



Interim Data Update: Phase 1/2 Adult Trials of INZ-701 in ENPP1 and ABCC6 Deficiencies

September 26, 2023

Callum
Living with
ENPP1 Deficiency



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Statements in this presentation about future expectations, plans, and prospects, as well as any other statements regarding matters that are not historical facts, may constitute forward-looking statements that involve substantial risks and uncertainties. These statements include, but are not limited to, statements relating to the initiation and timing of our clinical trials, our research and development programs, the availability of preclinical study and clinical trial data, and the period over which we believe that our existing cash, cash equivalents and short term investments will be sufficient to fund our operating expenses.

The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “will,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in these forward-looking statements, and you should not place undue reliance on these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in these forward-looking statements. For a discussion of risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the “Risk Factors” section in our most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission, as well as discussions of potential risks, uncertainties and other important factors, in the Company’s most recent filings with the Securities and Exchange Commission.

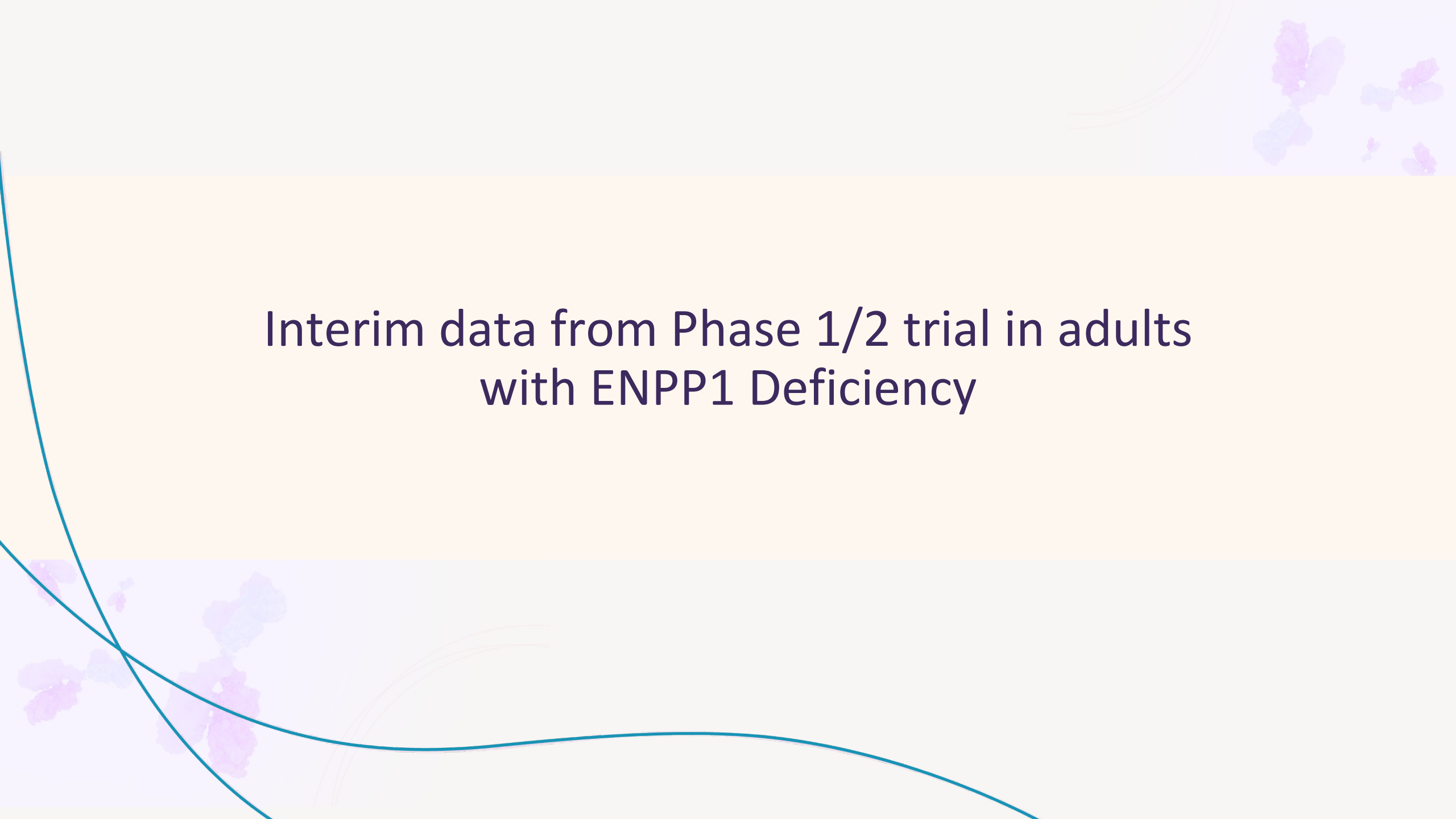
In addition, the forward-looking statements included in this presentation represent our views as of the date of this presentation. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements in the future, we specifically disclaim any obligation to do so. These forward-looking statements should not be relied upon as representing our views as of any date subsequent to the date of this presentation.

Inozyme is at the forefront of developing transformative therapies for rare diseases of pathologic mineralization and intimal proliferation

- ✓ **ENPP1 Deficiency and ABCC6 Deficiency are serious diseases with no approved therapies**
 - Sizable patient populations with high mortality/morbidity and substantial patient and caregiver burden
 - >550 ENPP1 patients identified, with evidence for 210 additional patients based on medical record screen
- ✓ **INZ-701 has demonstrated rapid, significant, and sustained increase in PPI levels, exhibited a favorable safety profile**
 - Finalized ENPP1 Deficiency pediatric pivotal trial design with PPI as primary endpoint in US, supported by trends in appropriate secondary endpoints, and co-primary endpoint (RGI-C of $p < 0.2$) in EU for pediatric pivotal trial
 - ENPP1 Deficiency pediatric pivotal trial planned for Oct. 2023 – Topline data expected mid-2025
- ✓ **In a position of financial strength, with several expected upcoming milestones and a pipeline designed for long-term value creation**
 - \$209.8M* expected to fund operations into Q4 2025; 61.7M common shares outstanding**
- ✓ **Experienced team with a track record of success in rare disease and a strong focus on execution**

*Proforma cash, cash equivalents & short-term investments as of 6/30/23 (Includes net proceeds of \$64.5M from offering which closed in August 2023 and \$5.1M of net proceeds from the at-the-market offering in July 2023)







**As of 8/3/23



Interim data from Phase 1/2 trial in adults
with ENPP1 Deficiency

Burden of ENPP1 Deficiency across age spectrum



GACI/IIAC 0-1 Years (~1-2%)*	ARHR2 (Rickets) 1 to <13 years (~25-30%)*	ARHR2 (Osteomalacia) 13+ Years (~65-70%)*
50% mortality within 6 months of birth	Impaired growth Orthopedic surgery	Bone & joint pathology
 Severe cardiovascular complications	 Skeletal defects: Rickets  Hearing loss	 Skeletal defects: Osteomalacia  Joint, tendon, and ligament complications  Hearing loss

Genetic Prevalence¹: 1:64,000

PATIENTS IN US/CANADA ~ 2,800

PATIENTS IN JAPAN ~ 900

PATIENTS IN EUROPE ~ 4,100

PATIENTS IN BRAZIL ~ 1,600

*Estimated percent of total prevalence., 1. Ferreira et al. Orphanet Journal of Rare Diseases, 2022. GACI: Generalized Arterial Calcification of Infancy, IIAC: Idiopathic Infantile Arterial Calcification, ARHR2: Autosomal Recessive Hypophosphatemic Rickets Type 2

Adult ENPP1 Deficiency Phase 1/2 trial

A Phase 1/2, open-label, multiple ascending dose study to evaluate the safety, tolerability, pharmacokinetics, and pharmacodynamics of INZ-701 followed by an open-label long-term extension period in adults with ENPP1 Deficiency

Study Population: *Adults*



Eligibility Criteria:

- Age 18-64 years
- Confirmed clinical and genetic diagnosis

9+ patients enrolled

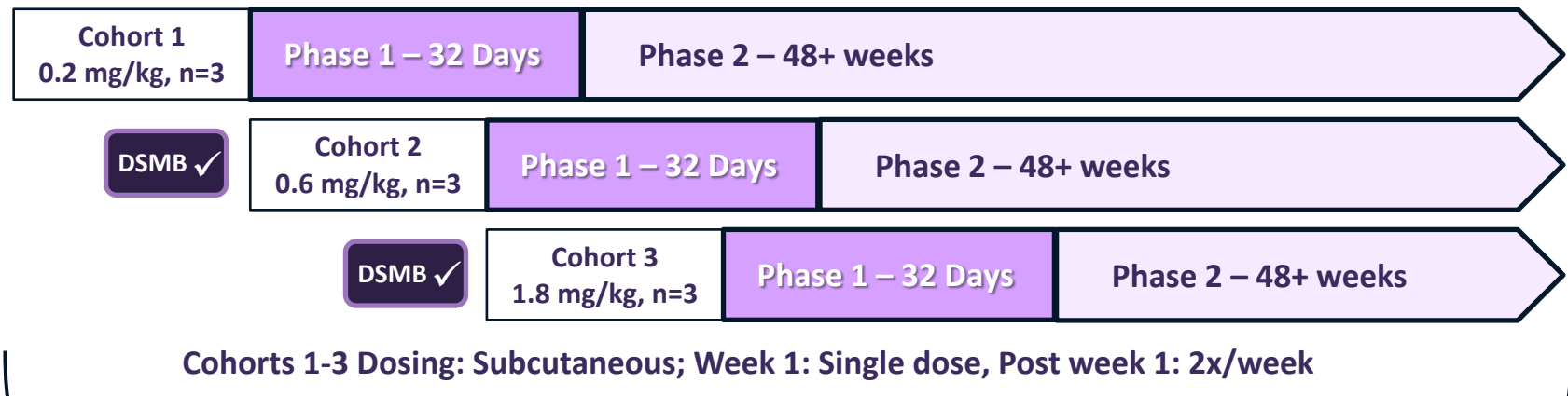
Primary Goals

- Safety and tolerability
- Immunogenicity
- Pharmacokinetic properties
- Pharmacodynamics (PPI)

Secondary Goals

- Evaluate potential endpoints for pivotal study
- Ectopic calcification, skeletal, vascular and physical function, and patient reported outcomes
 - Exploratory biomarkers

Study Design:



Adult ENPP1 Deficiency Phase 1/2 trial: Primary goals met

Safety and immunogenicity

- ✓ Well-tolerated, **no serious adverse events** related to study drug
- ✓ Support for first studies in infants (ongoing) and children (pending)
- ✓ Low, sometimes transient levels of non-neutralizing anti-drug antibodies

Pharmacokinetics

- ✓ 126-hour **half-life supports once-weekly dosing**
- ✓ Informs and validates PK model

Pharmacodynamics

- ✓ Significant elevation of plasma pyrophosphate (PPi), maintained for over 18 months
- ✓ Changes in **key biomarkers** (i.e., FGF-23 and phosphate (Pi)) **support clinical hypothesis**
- ✓ Rapid increase in PPi at 1 week correlated with decreases in FGF-23 levels (p= 0.0371)
- ✓ Dose ranging data support adult dose of 1.8 mg/kg/week

Identify clinically meaningful outcome measures to inform design of future study in adults

- ✓ Functional **improvements can be measured by 6-minute walk test and patient-reported outcomes**; strongest improvements seen in patients with greatest impairment at baseline
- ✓ Identified areas of bone pathology (low BMC/BMD) may represent locations for radiographic scoring for improvements
- ✓ Subset analyses reveal patient populations most likely to benefit from INZ-701 treatment in future adult studies

Patient demographics

		Cohort 1 0.2 mg/kg biweekly (n=3)	Cohort 2 0.6 mg/kg biweekly (n=3)	Cohort 3 1.8 mg/kg biweekly (n=3)
Age (years)	Median	31	43	25
	Range	23-40	30-58	22-29
Gender	Male (n=3)	0	1	2
	Female (n=6)	3	2	1
Race	White (n=8)	3	3	2
	Not reported (n=1)	0	0	1
Initial clinical presentation		GACI (3)	GACI (1) ARHR2 2nd decade (2)	GACI (1) ARHR2 1st decade (1) ARHR2 3rd decade (1)

**Cohort 2 skewed
toward older patients**

Patients had a heavy lifetime disease burden

Medical Condition	Cohort 1 0.2 mg/kg biweekly (n=3)	Cohort 2 0.6 mg/kg biweekly (n=3)	Cohort 3 1.8 mg/kg biweekly (n=3)	Total (n=9)
Medical History				
Rickets/osteomalacia	3	2	3	8
Cardiovascular disease	2	3	2	7
Arterial calcification/stenosis/surgery	2	3	1	6
GACI	3	1	1	5
Soft tissue/joint calcification	1	2	2	5
Arthritis/arthralgia	2	2	0	4
Bone deformity/orthopedic surgery	0	1	3	4
Nephrocalcinosis/nephrolithiasis	0	2	2	4
Hypertension	1	2	1	4
Hearing loss	0	2	2	4
Selected Baseline Data				
Average 6-minute walk test (% predicted)	76.7	52.2	70.7	66.5
Average PROMIS pain intensity T score (higher scores=greater pain)	58.1	54.4	47.4	53.3
Average PROMIS pain interference T score (higher scores=greater interference)	57.5	53.4	52.5	54.5

Each patient had a unique *ENPP1* mutant genotype

INZ-701 exhibited a favorable safety profile

Event	INZ-701 dose cohort – No. of patients with at least one event			Total patients (n=9)
	0.2 mg/kg biweekly n=3	0.6 mg/kg biweekly n=3	1.8 mg/kg biweekly n=3	
Adverse event	3	3	2	8
Adverse event related to INZ-701	2	1	0	3
Serious adverse event	0	2	0	2

Most adverse events were mild or moderate in severity

- 3/9 patients experienced mild adverse events related to INZ-701
 - Injection site reactions (bruising, hemorrhage, pain, pruritus, swelling) occurred in 2 patients
 - Other related adverse events included decreased appetite and fatigue

2 serious adverse events - not related to INZ-701

- Patella fracture (motor vehicle accident), cardiac surgery complication

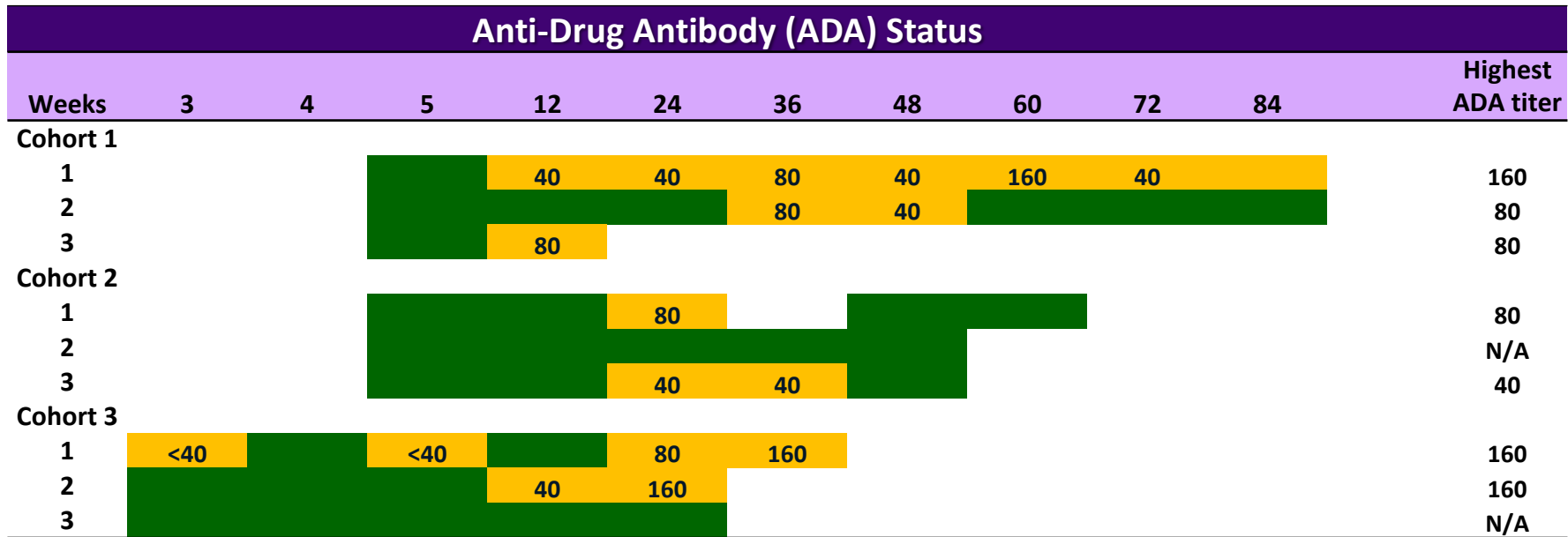
No adverse events led to discontinuation of INZ-701



No adverse events led to study withdrawal from Phase 1

- 2 patients withdrew from Phase 2; not related to adverse events
- 7 patients remain on study; all transitioned to self-administration
- Time on study range: 98-638+ days; total time on treatment across all patients: ~9 years

Favorable immunogenicity profile observed

Low, non-neutralizing ADA titers detected



 ADA Negative
 ADA Positive

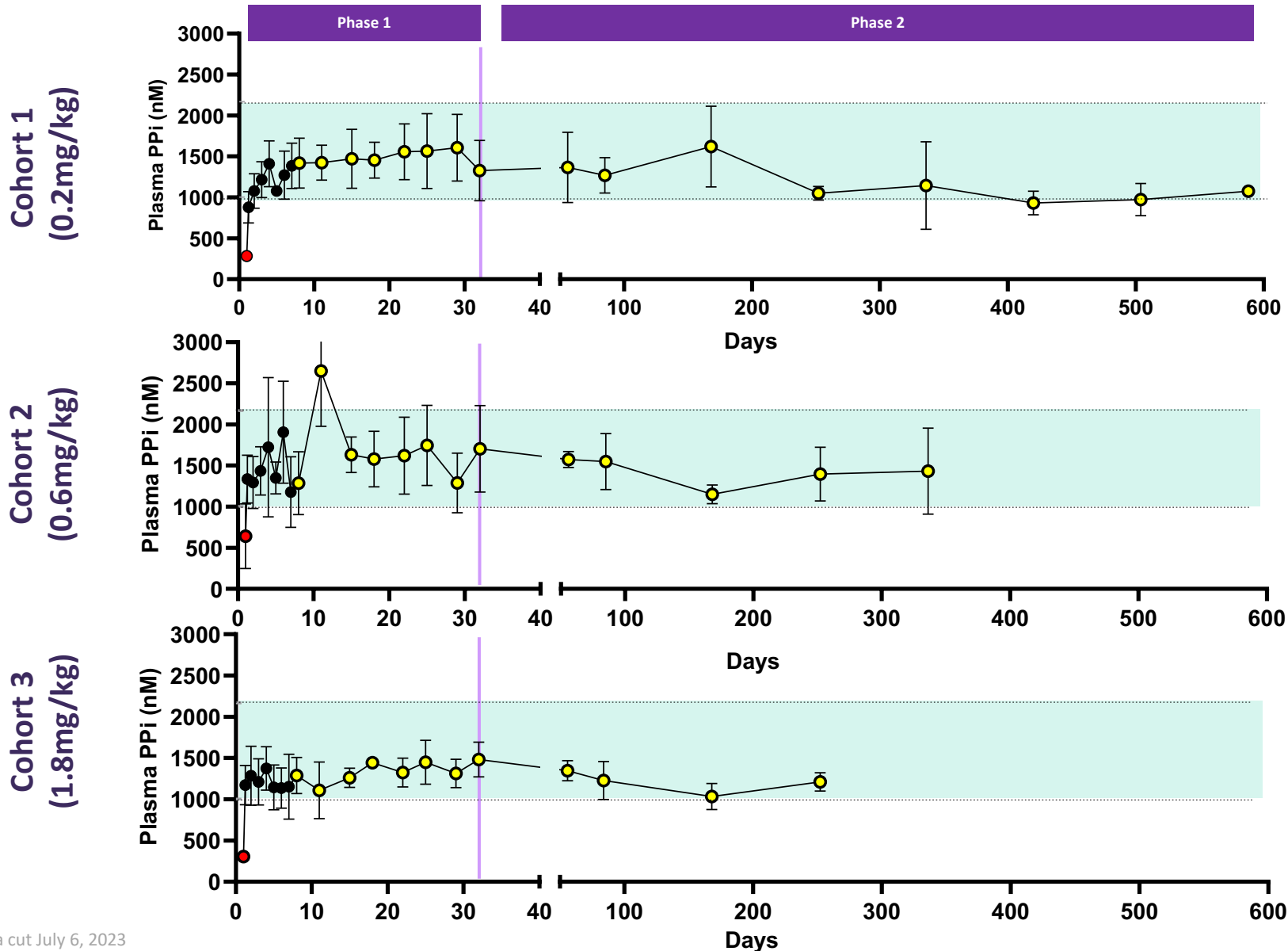
STRENSIQ® ADA titers: 2,048¹;
patients with ADA: 89%⁴

ALDURAZYME® ADA titers: 31,972²;
patients with ADA: 97%⁴

LUMIZYME® ADA titers: >51,200³;
patients with ADA: 89%⁴

ADA titers for other drugs were observed in
previously conducted trials by other
companies

Rapid, significant and sustained increase in PPI observed at all doses

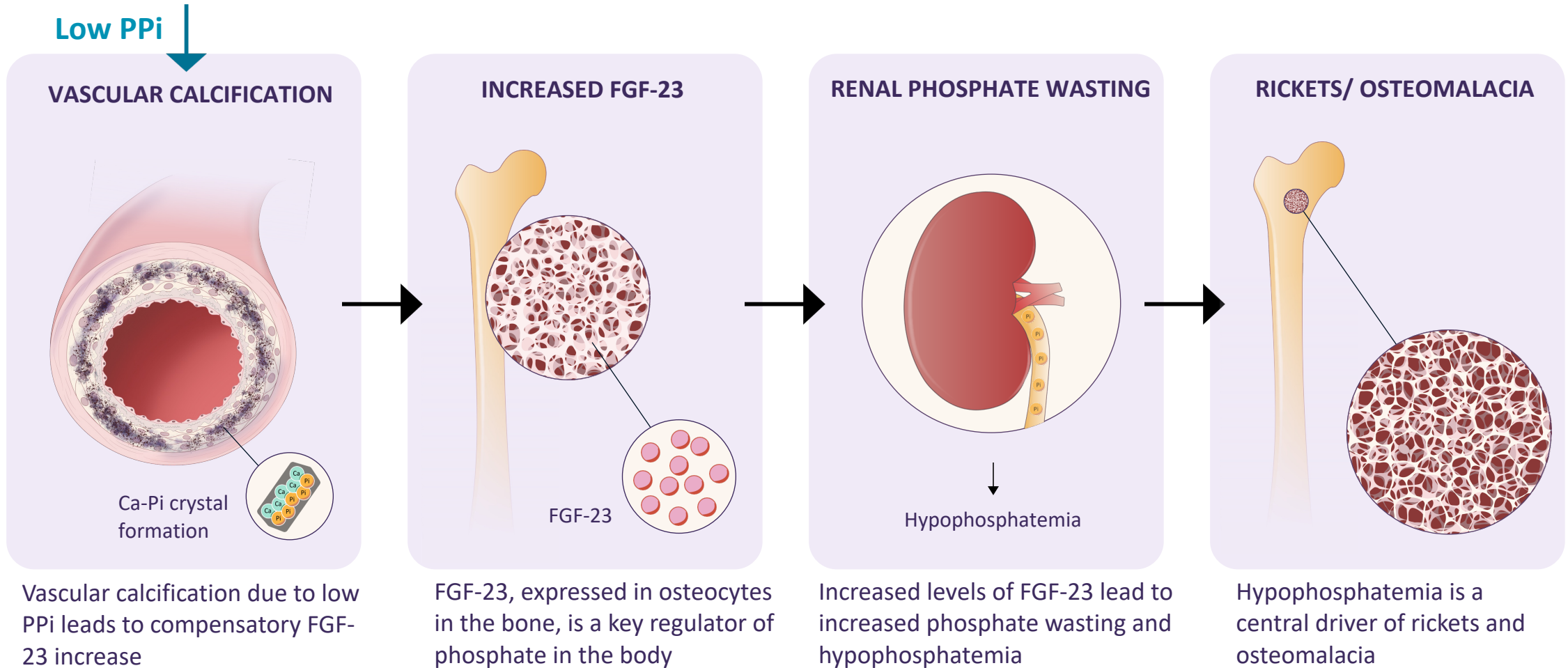


- Rapid increase within 6 hours observed after the 1st dose
- PPI levels reached the healthy volunteer range after the 1st dose

- Baseline PPI (pre-dose) + 1st INZ-701 dose
- PPI measurement (post-dose)
- PPI measurement (pre-dose)
- Healthy subject PPI levels; n=10
- Data presented as mean ± SEM

Cohort 1: n=2 post day 84; Cohort 2: n=2 post day 336; Cohort 3: n=2 post day 168

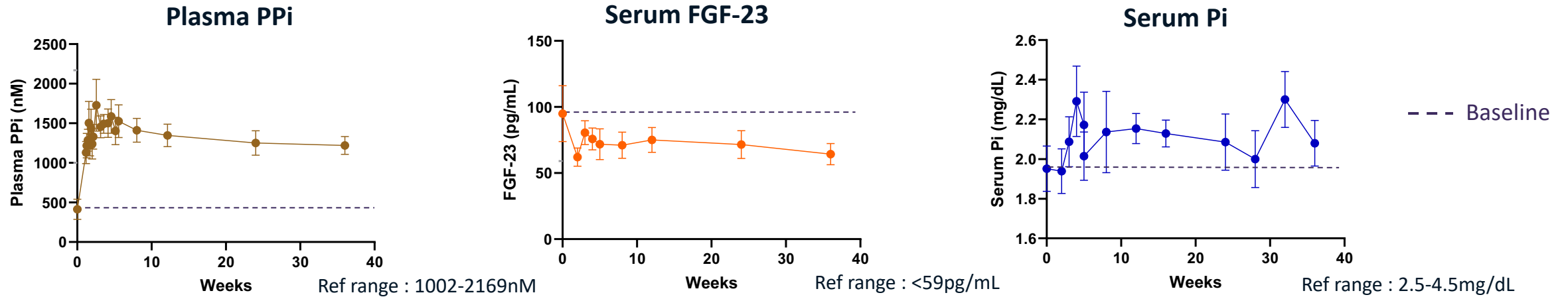
Goal is restoration of proper balance of P*Pi* and P*i* to prevent vascular calcification and skeletal abnormalities



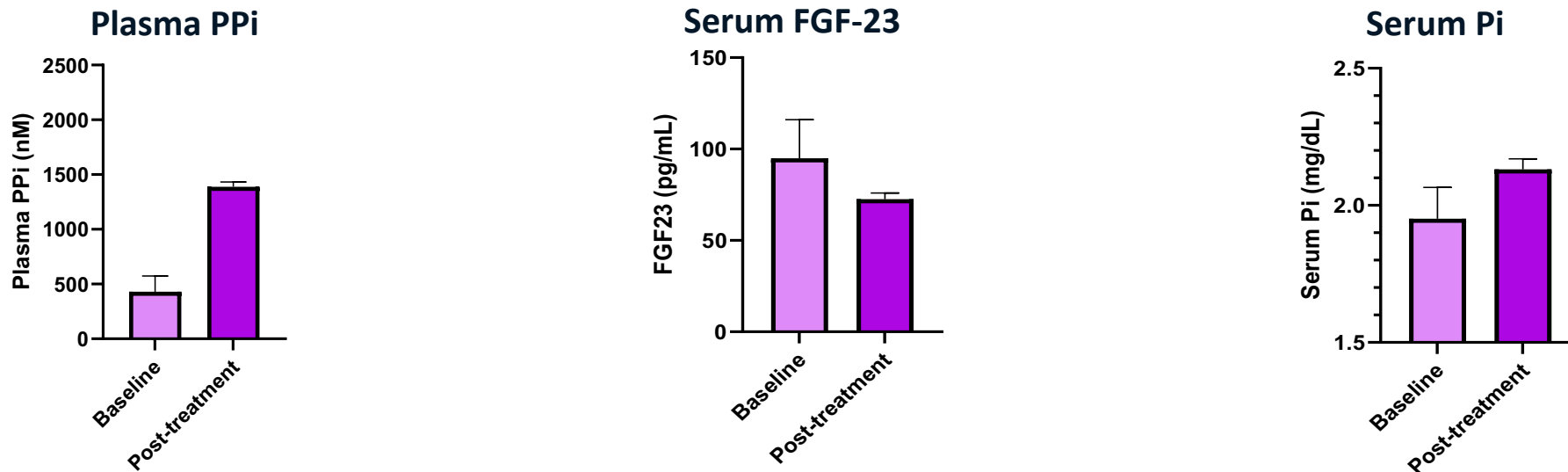
Decreasing FGF-23 alone in ENPP1 Deficiency is not sufficient to address the clinical pathology and can exacerbate calcification; therefore, the use of burosumab is contraindicated¹

Significant increase in PPI levels were associated with improvement in phosphate and FGF-23 and supports mechanism of action

Pooled Cohorts 1-3: Baseline vs mean Week 2-36 PPI, FGF-23, and Pi levels (\pm SEM)



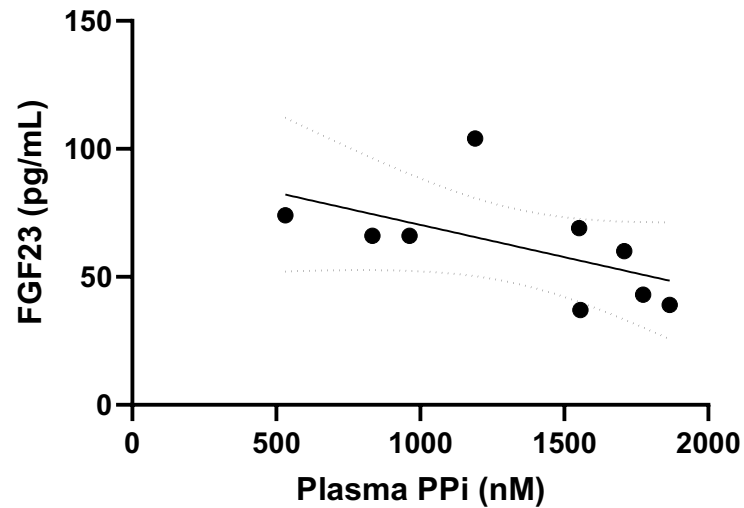
Pooled Cohorts 1-3: Mean PPI, FGF-23 and Pi levels (\pm SEM)



Note: Serum Pi increases observed in absence of phosphate and active vitamin D supplementation

Significant correlation between PPI and FGF-23 observed with INZ-701 treatment

FGF-23 vs. PPI 1-week post-dose

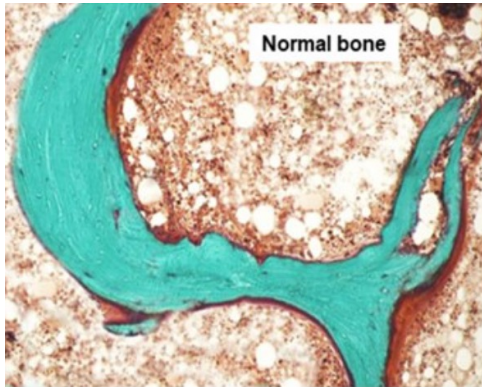


Analysis performed at 1 week post-dose to assess FGF-23 levels at timepoint where PPI levels have not yet plateaued

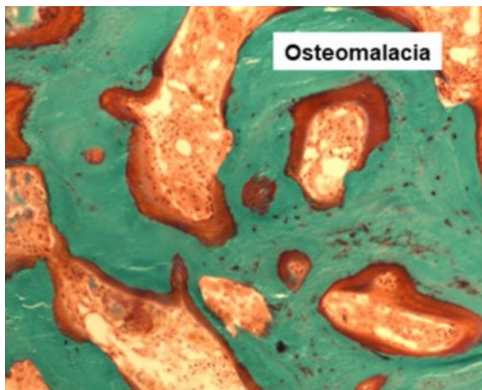
Each dot represents a patient (n=3/cohort)

Spearman correlation	1-week post-dose
R coefficient	-0.7113
P value	0.0371

BSAP response consistent with restoring proper bone mineralization to improve bone pathology



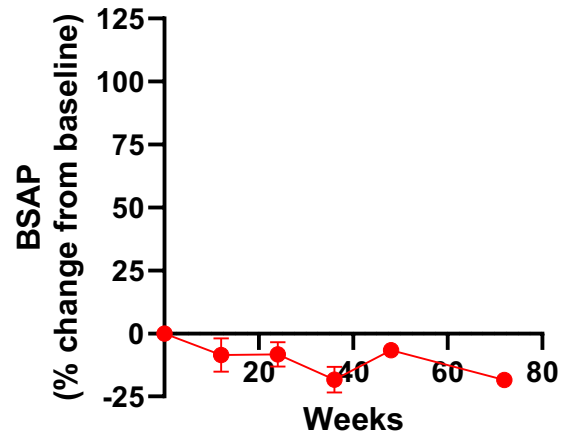
Normal bone



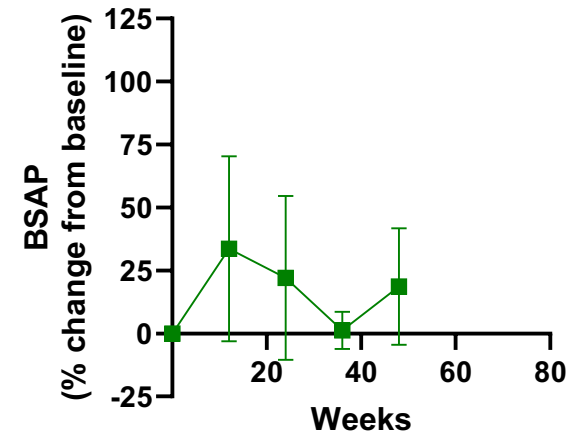
Osteomalacia

The photomicrograph of a normal bone and a bone from a patient diagnosed with osteomalacia. Unmineralized osteoid matrix (red). (Stain, Goldner trichrome).

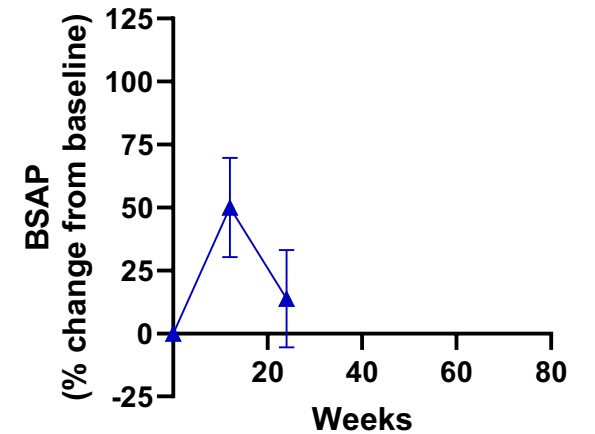
Cohort 1
(0.2mg/kg, 2x/week)



Cohort 2
(0.6mg/kg, 2x/week)



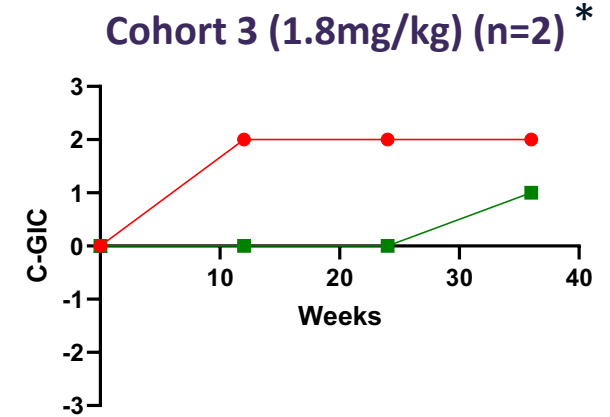
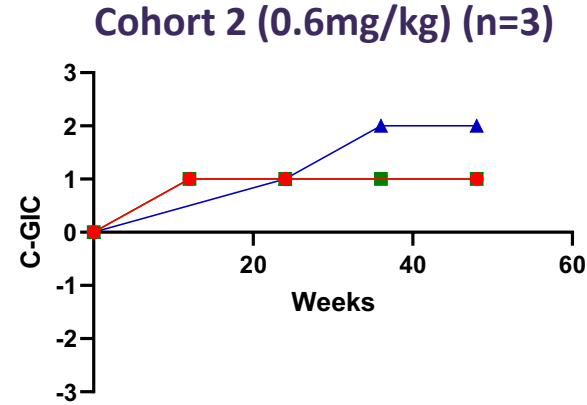
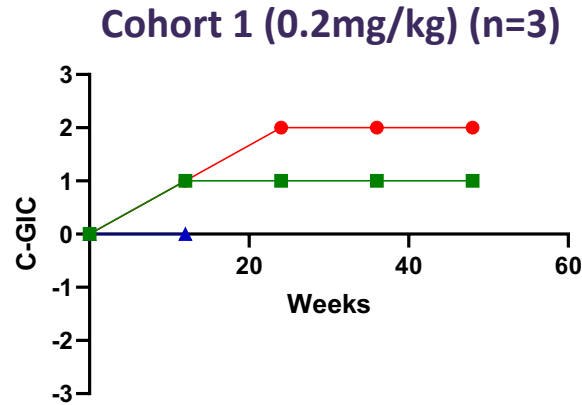
Cohort 3
(1.8mg/kg, 2x/week)



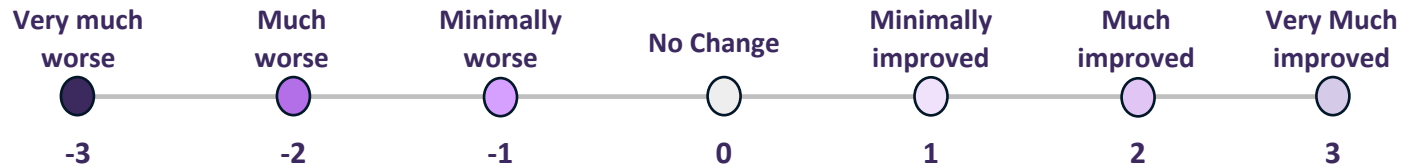
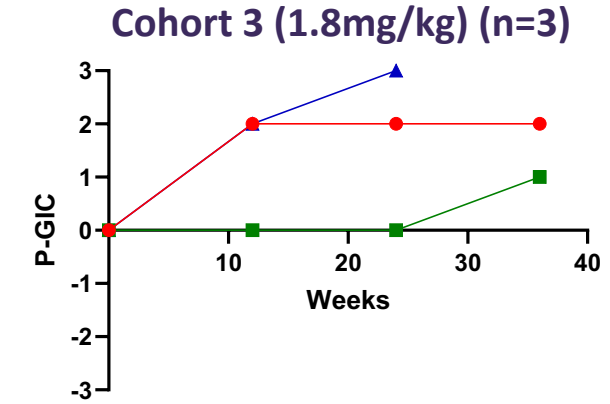
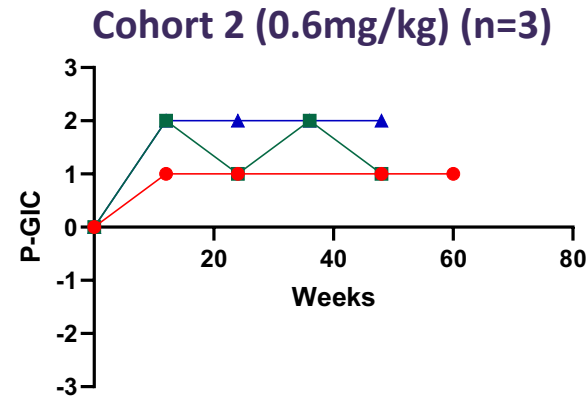
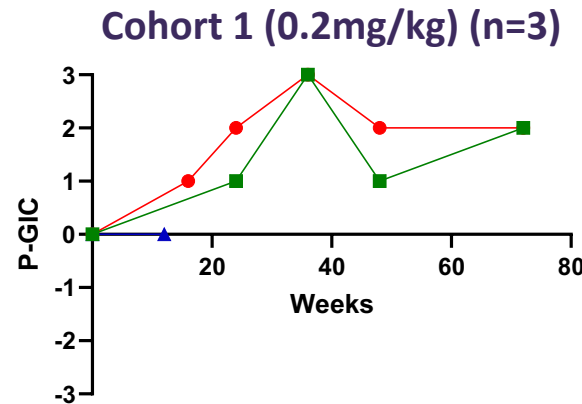
- Bone-specific alkaline phosphatase (BSAP): Key enzyme involved in mineral deposition in bone
 - BSAP hydrolyzes PPI and increases local phosphate concentration
 - Similar response observed with other treatments of rickets (XLH, VDDR)

INZ-701 showed concordant improvement in C-GIC and P-GIC in all dose cohorts

Clinician's Global Impression

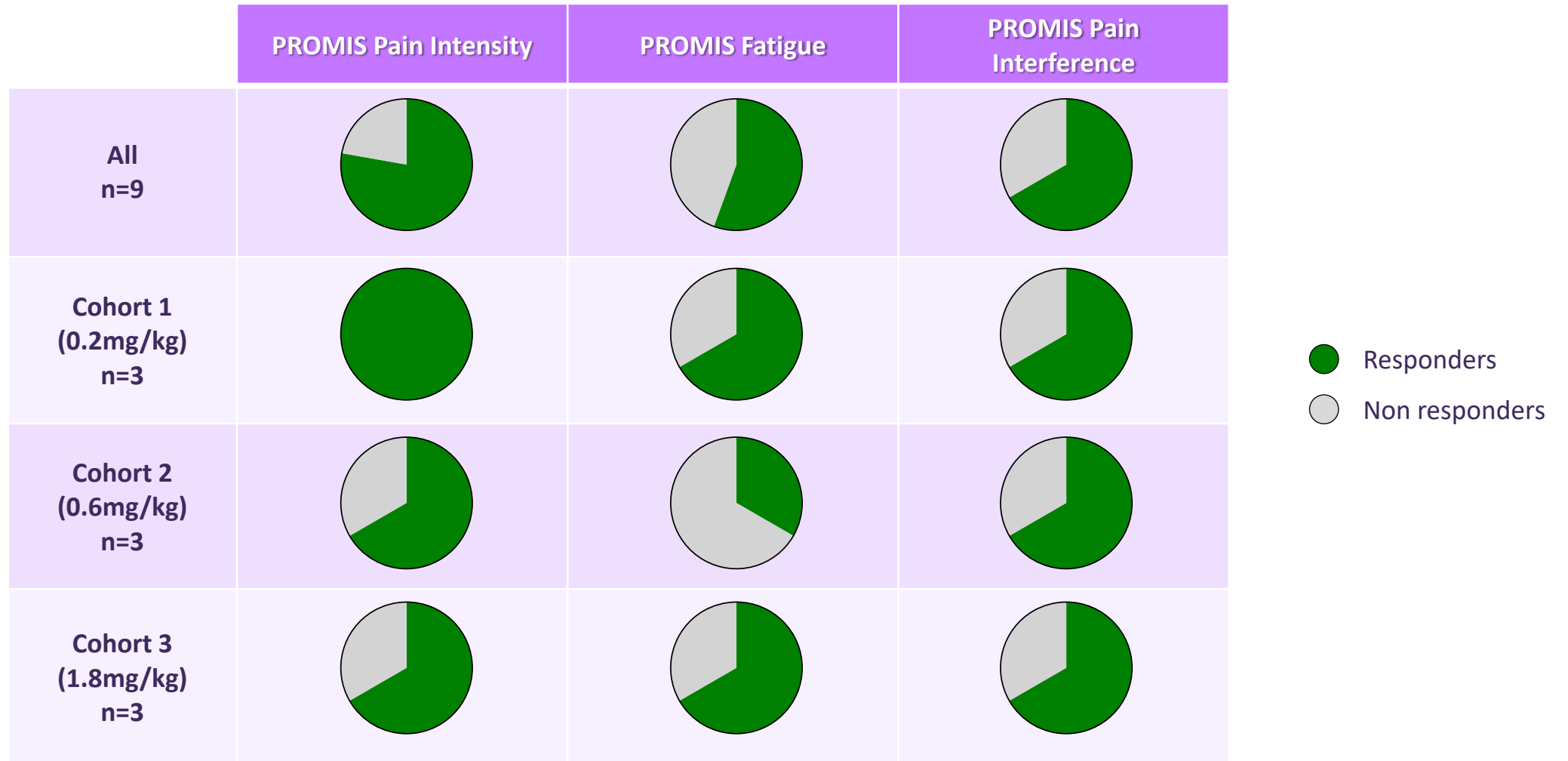


Patient's Global Impression



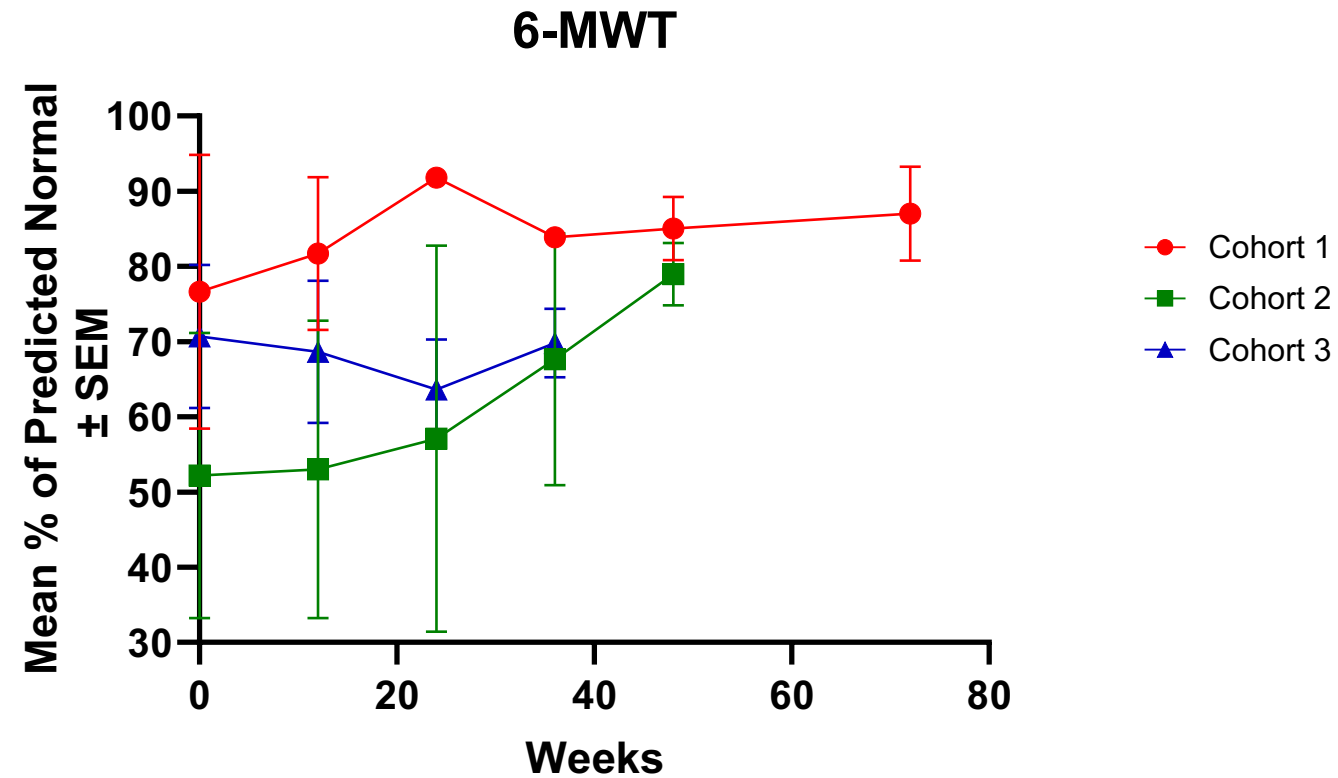
High responder rate in PROMIS pain and fatigue with INZ-701 treatment

Improvements seen at all dose levels



Responder defined as exhibiting improvement from baseline in >50% of timepoints evaluated

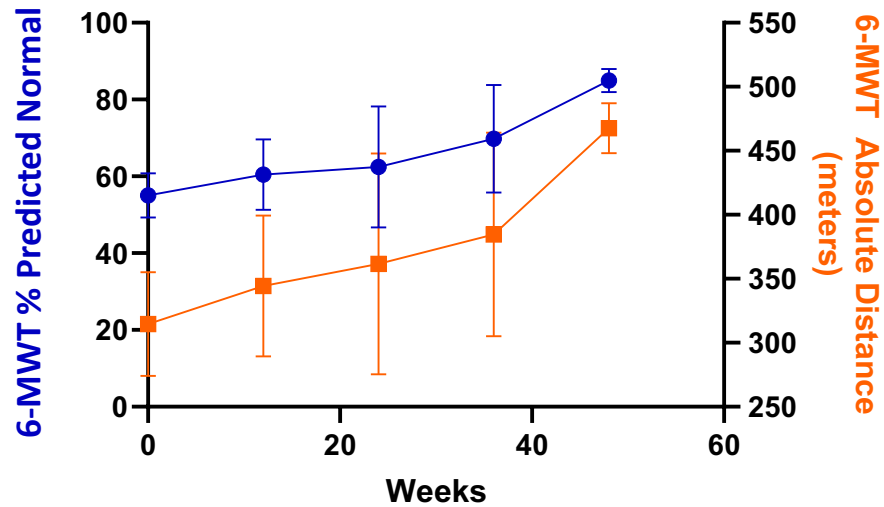
INZ-701 showed trend for improvement in 6-minute walk test (6-MWT)



Percent predicted normal adjusts for subject age, gender, height and weight

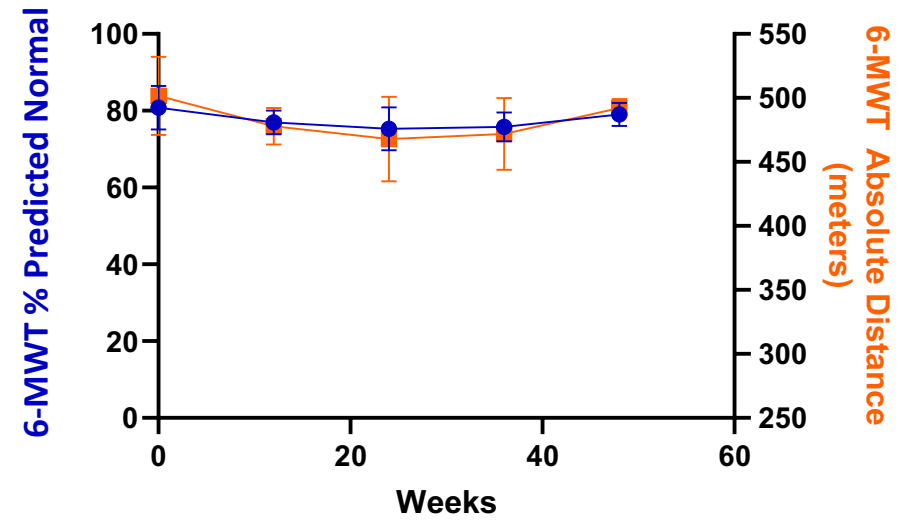
Subgroup analysis: 6-minute walk test results

Patients with <70% predicted of healthy 6-MWT at baseline (n=5)



Greater improvement observed in patients with poor baseline 6-MWT

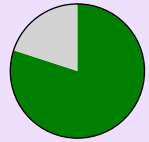
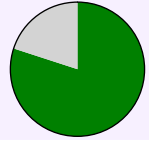
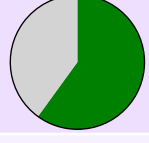
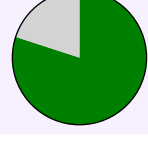
Patients with >70% predicted of healthy 6-MWT at baseline (n=4)

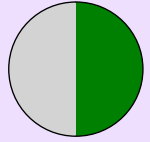
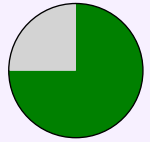
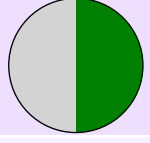
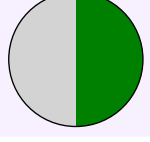




Stable 6-MWT scores observed in patients with higher baseline values

Subgroup analysis: Higher responder rate observed in patients with greatest impairment in walking prior to treatment

Responder defined as exhibiting improvement from baseline in >50% of timepoints evaluated

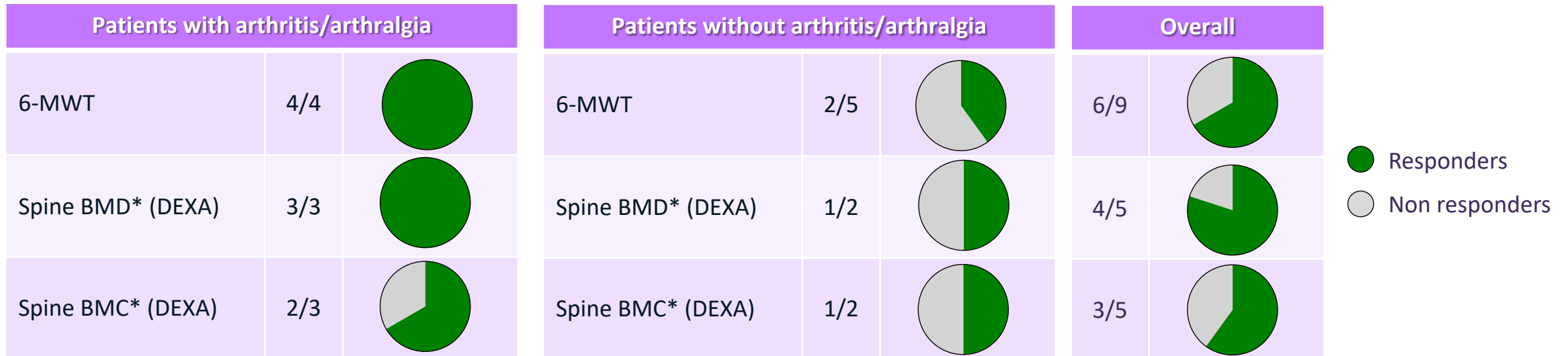
Patients with <70% predicted of healthy 6-MWT at baseline		
6-MWT	4/5	
PROMIS pain intensity	4/5	
PROMIS fatigue	3/5	
PROMIS pain interference	4/5	

Patients with >70% predicted of healthy 6-MWT at baseline		
6-MWT	2/4	
PROMIS pain intensity	3/4	
PROMIS fatigue	2/4	
PROMIS pain interference	2/4	

 Responders
 Non responders

Subgroup analysis: Higher responder rate observed in patients who had arthritis/arthralgia at study entry

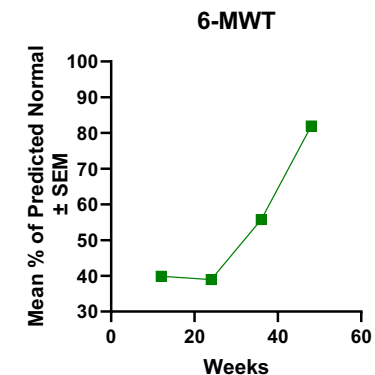
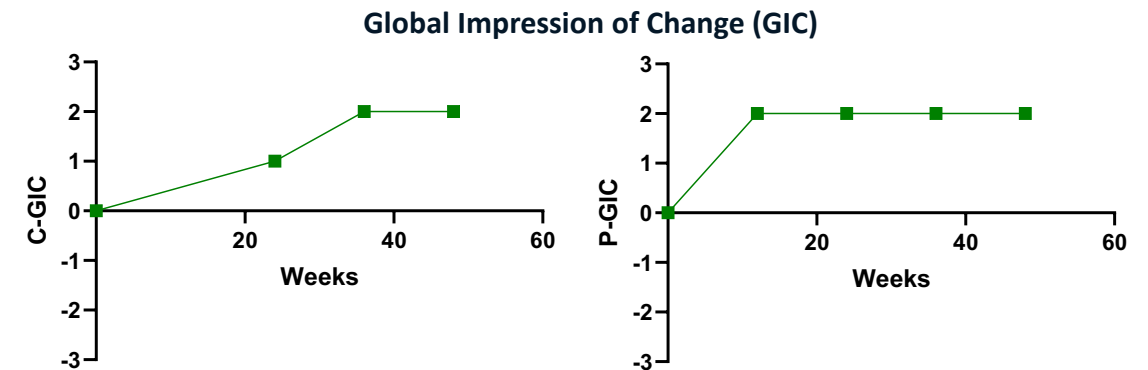
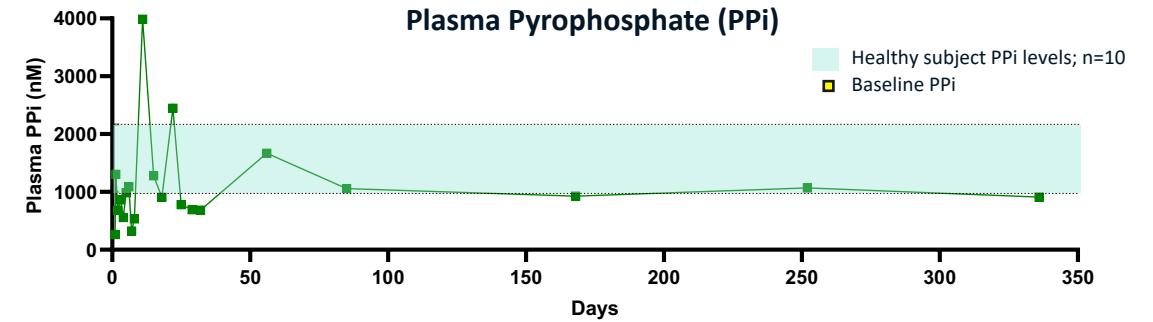
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* Endpoint analysis due to limited number of timepoints;
Spine BMD/BMC data were only available in 5 patients

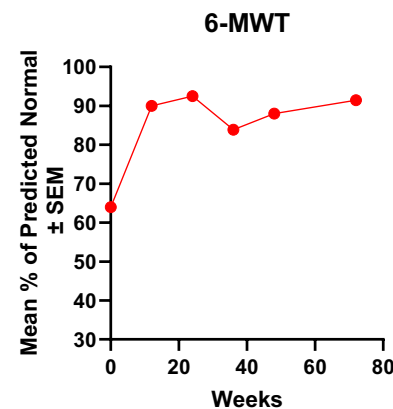
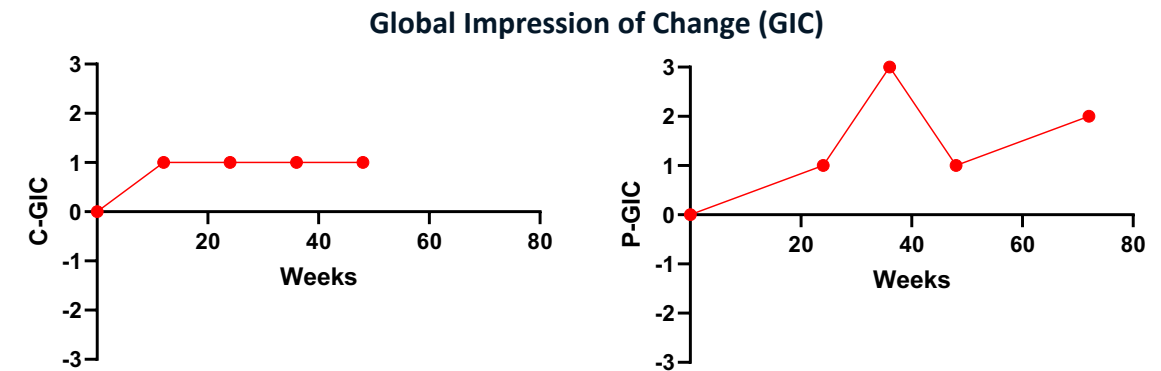
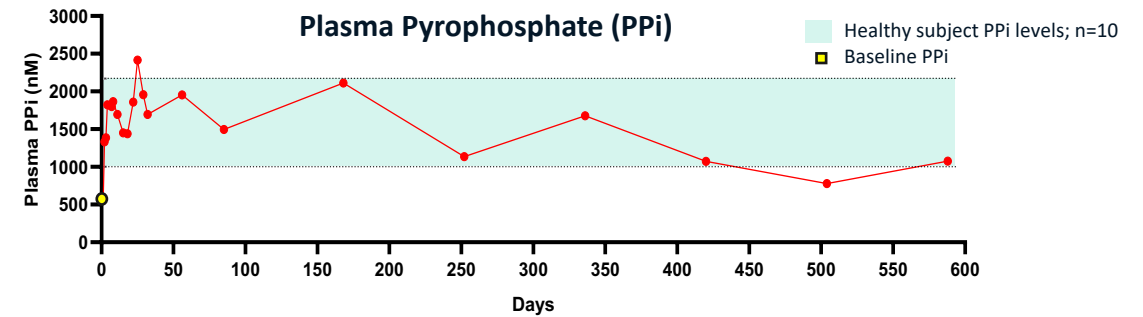
Subgroup case study 1: comprehensive benefit observed in patient with low 6-MWT at baseline

- **Substantial disease burden**
 - History of ARHR2, polyarthralgia, hypertension, arterial disease, cardiovascular disease, multiple femoral surgical interventions, aortic valve replacement
- **PPI increased from 262 nM at BL to over 900 nM through 48 weeks**
- **Global impression of change**
 - Week 48: C-GIC and P-GIC reported: **Much improved from baseline**
- **PROMIS**
 - Pain intensity T score: **Improved from 62 to 48**
 - Fatigue T score: **Improved from 57 to 52**
- **6-minute walk test**
 - 40% of predicted (218 m) at week 12 (baseline not conducted); **Improved to 82% predicted by week 48** (448 m)
- **Increase in spine BMD and BMC by DEXA**



Subgroup case study 2: Comprehensive benefit observed in patient with low 6-MWT at baseline

- **Substantial disease burden**
 - History of GACI, rickets, leg bowing, delayed growth, and osteoarthritis knees and ankles
- **Pi increased from 311 nM at BL to over 1678 nM at week 48**
- **Global impression of change**
 - P-GIC: Week 36: **Very much improved from baseline**; week 72: **Much improved from baseline**
 - C-GIC: Week 48: Minimally Improved
- **PROMIS**
 - Pain intensity T score: **Improved from 62 to 55**
 - Pain interference T score: **Improved from 64 to 63**
 - Fatigue T score worsened from 55 to 64
- **6-minute walk test**
 - 64% of predicted normal (354 m) at beginning of study; **Improved to 91% of predicted normal by week 72** (506 m)
- **Increase in spine BMD and BMC by DEXA**



Adult ENPP1 Deficiency Phase 1/2 trial: Primary goals met

Safety and immunogenicity

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- ✓ Support for first studies in infants (ongoing) and children (pending)
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Pharmacokinetics

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Pharmacodynamics

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- ✓ Changes in **key biomarkers** (i.e., FGF-23 and phosphate (Pi)) **support clinical hypothesis**
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- ✓ Subset analyses reveal patient populations most likely to benefit from INZ-701 treatment in future adult studies



Interim data from Phase 1/2 trial in adults
with ABCC6 Deficiency (PXE)

Adult ABCC6 Deficiency (PXE) Phase 1/2 trial

A Phase 1/2, open-label, multiple ascending dose study to evaluate the safety, tolerability, pharmacokinetics, and pharmacodynamics of INZ-701 followed by an open-label long-term extension period in adults with ABCC6 Deficiency

Study Population: *Adults*



Eligibility Criteria:

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- Confirmed clinical and genetic diagnosis

10 patients enrolled

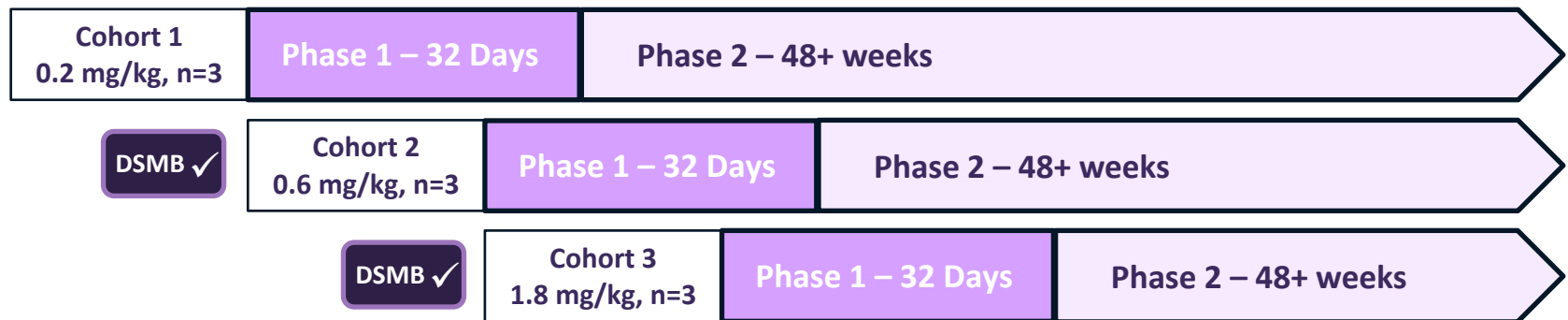
Primary Goals

- Safety and tolerability
- Immunogenicity
- Pharmacokinetic properties
- Pharmacodynamics (PPI)

Secondary Goals

- Evaluate potential endpoints for pivotal study
- Ophthalmologic disease, ectopic calcification, cardiovascular disease, physical function and PROs
 - Exploratory biomarkers

Study Design:



Cohorts 1-3 Dosing: Subcutaneous; Week 1: Single dose, Post week 1: 2x/week

INZ-701 exhibited a favorable safety profile

Events	INZ-701 dose cohort – No. of patients with at least one event			All patients (n=10)
	0.2 mg/kg biweekly n=3	0.6 mg/kg biweekly n=3	1.8 mg/kg biweekly n=4	
Adverse Event	3	3	4	10
Adverse Event Related to INZ-701	1	3	3	7
Serious Adverse Event	0	0	0	0

All adverse events were mild or moderate in severity

- 7/10 patients experienced mild to moderate adverse events related to INZ-701
 - Injection site reactions (discoloration, discomfort, erythema, induration, pain, pruritus, warmth) occurred in 7/10 patients and were all mild
 - Other related adverse events were mild to moderate and included fatigue, night sweats and urticaria

No serious or severe adverse events

One adverse event led to discontinuation of INZ-701 during Phase 1

- Moderate erythema and urticaria in one patient in 1.8 mg/kg cohort
- 1 patient withdrew from the study during Phase 2; not related to an adverse event



8 patients remain on treatment and 7 continue on self-administration

- Time on study range: 18-518+ days; total time on treatment across all patients ~9.1 patient-years

Favorable immunogenicity profile observed

Low, non-neutralizing ADA titers detected

Anti-Drug Antibody (ADA) Status											
Weeks	3	4	5	8	12	24	36	48	60	Highest ADA titer	
Cohort 1											
1	ADA Negative		<40	ADA Negative						<40	
2	ADA Negative			ADA Negative							2560
3	ADA Negative			80		640	1280	640	640	1280	
Cohort 2											
1	ADA Negative				<40	40	<40	ADA Negative		40	
2	40		ADA Negative				<40	<40		40	
3	ADA Negative										N/A
Cohort 3											
1	ADA Negative			40		ADA Negative				40	
2	ADA Negative			80	160	ADA Negative		40		160	
3	ADA Negative										N/A
4	ADA Negative			640		ADA Negative				640	

 ADA Negative
 ADA Positive

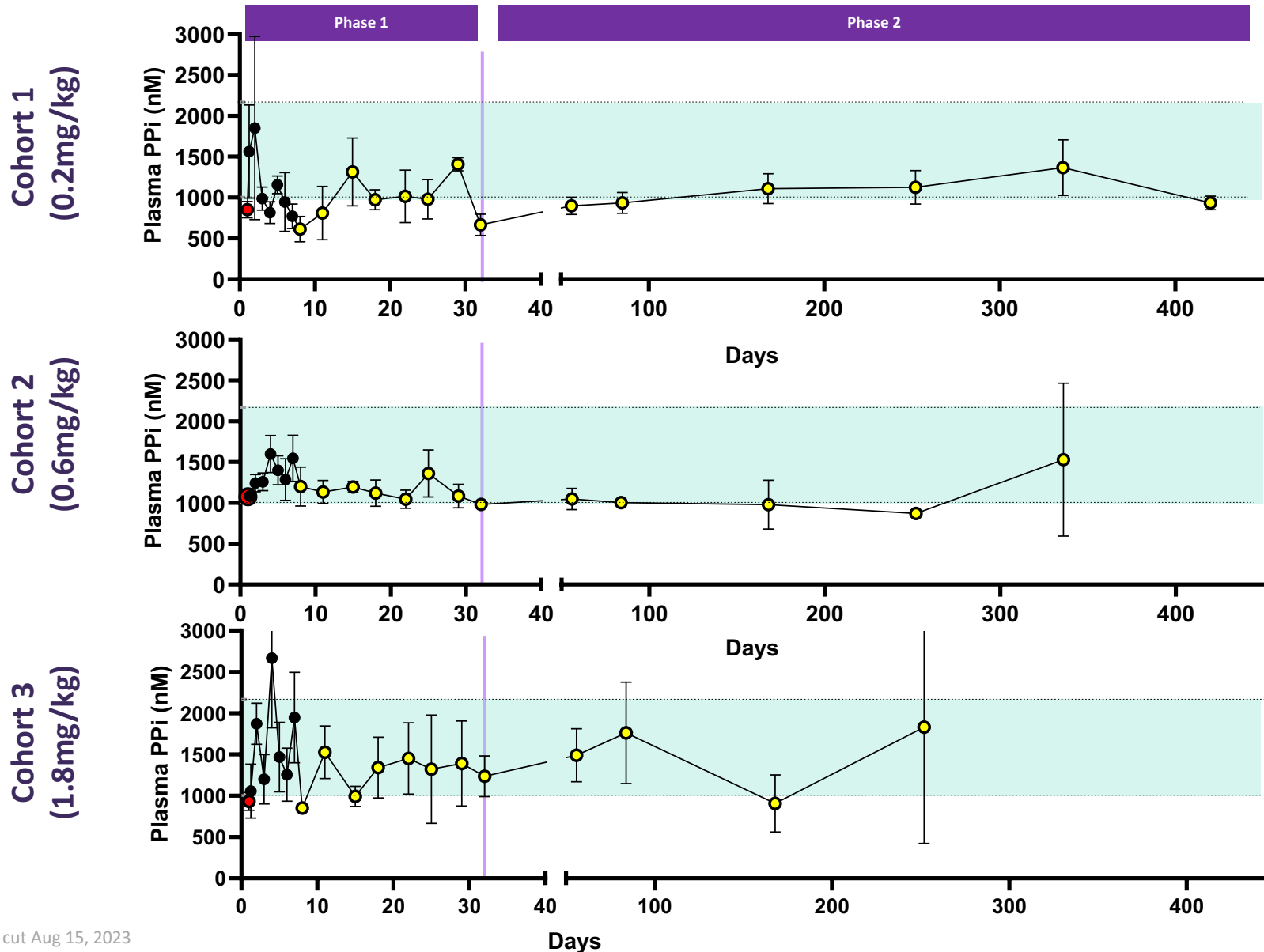
STRENSIQ® ADA titers: 2,048¹;
patients with ADA: 89%⁴

ALDURAZYME® ADA titers: 31,972²;
patients with ADA: 97%⁴

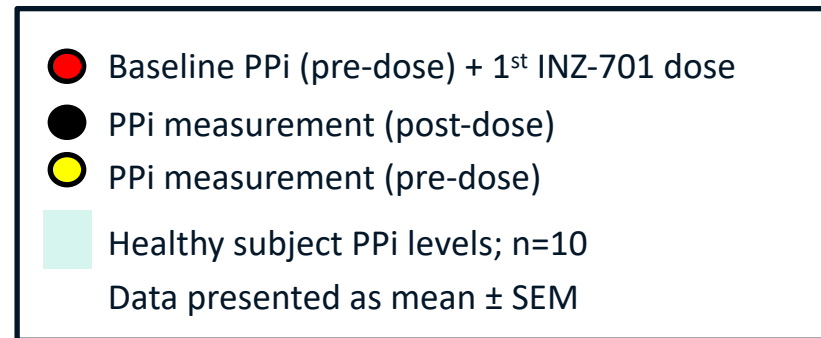
LUMIZYME® ADA titers: >51,200³;
patients with ADA: 89%⁴

ADA titers for other drugs were observed in previously conducted trials by other companies

Rapid and sustained increase in PPI observed at 1.8 mg/kg dose

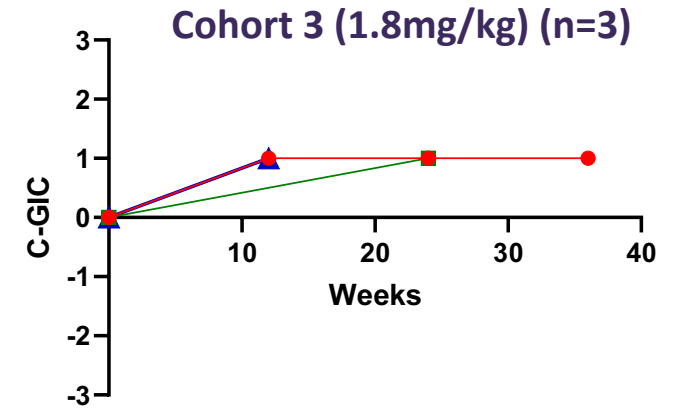
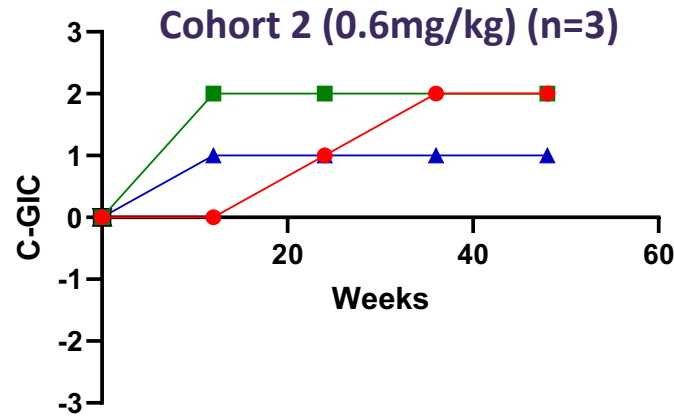
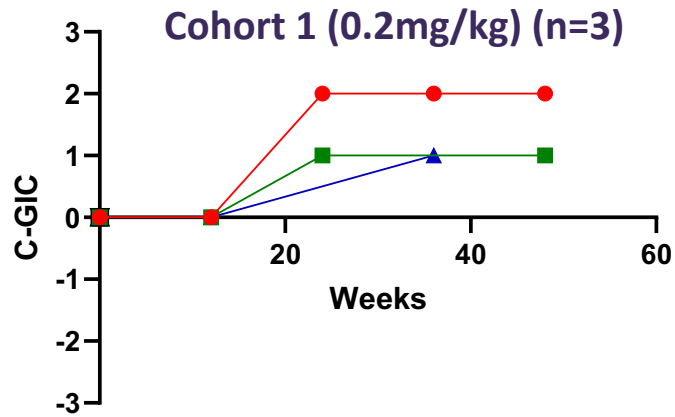


- Rapid increase observed after the 1st dose
- PPI levels reached the healthy volunteer range after the 1st dose

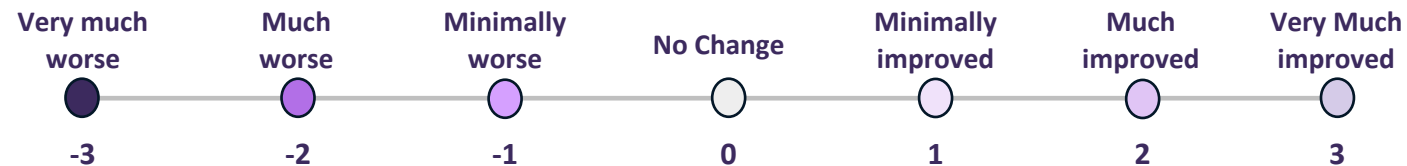
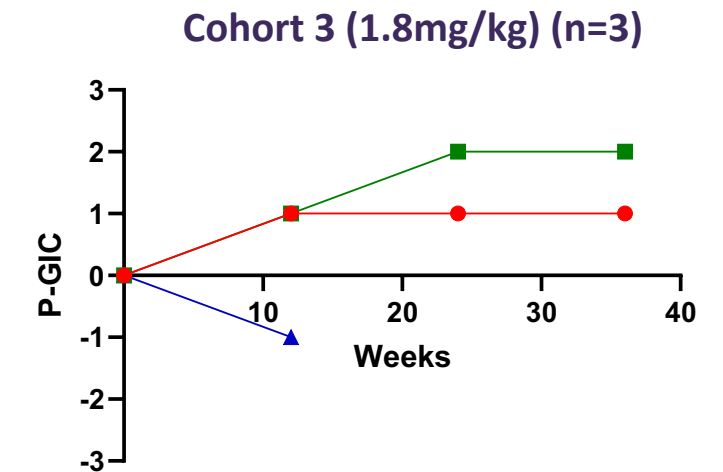
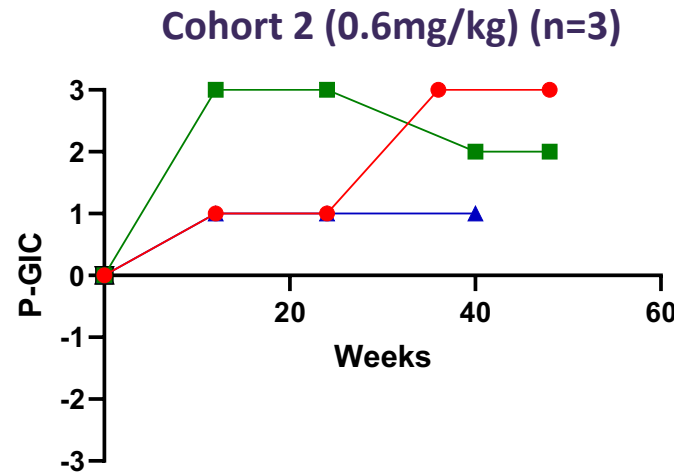
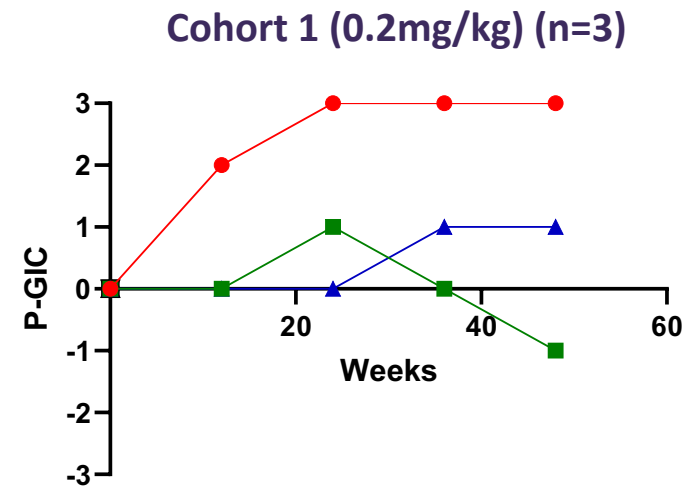


Majority of timepoints showed improvement in C-GIC and P-GIC in all dose cohorts

Clinician's Global Impression



Patient's Global Impression



Colors represent individual patients in respective cohorts

Phase 1/2 trial of INZ-701 in patients with ABCC6 Deficiency

✓ Safety

- INZ-701 was generally well-tolerated, and exhibited a favorable safety profile
- ADA titers generally low, with no evidence of neutralizing ADA

✓ Pharmacokinetics

- Consistent PK observed in all patients as measured by immunoassay and enzymatic activity

✓ Pharmacodynamics

- Rapid increase in PPI in all patients to levels comparable to those observed in healthy subjects
- Most sustained increase observed at highest dose level

✓ Identify clinically meaningful outcome measures to inform design of future study in adults

- Global impression of change (GIC): improvement noted in 9/9 (C-GIC) and 7/9 (P-GIC)
- Concordance between C-GIC and P-GIC

Key conclusions from interim data readouts

- **Data to date show that primary study goals have been met**
- **Well-tolerated, no serious adverse events related to study drug**
- **ENPP1 Study Data**
 - Significant elevation of PPI maintained in all dose cohorts
 - Increase in PPI linked to changes in key biomarkers (i.e. FGF-23 and phosphate), supporting potential benefit in rickets and osteomalacia
 - Provides support for pivotal trial in pediatric patients - initiation expected in October 2023
 - Clinically meaningful outcomes will inform design of pivotal study in adults
- **ABCC6 Study Data**
 - Elevation of PPI maintained for over 9 months in highest dose cohort
 - Initial PRO data suggest potential clinical benefit
 - Current results and upcoming topline study data will inform design of pivotal study in adults
- **Support potential of INZ-701 to address other disorders of pathologic mineralization and intimal proliferation**
- **Data to be presented at ASBMR Congress in October 2023**
- **Topline data from both studies expected in Q1 2024**



Thank you to the patient
community, physicians
and investigators

Callum
Living with
ENPP1 Deficiency

Nora
Living with
ENPP1 Deficiency

