



**40th Annual J.P. Morgan Healthcare
Conference Company Presentation
January 2022**

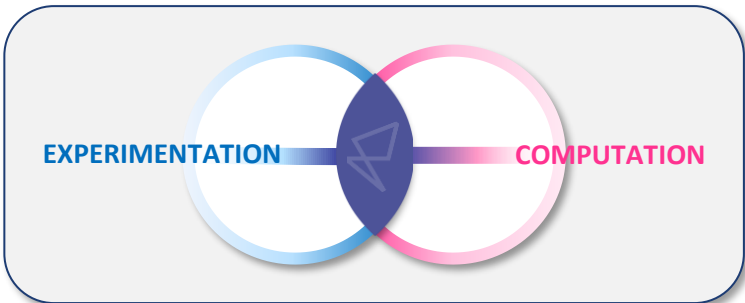
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Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make due to a number of risks and uncertainties. These and other risks, uncertainties and important factors are described in the section entitled "Risk Factors" in our most recent Annual Report on Form 10-K or most recent Quarterly Report on Form 10-Q, as well as any subsequent filings with the Securities and Exchange Commission. Any forward-looking statements represent our views only as of the date of this presentation and we undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, the occurrence of certain events 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 statements.

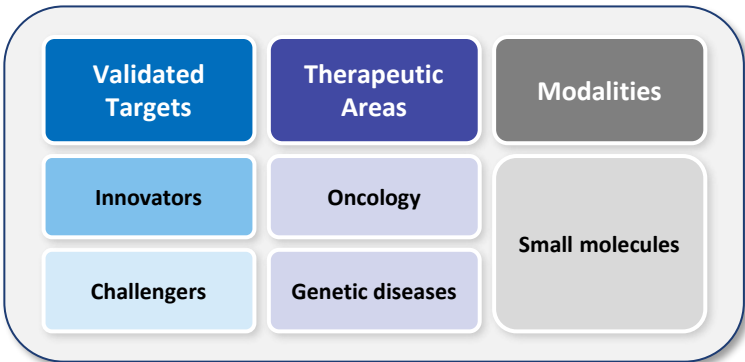
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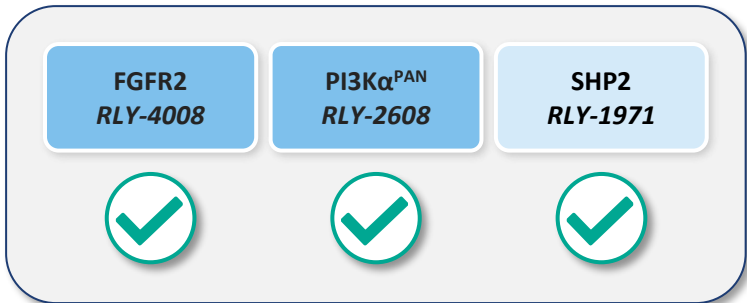
New Breed of Biotech



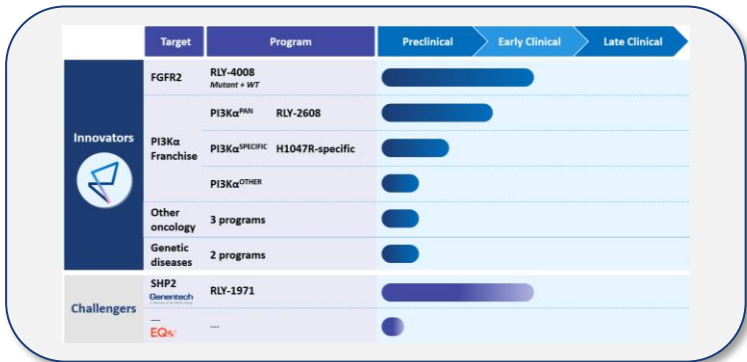
Clear Focus



Validated Approach

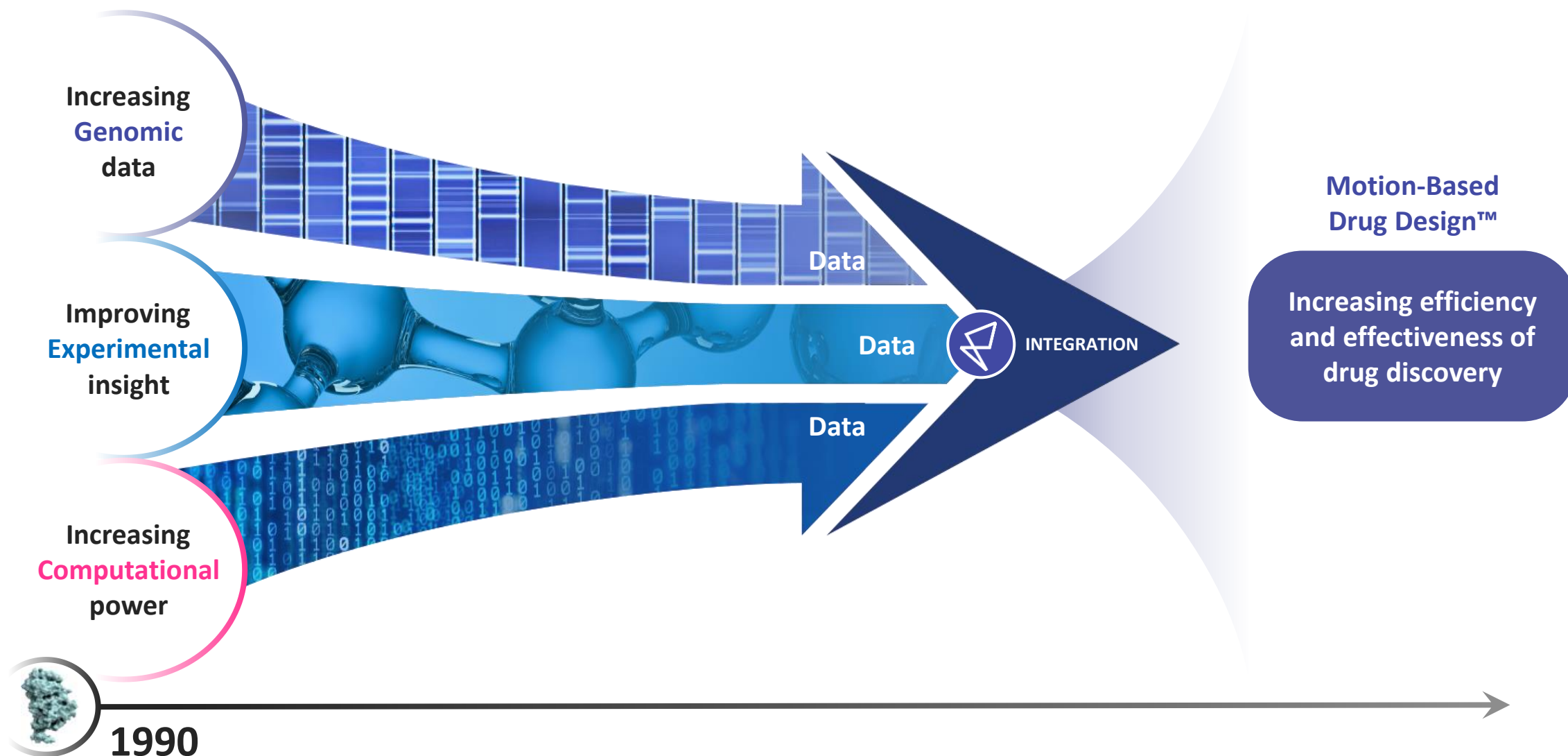


Execution-Focused

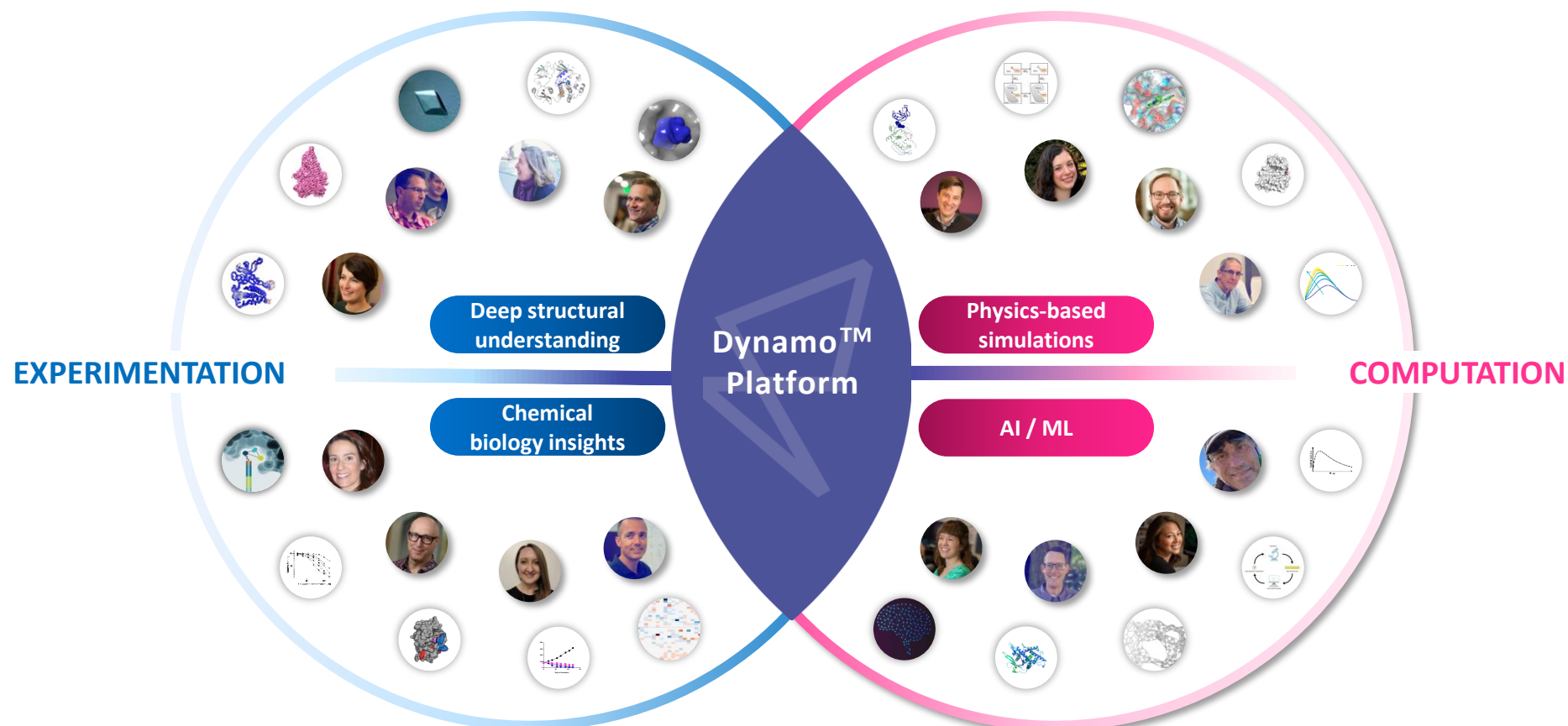


The more we do, the better we get

Relay Tx – Created by the Nexus of 3 Unstoppable Forces and Data



The Dynamo™ Platform – The Power of Experimentation + Computation



2 therapeutic areas

5+ earlier stage
programs in pipeline

3 clinical assets

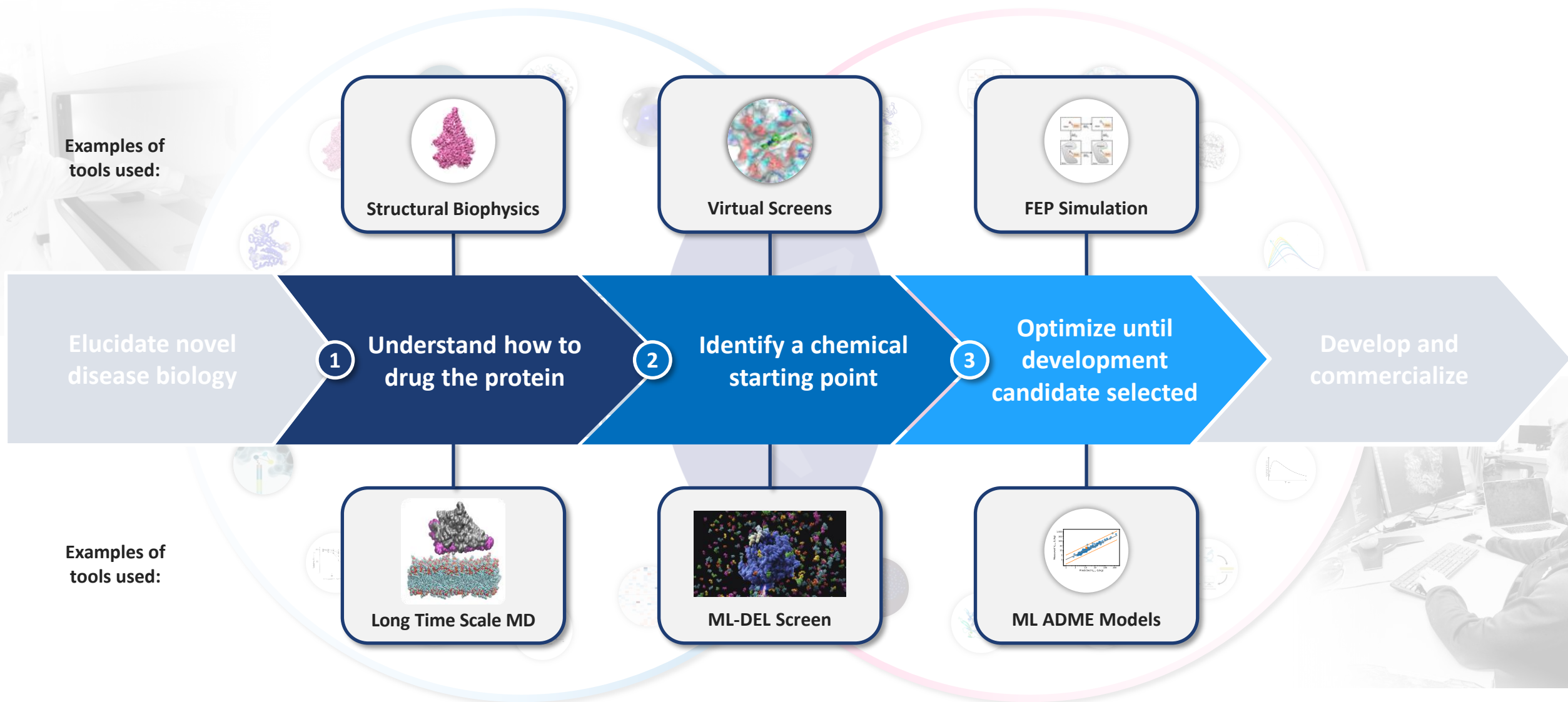
SHP2
RLY-1971

FGFR2
RLY-4008

PI3Kα^{PAN}
RLY-2608

The more we do,
the better we get

Relay Tx – Our 3-Step Drug Discovery Process



Current Focus

Validated Targets

Innovator programs

FGFR2

PI3K α

Challenger programs

SHP2

Genentech
A Member of the Roche Group

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EQRx™

Therapeutic Areas

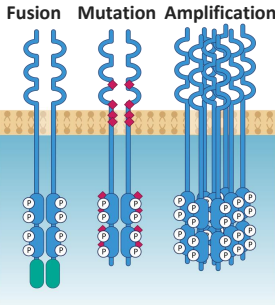
Oncology

Genetic diseases

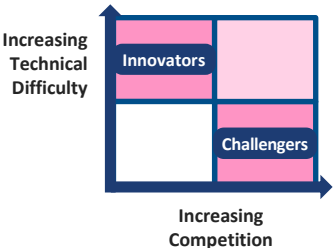
Modalities

Small molecules

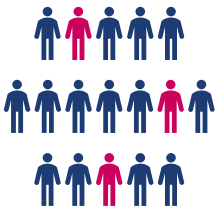
Target is a driver of disease



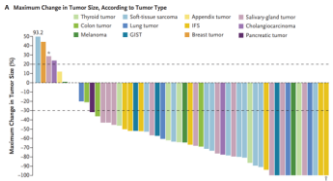
Amenable to Relay Tx's Dynamo™ platform



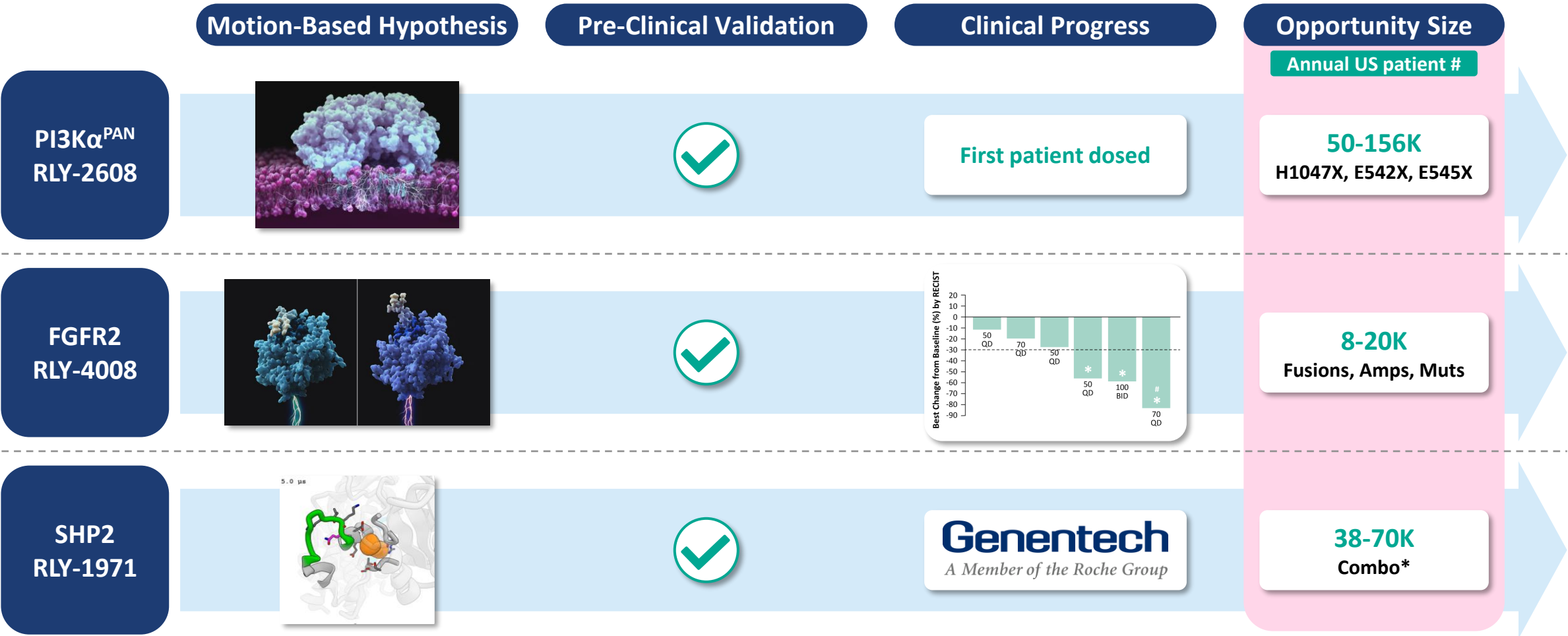
Clear patient selection strategy



Rapid path to clinical POC



Relay Tx – We Have Validated Our Approach and Built Significant Advantage



The more we do, the better we get

Note: Patient #'s refer to total annual number of US patients with late-line cancers compared to comprehensive annual incidence that may be amenable to treatment with our programs

*SHP2 combo only includes KRAS G12C in lung and CRC, EGFR mutations in lung, and ALK fusions in lung

Relay Tx – Our Extensive Precision Medicines Pipeline

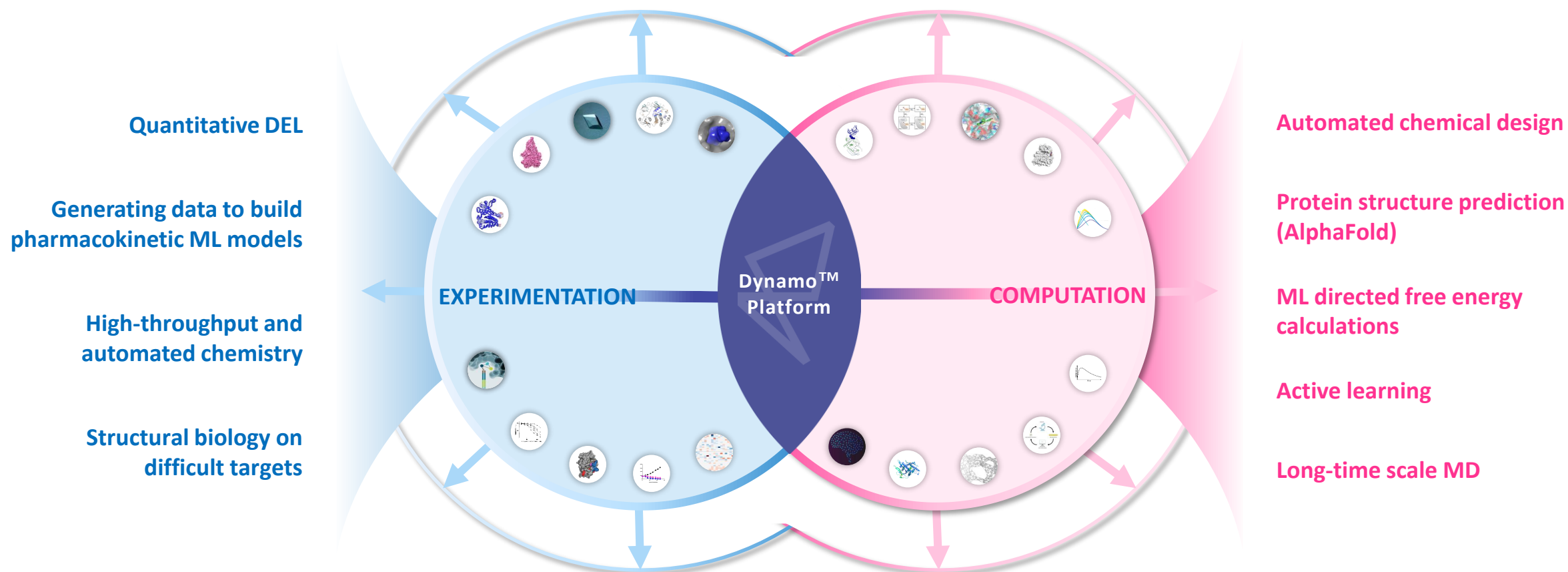


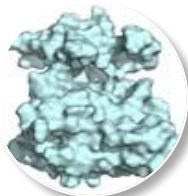
	Target	Program	Preclinical	Early Clinical	Late Clinical	Annual US patient #
Innovators 	FGFR2	RLY-4008 <i>Mutant + WT</i>				8-20K
	PI3Kα franchise	PI3Kα ^{PAN} RLY-2608¹				50-156K
		PI3Kα ^{SPECIFIC} H1047R-specific				15-48K
		PI3Kα ^{OTHER}				To be announced
	Other oncology	3 programs				To be announced
	Genetic diseases	2 programs				To be announced
Challengers	SHP2  A Member of the Roche Group	RLY-1971				38-70K ²
	--- 	---				To be announced

Note: Patient #'s refer to total annual number of US patients with late-line cancers compared to comprehensive annual incidence that may be amenable to treatment with our programs

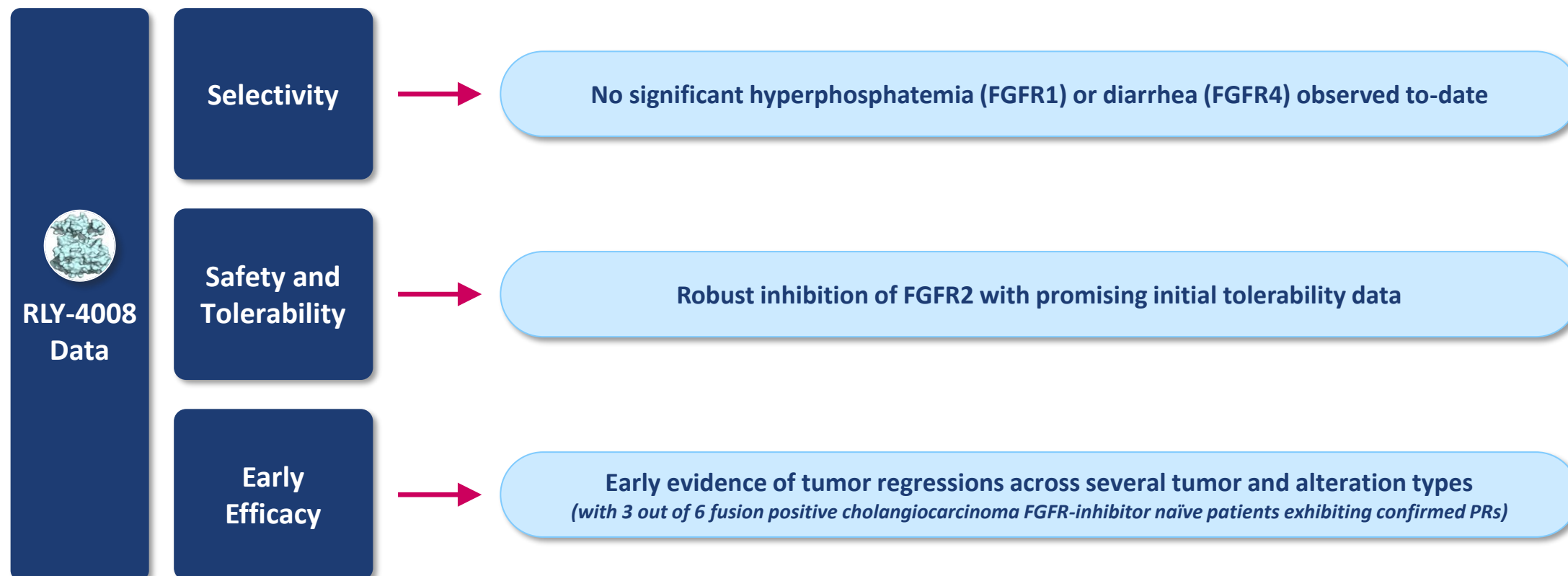
1. RLY-2608 covers H1047X, E542X, E545X hot spots; 2. SHP2 combo only includes KRAS G12C in lung and CRC, EGFR mutations in lung, and ALK fusions in lung

The Dynamo™ Platform – Evolving with Landscape of Leading Edge Techniques



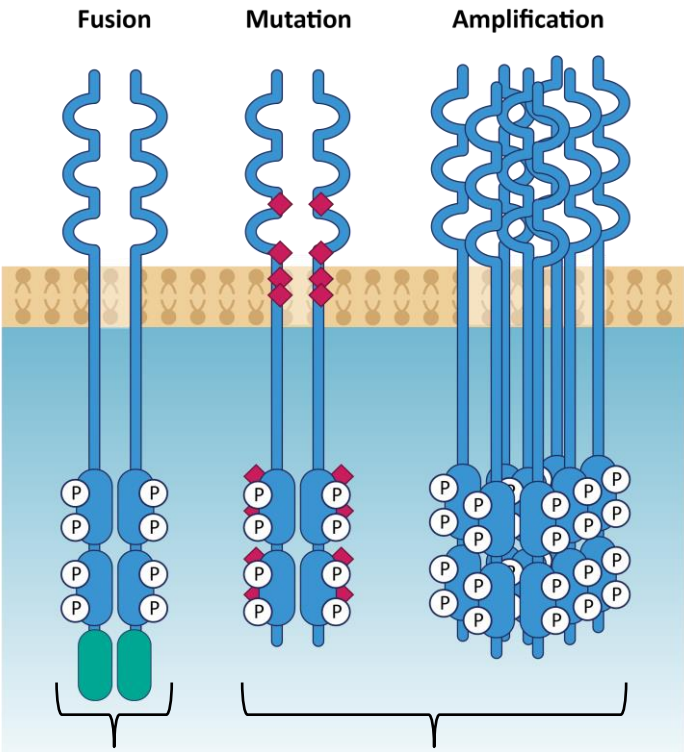


FGFR2 – Highlights from RLY-4008 Interim Clinical Data Disclosure (Oct 2021)



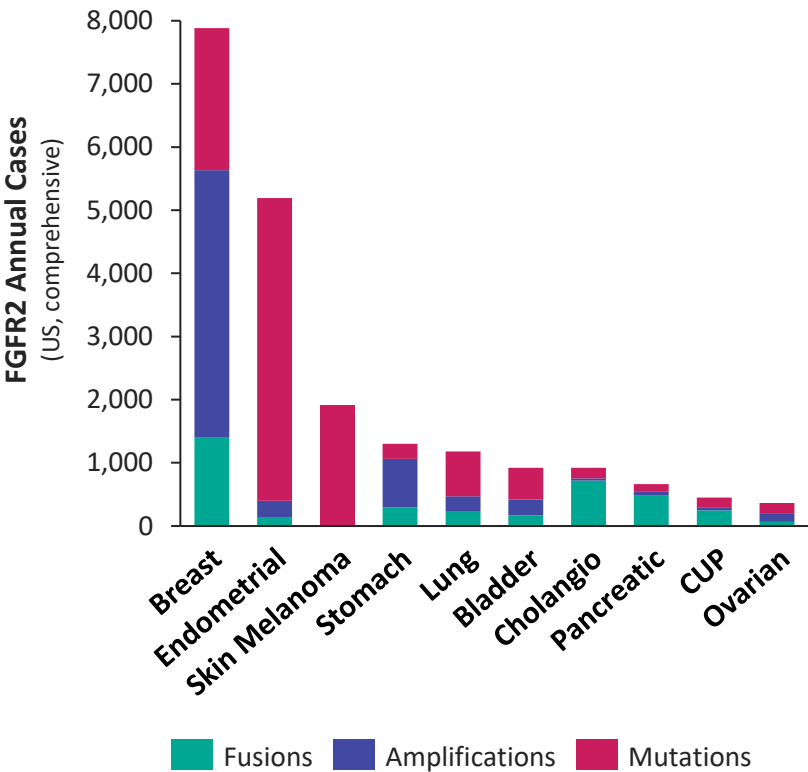
FGFR2 – Validated Target Present in Several Tumor Types

Three classes of driver alterations in FGFR2



~3K-5K patients in the US per year¹ ~5K-15K patients in the US per year¹

FGFR2 alterations are observed across multiple tumor types²



FGFR2-altered cancers remain a high unmet medical need

Current FDA Accelerated Approvals for FGFR2-Altered Cancers

Tumor Type	FGFR2 Fusion & Rearrangement	FGFR2 Oncogenic Mutation	FGFR2 Amplification
FGFRi-naïve Cholangio-carcinoma	23-36% ORR Pemigatinib Infigratinib	No FDA-approved targeted therapy	
FGFRi-resistant Cholangio-carcinoma			
Other FGFR2-altered solid tumors			

Sources: Image adapted from Babina IS, Turner NC. Nat Rev Cancer 2017;17: 318-332; FoundationInsights® database, using 8 copies as the threshold for amplification, and including only mutations with known or likely functional significance; SEER and ACS databases
1. Patient #'s refer to total annual number of US patients with late-line cancers vs. comprehensive annual incidence that may be amenable to treatment with our programs; 2. Cholangio, cholangiocarcinoma; CUP, carcinoma unknown primary

FGFR2 – Selective Inhibitor Required to Address Large Unmet Medical Need



FGFRi treatment naïve patient population

Second Line: FGFRi Treatment Naïve Precedent

Compound	Company	Stage	FGFR2 Selective	Response Rate	Dosing Schedule	% of Patients with Hyperphosphatemia ¹	% of Patients with Diarrhea	% of Patients Discontinued or Dose Reduced
Pemigatinib		Approved ³	No	36% (ICC)	2 weeks on, 1 week off	94%	47%	23%
Infigratinib		Approved ³	No	23% (ICC)	3 weeks on, 1 week off	90%	24%	75%
Futibatinib		Phase 2/3	No	42% (ICC)	Once daily dosing	91%	~28%	56%
Erdafitinib		Approved ³	No	32% (Urothelial Carcinoma)	Personalized dosing based on phosphate levels ²	76%	47%	66%

¹ As defined by increased serum phosphate; except for infigratinib which is not specified

² Initial dose (8 mg QD) adjusted to 9 mg QD only in absence of hyperphosphatemia

³ Currently have accelerated approval

High toxicity limits efficacy of non-selective FGFR inhibitors

Late-Line: Retreating with Chemo Precedent

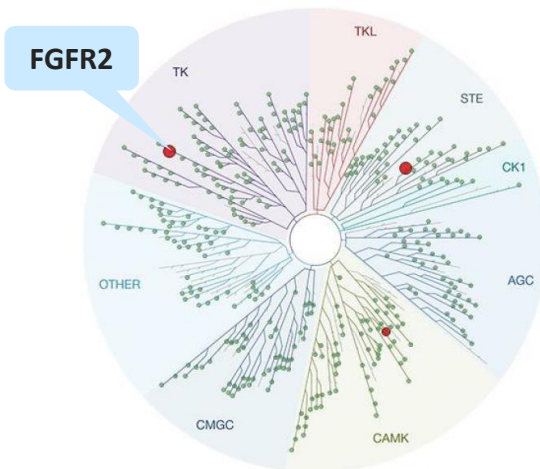
Regimen	Trial	Stage	Population	Response Rate	Progression-Free Survival (median)	Overall Survival (median)	% Deaths Due to Chemo	% of Patients Discontinued or Dose Reduced
FOLFOX Chemotherapy	ABC-06	Phase 3	All Comers, 2L	3% (ICC)	3.3 months (ICC)	5.7 months (ICC)	4%	74%

Late-line treatment with chemotherapy can be highly toxic and only results in incremental efficacy

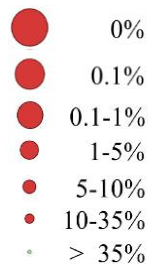
A selective inhibitor of FGFR2 with broad activity against acquired resistance mutations is necessary to address significant unmet need in patients with FGFR2-altered tumors

FGFR2 – RLY-4008 Is Potentially the First Highly Selective and Irreversible FGFR2 Inhibitor

RLY-4008

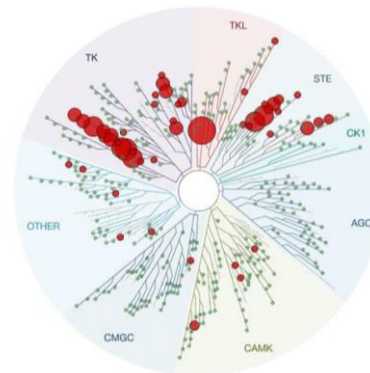


Percent Control

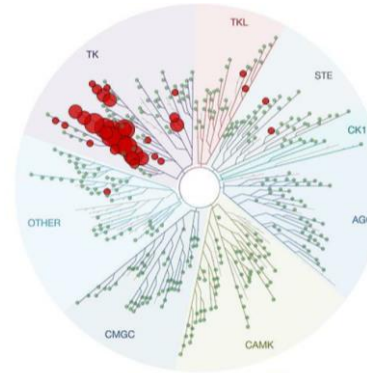


Pan-FGFR Inhibitors

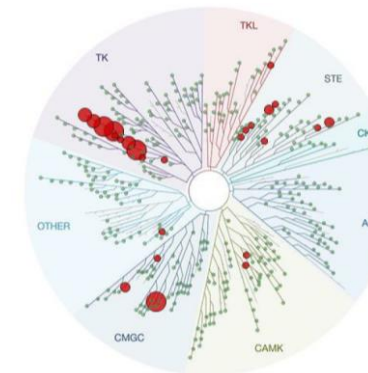
AZD4547



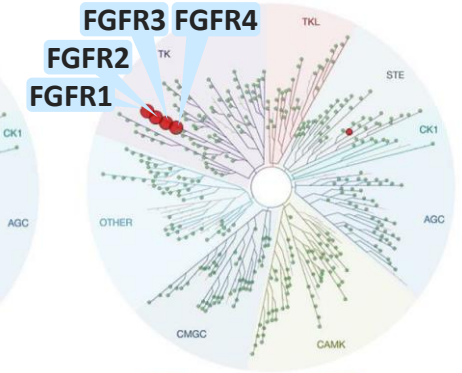
Erdafitinib



Pemigatinib



Futibatinib



Percent Control



Note: Single experiment that tested each compound run at 500nM against 468 targets in the absence of ATP and without preincubation

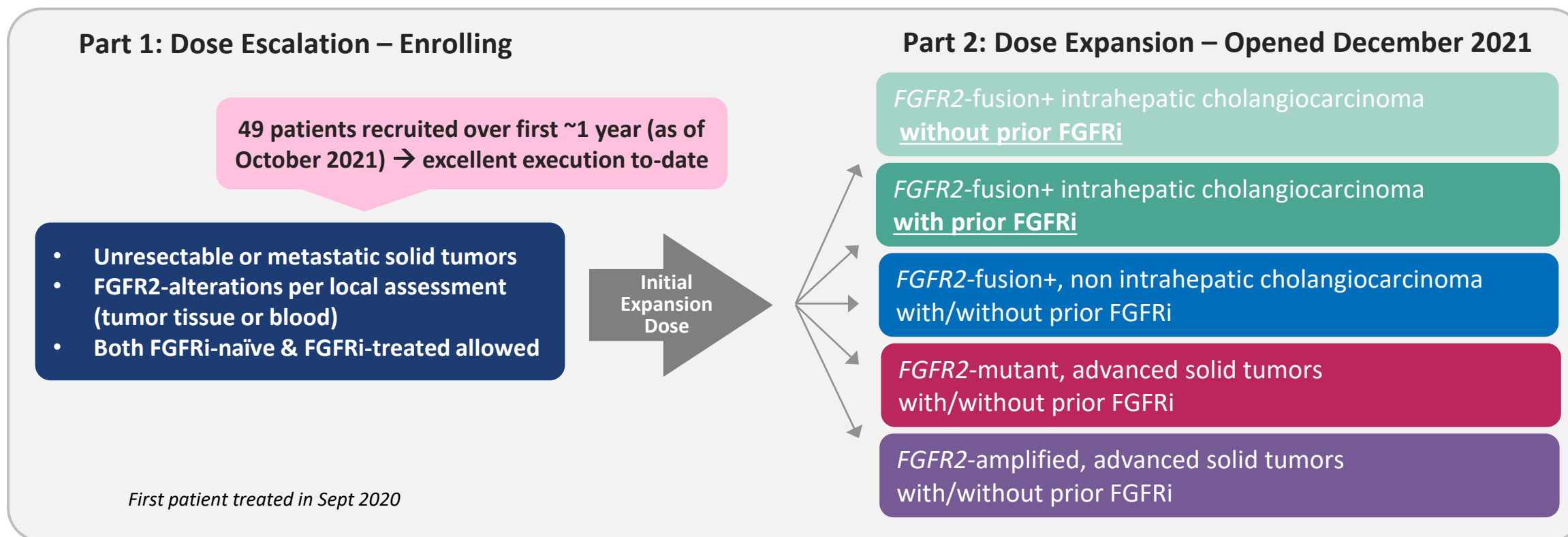
Source: KINOMEScan™ by Eurofins DiscoverX

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FGFR2 – RLY-4008 First-in-Human (FIH) Study Design

Key Objectives:

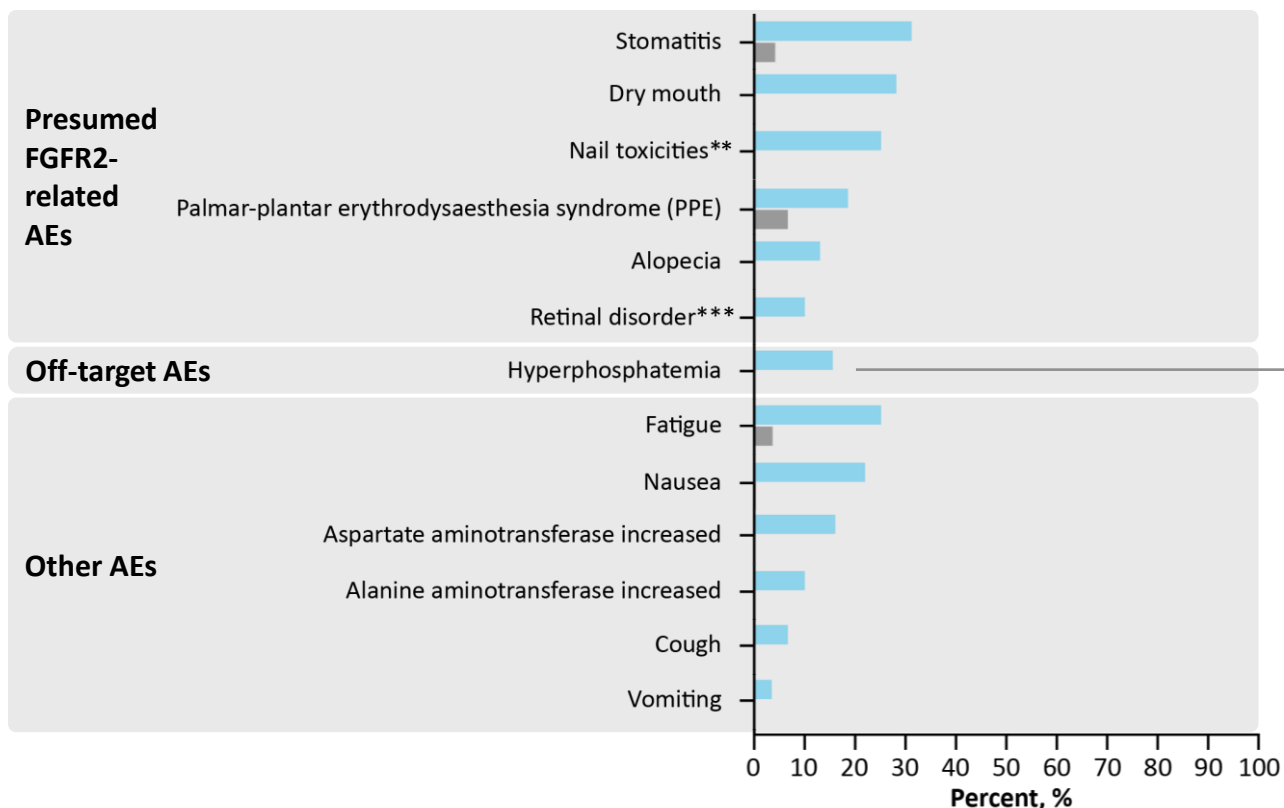
MTD/RP2D, safety, pharmacokinetics, biomarkers (ctDNA, tumor markers), preliminary anti-tumor activity



Orally dosed; BID and QD schedules explored using the Bayesian Optimal Interval Escalation (BOIN) design; Starting dose was 50 mg BID

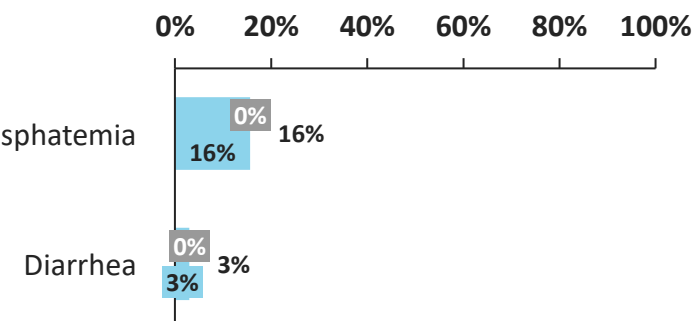
FGFR2 – RLY-4008 FIH Study: RLY-4008 QD Safety Profile

Treatment-Emergent Adverse Events*



Key Off-Target Safety (FGFR1 and FGFR 4)

Grade 1-2
Grade 3



On-target AEs have been mostly low grade (no Gr 4/5, < 10% in the QD dosing regimen), and all of them have been reversible, manageable with dose modification or no intervention and monitorable

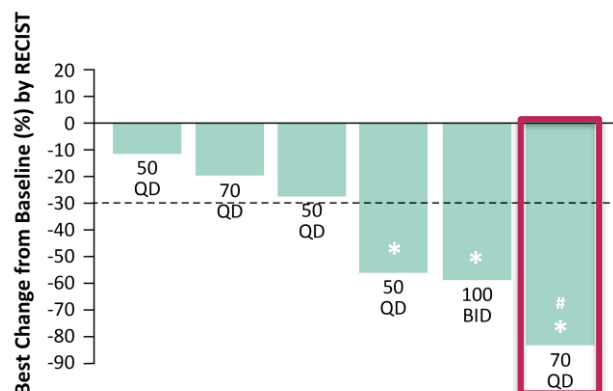
Source: RLY-4008 data as presented at 2021 AACR-NCI-EORTC Molecular Targets Conference (QD schedule n=32)

**Included preferred terms of nail disorder, nail discoloration, nail ridging, onychalgia, onychoclasia, onycholysis, onychomadesis, paronychia.

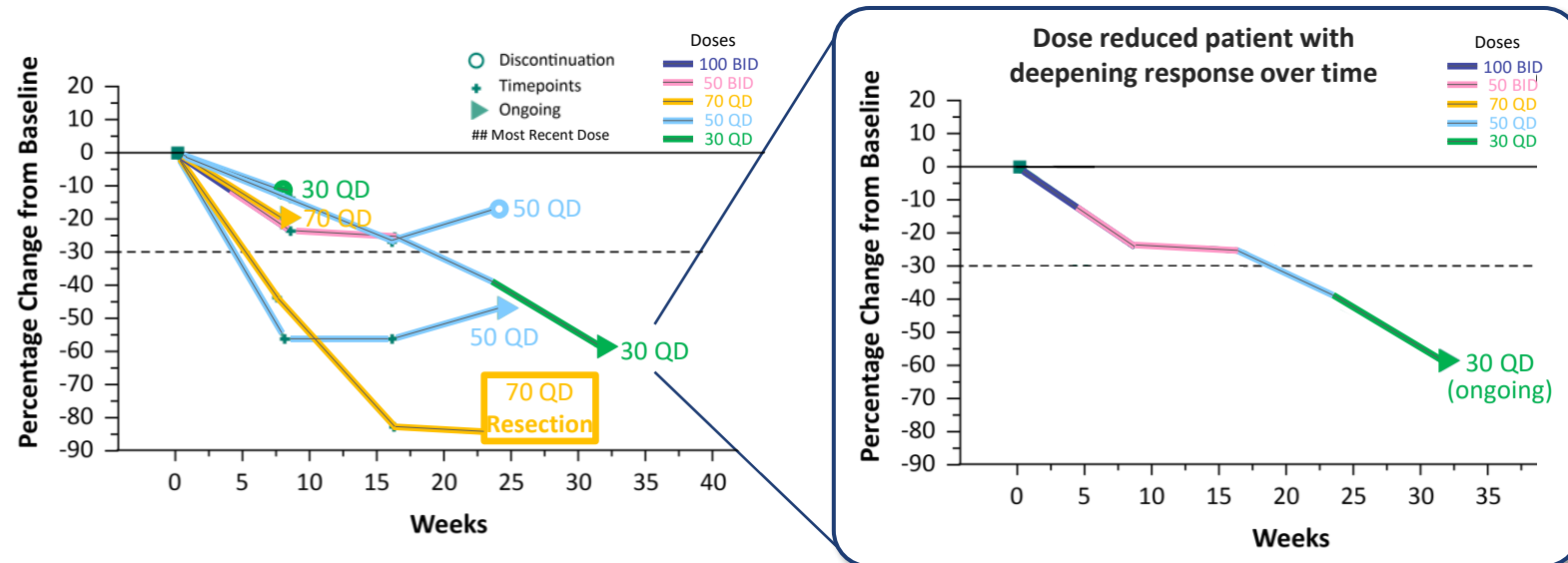
***Included preferred terms of retinal pigment epithelium detachment, retinopathy, blurred vision, subretinal fluid.

FGFR2 – RLY-4008 FIH Study: RLY-4008 Induced Radiographic Tumor Regression in FGFR Inhibitor-Naïve FGFR2-Fusion+ Cholangiocarcinoma

Best RECIST change from baseline



Relative change from baseline in tumor size



3/6 patients exhibit a confirmed PR

3/6 patients ongoing on treatment, and 1 patient had resection with curative intent

Pan-FGFR benchmark in this population is 23-36% ORR

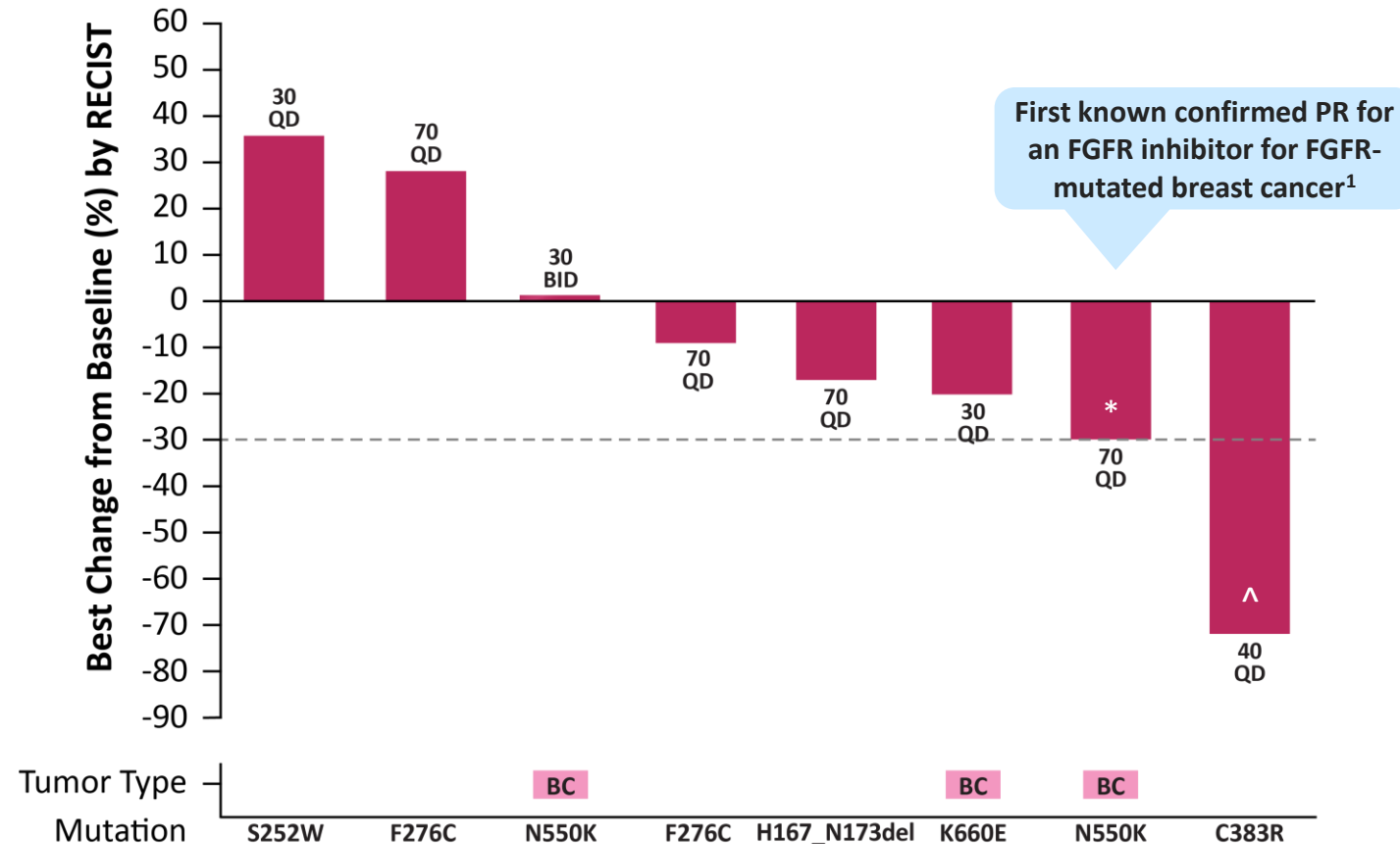
Source: RLY-4008 data as presented at 2021 AACR-NCI-EORTC Molecular Targets Conference

*Confirmed PR; #Tumor resection after data cut off.

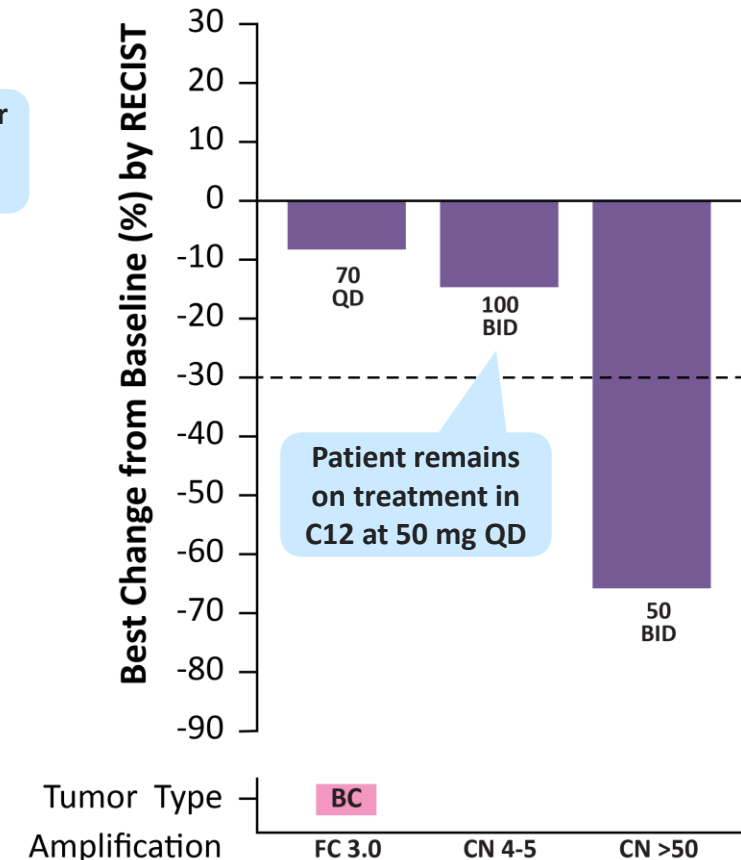
FGFRi, fibroblast growth factor receptor inhibitor PR, partial response.

FGFR2 – RLY-4008 FIH Study: RLY-4008 Showed Radiographic Tumor Regression in FGFR2 Oncogenic Mutations and in FGFR2 Amplifications

FGFR2 Oncogenic Mutations



FGFR2 Amplifications



No FDA-approved FGFR targeted therapies for FGFR2 oncogenic mutations or amplifications

■ Breast cancer (BC)

*Confirmed PR with increased tumor reduction after data cut; ^PR pending confirmation.

1. Based on Company's review of presented meeting abstracts and published studies to-date.

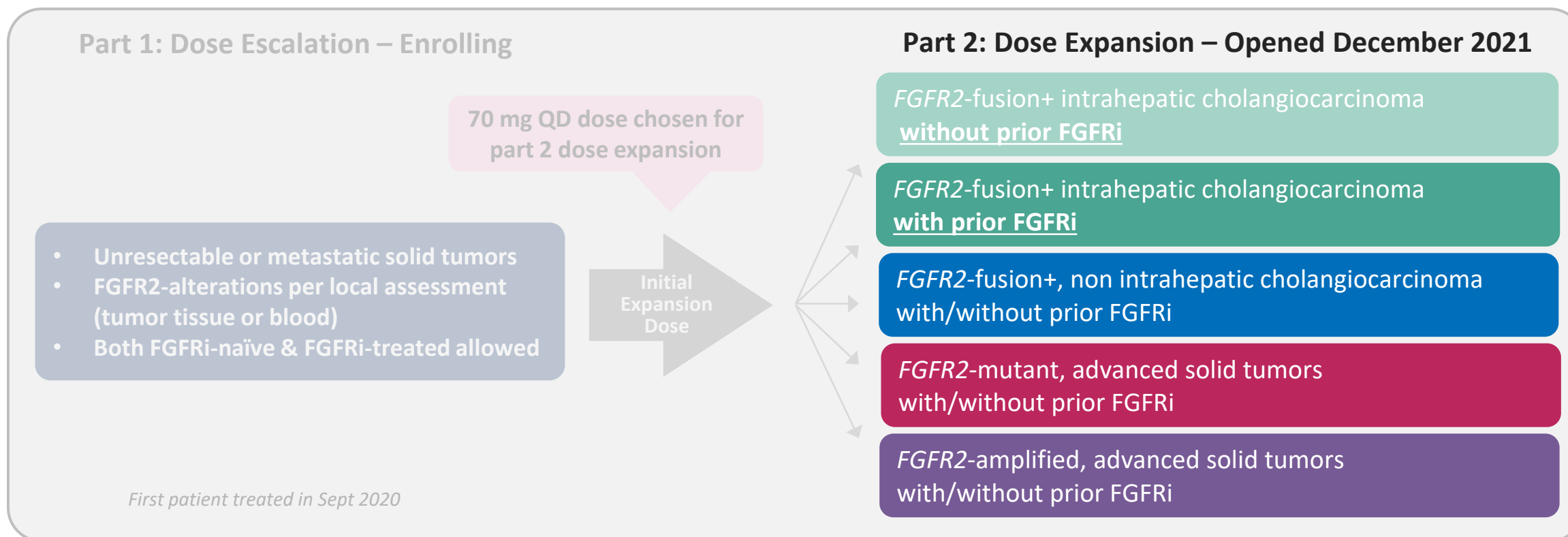
Note: FC, fold change; CN, copy number.

Source: RLY-4008 data as presented at 2021 AACR-NCI-EORTC Molecular Targets Conference

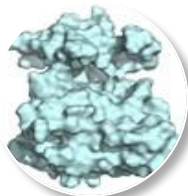
FGFR2 – RLY-4008 First-in-Human (FIH) Study Design

Key Objectives:

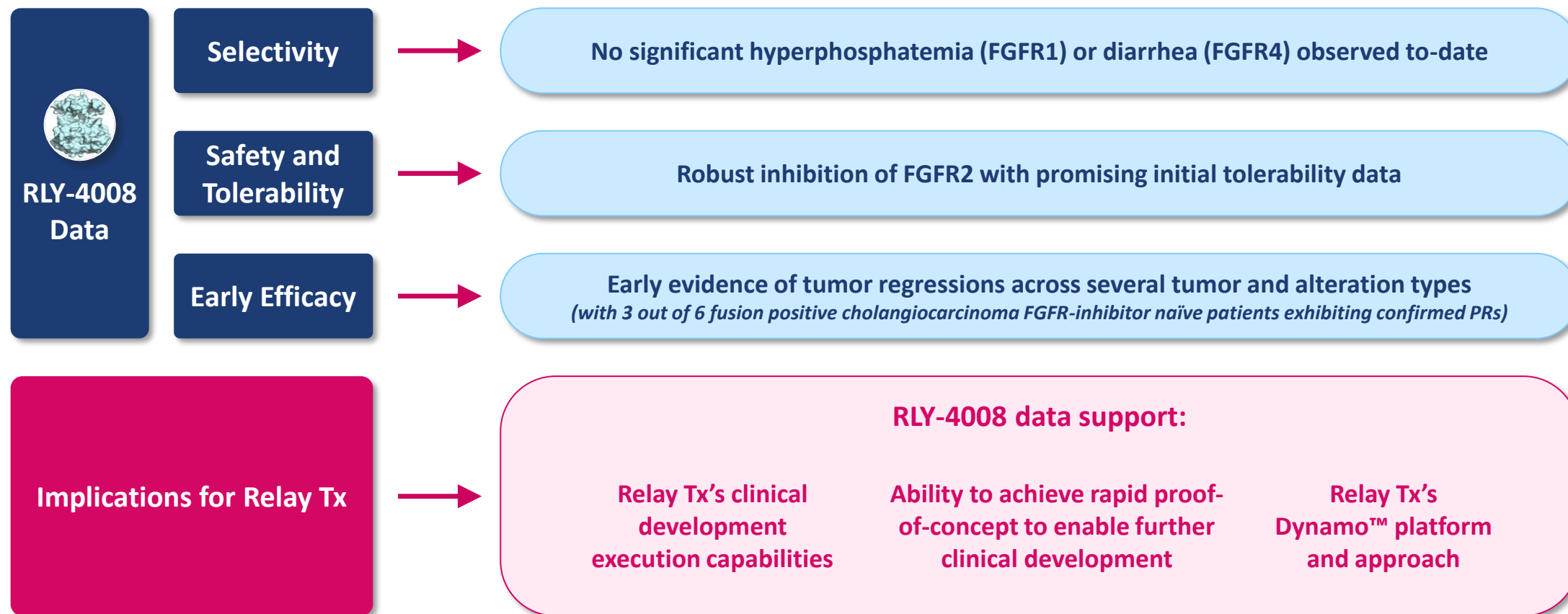
MTD/RP2D, safety, pharmacokinetics, biomarkers (ctDNA, tumor markers), preliminary anti-tumor activity



Orally dosed; BID and QD schedules explored using the Bayesian Optimal Interval Escalation (BOIN) design; Starting dose was 50 mg BID



FGFR2 – Highlights from RLY-4008 Interim Clinical Data Disclosure (Oct 2021)



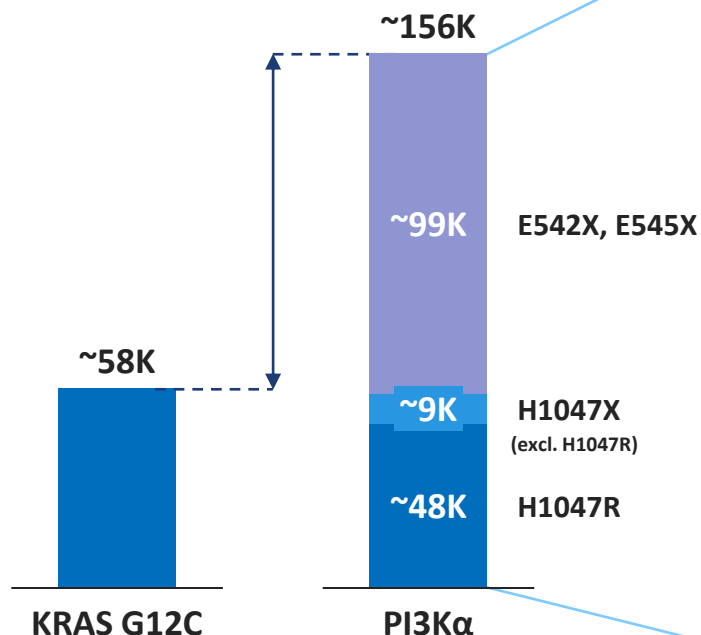


PI3K α Opportunity Is Among the Largest Ever for Precision Oncology



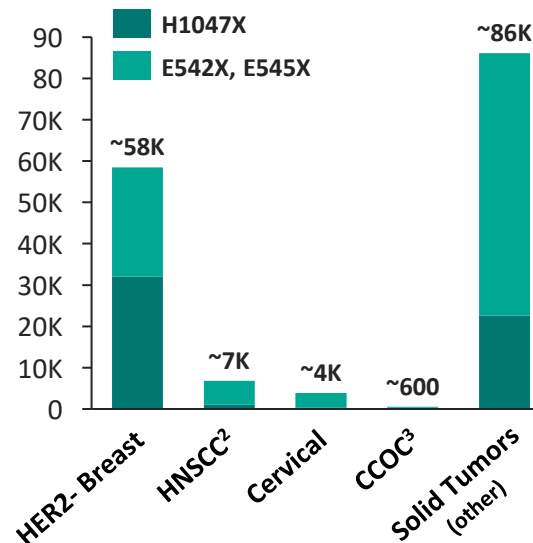
Pan-mutant selective drug represents significant clinical opportunity

US Patients – Solid Tumors Incidence (Annual)¹

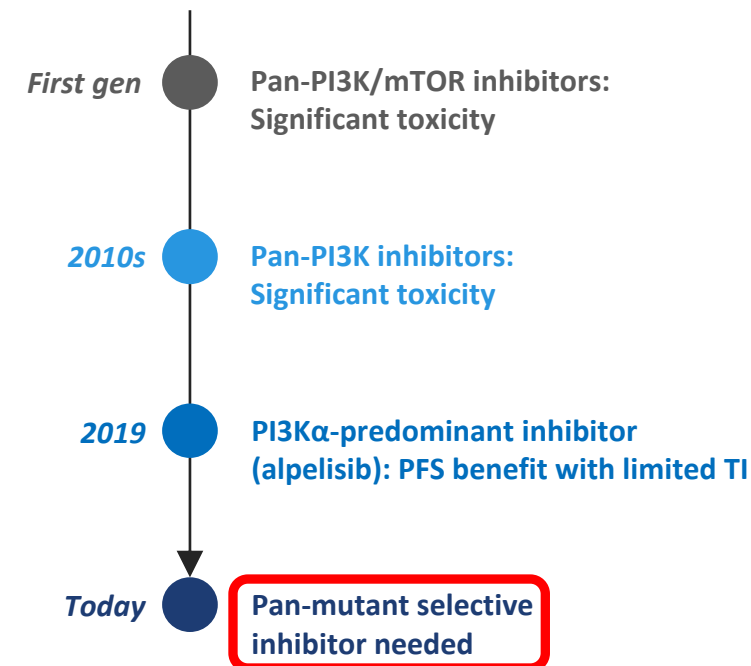


PI3K α alterations observed across multiple tumor types – select indications

US Patients - Comprehensive Incidence (Annual)



Evolution of PI3K inhibitors



Sources: FoundationInsights® database; SEER; Alpelisib – FDA prescribing label

1. Annual incidence of solid tumors with KRAS G12C, PI3K H1047R, PI3K H1047X, PI3K E542X + E545X alterations; 2. Head & Neck Squamous Cell Carcinoma; 3. Clear Cell Ovarian Cancer

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PI3K α – Existing Inhibitors Establish POC, but Have Limited Therapeutic Window



Hyperglycemia is on-target
tox from PI3K α WT

Breast Cancer

Monotherapy and Combo Data from Leading Competitors

Compound/ Company	Stage	Mutant Selective	Regimen	Response Rate	% of Patients with Hyperglycemia	% of Patients with GI Toxicity	% of Patients Discontinued or Dose Reduced
Alpelisib 	Approved	No	Monotherapy (Dose Escalation)	3% (1/36)	52% (24% Gr3-4)	40%	52%
			Combo (Fulvestrant) in mBC, CDKi pre-treated	19% mPFS 7.3mo	58% (28% Gr3-4)	60%	83% ¹
Inavolisib A Member of the Roche Group	Phase 3	No	Monotherapy (Dose Escalation)	20% (4/20)	70% (20% Gr3-4)	40%	30% ²
			Triplet mBC Combo, no prior CDKi (CDK4/6 + Fulvestrant)	40% (6/15)	61% (23% Gr3-4)	48%	36%

1. Includes dose interruptions in addition to dose reductions and discontinuations
2. Dose reductions only; discontinuations not reported

Non-Breast Cancer

Monotherapy Anecdotal Responses Validate PIK3CA as a Tumor Driver Outside Breast Cancer

Compound	PI3K Isoform Selectivity	Mutant Selective	Tumor Types Where Monotherapy Objective Responses In PIK3CAm Patients Have Been Observed (# of Patients)
Alpelisib	Alpha-Predominant	No	Cervical (6), Breast (2), Endometrial (2), Colorectal (2), GIST (2), Head & Neck (1)
Inavolisib	Alpha-Predominant	No	Breast (4)
Taselisib	Alpha, Delta, Gamma	No	Head & Neck (4), Breast (3), Endometrial (2), Cervical (2), CCA (2), CRC (1), Pancreatic (2), Salivary Gland (1)
CYH33	Alpha-Predominant	No	Clear-Cell Ovarian (1), Other Ovarian (1), Breast (1), CRC (1), Gastric (1)

Sources: Alpelisib Monotherapy – Juric et al 2018; Alpelisib Combo – 2021 SABCS Presentation – BYLieve Cohort A; Inavolisib Monotherapy – SABCS 2019 Poster, Inavolisib Combo – SABCS 2020 Poster; Taselisib Monotherapy – Jhaveri et al 2020; CYH33 – ESMO-TAT 2020 Presentation

PI3K α – Relay Tx Has a Unique Understanding of PI3K α

KRAS experience teaches us
pan-mutant coverage is required

Similarities between PI3K and KRAS:

- ✓ Clear oncogenic driver
- ✓ Mutations cluster at a few key hotspots
- ✓ Hotspot mutations can occur with multiple different alleles

KRAS G12C

Examples of
on-target
resistance
mechanisms

KRAS G13D

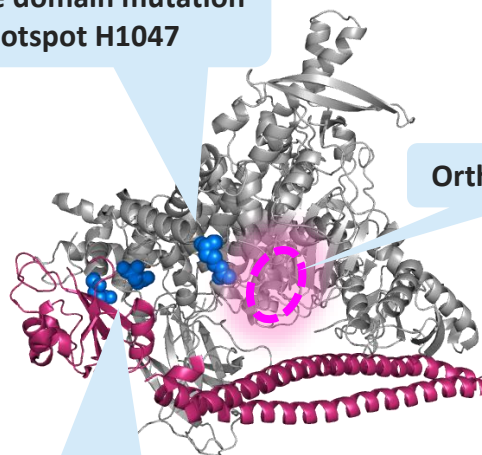
KRAS G12V

KRAS Y96D

On-target resistance to mutation-specific
inhibitors can result in escape via different allele
at same site or mutation at another hotspot

Relay Tx has a unique
understanding of PI3K α

Kinase domain mutation
hotspot H1047



Orthosteric site

Helical domain mutation
hotspots E542 and E545

RLY-2608 (pan-mutant selective) is the
foundation of our franchise

PI3K α
Franchise

PI3K α ^{PAN}

RLY-2608*
*Pan-mutant selective
allosteric inhibitor*

PI3K α ^{SPECIFIC}

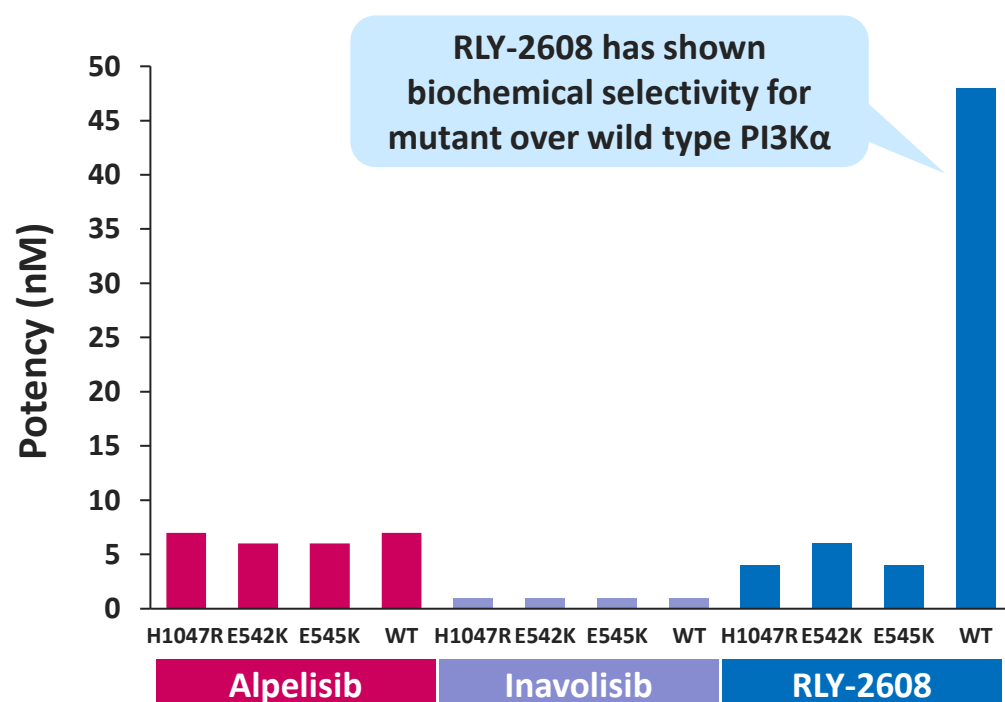
*H1047R-specific
allosteric inhibitor*

PI3K α ^{OTHER}

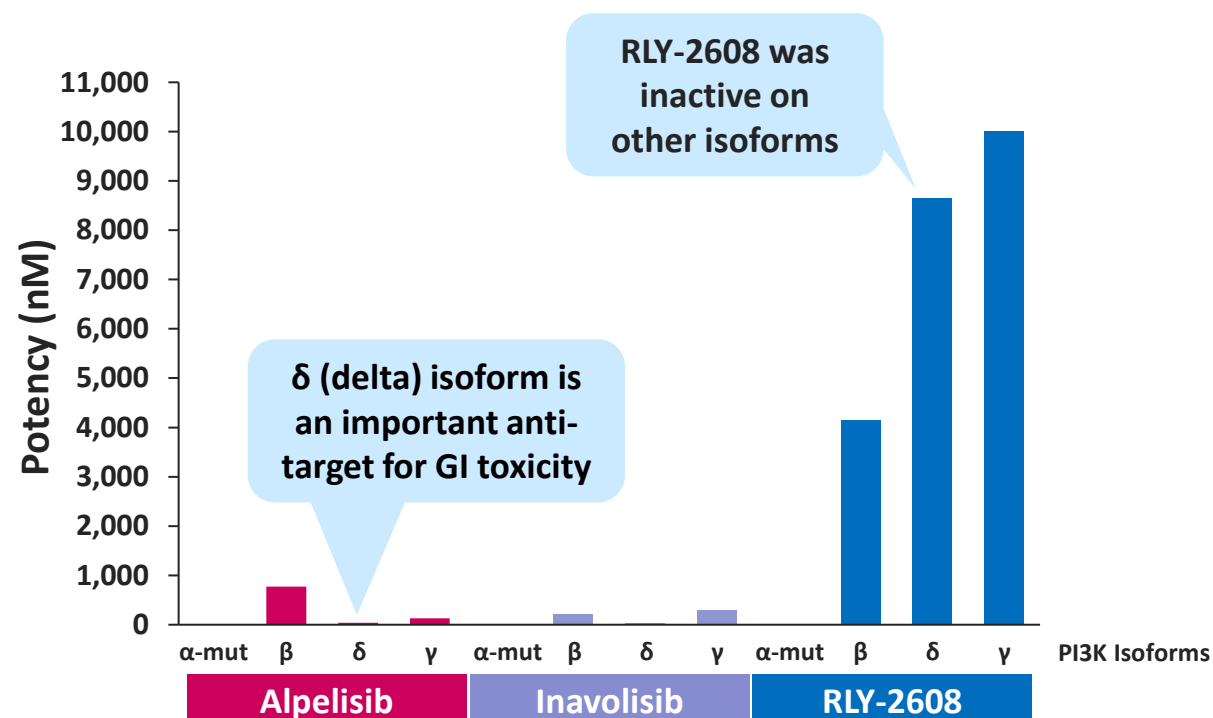
*Other PI3K α
allosteric programs*

PI3K α – RLY-2608 Has Shown Mutant and Isoform Biochemical Selectivity

Mutant vs. WT PI3K α potency



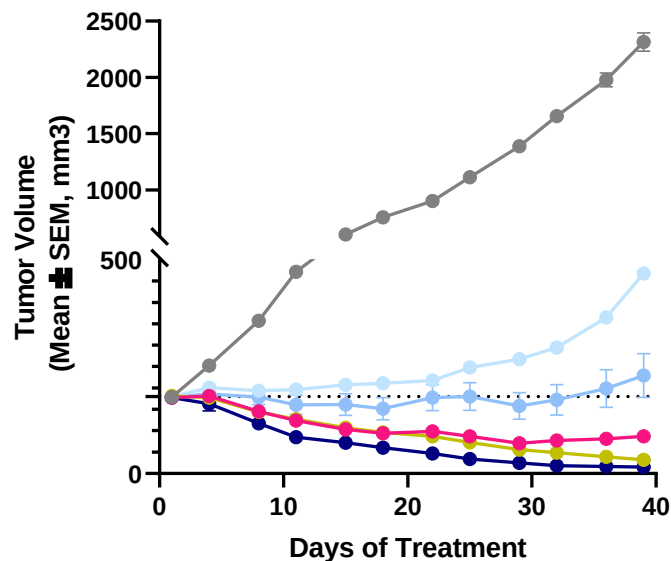
Mutant PI3K α vs. other isoform potency



PI3K α – In Vivo Tumor Regressions Across Both Mutation Hotspots (Mouse Study)

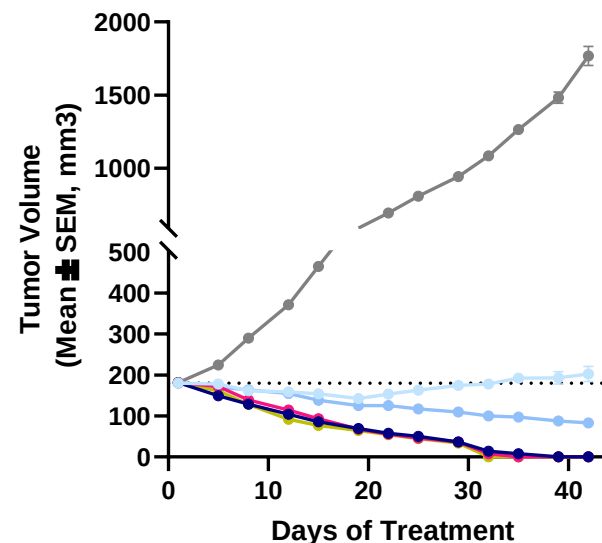


H1047R mutant (HCC1954) (mouse)



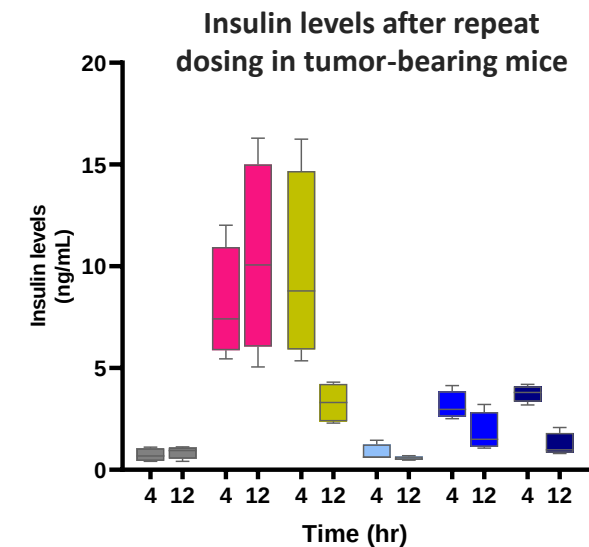
— Vehicle
 — Alpelisib PO 50mpk QD
 — Inavolisib 25mg/kg QD
 — RLY-2608 25mg/kg BID
 — RLY-2608 50mg/kg QD
 — RLY-2608 100mg/kg BID

E545K mutant (MDAMB361) (mouse)¹



— Vehicle
 — Alpelisib PO 50mpk QD
 — Inavolisib 25mg/kg QD
 — RLY-2608 25mg/kg BID
 — RLY-2608 50mg/kg QD
 — RLY-2608 100mg/kg BID

RLY-2608 achieved active doses with less insulin than orthosteric inhibitors²



— Vehicle
 — Alpelisib PO 50mpk QD
 — Inavolisib 25mg/kg QD
 — RLY-2608 25 mg/kg BID
 — RLY-2608 50mg/kg QD
 — RLY-2608 100mg/kg BID

Consistent results for 1-hour time point³

Source: RLY-2608 data as presented in 2021 AACR-NCI-EORTC Molecular Targets Conference poster presentation

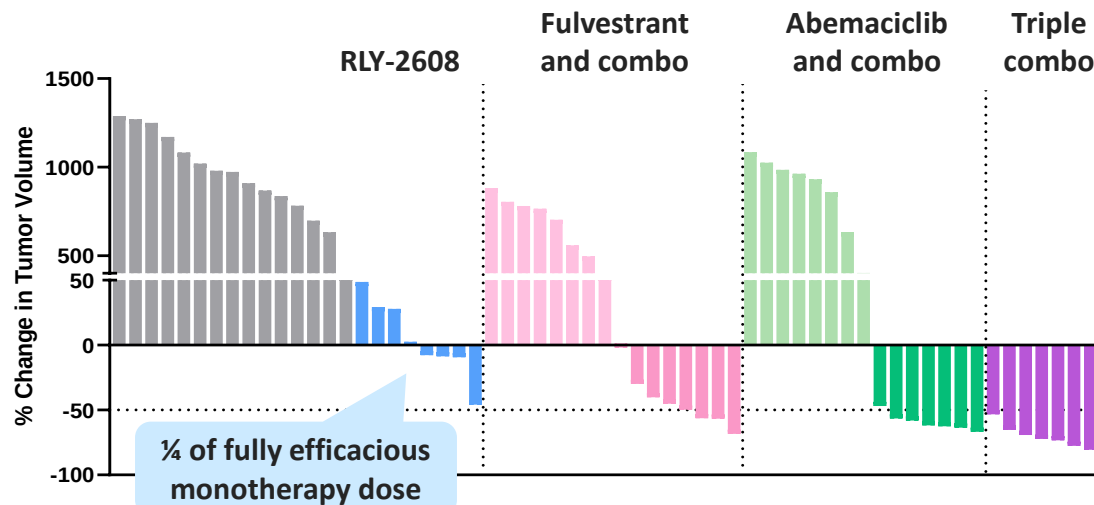
1. This model also carries a second mutation at K567R; 2. HSC2 model; 3. Similar results observed in the same background strain at 1hr timepoint in the MCF7 (E545K) model

PI3K α – RLY-2608 Combines with Standard of Care Therapies to Drive Regressions in ER+/HER2- Breast Cancer Models

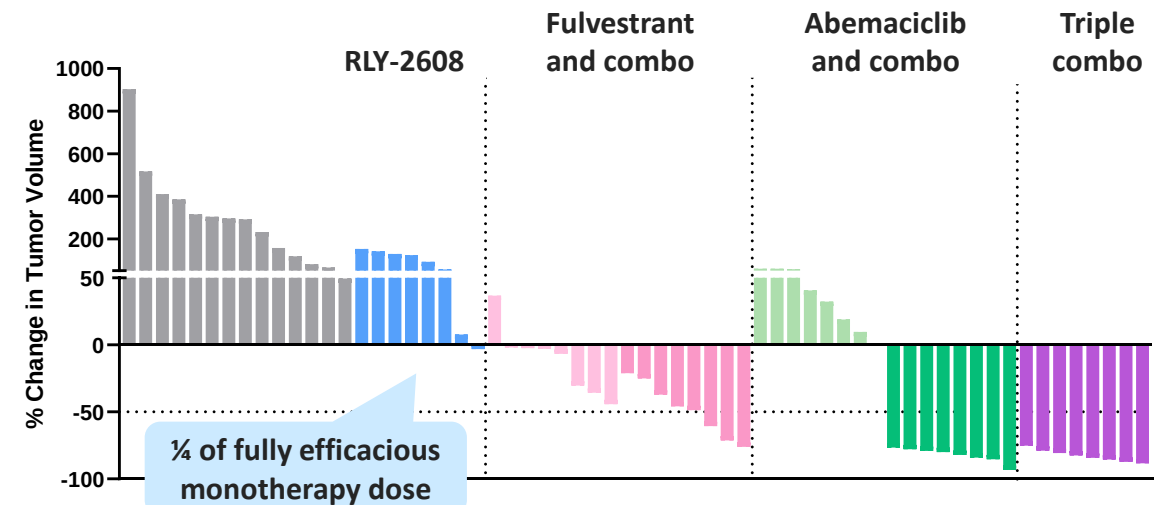


ST1056 (ER+/HER2-; H1047R)

ST986 (ER+/HER2-; E542K)



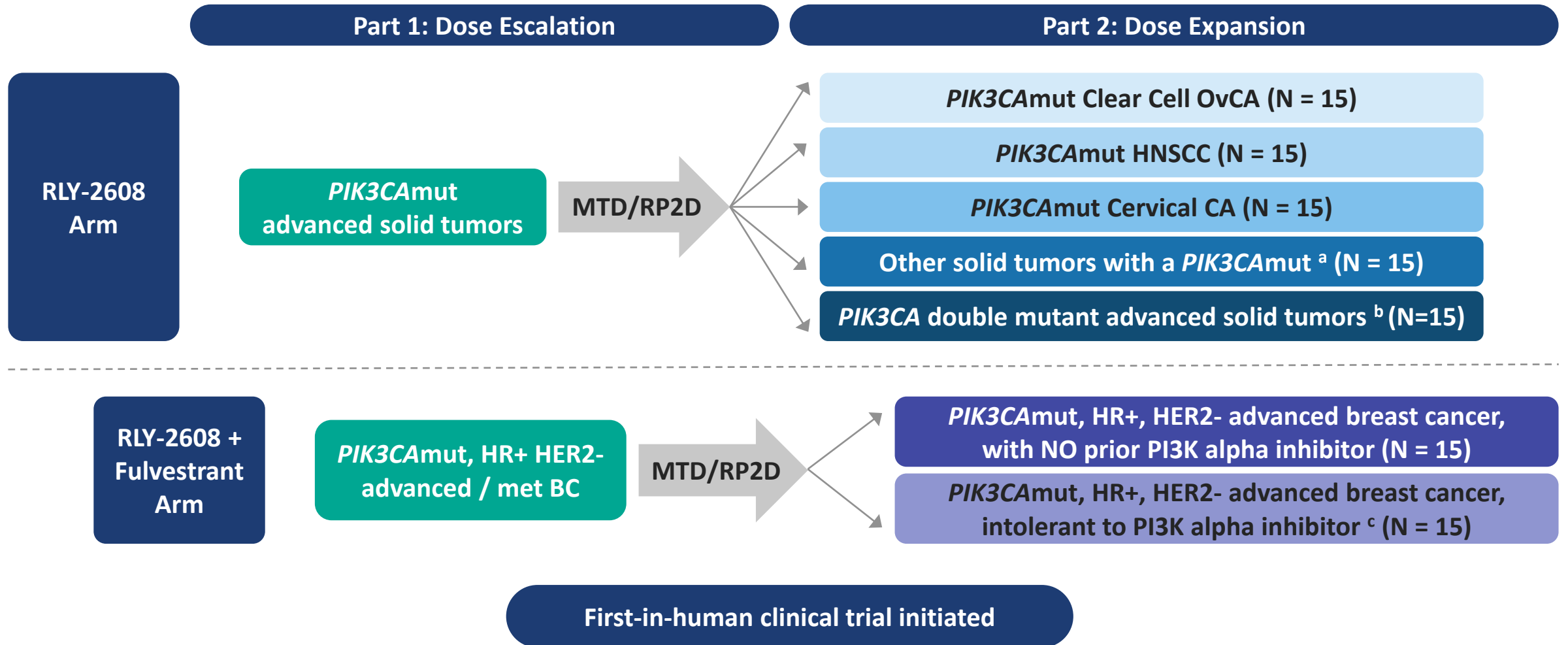
Superior efficacy observed preclinically in the triple combination



Combination arms with similar tolerability to monotherapy arms

Source: RLY-2608 data as presented in 2021 SABCS poster presentation

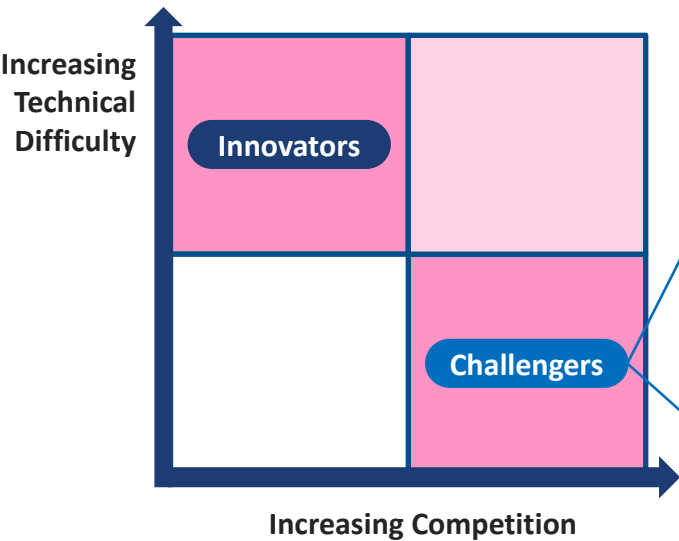
PI3K α – RLY-2608 Trial Design



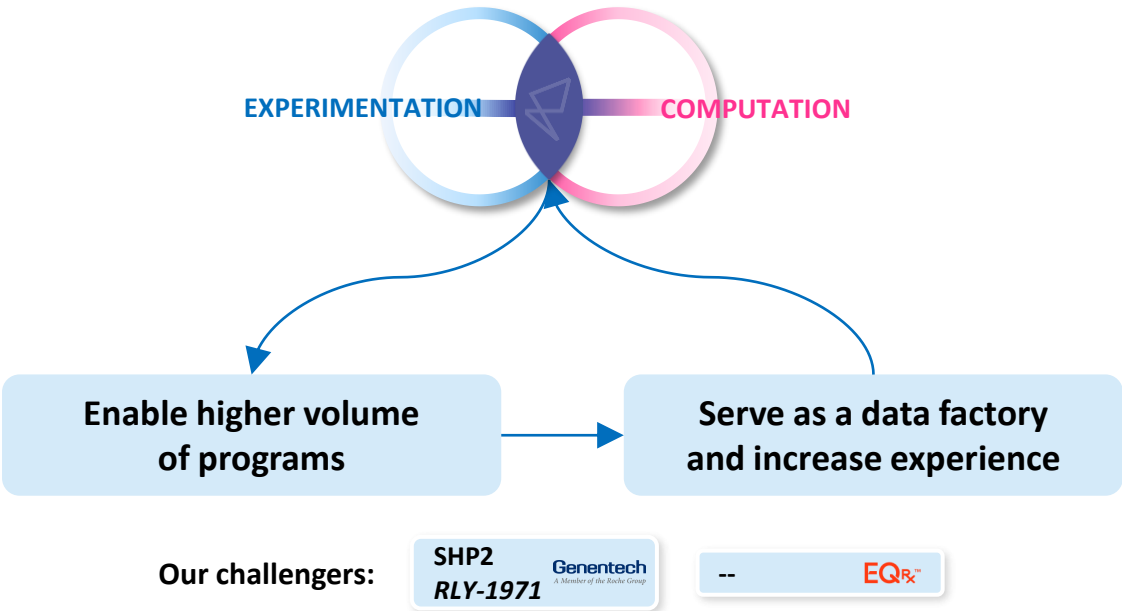
a. Excludes *PIK3CA*mut clear cell OvCA, HNSCC, and Cervical cancer patients; b. Double mutation defined as one major *PIK3CA* mutation (E542X, E545X, H1047X) + ≥ 1 additional *PIK3CA* mutation per local assessment; c. Intolerance to PI3K alpha inhibitors is defined as treatment discontinuation due to treatment-related AE (e.g., hyperglycemia, rash, diarrhea, stomatitis) other than severe hypersensitivity reaction and/or life-threatening reactions, such as anaphylaxis and Stevens-Johnson syndrome.

Challengers – Supporting the Build of Our Dynamo™ Platform

Challengers Have Lower Technical Risk



Challengers Solve Problems with “Known” Answers

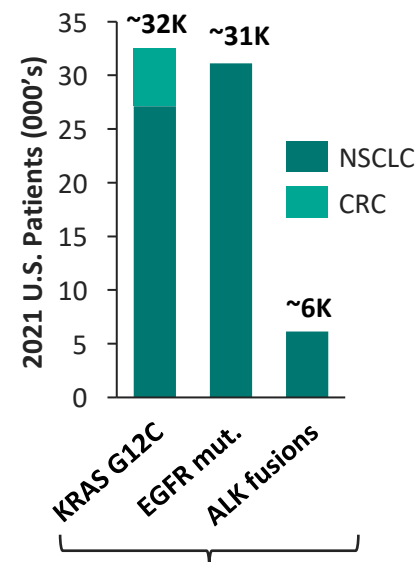


The more we do, the better we get

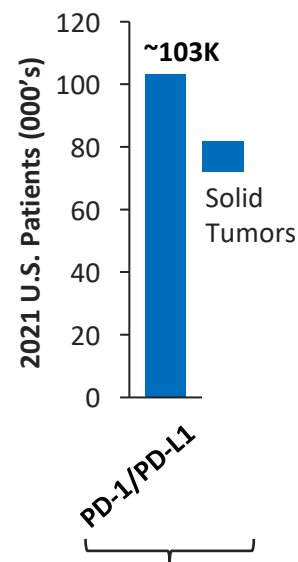
SHP2 – RLY-1971 Is Potent and Selective with Potential for Multiple Therapeutic Uses



Potential Patient Populations



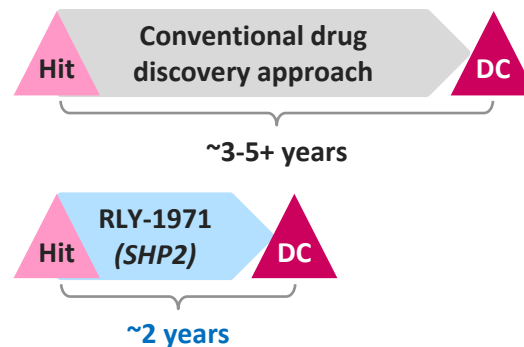
Based on annual comprehensive incidence in the US



% pts. eligible x % pts. respond to checkpoint inhibitors (US)

RLY-1971 Discovery

Time from hit to development candidate (DC)



of chemical series

1-2

22

Key Differentiating Features of RLY-1971

Dosing potential

Projected to be continuous once daily dosing

Potency

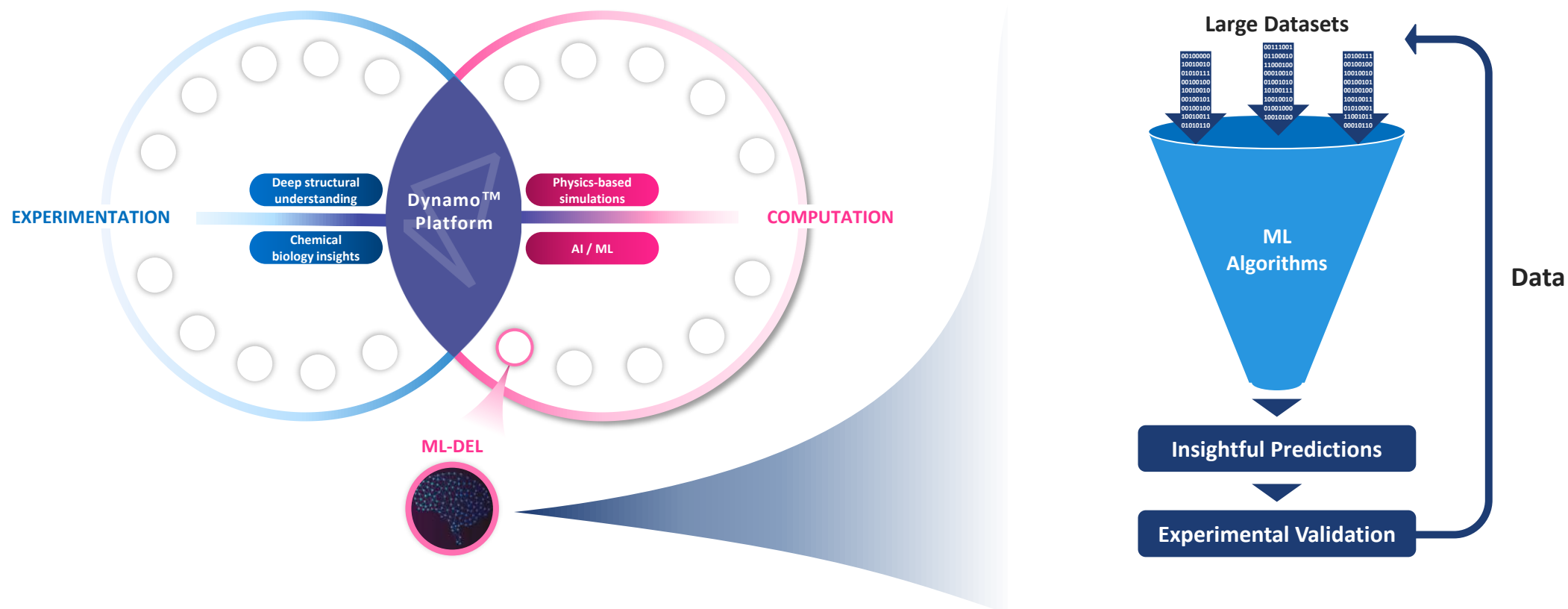
Demonstrated 750pM IC50 inhibition of SHP2 in biochemical assays

Novel chemistry

Chemically distinct from other SHP2 inhibitors

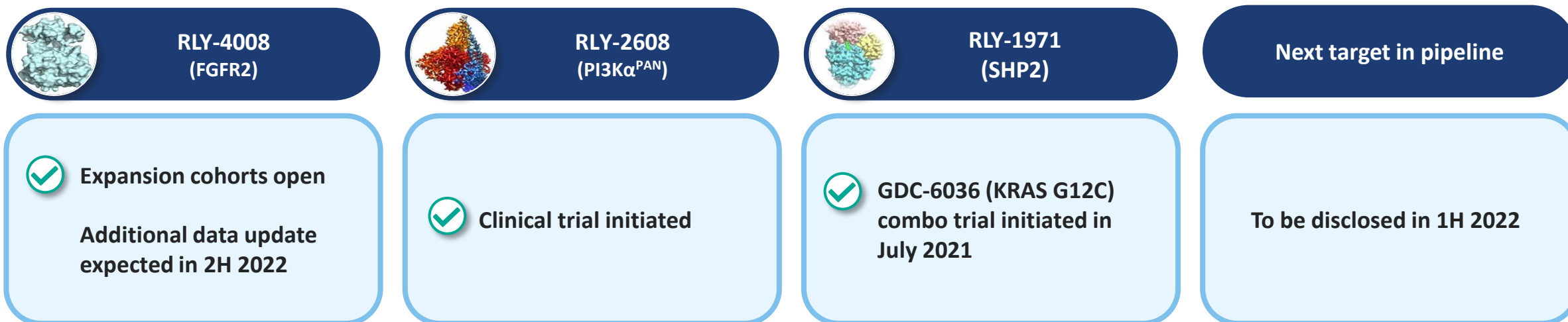
RLY-1971 and GDC-6036 (KRAS G12C) combination trial initiated in July 2021

Challengers – Creating a Data Factory



The acquisition of our ML-DEL capabilities unlocks our ability to be a data factory

Relay Tx – What to Expect



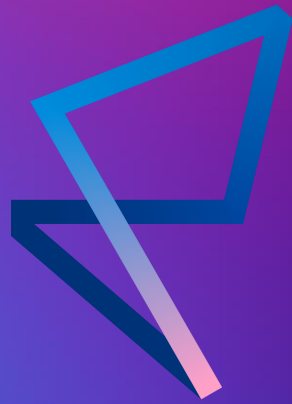
\$617M

Cash, cash equivalents and investments as of the end of Q3 2021

\$381M

Net proceeds from follow-on offering in October 2021

Execution focus underpins value creation



RELAY[®]
THERAPEUTICS