

Summary of late-stage clinical trials

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Kyowa Kirin Co., Ltd.



KYOWA KIRIN

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<https://clinicaltrials.gov/>

To see the whole picture of our pipeline, please visit the following website:
https://www.kyowakirin.com/what_we_do/index.html#anc-pipeline

List of abbreviations

AE	Adverse Events
DLT	Dose Limiting Toxicity
GFR	Glomerular Filtration Rate
iv	Intravenous
MTD	Maximum Tolerated Dose
ORR	Overall Response Rate
PD	Pharmacodynamics
PFS	Progression Free Survival
PK	Pharmacokinetics
po	Peroral
Q2W	Every Two Weeks
Q4W	Every Four Weeks
Q12W	Every Twelve Weeks
QD	Once Daily
QW	Once Weekly
sc	Subcutaneous

Late-stage pipeline summary

Phase II

ASKP1240 (bleselumab)
 Recurrence of focal segmental glomerulosclerosis in de novo kidney transplant recipients

KHK2375 (entinostat)
 Breast cancer

KHK4083
 Ulcerative colitis

KHK4083
 Atopic Dermatitis

KHK7791 (tenapanor)
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KRN23 (burosumab)
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KRN23 (burosumab)
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KW-6356
 Parkinson's disease

Phase III

AMG531 (romiplostim)
 Aplastic anemia Phase II/III

KHK4827 (brodalumab)
 Axial spondyloarthritis

KHK4827 (brodalumab)
 Systemic sclerosis

KHK7580 (evocalcet)
 Secondary hyperparathyroidism

KRN23 (burosumab)
 XLH (pediatric)

KW-0761 (mogamulizumab)
 CTCL

KW-0761 (mogamulizumab)
 HAM

RTA 402 (bardoxolone methyl)
 Diabetic kidney disease

AMG531 (romiplostim)

Aplastic anemia

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II/III NCT02773290	Korea	Dec-20 N=46	<u>AMG531</u> •sc, QW	<ul style="list-style-type: none"> •Primary endpoint: Proportion of subjects achieving a hematological response (any of the platelet response, erythroid response, and neutrophil response) 	
Phase II/III NCT03957694	Japan, Korea, Taiwan	Mar-21 N=14	<u>AMG531</u> •sc •Administered with anti-human thymocyte immunoglobulin (ATG) + ciclosporin A (CsA)	<ul style="list-style-type: none"> •Primary endpoint: Achievement of complete response (CR) or partial response (PR) 	

ASKP1240 (bleseelumab)

Recurrence of focal segmental glomerulosclerosis (FSGS) in de novo kidney transplant recipients

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT02921789	U.S.	Apr-21 N=60	<u>Arm 1: ASKP1240</u> •Basiliximab + Methylprednisone + Prednisone + ASKP1240 + Tacrolimus <u>Arm 2 (Active Comparator): Standard of Care</u> •Basiliximab induction + Tacrolimus + Methylprednisone + Prednisone + MMF	•Primary endpoint: Recurrence of FSGS at 3 months post-transplant •Secondary endpoint: Recurrence of FSGS, BRAR, efficacy failure, and biopsy-proven rFSGS at 12 months post-transplant	Jointly developed with Astellas

KHK2375 (entinostat)

Breast cancer

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT03291886	Japan	Nov-21 N=124	<u>Arm 1 : KHK2375 + Exemestane</u> KHK2375: 5mg, po, QW Exemestane: 25mg, po, QD <u>Arm 2 : Placebo + Exemestane</u> Placebo: po, QW Exemestane: 25mg, po, QD	<ul style="list-style-type: none"> •Primary endpoint: PFS •Secondary endpoint: OS, Antitumor effect 	

KHK4083

Ulcerative colitis

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT02647866	U.S. Europe, others	Nov-18 N=60	<u>Arm 1: KHK4083</u> <u>Arm 2: Placebo</u> •iv, multiple ascending doses from Baseline to Week 48	<ul style="list-style-type: none"> •Primary endpoint: AE, Improvement in the mucosa •Secondary endpoint: Antidrug antibody, Mucosal healing, mMES (modified Mayo endoscopy sub- score) and so on 	

KHK4083

Atopic dermatitis

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT03703102	North America, Europe, Japan,	Feb-21 N=250	<u>Arm 1: KHK4083</u> •sc, dose level 1, dosing regimen 2 <u>Arm 2: KHK4083</u> •sc, dose level 2, dosing regimen 1 <u>Arm 1: KHK4083</u> •sc, dose level 3, dosing regimen 1 <u>Arm 1: KHK4083</u> •sc, dose level 3, dosing regimen 2 <u>Arm 2: Placebo</u> •sc	•Primary endpoint: Percent change from baseline to Week 16 in EASI (Eczema Area and Severity Index) score	

KHK4827 (brodalumab)

Axial spondyloarthritis (axSpA)

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT02985983	Japan, Korea, Taiwan	Dec-19 N=120	<u>Arm 1: KHK4827</u> •sc, 16 weeks <u>Arm 2: Placebo</u> •sc, 16 weeks <u>Arm 1 and Arm 2 (from week 17 until week 66):</u> •sc, administered KHK4827	•Primary endpoint: Percentage of ASAS (Assessment of SpondyloArthritis international Society) 40 in axSpA subjects	

KHK4827 (brodalumab)

Systemic sclerosis

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT03957681	Japan	Mar-23 N=100	<u>Arm 1: KHK4827</u> •210mg, sc, Q2W <u>Arm 2: Placebo</u> •sc, Q2W	•Primary endpoint: Change in modified Rodnan skin score (mRSS)	

KHK7580 (evocalcet)

Primary hyperparathyroidism

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT03280264	Japan	Oct-19 N=10	<u>KHK7580</u> •po, 24 weeks	<ul style="list-style-type: none"> •Primary endpoint: Percentage of subjects whose corrected serum calcium level is maintained ≤ 10.3 mg/dL for 2 weeks 	

KHK7580 (evocalcet)

Secondary hyperparathyroidism

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT03822507	China Korea Taiwan Hong Kong	June-21 N=400	<u>Arm 1: Experimental</u> KHK7580 po <u>Arm 2:</u> Cinacalcet po	•Primary endpoint: Percent change in intact parathyroid hormone (PTH) level	

KHK7791 (tenapanor)

Secondary hyperparathyroidism

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT03831607	Japan	Nov-19 N=60	<u>KHK7791</u> •po, Patients start at KHK7791 30 mg BID and can down titrate weekly to 20, 15, 10, and 5 mg BID	•Primary endpoint: Percentage of subjects who reduce the total number of taking phosphate binder tablets	
Phase II NCT03864458	Japan	Dec-20 N=200	Arm 1: KHK7791 po, low dose BID Arm 2: KHK7791 po, middle dose BID Arm 3: KHK7791 po, high dose BID Arm 4: KHK7791 po, Patients start at KHK7791 high dose and can down titrate weekly Arm 5: Placebo po, BID	Primary endpoint: To investigate the clinically recommended dose Secondary endpoint: Changes in serum Ca × P levels, Changes in corrected serum calcium levels	
Phase II NCT03864445	Japan	Dec-20 N=40	<u>Arm 1: KHK7791</u> po, BID <u>Arm 2: Placebo</u> po, BID	Primary endpoint: Comparing changes in serum phosphorus levels between KHK7791 group and placebo group Secondary endpoint: Changes in serum Ca × P levels, Changes in corrected serum calcium levels	

KRN125 (Pegfilgrastim)

Mobilization of hematopoietic stem cells into peripheral blood

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT03993639	Japan	Dec-20 N=41	<u>KRN125</u> •Single dose, sc	•Primary endpoint: Effect change from baseline CD34 positive cell counts in peripheral blood modification	

KRN23 (burosumab)

XLH (pediatric)

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT02915705	North America, Europe, Australia, Japan, Korea	Sep-19 N=61	<u>Arm 1: KRN23</u> •sc, Q2W, 0.8 mg/kg starting dose <u>Arm 2: Control (Phosphate and Active Vitamin D)</u> •po, multiple daily doses •Extension period: KRN23, sc, Q2W, 0.8 mg/kg starting dose	<ul style="list-style-type: none"> •Primary endpoint: Improvement in rickets •Other endpoint: Change in Serum P, 1,25(OH)₂D (1,25-dihydroxyvitamin D), Growth, Six Minute Walk Test and so on 	Jointly developed with Ultragenyx (U.S., Europe)
Phase II NCT02750618	U.S.	Sep-19 N=13	<u>KRN23</u> •sc, Q2W, 160 weeks	<ul style="list-style-type: none"> •Primary endpoint: AE, PD •Other endpoint: Change in rickets, lower extremity skeletal abnormalities, recumbent length/standing height and so on 	Jointly developed with Ultragenyx (U.S.)
Phase III NCT03233126	Japan	Dec-19 N=10	<u>KRN23</u> •sc, Q2W, 86 weeks	<ul style="list-style-type: none"> •Primary endpoint: AE •Secondary endpoint: Laboratory values, Change in Serum P, 1,25(OH)₂D (1,25-dihydroxyvitamin D), Rickets Severity Score (RSS) total score, Six Minute Walk Test, PK and so on 	

KRN23 (burosumab)

TIO/ENS

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT02304367	U.S.	Dec-19 N=17	<u>KRN23</u> •sc, starting dose of 0.3 mg/kg, Q4W. Doses may be titrated up to a maximum of 2.0 mg/kg, Q2W.	<ul style="list-style-type: none"> •Primary endpoint: The proportion of subjects achieving mean serum P levels above the lower limit of normal, Percent change from baseline in excess osteoid based on analysis of iliac crest bone biopsies after 48 weeks of KRN23 treatment •Secondary endpoint: AE, PK, PD, bone turnover biomarkers (ex.BALP, CTx, P1NP), osteocalcin, BFI (Brief Fatigue Inventory), BPI and so on 	Jointly developed with Ultragenyx (U.S.)
Phase II NCT02722798	Japan, Korea	Jun-19 N=6	<u>KRN23 Q4W</u> •sc, 44 weeks	<ul style="list-style-type: none"> •Primary endpoint: Serum P concentration •Secondary endpoint: PK, PD, Evaluate changes in skeletal disease/osteomalacia and so on 	

KW-0761 (mogamulizumab)

Hematological cancer - relapsed/refractory CTCL

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT01728805	U.S., Europe, Japan, others	Dec-20 N=372	<u>Arm 1: KW-0761</u> •1.0 mg/kg QW x 4 in cycle 1 then Q2W until progression <u>Arm 2: Vorinostat</u> •400 mg, po, QD	•Primary endpoint: PFS •Secondary endpoint: ORR	

KW-0761 (mogamulizumab)

Solid tumor

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase I NCT02867007	U.S.	Aug-19 N=50	<u>KW-0761 + KHK2455</u> •Part 1 (Dose Escalation Phase) KHK2455 monotherapy [Cycle 0] followed by KHK2455 + KW-0761 combination [Cycle 1] •Part 2 (Expansion Phase) Patients will be treated with the recommended dose of KHK2455 established in Part 1 in combination with KW-0761	•Primary endpoint: AE	

KW-0761 (mogamulizumab)

HTLV-1 associated myelopathy (HAM)

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III NCT03191526	Japan	Dec-20 N=66	<u>Arm 1: KW-0761 Q12W</u> iv, 0.3mg/kg, double-blind, after that open study for 24 weeks <u>Arm 2: Placebo Q12W</u> iv, double-blind, after that open study for 24 weeks	<ul style="list-style-type: none"> •Primary endpoint: Improvement in Osame's motor disability score •Secondary endpoint: HTLV-1 Proviral load in peripheral blood, Mean of twice 10 m walking time, Modified Ashworth Scale 	

KW-6356

Parkinson's disease

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase II NCT03703570	Japan	May-20 N=486	Arm 1: KW-6356 •Low dose, po Arm 2: KW-6356 •High dose, po Arm 3: Placebo, po	•Primary endpoint: Change from baseline in the Movement disorder society-unified Parkinson's disease rating scale(MDS-UPDRS) part III score •Secondary endpoint: Change from baseline in the total hours of awake time per day spent in the OFF state.	

RTA 402 (bardoxolone methyl)

Diabetic kidney disease

Trial phase	Country/ region	Estimated study completion date / enrollment	Design	Endpoints	Remarks
Phase III AYAME NCT03550443	Japan	Mar-22 N=950	<u>Arm 1: RTA 402</u> •5, 10, or 15 mg, po, QD <u>Arm 2: Placebo</u> •po, QD	•Primary endpoint: Time to onset of a $\geq 30\%$ decrease in eGFR (estimated GFR) from baseline or end-stage renal disease (ESRD)	