

INVENTING NEW MEDICINES WITH TARGETED PROTEIN DEGRADATION



Undruggable leaders Forum

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Outline

- Kymera introduction and pipeline
- IRAK4 degrader KT-474 and clinical degrader proof of mechanism
- Classical undruggable STAT3 degradation and potential
- Summary

Kymera: A Leading TPD Company



WELL-POSITIONED

\$647M cash balance*

Kymera's Pipeline of Novel Protein Degraders



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Option to participate equally in the development and commercialization of Sanofi-partnered programs in the US.
 Sanofi collaboration to develop IRAK4 degrader candidates, including KT-474 (SAR444656), outside of oncology and immuno-oncology fields.

IRAK4 Targeting: Clinical Validation, Human Genetics De-risking and **Degrader Advantage**



Clinical Pathway Validation

IL1-R\alpha/IL-1\beta: Rheumatologic Diseases **IL-1**α: Atopic Dermatitis **IL-1β:** CANTOS Data, Atherosclerosis, Lung Cancer **IL-18:** Macrophage Activation Syndrome IL-36: Generalized Pustular Psoriasis **IRAK4 SMI:** Rheumatoid Arthritis

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KT-474: Potent and Specific IRAK4 Degradation Superior to Kinase Inhibition

Degradation and Selectivity



Protein Level Fold Change (log2)

- KT-474 DC₅₀ = 2.1 nM in human immune cells
- KT-474 only degraded IRAK4 in human immune cells at concentration 10fold above the DC₉₀
- KT-474 better able to inhibit IL-6 under both LPS and LPS + IL-1B than clinically active IRAK4 SM kinase inhibitor PF-06550833

Superiority over SM kinase Inhibitor



Legend	Compound	IL-6 IC ₅₀ (nM)
	IRAK4 Degrader	0.8
	Negative control	450
	IRAK4 SMI (PF-06550833)	N/A

85% IRAK4 Degradation Sufficient for Maximal *In Vivo* Efficacy in Preclinical Models

- Ability to inhibit topical skin thickening induced by imiquimod was measured in a mouse model of psoriasis
- Orally dosed KT-474 inhibited thickening, a reflection of local and systemic inflammation, comparable to a topic corticosteroid after 2 or 4 days of dosing
- Full efficacy at doses achieving at 65-80% IRAK4 reduction in skin and spleen. In other models KT-474 has demonstrated full efficacy with 85% degradation





KT-474 in Dog: Multi-dosing Required to Achieve Target Degradation

- Orally-administered KT-474 achieves >85% knockdown of IRAK4 at Day 7 with repeat dosing in MAD study
- Multiple doses (MAD) lead to optimal degradation profile vs SAD upon reaching steady-state
- Consistency of IRAK4 knockdown observed across peripheral blood mononuclear cell (PBMC) and skin measurements

Dog Single Ascending Dose (SAD) IRAK4 Knockdown at Day 1 **Dog Multiple Ascending Dose (MAD)** IRAK4 Knockdown at Day 7

PBMC

Skin

10.0



= BLQ

85%

Reduction

*

KT-474 Phase 1 Trial Design

Double-blind, Placebo-controlled, Single Ascending Dose (SAD) and Multiple Ascending Dose (MAD) trial

Three-part Phase 1 Design MAD Portion SAD Portion **MAD** Portion **Healthy Volunteers** Healthy Volunteers **Patient Cohort** • 7 cohorts • 5 cohorts 1 cohort (up to 56 adult (up to 60 adult (up to 20 AD and healthy subjects) healthy subjects) HS patients) • 8 per cohort 12 per cohort Open-label (6:2 randomization) (9:3 randomization) **14x** daily doses **Single** dosing **14x** daily doses (starting dose 25 mg) (starting dose 25 mg)

Endpoints

• Safety & tolerability

Secondary SAD & MAD

Secondary

MAD only

- Pharmacokinetic measures (half-life, bioavailability)
- IRAK4 knockdown in PBMC
- IRAK4 knockdown in skin biopsies
- Proinflammatory cytokine and chemokine levels in skin biopsies
- C-reactive protein and cytokine levels in plasma
- Ex vivo response of whole blood to TLR agonists and IL-1 β

KT-474 Interim Phase 1 Healthy Volunteer SAD Overview



KT-474 Achieved Profound IRAK4 Degradation after Single Oral Dose that Lasted for at Least 6 Days



LOD = limit of detection

* SAD4 144/312 h PD timepoints pending

- Detected by Mass Spectrometry in circulating PBMC
- IRAK4 levels nadired at 48-72 hours
- IRAK4 reduction lasted for at least 144h (6 days post-dose) in all dose groups

KT-474 Reached >85% IRAK4 Degradation After Single Dose



Percent IRAK4 Reduction in PBMC at 48 Hours Post-Dose using Mass Spectrometry

	Placebo (n=8)	Cohort 1 (n=6)	Cohort 2 (n=6)	Cohort 3 (n=6)	Cohort 4 (n=6)
KT-474 dose	-	25 mg	75 mg	150 mg	300 mg
Mean IRAK4 Change	+3%	-38%	-71%	-78%	-84%
Median IRAK4 Change	+16%	-41%	-71%	-78%	-90%
p value*		0.0057	<0.0001	<0.0001	<0.0001

* p-values relative to placebo

Interim Results from Phase 1 Healthy Volunteer SAD

Summary and Next Steps

KT-474 interim Phase 1 results demonstrate degrader proof-of-mechanism, first time for TPD in a placebo-controlled study

- Median IRAK4 reduction of 90% (p<0.0001 vs placebo) and maximum reduction of 94% at 48h following single dose of 300 mg, with sustained degradation that lasted for at least 6 days at all dose levels
- Based on potency, PK and PD profiles with deep and sustained multiday degradation, expect to achieve biologically relevant (85%) level of degradation with repeat dosing at lower doses; MAD starting dose of 25mg
- Demonstrated oral bioavailability, predictable, dose-dependent and efficacious plasma exposures, and a half-life supportive of oral daily dosing
- No treatment-related adverse events or serious adverse events observed to date
- Exceeding Phase 1 target degradation of at least 85% de-risks KT-474 ability to reach clinically relevant biological effects in future development as a potential best-in-class anti-inflammatory oral drug

• Expect to present updated results from healthy volunteer SAD/MAD portions in Q4'21

- Data to include IRAK4 degradation in skin and PBMC and effects on inflammatory biomarkers after repeat dosing
- Dose from MAD healthy volunteer portion to be selected for evaluation in an open label a cohort of patients with atopic dermatitis and hidradenitis suppurativa

STAT3 Biology and Degrader Rationale

- STAT3 is a traditionally largely undrugged transcription factor activated through cytokine and growth factor receptors via JAKs and non-JAKs mediated mechanisms
- High degree of validation of JAK-STAT pathway in oncology and immunooncology supported also by numerous publications
- STAT3 plays a role in tumor biology, evasion of immune surveillance and inflammation/fibrosis
- No known drugs specifically affect STAT3 broadly across all relevant cell types
- First in class opportunity to address STAT3 driven pathology across large and diverse indications



Specific and Potent STAT3 Degradation



KTX-201 Exhibited High Potency and Selectivity



KTX-201 is Highly Soluble and Has Low Clearance in vivo

Properties suitable for IV dosing route-of-administration (RoA)

Physical and DMPK properties	KTX-201
cLogD	-1.3
Solubility at pH 7.4 (μ M)	259
Solubility in PBS pH 7.4 (mg/mL)	>28
HLM / RLM / DLM / MkLM (µL/min/mg)	3.4 / <1.4 / 4.6 / <1.4
PPB (hu / rat / dog / Mk)	95.8% / 99.1% / 97.1% / 97.3%
CYP3A4 / 2C9 / 2C19 / 2D6 inhibition (IC ₅₀)	All > 50 μ M
Mouse Cl (mL/min/kg) / Vdss / t _{1/2} (hr)	2.4 / 0.39 / 4.1
Dog Cl (mL/min/kg) / Vdss / t _{1/2} (hr)	3.2 / 0.66 / 9.2
Monkey Cl (mL/min/kg) / Vdss / t _{1/2} (hr)	5.5 / 0.68 / 5.6

Sustained and Robust Degradation of STAT3 with KTX-201 is Necessary to Induce SU-DHL-1 Apoptosis and Inhibit Cell Growth



Assay	SU-DHL-1
STAT3 levels, MSD DC_{90} (μ M) at 24 hr	0.15
Apoptosis, Caspase3/7-Glo IC $_{50}$ (μM) at 48hr	0.38
Growth inhibition, CTG IC $_{50}$ ($\mu M) at 96 hr$	0.167
 A decrease of STAT3 by 90% is new induce 	cessary to

SU-DHL-1 apoptosis and inhibit cell growth



• Wash-out study demonstrates sustained degradation is required for SU-DHL-1 cells to commit to death

KTX-201 Showed Significant Anti-Tumor Activity in vivo with Weekly Dosing Regimen

• KTX-201 in SUDHL-1 XG Mouse

- IV bolus at 5 to 50 mg/kg
- Weekly dosing
- Treatment on D1, D8, D15
- KTX-201 showed significant antitumor activity
- The treatments were well tolerated, with no significant body weight loss
- Three doses sufficient to drive durable complete responses



Vehicle

KTX-201 Exhibited Prolonged Half-life in Tumor

KTX-201 Plasma PK Profiles



KTX-201 Tumor PK Profiles

PK in Plasma and Tumor

- Plasma and tumor exposure increase as increase of dose
- T_{1/2} in tumor > plasma
- Tumor/Plasma AUC ratio Kp ~1; consistent across 5 mg/kg to 25 mg/kg dose range

KTX-201		5 mg/kg		10 mg/kg		25 mg/kg	
PK Parameters	Unit	Plasma	Tumor	Plasma	Tumor	Plasma	Tumor
T1/2	hr	6.8	24	16	31	16	36
AUC _{last}	μM*h	40	36	87	78	229	231

STAT3 Degradation in Tumor Was Exposure-Dependent KTX-201 dose-dependent PD

- Maximal STAT3 degradation occurred at 24 hr post dose for all doses
- Maximal degradation is >90% at 25 mg/kg
- Prolonged degradation in tumor is partially due to longer drug t_{1/2} in tumor
- T¹/₂ of STAT3 return to baseline is dosedependent → higher dose/higher exposure/ prolonged degradation



Important *in vivo* Parameters Can be Derived from PK/PD Modelling to Enable Human Dose Projections



- Hysteresis observed
- >0.4 uM [KTX-201]_{tumor} leads to >50% STAT3 degradation
- in vivo tumor DC_{50} is expected to be 0.46 μ M (using in vitro DC_{50} with PPB correction)

*10% FBS fu = 0.15; SUDHL-1 fu,t = 0.0049

5, 10, 25

Solid lines

(simulation)

Open circles

(observed)

CV

17%

16%

16%

0.0356 hr⁻¹(t_{1/4} 19 hr)

14

2.5 μM

Degradation

In vivo max.

In vivo potency

These PK/PD parameters are used to project human degradation

Rate

effect

k_{deg}

Emax

 EC_{50}

profiles

mg/kg

Summary



- IRAK4 is a well validated pathway involved in multiple IL-1R/TLR-driven immune-inflammatory diseases
- IRAK4 degradation is superior to inhibition
- KT-474 interim Phase 1 results demonstrate degrader proof-of-mechanism, first time for TPD in a placebocontrolled study
- Median IRAK4 reduction of 90% and maximum reduction of 94% at 48h following single dose of 300 mg, with sustained degradation that lasted for at least 6 days at all dose levels
- Kymera expect to **present updated results** from healthy volunteer SAD/MAD portions in Q4'21



- Kymera has developed potent and highly selective
 STAT3 degraders which are active in models of heme malignancies and solid tumors which support these as potential indications for clinical development
- Sustained STAT3 degradation of 90% or greater leads to apoptosis induction and cancer cell death within 48 hr in vitro and in vivo
- **PK/PD modeling** is a useful tool to understand STAT3 degradation and efficacy relationships and also allows projection of STAT3 degradation profiles in human
- Kymera expect to submit IND application to evaluate KT-333 in Ph I clinical trial in relapsed liquid and solid tumors this year

IRAK4



THANK YOU

YNERA

