutation for each tumor type (SEER, 3<sup>rd</sup> party source for alteration rate, Jan 2024); 2. Melanoma includes incident stage III and IV patients only (excludes stage 0-II patients)

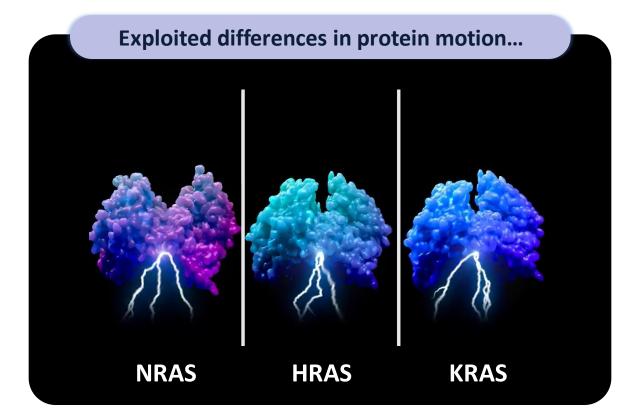
# Limited Therapeutic Window of Current Agents – Pan-RAF/RAS & MEK Inhibitors

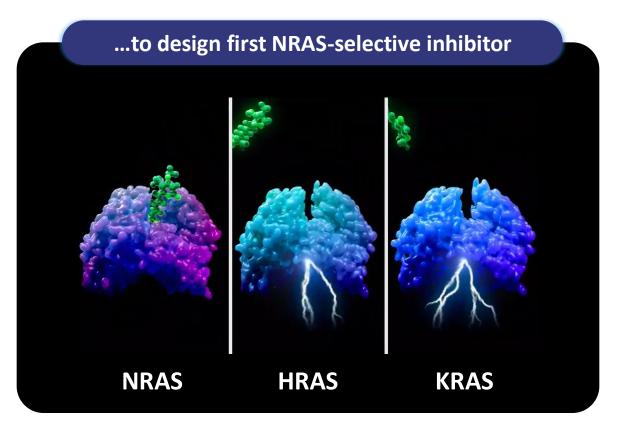




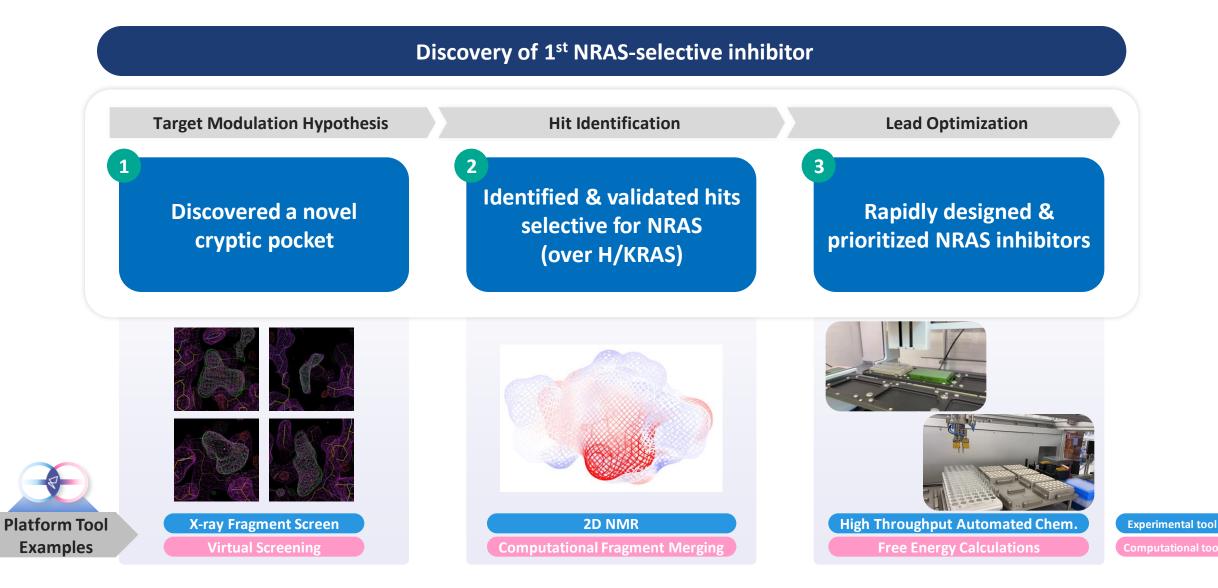
Sources: ASCO 2021 #3007 (Belvarafenib + cobimetinib, n=32 all, 13 for efficacy), de Braud 2023 J Clin Oncol 41:2651 (naporafenib + trametinib, n=30 expansion arm), ASCO 2023 #9510 (tunlametinib, n=95), ESMO 2023 6520 (RMC-6236, n=111 pts at  $\geq$ 80mg; liver tox = elevated ALT/AST © 2024 Relay Therapeutics



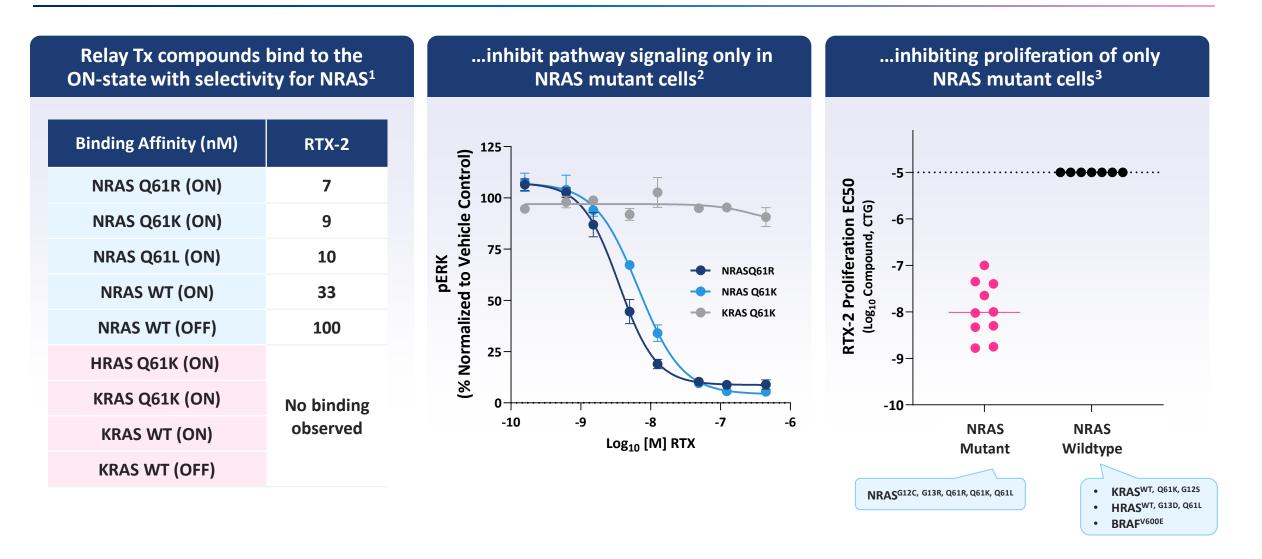












1. Based on SPR analysis of purified protein; 2. Based on pERK assay of SK-MEL-2, SK-MEL-30, and CALU-6 cell lines evaluated at 24hr timepoint; 3. Based on cell proliferation panel (17 cell lines) evaluated at 3-5d timepoint depending on cell line

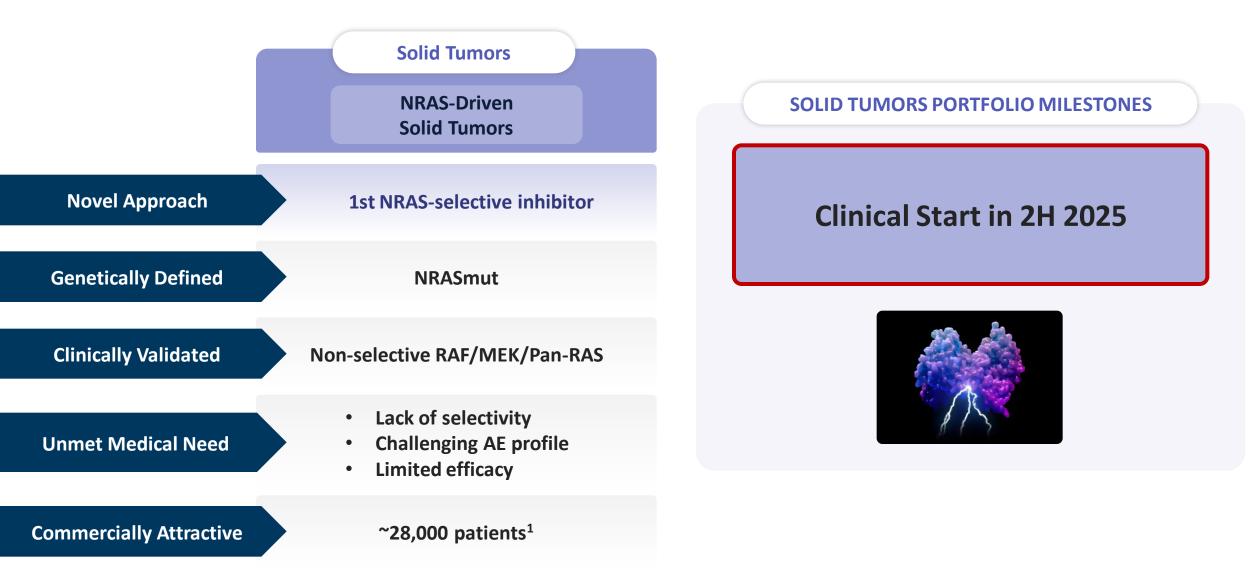




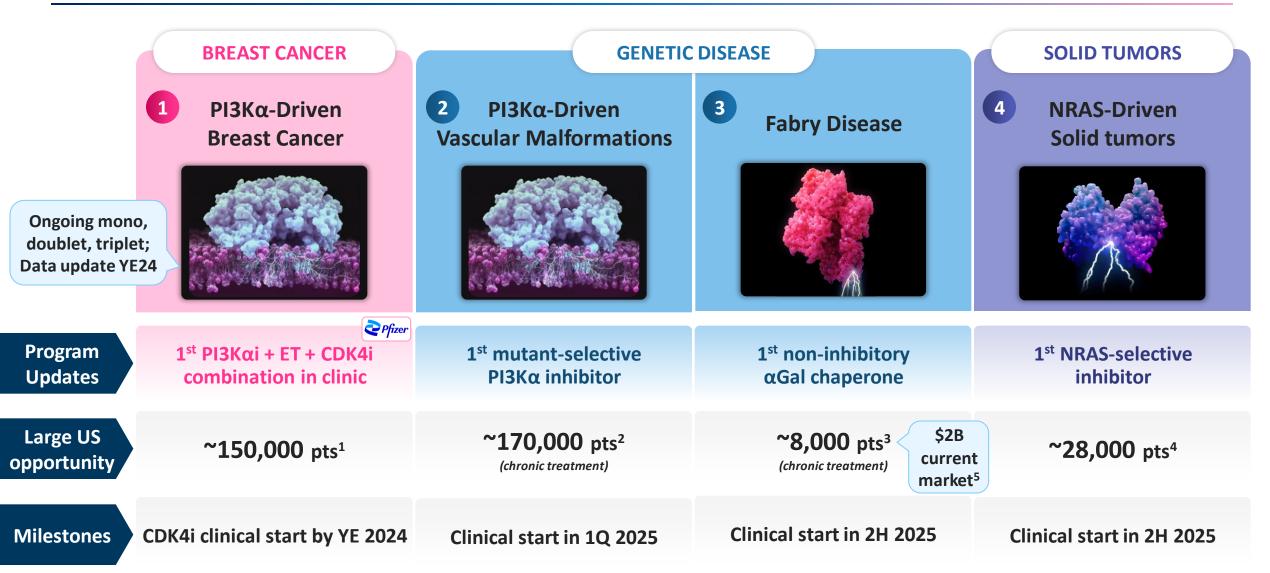
There were no adverse findings in an exploratory rat toxicology study of RTX-2 at exposures equivalent to 100mg/kg QD

\*Regressions also achieved with additional NRAS mutant models (NRAS Q61K and NRAS Q61R)



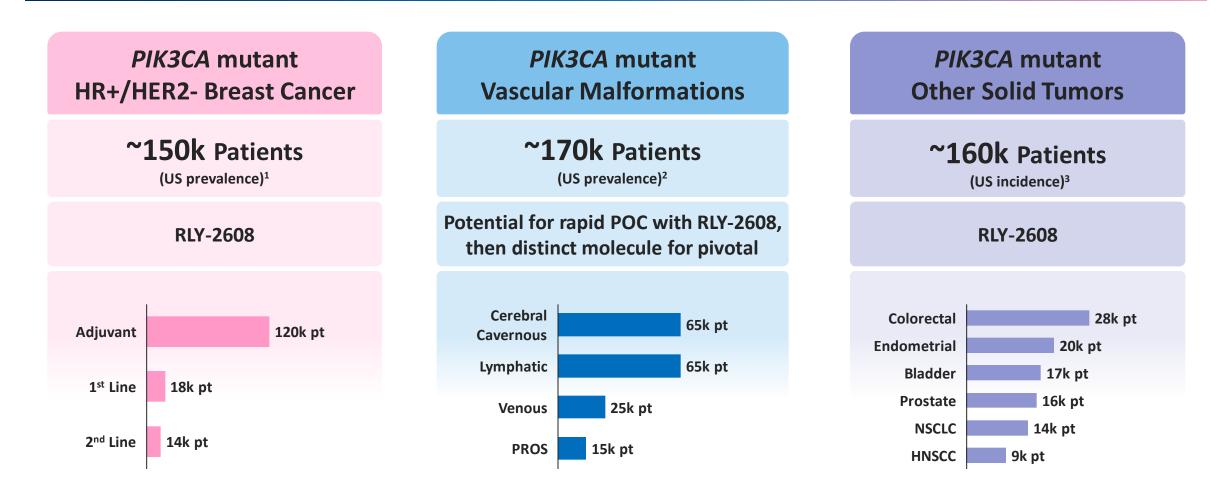






1. Prevalent US patient population with a PIK3CA mutation in adjuvant, first line metastatic and second line metastatic settings (Global Data HR+/HER2- Breast Cancer Global Forecast, November 2023; 3rd party source for alteration rate); 2. Prevalence of vascular malformations with a PIK3CA mutation (Gallagher et al 2022 and several other sources); 3. Prevalence of Fabry patients (National Fabry Disease Foundation, Jan 2024); 4. Newly diagnosed (incident) solid tumors with an NRAS mutation, excluding melanoma stages 0-II (SEER, 3rd party source for alteration rate, Jan 2024); 5. Fabry disease forecasted 2024 market size per EvaluatePharma, includes Galafold® and ERTs (May 2024)

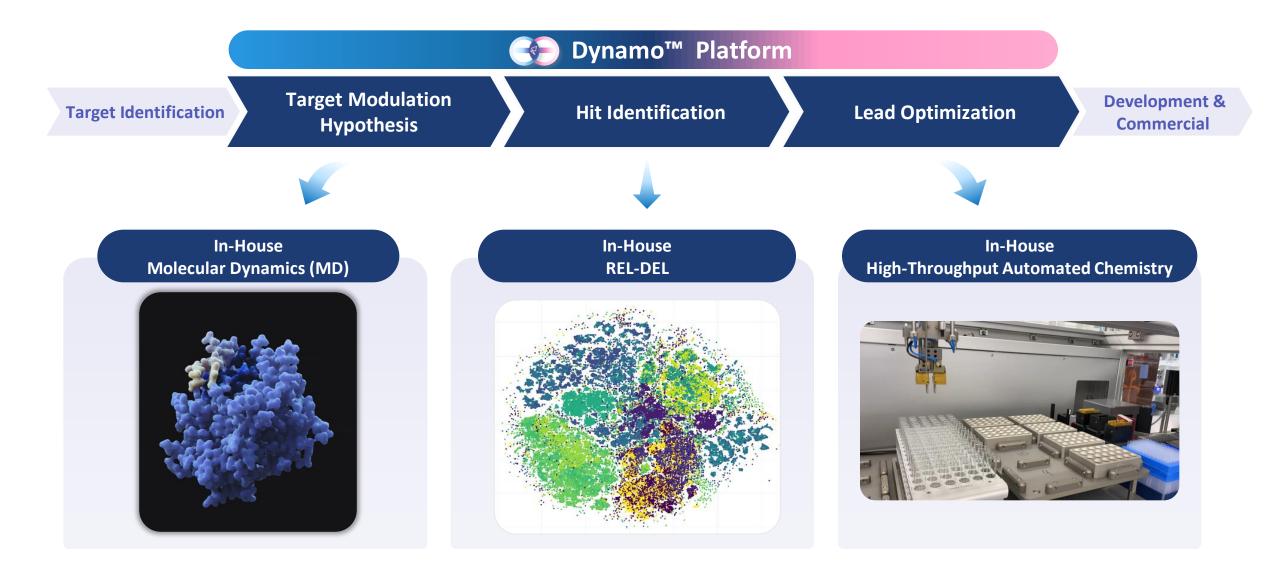




#### **Relay Tx's PI3Kα Franchise has the potential to address wide range of large disease indications**

1. Prevalent US patient population with a PIK3CA mutation in each line of therapy (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 (SEER; 3rd party source for alteration rate, May 2024) <sup>61</sup>

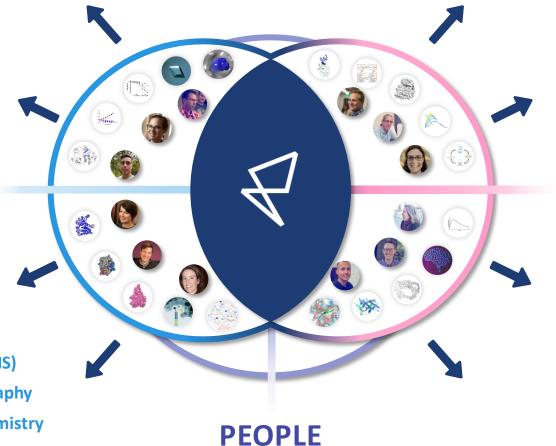






# **EXPERIMENTATION**

NMR Mechanistic enzymology HDX-MS **Cryo-EM** X-ray fragment screening **REL-DEL Structure ensembles** Integrated pharmacology **Protein design and engineering** Automated Ligand ID System (ALIS) Ambient temp. X-Ray crystallography **High throughput automated chemistry** 



# **COMPUTATION**

Free energy calculations Long time-scale MD Giga-scale virtual screening Differential dynamics Digitally encoded libraries ML-DEL + AI models for DEL ADME/PK models Active learning Generative design Automated Chemical Design

Dynamo<sup>™</sup> Platform integrates industry-leading tools and will continue to quickly grow and evolve



	Target		Program	Preclinical	Early Clinical	Late Clinical	
BREAST CANCER	ΡΙ3Κα	RLY-2608 (ΡΙ3Κα <sup>ΡΑΝ</sup> )	Endocrine Tx (ET) doublet				
			Ribociclib + ET triplet				
			CDK4i + ET triplet		CDK4i triplet to initiate in 2024		
			Other Novel Combinations				
	CDK2	RLY-2139		Paused; IND ready			
	ΕRα	RLY-1013 (Degrader)		Advance to IND-ready			
GENETIC DISEASE	Fabry Disease	αGal Chaperone					
	Vascular Malformations	RLY-2608 (PI3Kα <sup>PAN</sup> )			New		
		Other PI3Ka <sup>PAN</sup>			Programs		
SOLID TUMORS	NRAS	NRAS-selective Inhibitor					
	ΡΙ3Κα	RLY-2608 Monotherapy					
	FGFR2	Lirafugratinib (RLY-4008)					
	SHP2 Genentech A Member of the Roche Group	Migoprotafib (GDC-1971)		3 ongoing combo studies (GNE)			

5+ additional unnamed research programs



