Kyverna Therapeutics

HARNESSING THE POWER OF CELL THERAPY IN AUTOIMMUNE DISEASE

November 2024





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This presentation includes results from named patient activities. Named patient activities are not part of our clinical trials for KYV-101 and data from these trials and activities are reported by the relevant investigators and physicians. Such data are not obtained using a single protocol or designed to be aggregated or reported as study results and may be highly variable. While we do not expect to be able to use the results from these investigator-initiated trials or named patient activities in our applications for marketing approval to the U.S. Food and Drug Administration or other foreign regulatory agencies, we believe that this strategy may provide some competitive advantage as we will be able to acquire additional clinical insights beyond highly focused clinical trials in specific geographies.



Goal: Durable clinical response and withdrawal of immunosuppressive medications

Before CAR-T

- → Continued disease progression → --- "Once and done"
- + Refractory to several lines
- -- Toxic chronic therapies

Aim of CAR T-cell therapy

- ----- ---- Immune reset
 - → + Free of chronic medications



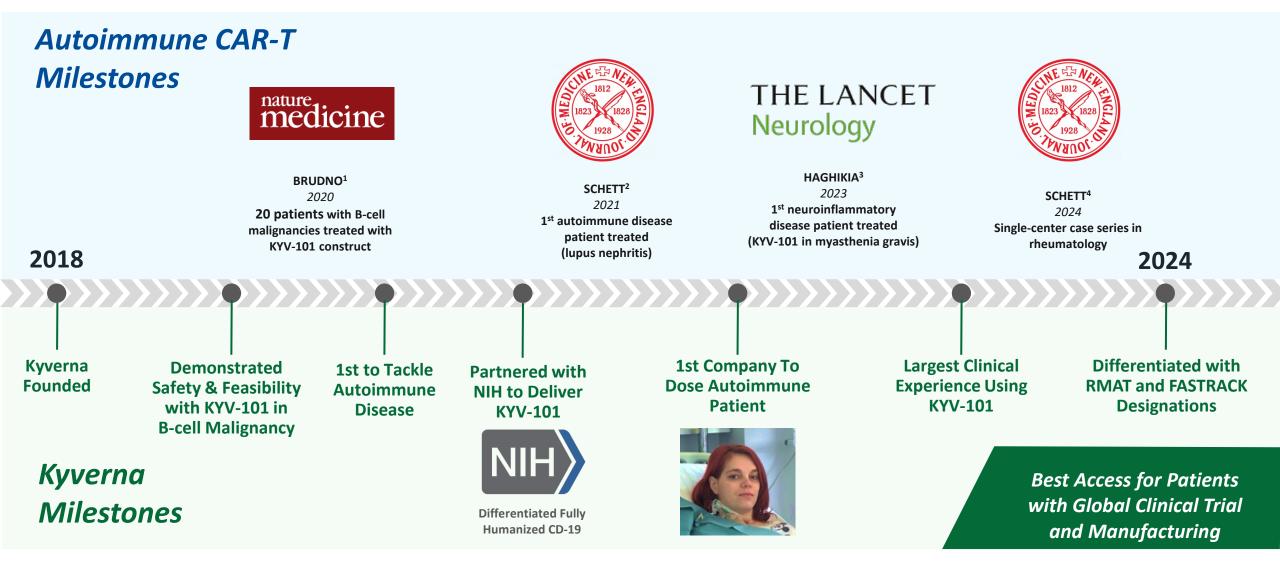
Autoimmune Diseases Represent a Large, Under-served Market

		B Cell-Driven Diseases	Estimated Number of Diagnosed Patients in US + EU + Japan ³
Autoimmune diseases prevalence high and increasing	Autoimmune diseases affect 8% of people in the U.S. ¹ , with prevalence increasing YoY	Rheumatoid Arthritis	4,700,000
(80+ different diseases)		Multiple Sclerosis	1,520,000
		Sjogren's Disease	750,000
		Systemic Lupus Erythematosus (SLE)	560,000
Autoimmune disease large and growing market	Currently marketed products: >\$80B revenue ²	Systemic Sclerosis	200,000
large and growing market		Lupus Nephritis	160,000
		Myasthenia Gravis	160,000
	Current therapies: Low rates of remission	Inflammatory Myositis	120,000
Current treatments		ANCA-Associated Vasculitis	100,000
inadequate for patients long-term	Serious long-term side effects	Neuromyelitis Optica	20,000
		Total	~8.3 Million Patients

Note: 1. National Institutes of Health (NIH) Autoimmune Diseases Coordinating Committee. Progress in Autoimmune Diseases Research (Publication No. 05–5140). March 2005. 14, Accessed date: October 25, 2022; 2. GlobalData 2021; 3. Published literature through GlobalData market analysis reports and internal data 2022



Working with Leaders and Trailblazing the Autoimmune CAR-T Field



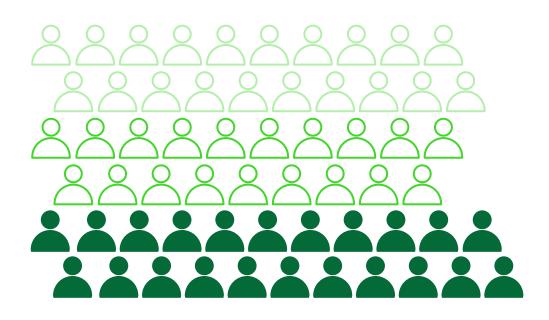
1. Brudno JN, et al. *Nat Med*. 2020;26(2):270-280; 2. Mougiakakos D, et al. *N Engl J Med*. 2021;385(6):567-569; 3. Haghikia A, et al. *Lancet Neurol*. 2023;22(12):1104-1105; 4. Muelller F, et al. *N Engl J Med*. 2024;390(7):687-700.



Kyverna's Leading Patient Experience with KYV-101

50+ Autoimmune Patients

Across diverse indications treated with KYV-101



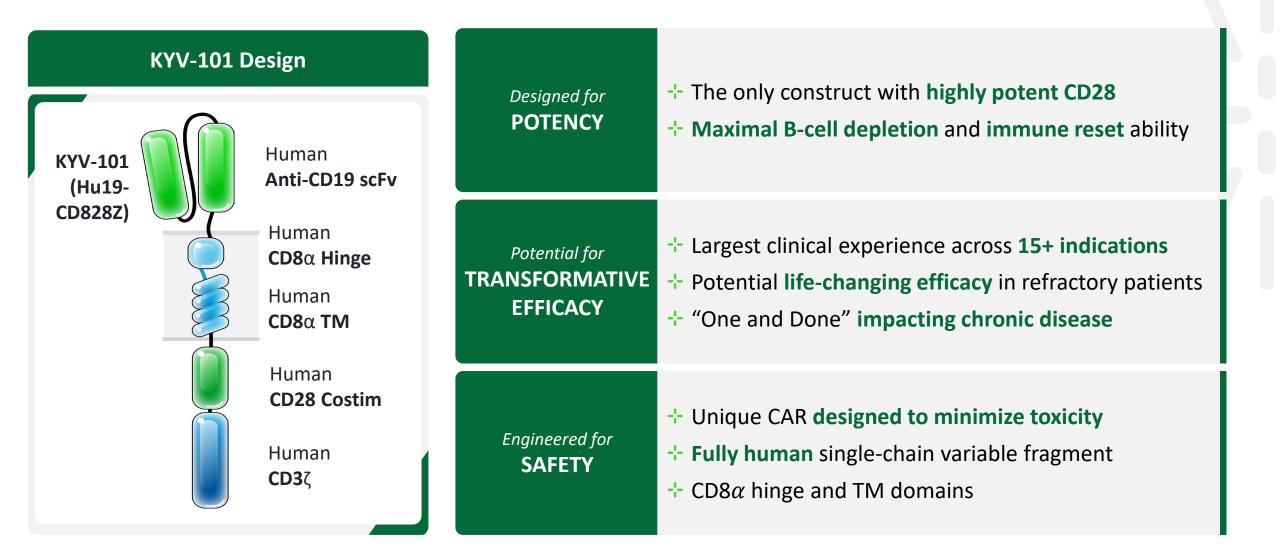
15+ Autoimmune Indications

Broad indication experience builds market opportunity with KYV-101

- Stiff-person syndrome
 Myasthenia gravis
 Multiple sclerosis
 NMOSD
 CIDP
 Rheumatoid arthritis
 Systemic sclerosis
 Lupus nephritis
 ANCA-associated vasculitis
- -- And others

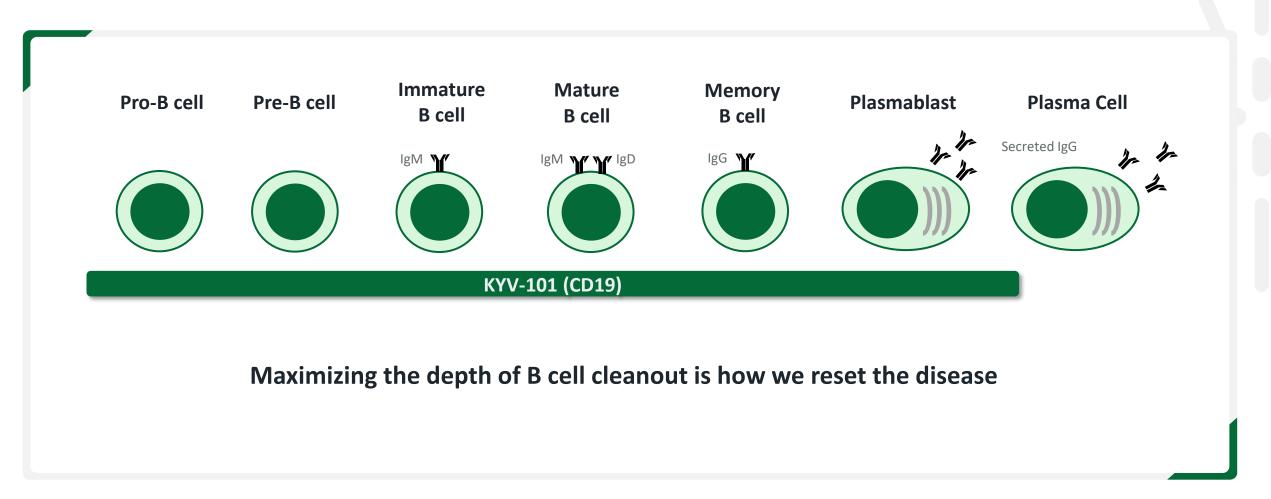


KYV-101: Uniquely Designed to Impact the Unmet Need in Autoimmune Disease





Differentiated Broad Impact of KYV-101: The Value of CD19



CD19-targeted depletion eliminates the broadest range of B-cell subsets showing promising efficacy while preserving humoral immunity



Leading Pipeline Recognized for Addressing Clinical Unmet Need

Actively enrolling studies in the US and Europe

Technology	Candidates	Target	Indication	Discovery / Validation	Preclinical	Clinical Phase 1	Clinical Phase 2	Clinical Phase 3	Regulatory Milestone
	Rheumatology IS	CD19	Lupus nephritis	KYSA-I 👙	Phase 1/2				Fast Track
			Systemic sclerosis	KYSA-5 👙	Phase 1/2				ODD
Autologous CAR T			Myasthenia gravis	ктял-6 🚔 (Phase 2				ODD, RMAT
		CD19	Multiple sclerosis	күза-т 🚔	Phase 2				Fast Track
	-	Stiff person syndrome	KYSA-8 👙	Phase 2				ODD, RMAT	
Allogeneic CAR T	KYV-201	CD19	Multiple						

Fast track designation does not assure that we will experience a faster development process, regulatory review or regulatory approval process compared to conventional FDA procedures. CAR, chimeric antigen receptor; FDA, Food and Drug Administration; ODD, orphan drug designation; RMAT, regenerative medicine advanced therapy.



KYV-101 in Neuroinflammatory Diseases



Presented Case Reports – Company Symposium at ECTRIMS 2024 **KYV-101 Shows Promising Efficacy in Stiff-Person Syndrome**

RUB

Bedbound, Unable to Bend Legs and Turn With Aids





4-6 Months Post

Able to Walk Unaided without Fear of Falling



8 Months Post

PNAS	BRIEF REPORT	IMMUNOLOGY AND IN	FLAMMATION	
		ti-CD19 CA stiff-person	R T cells in seve syndrome	re
			godzai ^{a, 1} , Christian Geis 🝺 ^b , nroers 🝺 ^{f,2} , and Ralf Gold 🝺	
Edited by Lawrence S	teinman, Stanford Univ	versity, Stanford, CA; rec	eived February 22, 2024; accepted	d May 10, 2024

June 17, 2024 121 (26) e2403227121 https://doi.org/10.1073/pnas.2403227121

At 1 year after KYV-101:

- --- Reduced stiffness
- -- Improved mobility
- + Stable gait
- -- Better walking speed
- -- 90% reduction in anti-GAD antibody



Note: named patient data; GAD, glutamic acid decarboxylase.

Pre-infusion

Immune Reset Leading to Durable Treatment Response

Schett Experience

First CAR T SLE patient at >3 years¹⁻³

- + Disease free
- + No serious adverse events
- Off immunosuppressants and glucocorticoids
- -- B cells repopulated as of day 148





First KYV-101 MG patient at 15 months^{4,5}

- + Disease free
- + No serious adverse events
- -- Off immunosuppressants and glucocorticoids
- + B cells repopulated as of day 132





Kyverna Experience

Second KYV-101 MG patient at 12 months⁵

- + Disease free
- + No serious adverse events
- Off immunosuppressants and glucocorticoids
- -- B cells repopulation pending as of month 10



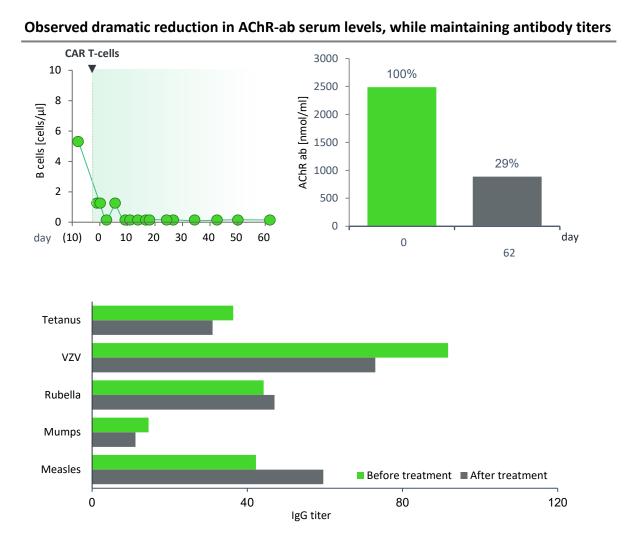


Note: named patient data; CAR, chimeric antigen receptor; MG; myasthenia gravis; SLE, systemic lupus erythematosus.

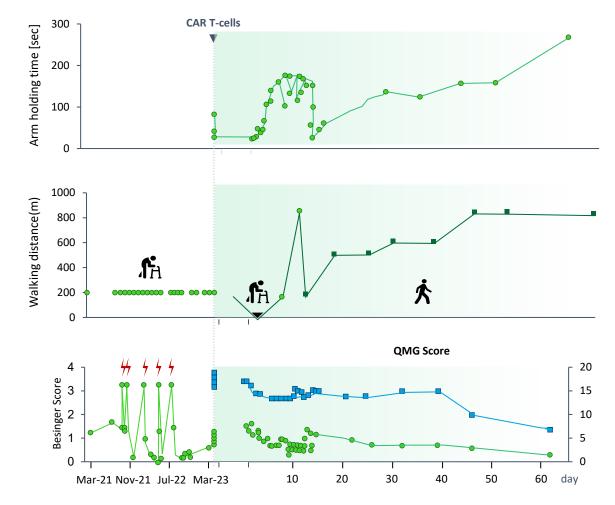
1. Mougiakakos D, et al. N Engl J Med. 2021;385:567-569. 2. Taubmann J, et al. EULAR 2023, Abstract OP0141. Ann Rheum Dis. 2023;82:93-94. 3. World exclusive: CAR-T cell therapy successfully used against autoimmune disease. https://www.fau.eu/2021/08/11/news/research/world-exclusive-car-t-cell-therapy-successfully-used-against-autoimmune-disease/. 4. Haghikia A, et al. Lancet Neurol. 2023;22:1104-5. 5. Unpublished data.



Published Case Reports – Lancet Neurology Within 60 Days Of Infusion, Observed Improved Symptoms and Mobility in Myasthenia Gravis

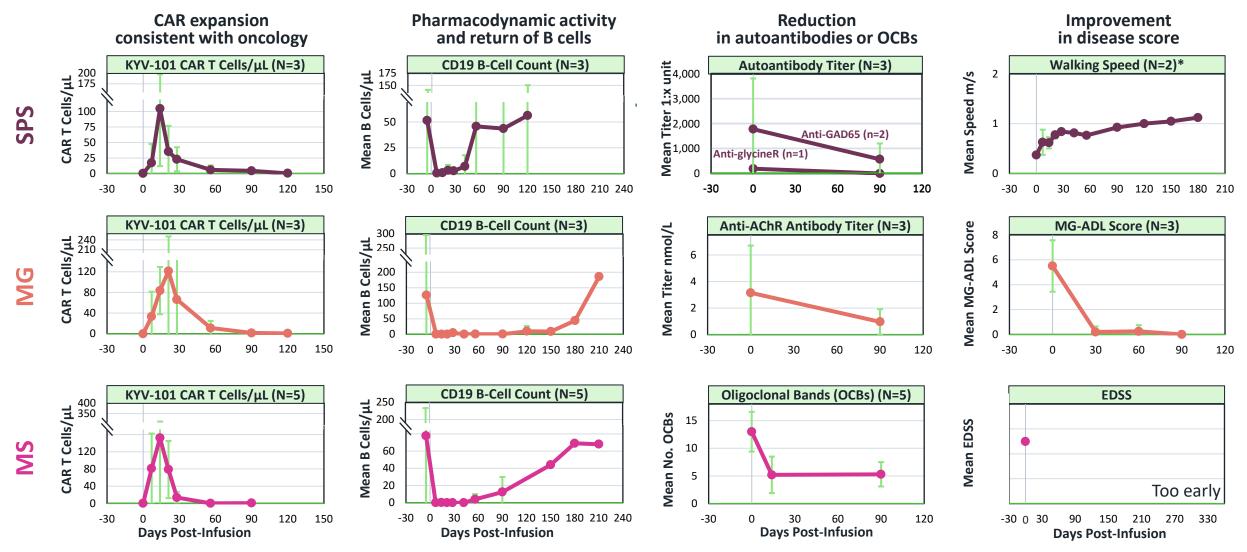






Haghikia A, et al. Anti-CD19 CAR T cells for refractory myasthenia gravis. The Lancet: Neurology 2023. 22(12):1104-1105

Presented Case Reports – Company Symposium at ECTRIMS 2024 Promising PK, Biomarker and Efficacy Data for KYV-101 in Neuroinflammatory Diseases



Note: named patient data; * Data on walking speed only available for 2 of 3 patients with SPS.

ADL, activities of daily living; CAR, chimeric antigen receptor; MG, myasthenia gravis; MS, multiple sclerosis; OCB, oligoclonal band; SPS, stiff-person syndrome.



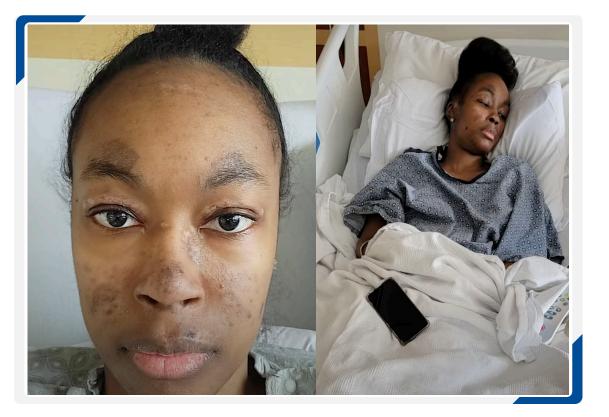
KYV-101 in Rheumatologic Diseases



Leading the Way to Life Changing Impacts for Patients

Before KYV-101

- Severe Disease
- Rash
- SLEDAI score 27

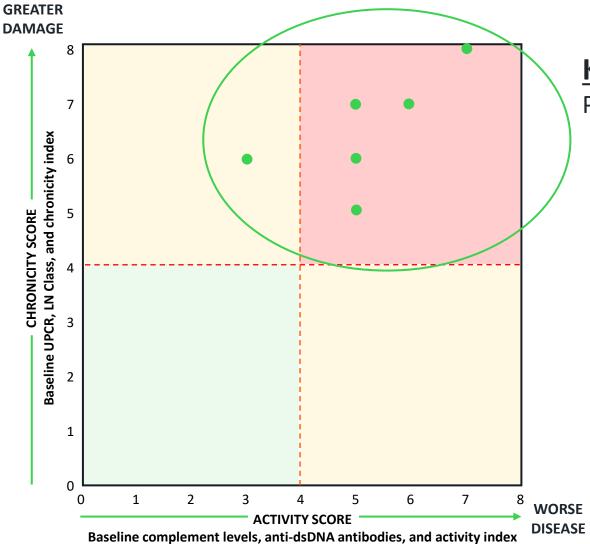


After KYV-101

- Disease Free
- No immunosuppressants
- No glucocorticoids



KYV-101 Refractory LN Patients Have High Disease Activity and Kidney Damage



KYV-101 100M Target Dose

Patient Baseline Characteristics

- Refractory LN patients experience uncontrolled inflammation and accumulated kidney damage
- KYV-101 patients have particularly high baseline disease activity and kidney damage
 - -- Activity: Low complement, high levels of anti-dsDNA antibodies, and high activity indices by biopsy
 - Chronicity: High levels of proteinuria, Class II-V histology, and high chronicity indices by biopsy



Patients from Kyverna-sponsored clinical trials, investigator-reported named patient, and investigator-initiated trial experience as of October 31, 2024. These observations are derived from separate clinical settings, including information from case reports. Future clinical trials may not confirm the clinical safety observations discussed in these case reports and studies. LN, lupus nephritis; UPCR, urine protein creatinine ratio.

KYV-101: Treatment of Heavily Pretreated LN Patients

Demographic summary of patients receiving 1×10⁸ CAR T-cells

Patient Characteristic	N=6
Age (Range)	29 – 55 years
Sex (Female : Male)	4:2
Prior Lines Of Therapy	3 – 7
SLEDAI-2K	8 – 27
Histologic Class of Nephritis (WHO)	II – V
UPCR (Range)	1.4 - 8.0

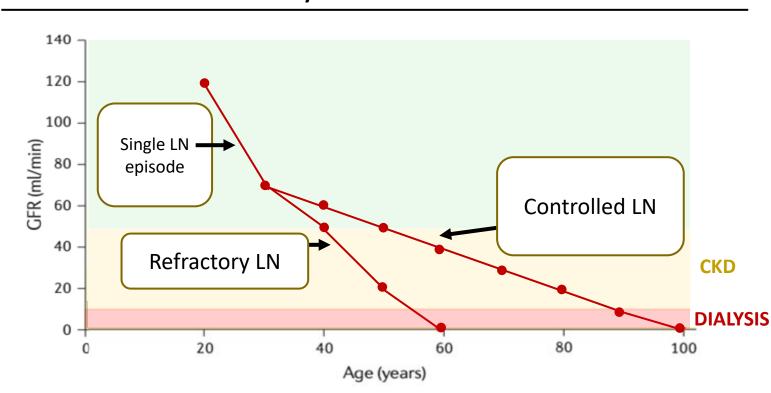
4 of 6 patients with ≥6 months follow up included in efficacy analysis

2 of 6 patients with <2 months follow up not in efficacy analysis (too short follow-up to assess efficacy)

Patients from Kyverna-sponsored clinical trials, investigator-reported named patient, and investigator-initiated trial experience as of October 31, 2024. These observations are derived from separate clinical settings, including information from case reports. Future clinical trials may not confirm the clinical safety observations discussed in these case reports and studies. LN, lupus nephritis; UPCR, urine protein-creatinine ratio.



Steep Loss of Kidney Function in Refractory Lupus Nephritis



Loss of Kidney Function in LN Over Time¹

- Despite therapy, patients progress with eGFR decline and loss of Kidney Function
- Single episodes can impact the slope of decline significantly
- Risk of Dialysis, Kidney
 Transplantation and Death
 increase, as eGFR declines

30% with progressive eGFR loss despite treatment²



Anders H-J, et al. Nat Rev Disease Primers. 2020;6(1):7; Weeding E, et al. Lupus Sci Med. 2022;9(1):e000684.

KYV-101: Potential to Redefine Success in Lupus Nephritis

1. Preservation of Kidney Function



- Stabilization of eGFR
- Decreasing Proteinuria
- Avoiding Dialysis

2. Improvement in



- Decrease in SLEDAI
- Decrease in anti-dsDNA
- Normalization of complement

3. Reduction or Elimination of Therapy



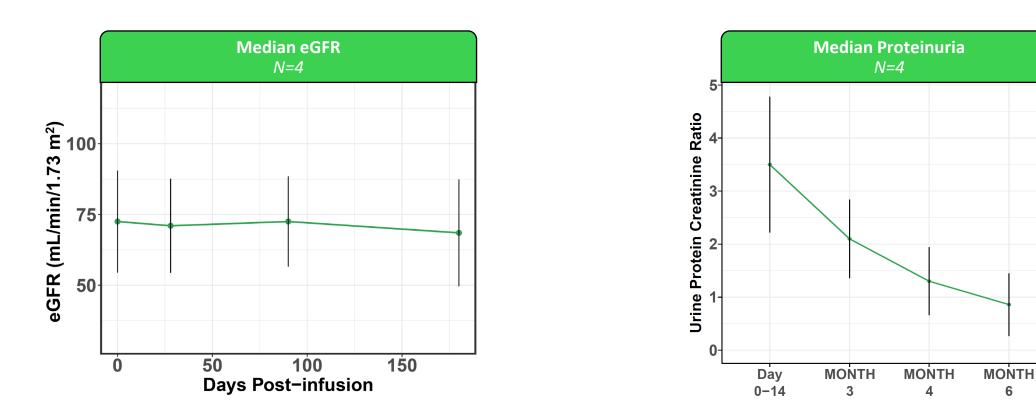
- No immunosuppressants
- No or physiological glucocorticoids

After a single infusion of KYV-101 (1×10⁸ CAR T cells), none of the patients require active treatment for LN



Pillar 1: KYV-101 Potential for Preservation of Kidney Function

Stable and Durable Kidney Function

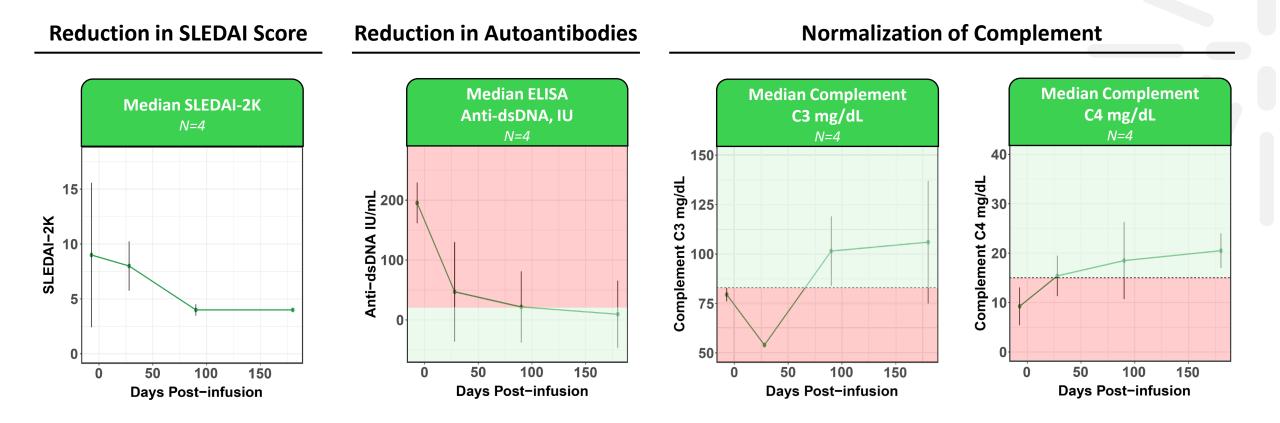


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Clinically Meaningful Decline in Proteinuria

Pillar 2: KYV-101 Potential for Improvement of SLE

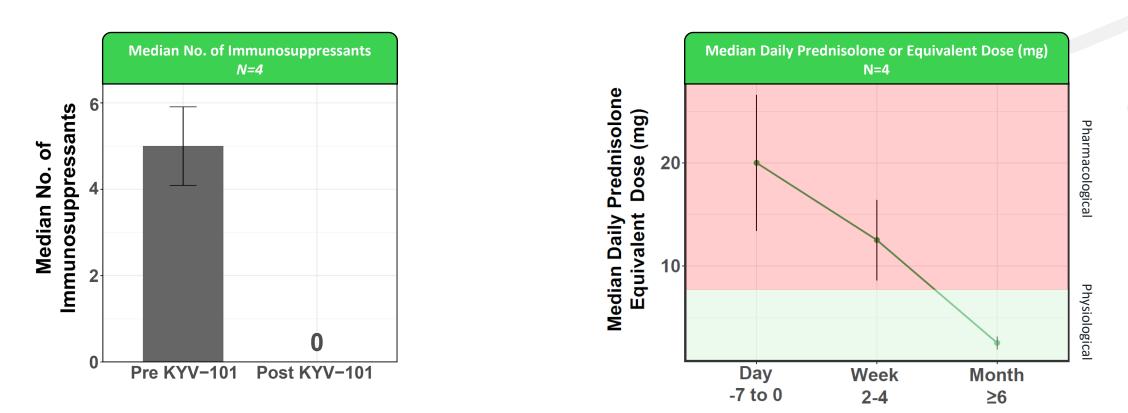


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Pillar 3: KYV-101 Potential to Eliminate Immunosuppressants

Eliminating Immunosuppressants

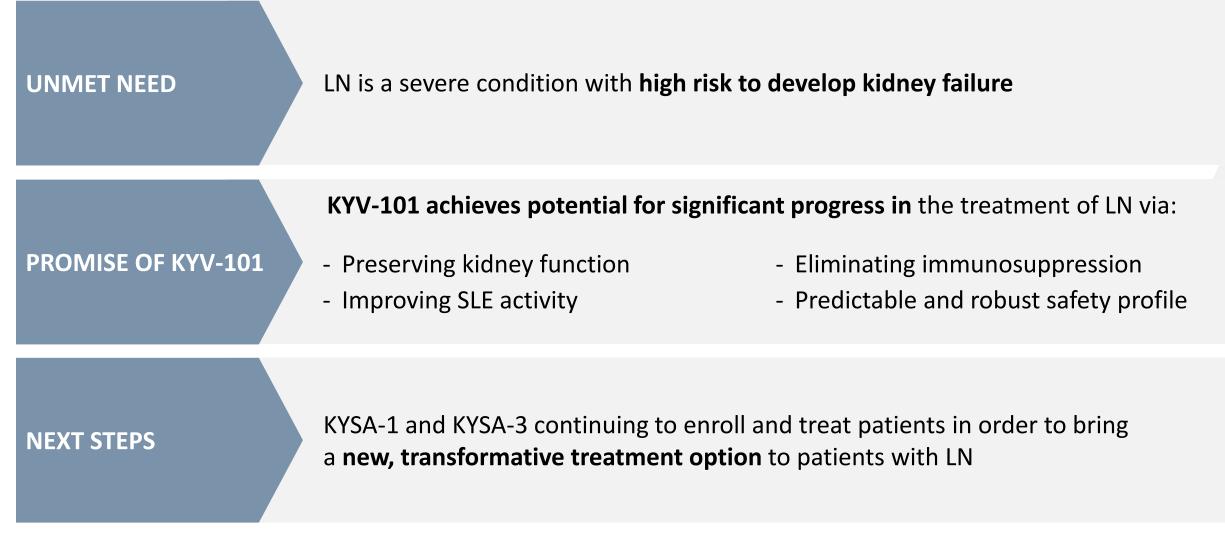


Patients from Kyverna-sponsored clinical trials, investigator-reported named patient, and investigator-initiated trial experience as of October 31, 2024. These observations are derived from separate clinical settings, including information from case reports. Future clinical trials may not confirm the clinical safety observations discussed in these case reports and studies.



Reducing Glucocorticoids to Physiological Levels

KYV-101: Potential for Immune System Reset in Lupus Nephritis





KYV-101 Combined Experience



KYV-101: Potential for Predictable, Well Tolerated, and Robust Safety Profile in First 50 Patients Across Different Autoimmune Diseases

KYV-101 All 15+ AID indications RHEUMATOLOGY NEUROLOGY Rheumatoid arthritis Systemic sclerosis Lupus nephritis ANCA-associated NMOSD vasculitis CIDP

- Anti-Synthetase Syndrome
- And others

- Stiff-person syndrome
- Myasthenia gravis
- Multiple sclerosis
- And others

Indication Category	CRS	ICANS	
indication category	Grade 3/4	Grade 2–4	
Neuroimmunology	0	0	
Rheumatology	0	0	
Other Autoimmune	0	0	

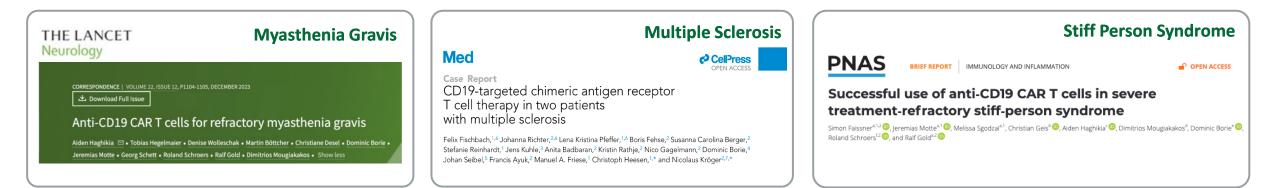
No grade 3/4 CRS and no grade 2-4 ICANS observed across 50+ patients dosed

Observed CRS and ICANS events were transient, low-grade, and manageable

Patients from Kyverna-sponsored clinical trials, investigator-reported named patient, and investigator-initiated trial experience as of October 31, 2024. These observations are derived from separate clinical settings, including information from case reports. Future clinical trials may not confirm the clinical safety observations discussed in these case reports and studies.



KYV-101 Published Case Reports Lead the Clinical and Scientific Advancement of the Field



Myasthenia Gravis & LEMS

Authors

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Neuron

Treatment of concomitant myasthenia gravis and Lambert-Eaton myasthenic syndrome with autologous CD19-targeted CAR T cells

Highlights

- Anti-CD19 CAR T cell therapy led to clinical recovery in two cases of MG and LEMS
 Christiane Schneider - Gold, ..., Dimitrios Mouriakakos.
- Patients regained full mobility, with ongoing recovery 4- and 6-months post infusion
- Deep B cell depletion and normalization of pathogenic autoantibodies was observed
- Application of anti-CD19 CAR T cells was safe, with manageable side effects

Rheumatoid Arthritis & Myasthenia Gravis

Annals of the **Rheumatic Diseases**

Letter

Clinical efficacy and autoantibody seroconversion with CD19-CAR T cell therapy in a patient with rheumatoid arthritis and coexisting myasthenia gravis

Aiden Haghikia¹, Tobias Hegelmaier¹, Denise Wolleschak², Martin Böttcher^{2, 3}, Vaia Pappa¹, Jeremias Motte⁴, Dominic Borie⁵, Ralf Gold⁴, ¹ Eugen Feist⁶, ¹ Georg Schett^{7, 8}, ¹ Dimitrios Mougiakakos^{2, 3}

Mougiakakos 2 ·

Correspondence to Professor Dimitrios Mougiakakos, Department of Hematology, Oncology, and Cell Therapy, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany; dimitrios.mougiakakos@med.ovgu.de; Professor Aiden Haghikia, Department of Neurology, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany; alden.haghikia@med.ovgu.de

CAR T in Autoimmunity Review Article

nature reviews immunology

Chimeric antigen receptor T cell therapy for autoimmune disease

James B. Chung 📴 ¹, Jennifer N. Brudno 🞯 ², Dominic Borie 🕲 ¹ & James N. Kochenderfer 📴 ² 🖂



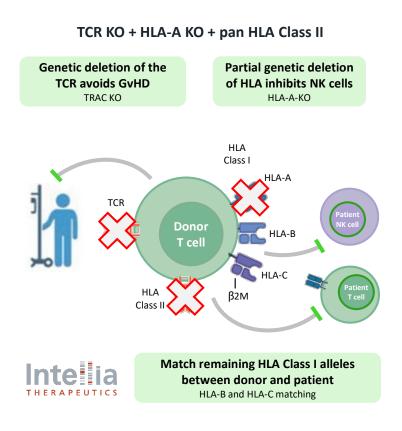
LEMS, Lambert-Eaton myasthenic syndrome.

KYV-201 and Ingenui-T

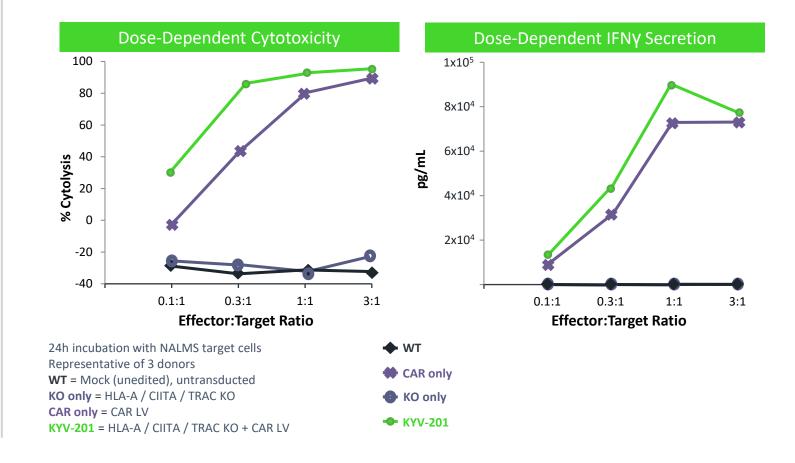


Allogeneic KYV-201 Protection from T Cells Supports Potential for Longer-term Persistence

Differentiated allogeneic platform based 3 genetic deletions



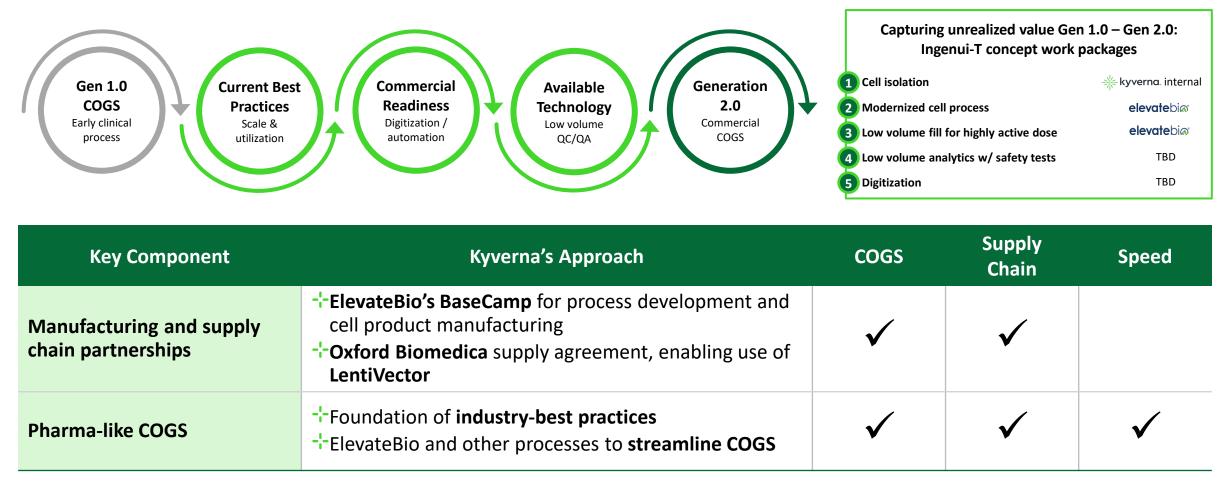
KYV-201 demonstrates robust CAR-mediated activity against CD19⁺ cells Similar to HLA Class I deficient b2M KO¹



Note: Internal data. β2M, beta2-macroglobulin; HLA, human leukocyte antigen; IFNγ, interferon gamma; KO, knockout, LV, lenti vector; NK, natural killer, TRAC, T-cell receptor α constant; WT, wild type.



Kyverna's Ingenui-T Process Leverages Industry Leaders to Target Pharma-like COGS



Evolution of the Autologous Process: KYV-101 Gen 1.0 to Ingenui-T

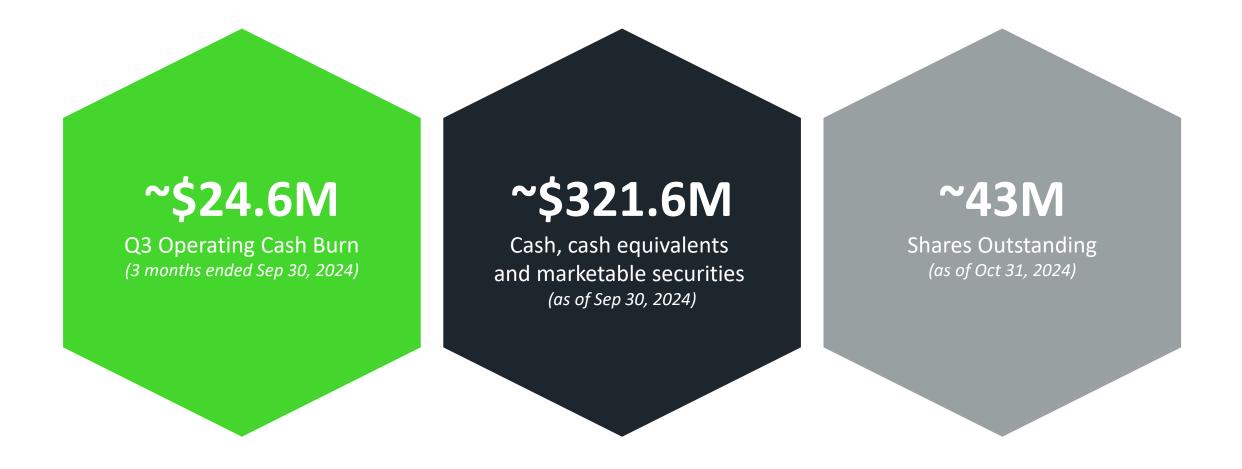


Corporate



Strong Financial Position Provides Runway to Multiple Potential Value Inflection Catalysts

Successful IPO in February 2024 – secures Kyverna's leadership position in autoimmunity





Seasoned Leadership Team with Significant CAR T and Autoimmune Experience

Leadership





Vice President, Program Senior Vice President,

Warner Biddle Chief Executive Officer





Karen Walker Dominic Borie, MD, PhD Chief Technology Officer President, Research and Development



Ryan Jones, MBA Chief Financial Officer



Cara Bauer Chief Human **Resources Officer**



Sunetra Biswas, PhD





Vice President of

Head of Research Global Regulatory Affairs



Vice President,

Lifecycle Lead





Peter Wung, MD, MHS VP, Head of Clinical Development and Operations

Board of Directors

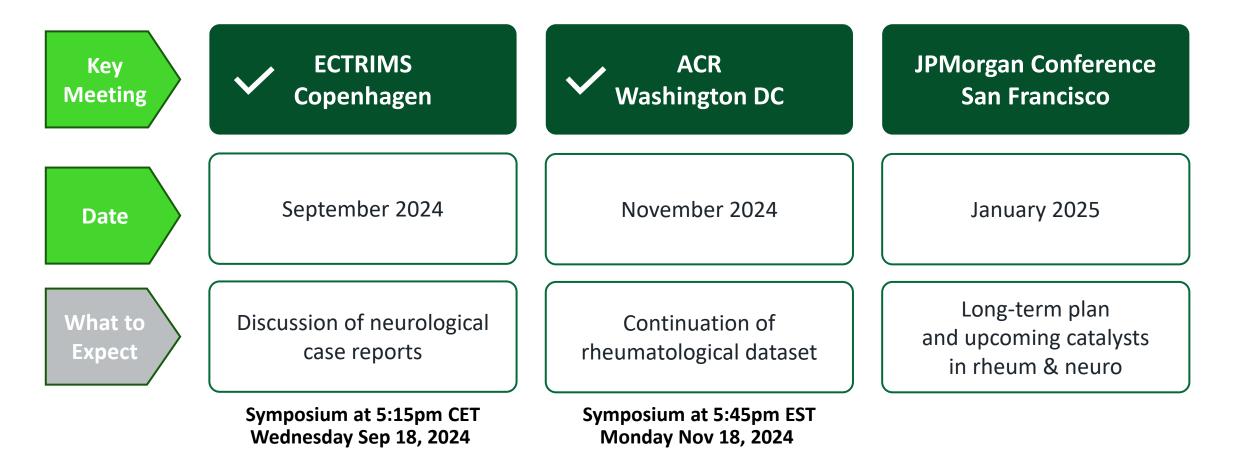
Beth Seidenberg, MD	Founding Managing Director, Westlake Village BioPartners; General Partner, Kleiner Perkins
Fred Cohen, MD	Co-Founder and Sr. Managing Director at Vida Ventures
Steve Liapis, PhD	Director, Northpond Ventures
Christi Shaw	Independent Director
Dan Spiegelman	Independent Director
Mert Aktar	Independent Director
lan Clark	Chairperson and Director
Warner Biddle	Chief Executive Officer

Scientific Advisors

Peter A. Merkel, MD, MPH	Chief of Rheumatology and Professor of Medicine and Epidemiology at University of Pennsylvania
Ignacio Sanz, MD	Mason I. Lowance Professor of Medicine and Pediatrics, Chief of the Division of Rheumatology, and Director of the Lowance Center for Human Immunology at Emory University
Georg Schett, MD	Professor and Head of Department of Internal Medicine 3 at Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany



Kyverna's Near-term Events in the Coming Quarters





ACR, American College of Rheumatology; ECTRIMS, European Committee for Treatment and Research in Multiple Sclerosis.

