kinarus

Corporate deck

July 2023

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Executive Summary

- **Kinarus is a biotech company developing a combination therapy for Idiopathic Pulmonary Fibrosis, retinal, and autoimmune disorders**

- Key asset – KIN001 – p38 MAPK inhibitor pamapimod (Roche) + pioglitazone (marketed)
- KIN001 unlocks the broad potential of p38 MAPK inhibition, a central pathway in inflammatory and fibrotic diseases
- Based on its own research, Kinarus has positioned KIN001 in several high value indications
- Prepared to start robust phase 2 clinical studies
- Key IP protection to at least 2037, worldwide rights from Roche
- Repositioning strategy of late-stage assets – decreased clinical risk, technical risk, faster to market, multiple shots on goal
- Experienced management team - proven track record to initiate and conduct comprehensive clinical studies with small team in a cost-effective approach

Experienced Leadership

We are drug developers

Dr. Alexander Bausch
Chief Executive Officer

Roche

strekin

Dr. Matthew Wright
Chief Operations Officer
Head of Research

Roche

strekin

Dr. Thierry Fumeaux
Chief Medical Officer

SWISS NATIONAL COVID-19 SCIENCE TASK FORCE

G H O L

Claudia Berger
Chief Clinical Dev. Officer

NOVARTIS

ImmunOs THERAPEUTICS

strekin

- Direct know-how and in-depth expertise with Kinarus' therapeutic targets and disease indications
- Established relationships with leading clinical experts

Pamapimod

Clinical-stage p38 MAPK inhibitor in-licensed from Roche

The Asset

- p38 MAPK inhibitors were actively under development 2005-2010 for autoimmune indications (e.g. Rheumatoid Arthritis)
- Pamapimod was discovered and developed by Roche
  - ✓ Safe in preclinical and clinical testing
  - ✓ Engages with target - demonstrated effects on clinical biomarkers

The Problem

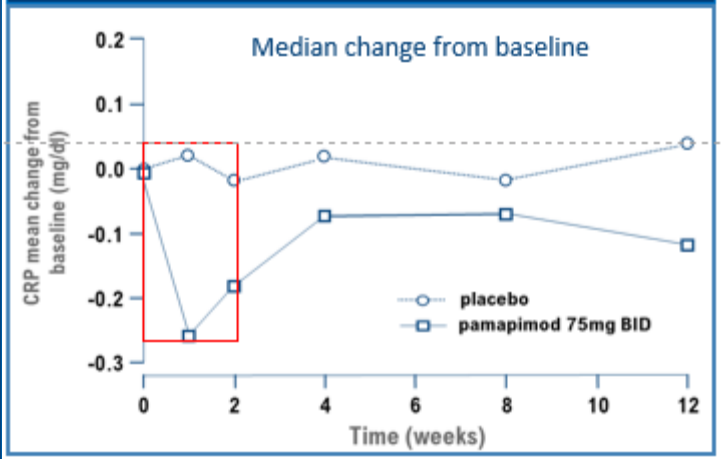
- Relatively short-lived efficacy (see graph)
  - Compensatory cellular bypass mechanisms
- Roche discontinued pamapimod development in 2007

The Kinarus Solution

- Pamapimod + pioglitazone = KIN001
  - ✓ Pioglitazone blocks compensatory mechanisms
  - ✓ Prolongs pamapimod's efficacy without compromising safety
  - ✓ Novel intellectual property (composition of matter protection until 2037)

- **KIN001 is a Phase 2-ready, patent-protected innovative drug candidate that unlocks the value of p38 MAPK inhibition**

Pamapimod has transitory impact on CRP
(C-reactive protein - inflammation biomarker)

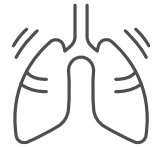


KIN001 for Idiopathic Pulmonary Fibrosis

Kinarus AG, www.kinarus.com

Idiopathic Pulmonary Fibrosis

More effective, better tolerated therapies needed

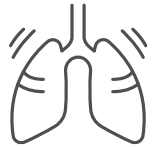


- IPF is a severe progressive fibrotic lung disease
  - Median survival two to five years, similar to many types of cancer
- Limited therapeutic options
  - Esbriet® (pirfenidone; Roche) and Ofev® (nintedanib; BI)
    - ➢ Limited efficacy
    - ➢ Significant side effects/drug-drug Interaction (nintedanib)
    - ➢ Often patients suspend treatment despite severity of the disease
  - ➢ Lung transplant
- Several new investigational drugs against novel targets have not met expectations in late clinical development (eg ziritaxestat, zinpentraxin alpha)

➢ There is an urgent need for a well-tolerated new treatment option targeting multiple key fibrotic and inflammatory mechanisms

Idiopathic Pulmonary Fibrosis

A favorable market opportunity for a differentiated new drug

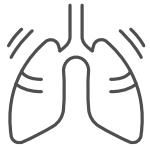


- The incidence and prevalence of IPF is in the range of 0.09–1.30 and 0.33–4.51 per 10,000 persons[(1)]
- Global market to reach USD 3.2B by 2025
- IPF qualifies for Orphan drug designation with FDA/EMA
  - Facilitated development path
  - Surrogate endpoint - lung function decline (FVC) - sufficient for market authorization
  - Additional exclusivity – 7 yrs US, 10 yrs EU

[1] Maher et. Al, Respiratory Research (197, 2021)

Idiopathic Pulmonary Fibrosis

KIN001: A potential differentiated treatment for IPF



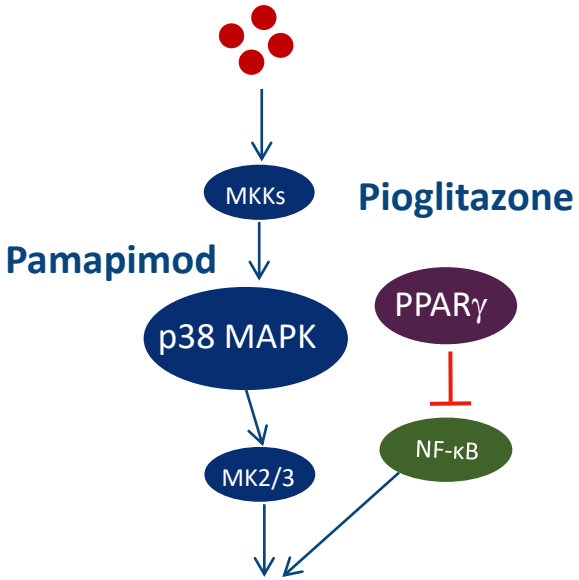
- **KIN001 is a safe fixed dose combination**
  - Favourable clinical data package for pamapimod (large phase 1 program, two phase 2 trials (Roche)
  - Pamapimod - complete tox package for regulatory submission in-hand (Roche)
  - Pioglitazone - greater than 30 Mio patient years in medical use (Takeda),
  - KIN001 combination toxicity study without any new findings (Kinarus)
  - KIN001 approved for 3 clinical studies up to 1 year (Kinarus)
  - KIN001 favourable tolerability in 130 hospitalized Covid-19 patients (Kinarus)

- KIN001 additional advantages
  - Multiple anti-fibrotic and anti-inflammatory efficacy
  - Ready for immediate conduct of long-term, fully-powered phase 2 trials
  - Stable drug product, optimized synthetic route
  - Highly reduced clinical and technical risk vs. new targets
  - Faster to market

KIN001 and Fibrosis

Targeting multiple mechanisms in IPF

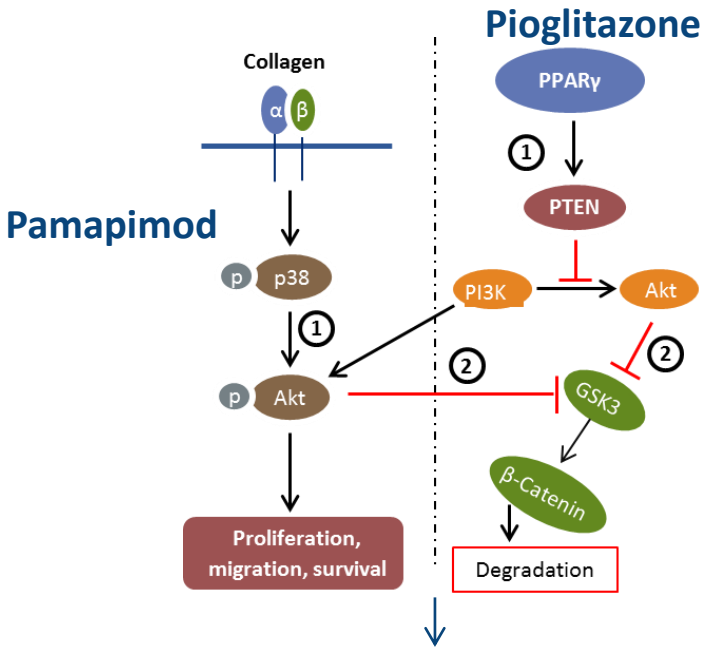
Inflammation



TNF-α, IL-1β, IL-6, TGF-β, cytokines/chemokines

Inhibition of inflammatory cytokine chemokine production

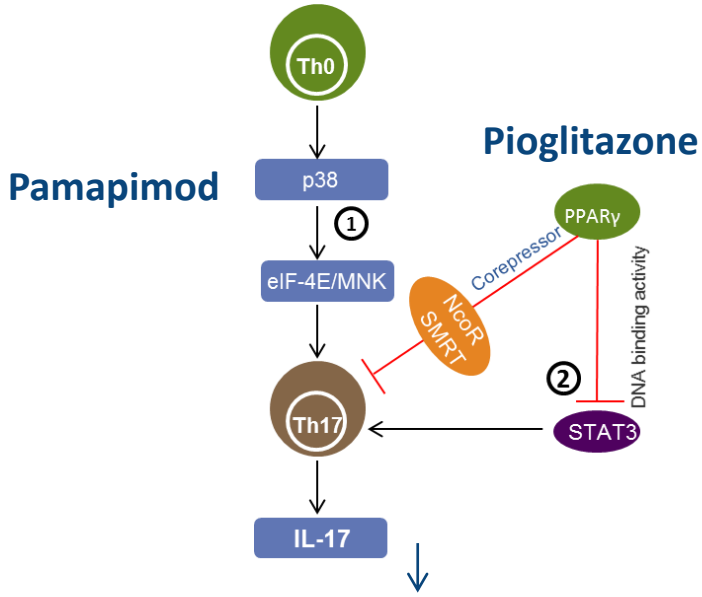
Epithelial-mesenchymal transition (EMT)



Inhibition of β-Catenin and PI3K signalling

Inhibition of epithelial to mesenchymal transition

IL-17 / TGFbeta

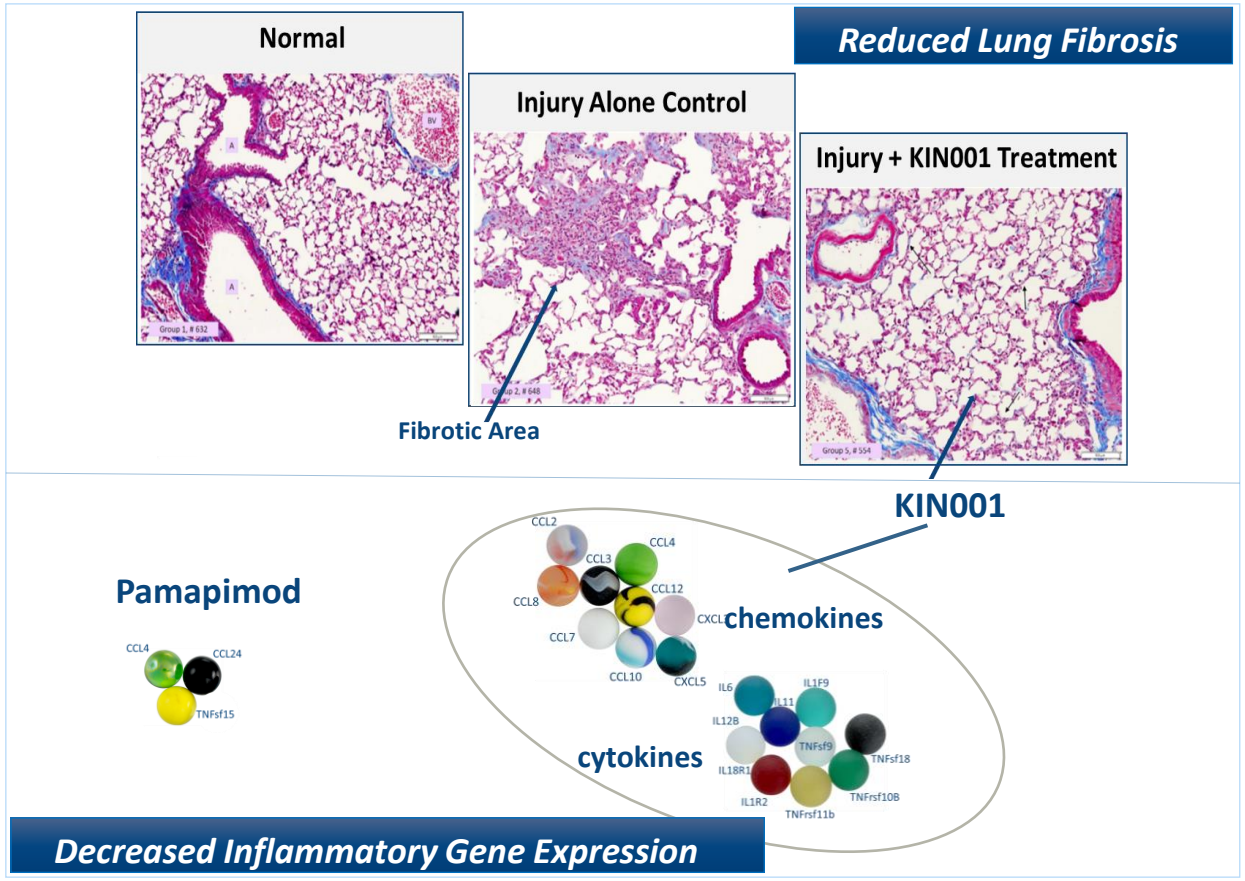


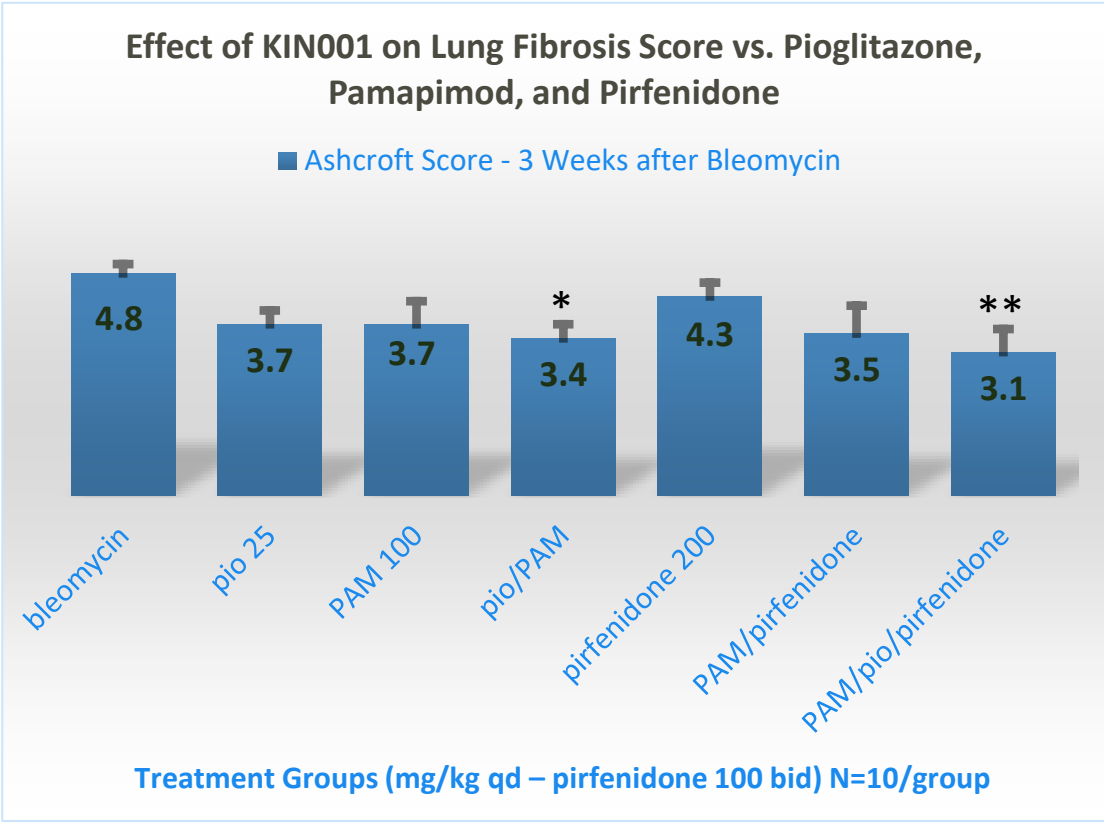
Inhibition of IL-17 production by Th17 cells

Reduced TGF beta dependent fibrosis

KIN001

KIN001 Reduces Lung Fibrosis and Inflammation
Efficacious on top of Pirfenidone





Mouse Model

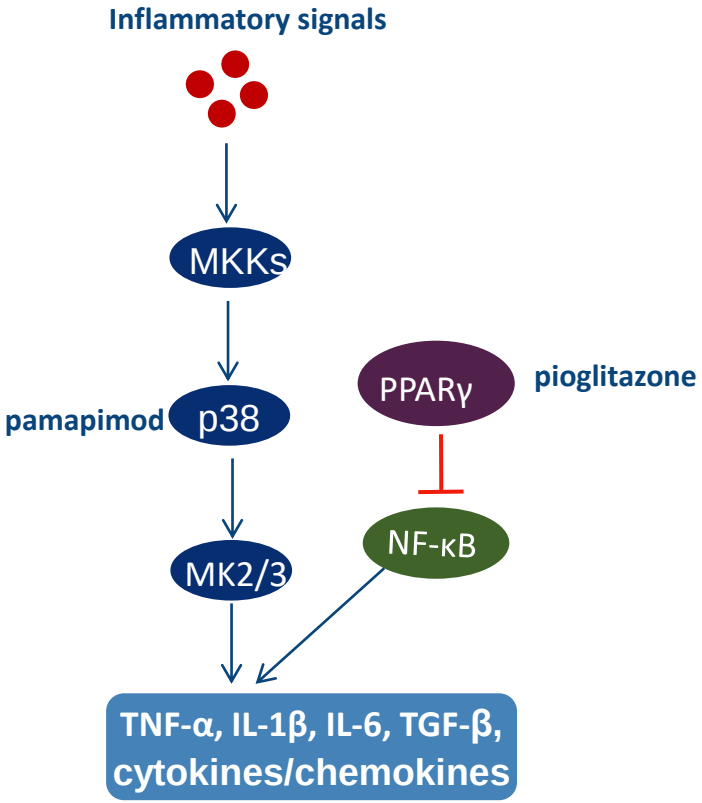
- *Strong effect of KIN001 to reduce fibrotic tissue in **bleomycin lung injury** model*
- *Synergistic effect of KIN001 to broadly downregulate inflammatory genes in lung tissue*
- *Better efficacy of KIN001 vs. pirfenidone*

Broad Repression of Key Cytokines and Chemokines

mRNA expression analysis reveals synergistic anti-inflammatory action of KIN001 in lung

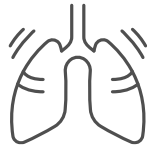
RNASeq whole genome lung expression data from Mouse bleomycin study 2				KIN001	
Interleukins and receptors		**adjusted significance (p) value**			
Gene	**Gene ID**	**Pioglitazone**	**Pamapimod**	**Combination**	**Direction**
Interleukin 6	IL6	NS	NS	0.000161	downregulated
Interleukin 12B	IL12b	NS	**0.023**	0.0142	downregulated
Interleukin 36 Gamma	IL1f9	NS	NS	0.033	upregulated
Interleukin 11	IL11	NS	NS	0.054	downregulated
Interleukin 18 Receptor 1	IL18r1	NS	NS	0.076	downregulated
Interleukin 1 Receptor Type 2	IL1r2	NS	NS	0.084	upregulated
	NS = adjusted p value > 0.10				
TNFs and receptors		**adjusted significance (p) value**			
Gene	**Gene ID**	**Pioglitazone**	**Pamapimod**	**Combination**	**Direction**
TNF Receptor Superfamily Member 11b	Tnfrsf11b	NS	NS	0.0084	downregulated
TNF Superfamily Member 9	Tnfsf9	NS	NS	0.028	downregulated
TNF Receptor Superfamily Member 10b	Tnfrsf10b	NS	NS	0.055	downregulated
TNF Superfamily Member 18	Tnfsf18	NS	NS	0.073	downregulated
TNF Superfamily Member 15	Tnfsf15	NS	**0.0079**	NS	upregulated
	NS = adjusted p value > 0.10				
Proinflammatory chemokines		**adjusted significance (p) value**			
Gene	**Gene ID**	**Pioglitazone**	**Pamapimod**	**Combination**	**Direction**
C-C Motif Chemokine Ligand 7	Ccl7	NS	NS	0.0014	downregulated
C-C Motif Chemokine Ligand 4	Ccl4	NS	**0.042**	0.0032	downregulated
C-C Motif Chemokine Ligand 3	Ccl3	NS	NS	0.0048	downregulated
C-C Motif Chemokine Ligand 12	Ccl12	NS	NS	0.021	downregulated
C-C Motif Chemokine Ligand 2	Ccl2	NS	NS	0.023	downregulated
C-C Motif Chemokine Ligand 8	Ccl8	NS	NS	0.08	downregulated
C-C Motif Chemokine Ligand 24	Ccl24	NS	0.032	NS	downregulated
C-X-C Motif Chemokine Ligand 10	Cxcl10	NS	NS	0.048	downregulated
C-X-C Motif Chemokine Ligand 5	Cxcl5	NS	NS	0.052	downregulated
C-X-C Motif Chemokine Ligand 3	Cxcl3	NS	NS	0.094	downregulated
	NS = adjusted p value > 0.10				

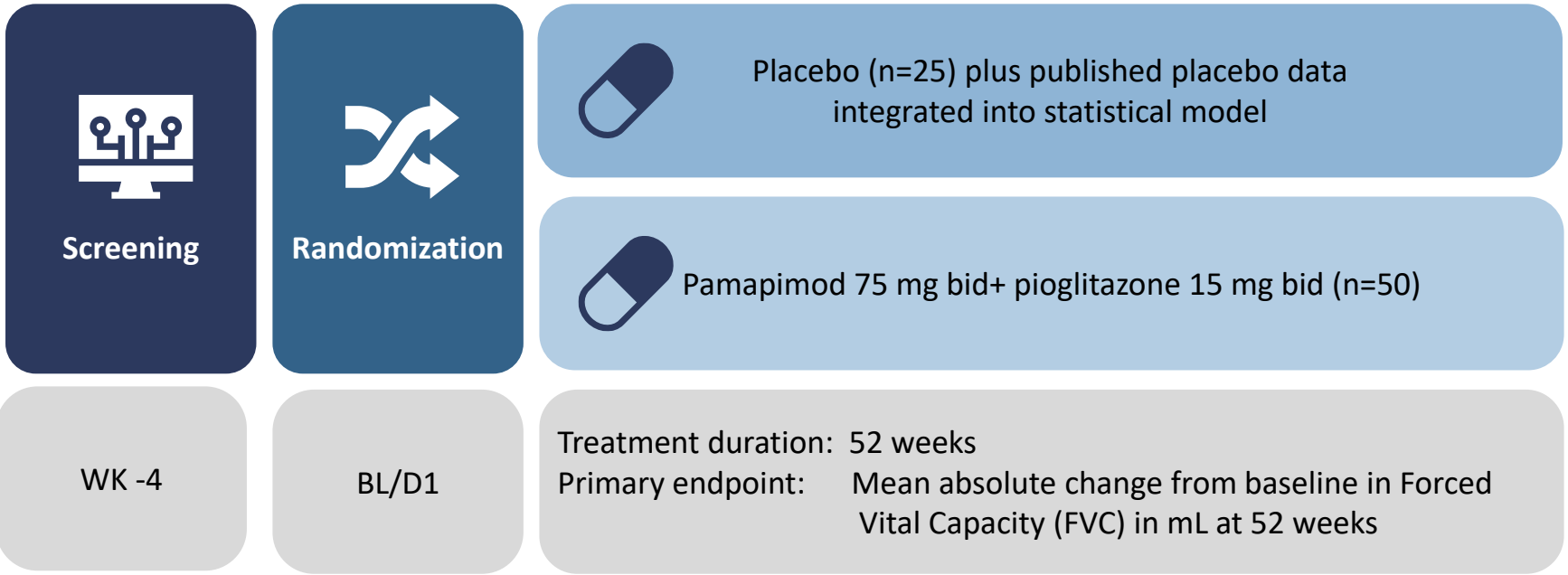
three weeks treatment after bleomycin instillation in mice



KIN001 inhibits of inflammatory cytokine/ chemokines blunting pathological response to lung injury

IPF Phase 2 Trial
Ready for Regulatory Submission





Patient inclusion: On top of standard-of-care (SOC) with inadequate response, or untreated due to previous intolerance to SOC

Clinical Trial Collaborators

"Drugs with anti-inflammatory and broad - rather than targeted - antifibrotic properties are more likely to be efficacious, as in IPF a plethora of redundant and overlapping fibrogenic pathways are believed to contribute to disease pathogenesis."

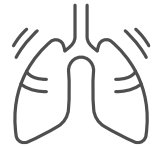
Prof Dr. Paolo Spagnolo, MD PhD
Associate Professor of Respiratory Medicine and Director of the School of Specialization in Respiratory Medicine at the University of Padua (Italy).

"IPF is an insidious disease with still very limited therapeutic options.
KINARUS' new drug compound with its synergistic effects gives new hope to our patients!"

PD Dr. Katrin Hostettler Haack
M.D., Dr. phil nat.
Clinic of Respiratory Medicine and Department of Biomedicine, University Hospital Basel

KIN001 in Idiopathic Pulmonary Fibrosis

Strategy for rapid clinical development



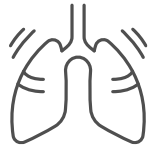
- **Positive Phase 2 data will represent a substantial value creation**
- In order to rapidly launch Phase 3 we will
  - Conduct pre-IND (FDA) and scientific advice (EMA) discussions to define path to NDA
    - The comprehensive safety and tolerability package and use of FDA accepted endpoint should make interaction with authorities straight-forward
    - Phase 3 protocol will mirror Phase 2, opening the path to rapid special protocol assessment (FDA)
  - Update the fixed dose combination tablet to employ in Phase 3
  - Prepare Phase 3 resupply
  - Obtain orphan designation with FDA/EMA

➢ Strategy will allow immediate launch of Phase 3

➢ This is in contrast to competitors – need for long-term tox, optimization of CMC etc.

KIN001 in Idiopathic Pulmonary Fibrosis

Strategic options after Phase 2



- **Positive Phase 2 data will unlock attractive business/partnering options**

- Corporate acquisition after Phase 2
  - Reduced Phase 3 risk with a clear path to NDA may increase the appetite for early trade sale
    - Target companies players in the field (BI, Roche, Fibrogen)
    - Companies specialized in rare diseases with the desire to enter the IPF space
  - Finance the Phase 3 program through IPO or licenses for our other indications

- Corporate acquisition after Phase 3 and approval
    - Launch and marketing cost should be palatable for mid to large cap partner
    - Marketing targets a limited number of specialists due to orphan status

KIN001 for Wet Age-Related Macular Degeneration

Kinarus AG, www.kinarus.com

KIN001 in Age-Related Macular Degeneration (wet AMD)

The leading cause of blindness in the elderly

- **No oral treatment for wet AMD exists today**
- Current treatments are all injected directly into the eye:
  - Eylea® and Lucentis® targeting VEGF are current mainstay therapies
  - Others are Vabysmo® (Roche), Beovu® (Novartis), Avastin® (Genentech - off label)
- Large market: Projected CAGR of 6.72% for the period 2019-2026 (Source: Data Intelligence)
- Sales predicted to grow to 11.5 B by 2026 (Source: Global Data)
- High access limitation to anti-VEGF drugs limits broader use
  - Significant reimbursement issues even in developed countries
  - Need for substantial caregiver support
  - Poor long-term compliance due to high patient burden
  - Development of treatment resistance
  - Lack of efficacy of anti-VEGFs on retinal fibrosis

➢ KIN001, an oral drug targeting retinal neovascularization and fibrosis, that complements injectable drugs, has the potential to capture significant market share

➢ KIN001 may offer a convenient, more affordable treatment option with broader access for patients

KIN001 in Wet Macular degeneration (wet AMD)

Unique positioning opportunity - complement, not replace Lucentis/Eylea

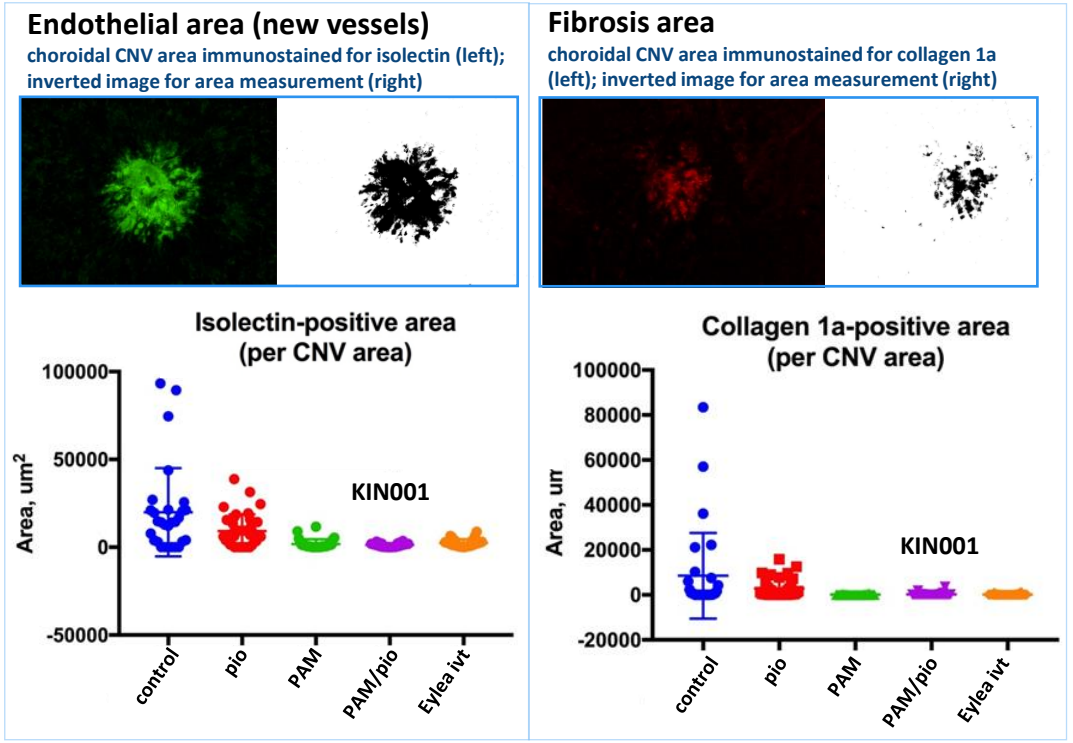
- **KIN001 is well suited to be an effective treatment for wet AMD**
  - Pamapimod and Pioglitazone are implicated in mechanisms of AMD
  - Studies suggest that MAPKs are involved in oxidative stress-induced degeneration of retinal pigment epithelial (RPE) cells[1]
  - AMD is associated with genes encoding the MAPK signaling pathway
  - KIN001 was highly effective in mouse and non-human primate models

- **KIN001 is intended to <u>complement</u> anti-VEGF injections to prevent or slow disease progression**
  - A 30% reduction in need for intraocular injections could be highly impactful and capture significant market share
  - All approvals for a one year phase 2 study in hand
  - Oral small molecule offers opportunities for broader access esp. in less developed countries
  - Further potential for KIN001 as a treatment for other retinal diseases including Diabetic Retinopathy, Geographic Atrophy (dry AMD), Retinal Vein Occlusion.

1. Kyosseva SV. Targeting MAPK Signaling in Age-Related Macular Degeneration. Ophthalmol Eye Dis. 2016 Ju 23;8:23-30

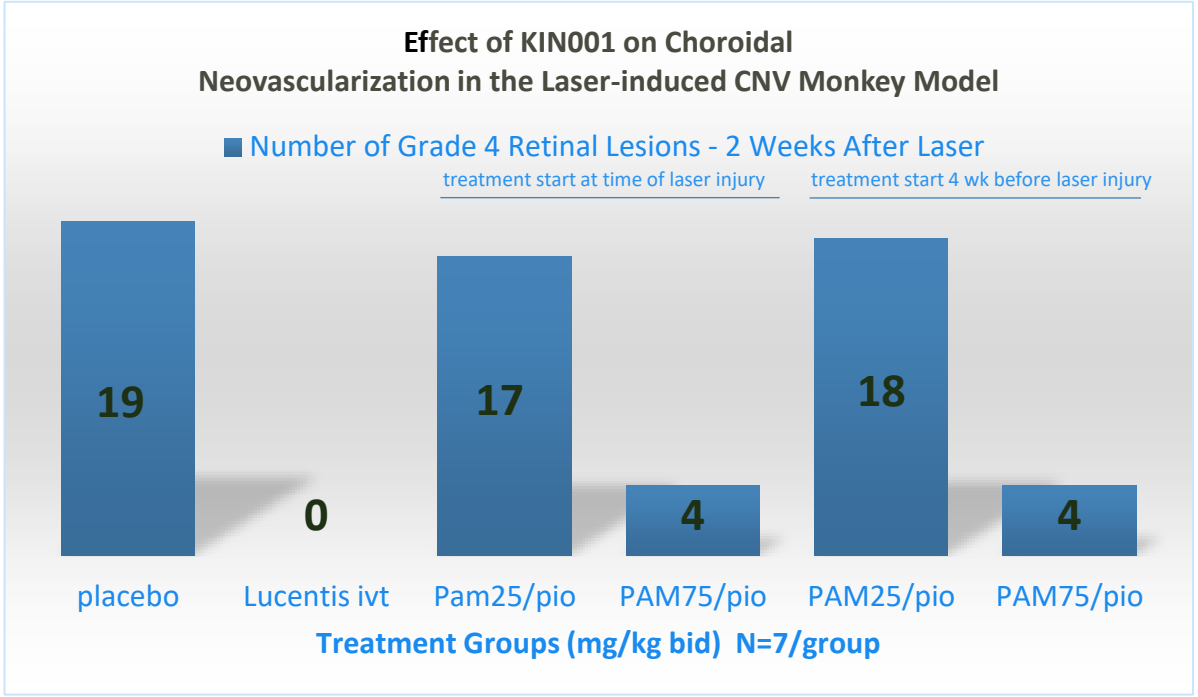
KIN001 is Highly Effective in Preclinical Studies

Reduces Choroidal Neovascularization and Retinal Fibrosis in Mouse and Primate



Mouse Model

- *Strong effect of KIN001 to reduce neovascularization of laser-induced retinal lesions in **mouse CNV** study*
- *KIN001 also reduced retinal fibrotic area*
- *N=10 animals per treatment group, single ivt injection of Eylea as positive control, 2 wk treatment*



Primate Model

- *Strong effect of KIN001 (equiv. human 75 mg dose pamapimod) to reduce CNV retinal lesion severity in Cynomolgus monkey*
- *Equal efficacy of KIN001 in 4 wk pretreatment and immediate treatment groups vs. time of laser injury*
- *Supports Kinarus hypothesis that KIN001 combination overcomes loss of efficacy over time*

Wet Age-Related Macular Degeneration

KIN001: A strong candidate for early licensing

- **With a ready-to-launch Phase 2 trial KIN001 is a compelling licensing opportunity**
- KIN001 is a strategic fit to diverse potential partners
  - Companies with a presence in wet AMD to complement existing franchise and to counter generic erosion (e.g. Roche, Novartis, Bayer, Eyepoint)
  - Companies with a presence in dry AMD to expand to wet AMD and as a potential second opportunity in dry (e.g. Apellis, Iveric Bio)
  - Large pharma companies with the strategic intent to expand to Opthalmology
    - Only a drug complementary to anti-VEGFs allows access avoiding direct confrontation with established players (e.g. J&J, Boehringer Ingelheim)
  - Mid-size opthalmology companies looking to expand to AMD
    - May add a new value-driver and capitalize on existing sales force (e.g. Thea Open innovation, Aspire, Curacle, Neopharmed Gentili, Nicox, Eyebio, Santen)

KIN001 - a Strong Platform of Opportunities

Several additional indications can be explored and out-licensed

- **General Strategy in new Indications**
  - **Identify indications with role for p38, generate preclinical PoC, generate IP, out-license/partner**
  - **Kinarus has filed combination patents covering KIN001 in five indications and obtained broad composition of matter protection (US, EU, China, others)**
- **Current Indications in Focus:**
  - **1. Covid-19**
    - KIN001 potently inhibits SARS-CoV-2 replication in vitro[1]
    - Data show equal potency against critical variants of concern
    - Kinarus is currently running a Phase 2 study in non-hospitalized Covid-19 patients (KINFAST)
      - Meaningful Endpoint - reduction of duration and severity as assessed by FDA approved patient reported outcome measure
      - Very cost effective - CHF 1M to reach interim readout for efficacy and safety
      - Fast licensing opportunity

1. Setz C, Große M, Auth J, Fröba M, Rauch P, Bausch A, Wright M, Schubert U. Synergistic Antiviral Activity of Pamapimod and Pioglitazone against SARS-CoV-2 and Its Variants of Concern. *International Journal of Molecular Sciences*. 2022; 23(12):6830.

KIN001 - a Strong Platform of Opportunities

Several additional indications can be explored and out-licensed

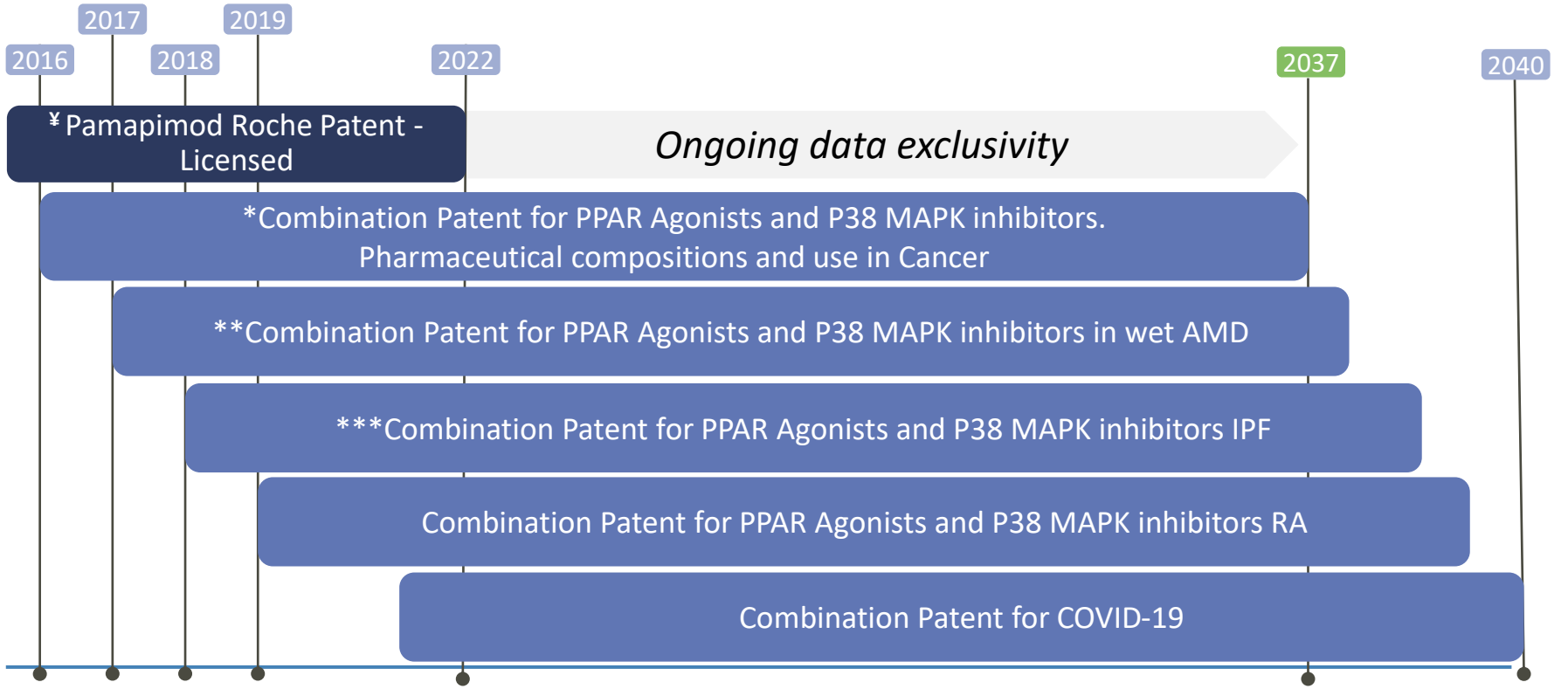
- **2. NASH – non-alcoholic steatohepatitis:**
  - Strong preclinical evidence for p38 MAPK (pamapimod) and PPARγ (pioglitazone)
  - Newly emerging preclinical models allow assessment of potential of KIN001
  - Potential out-licensing prior to or after clinical studies

- **3. Psoriasis:**
  - Psoriatric arthritis is currently evaluated by Aclaris with an early MK2 inhibitor that targets a downstream effector interacting directly with p38
  - Large market potential for an oral treatment that would represent significant differentiation from current therapies

- **4. Rheumatoid Arthritis revisited:**
  - KIN001 captures the potential of p38 inhibition suggesting a fresh look at RA is warranted

Strong Patent Estate

Strong composition of matter protection through 2037



- **¥Granted:** in 24 countries
- Expired: 2/2022
- Ongoing data exclusivity - Roche data exclusively proprietary to Kinarus

***Granted:**

- **EU** Composition of Matter claim for pharmaceutical combination of pamapimod and pioglitazone
- **USA** Composition of Matter claim for the pharmaceutical combination of pamapimod and pioglitazone
- **China** Composition of Matter allowed for the pharmaceutical combination of pamapimod and pioglitazone
- Other Countries: **Columbia, Hong Kong, Mexico, Ukraine, South Africa, Eurasia, Singapore, Malaysia, Korea, Israel, ARIPO**
- Others Pending

****Granted (AMD):**

- **USA**
- **Israel**
- **Mexico**
- **Eurasia**
- **ARIPO**
- **New Zealand**
- **Nigeria**
- Others Pending

*****Granted (IPF):**

- **Eurasia**
- Others Pending

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Thank you