

Cabaletta Bio[®]

A microscopic view of several cells, likely cancer cells, with prominent red internal structures, possibly nuclei or cytoplasmic components, against a light background.

Corporate Presentation

FEBRUARY 2025

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This Presentation may contain "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 relating to our business, operations, and financial conditions, and include, but are not limited to, express or implied statements regarding our current beliefs, expectations and assumptions regarding: our business, future plans and strategies for our CAAR T technology; our ability to grow our autoimmune-focused pipeline; the ability to capitalize on and potential benefits resulting from our research and translational insights; including those related to any similarly-designed constructs or dosing regimens; the anticipated market opportunities for rese-cel in patients with autoimmune diseases; the Company's business plans and objectives; our expectations around the potential success and therapeutic and clinical benefits of rese-cel and our other product candidates, as well as our ability to successfully complete research and further development and commercialization of our drug candidates in current or future indications, including the timing and results of our clinical trials and our ability to conduct and complete clinical trials; expectation that clinical results will support rese-cel's safety and activity profile; our plan to leverage increasing clinical data and a unique development program for rese-cel; the clinical significance of the clinical data read-out at upcoming medical or scientific meetings; our belief that rese-cel has the potential to provide drug-free, durable meaningful clinical responses, through an immune reset, including the potential for achieving drug-free remission in patients with refractory myositis; the Company's advancement of separate Phase 1/2 clinical trials of rese-cel in patients with SLE, myositis, SSC and gMG and advancement of the RESET-PV and RESET-MS trials, including updates related to status, safety data, efficiency of clinical trial design and timing of data read-outs or otherwise; our ability to leverage our experience in autoimmune cell therapy; our ability to enroll the requisite number of patients, dose each dosing cohort in the intended manner and timing thereof, and advance the trial as planned in our Phase 1/2 clinical trials of rese-cel; the timing any planned regulatory filings for our development programs, including IND applications; the progress and results of our MusCAARTes™ Phase 1 trial, and impact around reported safety and clinical and translational data of cohorts from our MusCAARTes™ Phase 1 trial; Cabaletta's advancement of the whole blood manufacturing program to remove the burden of apheresis; statements regarding the timing of regulatory filings and interactions with regulatory authorities, including such authorities' review of safety information from our ongoing clinical trials and potential registrational pathway for rese-cel; our ability to successfully complete our preclinical and clinical studies for our product candidates, including our ability to enroll the requisite number of patients, dose each dosing cohort in the intended manner, and progress the trial; our ability to increase enrollment from our rapidly expanding clinical network in the RESET clinical trial program in the US and Europe; our ability to obtain and maintain regulatory approval of our product candidates, including our expectations regarding the intended incentives conferred by and ability to retain Fast Track Designations for our product candidates; our ability to accelerate our pipeline to approval and launch and to develop meaningful therapies for patients, including in collaboration with academic and industry partners and the ability to optimize such collaborations on our development programs; our ability to contract with third-party suppliers and manufacturers and retain such manufacturers, whether due to legislative action or otherwise; to implement an enhanced manufacturing process and further develop our internal manufacturing strategy, capabilities and facilities; our ability to execute our manufacturing strategy to enable expansion of clinical supply and efficiently scale commercial supply for rese-cel; our potential commercial opportunities, including value and addressable market, for our product candidates. Words such as, but not limited to, "look forward to," "believe," "expect," "anticipate," "estimate," "intend," "plan," "would," "should" and "could," and similar expressions or words, identify forward-looking statements.

Various risks, uncertainties and assumptions could cause actual results to differ materially from those anticipated or implied in our forward-looking statements. Such risks and uncertainties include, but are not limited to, risks related to the success, cost, and timing of our product candidate development activities and preclinical studies and clinical trials, risks related to our ability to demonstrate sufficient evidence of safety, efficacy and tolerability in our preclinical studies and clinical trials of rese-cel and MuSK-CAART, the risk that the results observed with the similarly-designed construct, including, but not limited to, due to dosing regimen, are not indicative of the results we seek to achieve with rese-cel, the risk that signs of biologic activity or persistence may not inform long-term results, the risk that persistence observed with effective CD19-CAR T oncology studies in combination with lymphodepletion is not indicative of, or applicable to, clinical responses in patients with mPV, risks related to clinical trial site activation or enrollment rates that are lower than expected, our ability to demonstrate sufficient evidence of safety, efficacy and tolerability in its preclinical studies and clinical trials of rese-cel; risks that modifications to trial design or approach may not have the intended benefits and that the trial design may need to be further modified; our ability to protect and maintain our intellectual property position, risks related to our relationships with third parties, uncertainties related to regulatory agencies' evaluation of regulatory filings and other information related to our product candidates, our ability to retain and recognize the intended incentives conferred by any Orphan Drug Designations and Fast Track Designations, risks related to regulatory filings and potential clearance, the risk that any one or more of our product candidates will not be successfully developed and commercialized, the risk that the results of preclinical studies or clinical studies will not be predictive of future results in connection with future studies, and risks related to volatile market and economic conditions and public health crises. New risks and uncertainties may emerge from time to time, and it is not possible to predict all risks and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. Although we believe the expectations reflected in such forward-looking statements are reasonable, we can give no assurance that such expectations will prove to be correct. Accordingly, you are cautioned not to place undue reliance on these forward-looking statements. No representations or warranties (expressed or implied) are made about the accuracy of any such forward-looking statements. For a discussion of these and other risks and uncertainties, and other important factors, any of which could cause our actual results to differ materially from those contained in the forward-looking statements, see the section entitled "Risk Factors" in our most recent annual report on Form 10-K, as well as discussions of potential risks, uncertainties, and other important factors in our other and subsequent filings with the Securities and Exchange Commission. Certain information contained in this Presentation relates to or is based on studies, publications, surveys and other data obtained from third-party sources and the Company's own internal estimates and research. While the Company believes these third-party sources to be reliable as of the date of this Presentation, it has not independently verified, and makes no representation as to the adequacy, fairness, accuracy or completeness of, any information obtained from third-party sources. The Company is the owner of various trademarks, trade names and service marks. Certain other trademarks, trade names and service marks appearing in this Presentation are the property of third parties. Solely for convenience, the trademarks and trade names in this Presentation are referred to without the ® and TM symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.



Develop and launch the first curative
targeted cellular therapies for patients
with autoimmune diseases

Cabaletta Bio[®]

2025: Pursuing an efficient path to approval

Planning to leverage increasing clinical data and unique development program for rese-cel¹

Compelling clinical efficacy with favorable safety profile & deep B cell depletion

- **Deepening clinical efficacy** data over-time while **immunosuppressant-free and off or tapering steroids**²:
 - **DORIS remission** in 3 SLE patients
 - **Complete renal response** in 1st LN pt
 - **Major TIS response** in 1st DM patient
- **Favorable safety profile** in 1st 10 patients
 - **90% either no CRS or Grade 1 CRS**
 - **90% no ICANS**
- **Deep systemic B cell depletion** observed in the periphery and confirmed in the tissue in scleroderma patient by lymph node biopsy

Unique development strategy designed to accelerate time to approval and launch

- **Multiple disease-specific trials** with a common design allow for generation of disease-specific efficacy data with shared safety database
- **Weight-based dose, single infusion;** supported by clinical & translational data²
- **Industry-leading clinical network:**
 - 50 active US and European sites
 - 26 patients enrolled
 - Enrolling ~1 pt/week since Nov. 2024³

Multiple near-term catalysts including clarity on potential path to approval

- **Meeting scheduled with FDA to align on registrational trial designs in 1H25 for rese-cel**
- **Enroll and complete dosing** in multiple disease-specific cohorts in 2025
- **Present clinical data** on rese-cel at medical meetings throughout 2025, including data evaluating rese-cel without preconditioning

Patients are seeking a drug-free, symptom-free life which is rarely achieved despite current therapies; physicians also prioritize prevention of end-organ damage⁴

CRS, cytokine release syndrome; DM – dermatomyositis; DORIS – definition of remission in SLE; ICANS, immune effector cell-associated neurotoxicity syndrome; LN – lupus nephritis; PK – pharmacokinetic;

PD – pharmacodynamic; SLE – systemic lupus erythematosus; TIS – total improvement score.

1. rescabtagene autoleucel; CABA-201

2. As of Jan 8, 2025.

3. As of Feb 13, 2025.

4. Golder, et al. Lupus. 2018;27(3): 501-506

Innovative clinical strategy with potential for accelerated regulatory path

RESET clinical program has disease-specific cohorts designed to evolve directly into registrational studies

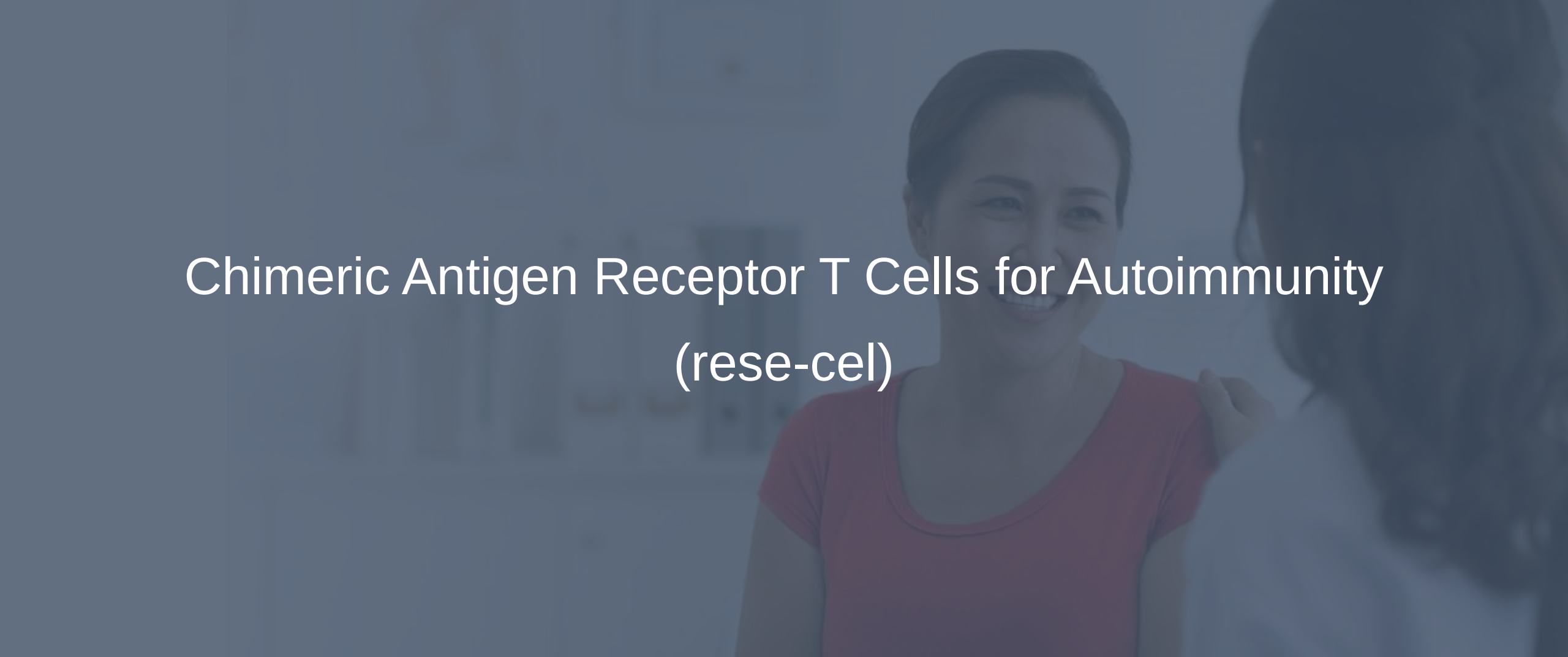
Program ¹	Trial	Preclinical	Phase 1/2	Pivotal
Rese-cel ^{FTD} (CABA-201) <i>4-1BB CD19-CAR T</i>	RESET-Myositis™	<i>Dermatomyositis</i>		
		<i>Antisynthetase syndrome</i>		
		<i>Immune-mediated necrotizing myopathy</i>		
		<i>Juvenile Myositis</i>		
	RESET-SLE™	<i>Lupus Nephritis</i>		
		<i>Non-Renal SLE</i>		
	RESET-SSc™	<i>Skin + Organ Cohort</i>		
		<i>Skin Cohort</i>		
	RESET-MG™	<i>AChR-Ab pos. gMG</i>		
		<i>AChR-Ab neg. gMG</i>		
	RESET-MS™	<i>Relapsing MS</i>		
		<i>Progressive MS</i>		
	RESET-PV™	<i>Mucocutaneous & mucosal pemphigus vulgaris</i>		

■ Rheumatology
■ Neurology
■ Dermatology
■ Contains cohort(s) without preconditioning
■ Pediatric Indication

RESET™ – REstoring SElf-Tolerance; Ab – Antibody; AChR – Acetylcholine receptor; gMG – Generalized myasthenia gravis; MS – Multiple sclerosis; SLE – Systemic lupus erythematosus

1. Additional pipeline candidate includes MuSK-CAART for MuSK-Ab positive MG, currently being evaluated in a Phase 1 trial.

● FDA Fast Track Designation received in dermatomyositis, SLE and lupus nephritis, systemic sclerosis, mucosal pemphigus vulgaris, MuSK-Ab positive MG, and multiple sclerosis.



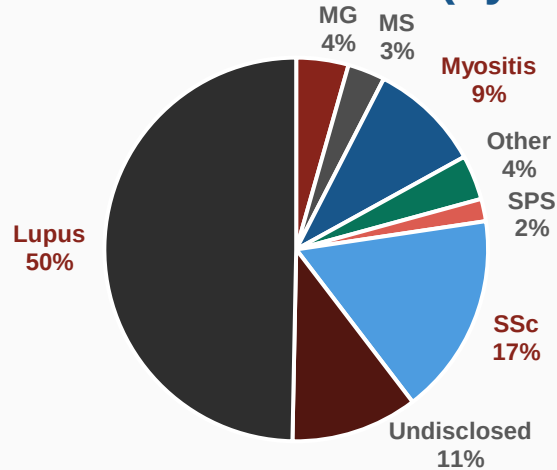
Chimeric Antigen Receptor T Cells for Autoimmunity (rese-cel)

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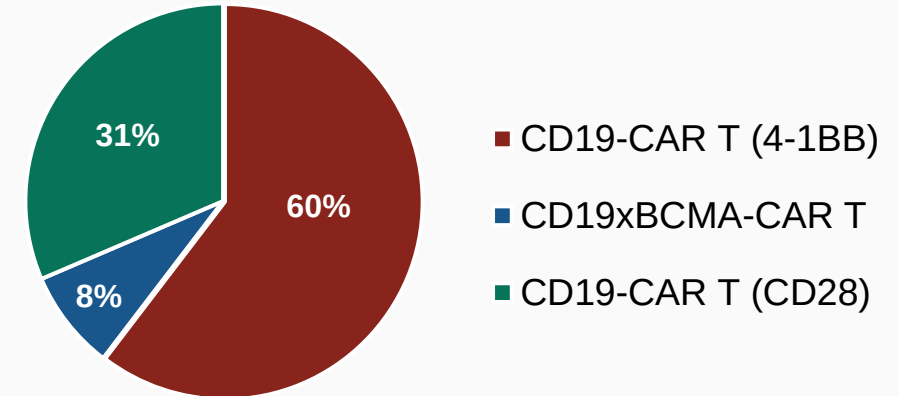
Autologous CAR T is potentially transformational for autoimmunity

~150 autoimmune patients have been dosed with a range of autologous CAR T constructs (industry & academia)¹

~150 Patients Treated (by Disease)



Type of CAR T Construct



Safety Observations¹

- Among ~150 autoimmune patients dosed with cell therapy, frequency and severity of CRS/ICANS events were considerably lower than those observed in cancer patients
 - <2% Gr 3+ CRS & Gr 3+ ICANS events observed
- Vaccine titers stable with CD19-CAR T mono-targeting therapy
 - insufficient data with CD19xBCMA-CAR T

Efficacy Observations¹

- Compelling immunosuppressant-free clinical responses observed across many autoimmune diseases, durable for up to 4 years
- Clinical recurrences observed in <5% of ~150 treated patients
 - IIM patient relapsed after 12+ months of drug-free remission
 - No evidence of CD19 escape or failure
 - Patient treated with BCMA-CAR T & now in remission²

IIM – idiopathic inflammatory myopathy; MG – Myasthenia gravis; MS – Multiple sclerosis; SPS – Stiff person syndrome; SSc – Systemic sclerosis.

Note: 'Other' indications includes CIDP, IgG4-related disease, ANCA-associated vasculitis, NMOSD, Lambert Eaton myasthenic syndrome, autoimmune encephalitis.

1. Data as of November 2024 (ACR Convergence 2024) based on Cabaletta Bio literature review across industry and academia.

2. Abstract 1749: Safety and Long-term Efficacy of CD19-CAR T-cell Therapy in 30 Patients with Autoimmune Disease. ACR Convergence 2024.

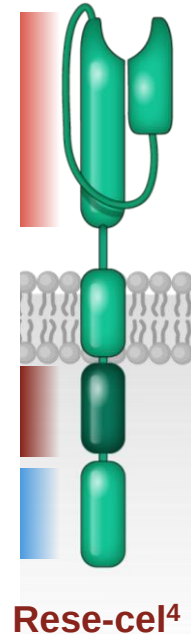
Rese-cel: CD19-CAR T specifically designed for autoimmunity

Cabaletta rese-cel binder with similar *in vitro* & *in vivo* activity to construct used in academic studies^{1,3}

Fully human anti-CD19 binder

4-1BB costimulatory domain

CD3- ζ signaling domain



Rese-cel product design & clinical / translational data

- ▶ 4-1BB costimulatory domain with fully human binder
 - Binder with similar affinity & biologic activity to academic FMC63 binder while binding to the same epitopes^{1,2}
- ▶ Same weight-based dose as in academic studies
 - Potential to provide immune reset based on initial clinical and translational data⁵
- ▶ Initial patients treated with rese-cel have shown compelling clinical responses with safety data that supports autoimmune development⁶

1. Peng, Binghao J, et al. "Preclinical specificity and activity of CABA-201, a fully human 4-1BB containing CD19 CAR T therapy for treatment-resistant autoimmune disease." Poster presented at: American Society Gene and Cell Therapy 26th Annual Meeting; 2023 May 19; Los Angeles, CA.

2. Dai, Zhenyu, et al. "Development and functional characterization of novel fully human anti-CD19 chimeric antigen receptors for T-cell therapy." *Journal of Cellular Physiology* 236.8 (2021): 5832-5847.

3. Müller, Fabian, et al. "CD19 CAR T-Cell Therapy in Autoimmune Disease—A Case Series with Follow-up." *New England Journal of Medicine* 390.8 (2024): 687-700.

4. Maschan, Michael, et al. "Multiple site place-of-care manufactured anti-CD19 CAR-T cells induce high remission rates in B-cell malignancy patients." *Nature Communications* 12, 7200 (2021)
Transmembrane domain in rese-cel is CD8 α vs. TNFRSF19 (Troy) utilized in the academic construct. The two transmembrane domains have not been shown to have a significant difference in function or IFN- γ production in preclinical studies. The CD8 α transmembrane domain is employed in tisagenlecleucel.

5. Volkov, Jenell, et al. "Case study of CD19 CAR T therapy in a subject with immune-mediate necrotizing myopathy treated in the RESET-Myositis phase I/II trial." *Molecular Therapy* 32.11 (2024): 3821-3828.

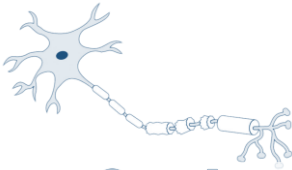
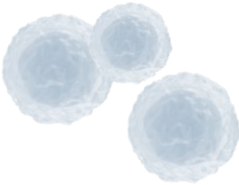
6. Abstract 1733: Safety and Efficacy of CABA-201, a Fully Human, Autologous 4-1BB Anti-CD19 CAR T Cell Therapy in Patients with Immune-Mediated Necrotizing Myopathy and Systemic Lupus Erythematosus from the RESET-MyositisTM and RESET-SLETM Clinical Trials. ACR 2024.

RESET™ program addressing several autoimmune markets

Broad portfolio with six RESET trials designed to address high unmet need and realize the potential of rese-cel

Phase 1/2 Trials

— No Flu/Cy —

Myositis	SLE	SSc	gMG	MS	PV
 ♀ > ♂ Typical onset middle age Only FDA-approved therapy is IVIg in DM High mortality due to lung & cardiac involvement	 ♀ > ♂ Affects young women & people of color ~40% with lupus nephritis, which carries ~25% risk of death or ESRD within 10y	 ♀ > ♂ Middle age onset common Progressive skin & organ fibrosis with lung, cardiac, renal damage Average survival of 12y	 ♀ > ♂ Bimodal age of onset Profound weakness that can be disabling Risk for myasthenic crises, with respiratory failure	 ♀ > ♂ Chronic inflammation, axon loss, cognitive impairment, and irreversible neurologic damage	 Pure autoantibody & B-cell mediated autoimmune disease Characterized by painful blisters & erosions

U.S. Prevalence

~70k	~160-320k	~90k	~55k	~750k	~15k
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EU Prevalence

~85k	~150k	~60k	~100k	~550k	~20k
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■ Rheum ■ Neuro ■ Derm

SLE – Systemic lupus erythematosus; DM – Dermatomyositis; SSc – Systemic sclerosis; gMG – Generalized myasthenia gravis; MS – multiple sclerosis; ESRD – End-stage renal disease; PV – pemphigus vulgaris



Rese-cel Clinical & Translational Data

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Key inclusion and exclusion criteria in RESET™ clinical program

Designed to evaluate the safety and tolerability of rese-cel in subjects with active, refractory disease

Key inclusion criteria¹⁻³

Evidence of active disease despite prior or current treatment with standard of care

RESET-Myositis™	RESET-SLE™	RESET-SSc™
• Diagnosis of IIM (ASyS, DM, or IMNM) • Age ≥18 and ≤75 • Presence of at least one myositis antibody • JiIM: Age ≥6 and ≤17 with presence of at least one MSA or MAA	• Diagnosis of SLE (SLE or LN) • Age ≥18 and ≤65 • Positive ANA or anti-dsDNA at screening • SLE (non-renal): active, moderate to severe SLE, SLEDAI-2K ≥8; pure class V LN eligible • LN: active, biopsy-proven LN class III or IV (± class V)	• Diagnosis of SSc limited or diffuse • Age ≥18 and ≤75 • Evidence of significant skin, pulmonary, renal, or cardiac involvement

Key exclusion criteria¹⁻³

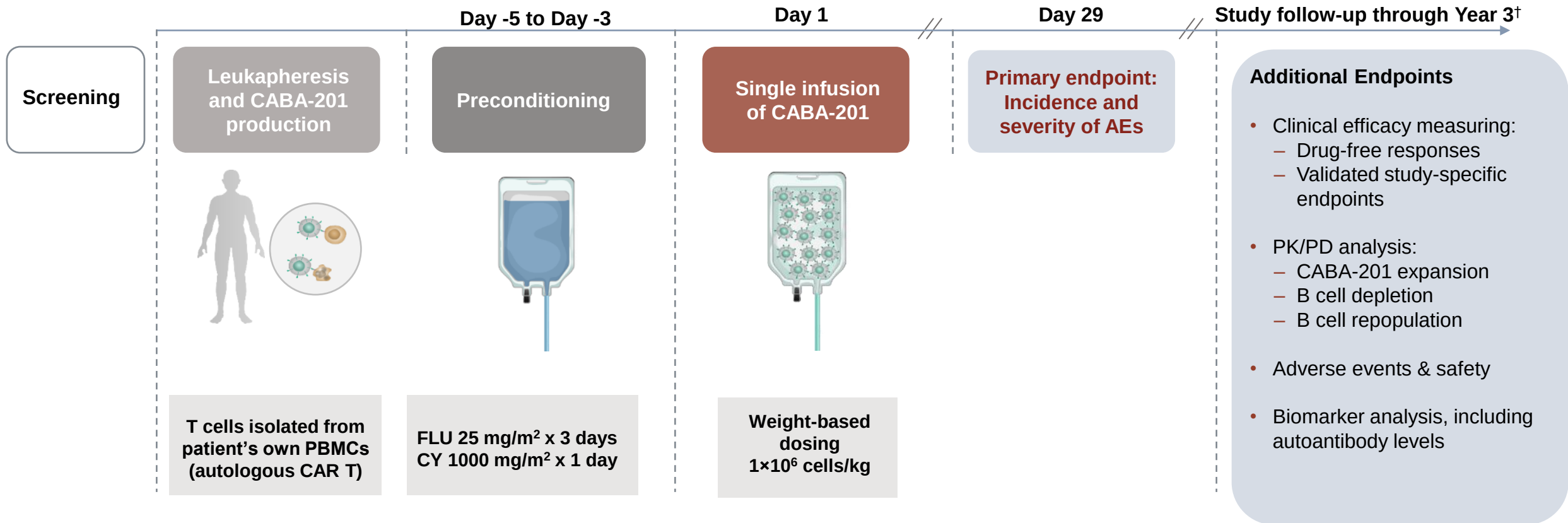
B cell-depleting agent within prior 3-6 months; Previous CAR T therapy and/or HSCT

• Cancer-associated myositis • Significant lung or cardiac impairment	• Presence of kidney disease other than LN • Current symptoms of severe, progressive, or uncontrolled pulmonary or cardiac disease	• Severe lung or cardiac impairment
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Anticipate enrolling and completing dosing in multiple disease-specific cohorts in 2025; similarly designed RESET-MG™ Phase 1/2 trial enrolling

RESET™ clinical trials have consistent design principles¹

Individual trials in myositis, SLE, and SSc share common elements of preconditioning, dose, and study design



[†]Follow up period encompasses 15 years in total, aligned to regulatory guidance for CAR T cell therapies.

AE, adverse event; CABA, Cabaletta Approach to B cell Ablation; FLU, fludarabine; CY, cyclophosphamide; PBMC, peripheral blood mononuclear cell; PD, pharmacodynamics; PK, pharmacokinetics; RESET, REStoring SElf-Tolerance; SLE, systemic lupus erythematosus; SSc, systemic sclerosis.

Cabaletta Bio: Data on file; 1. Peng BJ, et al. Mol Ther Methods Clin Dev. 2024;32(2):101267.

Baseline characteristics of first 10 patients in the RESET™ program

All patients had active, refractory disease and most had failed B cell-targeting therapies

	RESET-Myositis™			RESET-SLE™						RESET-SSc™
Patient / Cohort	IMNM-1	IMNM-2	DM-1	SLE-1† Class V LN	SLE-2	SLE-3	SLE-4	LN-1	LN-2	SSc-Skin-1 Severe skin cohort
Age, sex	33 M	60 M	57 M	26 M	36 F	44 F	37 F	24 F	35 F	66 F
Disease duration (y)	~2	~4	~4	~6	~17	~9	~10	~2	~8	~2
Autoantibodies	SRP	HMGCR	SAE	dsDNA	dsDNA	dsDNA	dsDNA	dsDNA	dsDNA	RNA P III
Baseline Disease activity*	MMT-8			SLEDAI-2K						mRSS
	130	126	131	26	10	8	8	22	14	42
	CK (U/L)			UPCR (mg/mg)						
	617	4725	94	1.08†	n/a	n/a	n/a	7.22	4.85	
Therapies at Screening	GC, MTX	GC, IVIG	GC, MMF, HCQ	HCQ, GC, MMF	GC, AZA	HCQ, MMF, BEL	HCQ‡	HCQ, GC, MMF, ANI, VOC	MMF	MMF, BRX
Other prior therapies	RTX, IVIG	RTX, MMF, MTX	IVIG	CYC, BEL, VOC, TAC	HCQ, MTX, ANI, BEL, MSC, RTX, ADA	GC, MTX	MTX, BEL	BEL, LEF	HCQ, GC, AZA, RTX	HCQ
GC dose at Screening (mg/day)#	5	5	20	10	7	n/a	n/a†	20	N/A	N/A

*Baseline disease activity = activity before preconditioning. #Prednisone/prednisone equivalent dose

†SLE-1 had class V LN; inclusion criteria for LN cohort requires class III/IV LN. ‡SLE-4 initiated 20 mg/day of prednisone after screening and before leukapheresis, tapered to 2.5mg by latest follow-up of week 8 and discontinued as of data cut.

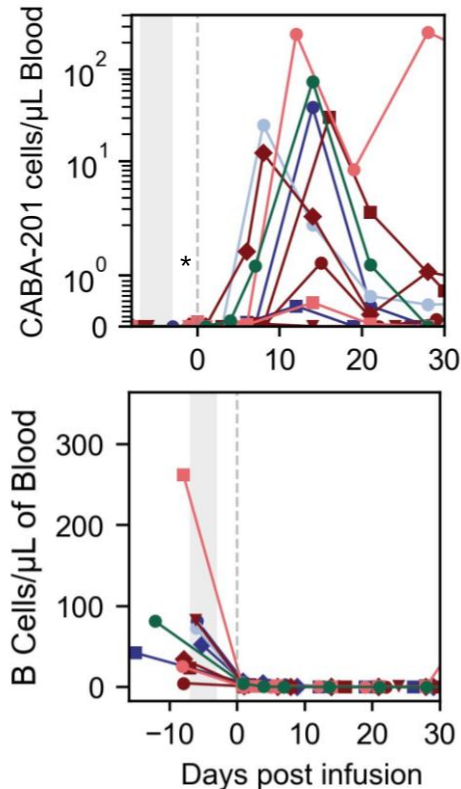
ADA, adalimumab; ANI, anifrolumab; AZA, azathioprine; BEL, belimumab; BRX, brentuximab vedotin; CK, creatinine kinase; CYC, cyclophosphamide; dsDNA, double-stranded DNA; GC, glucocorticoid; HCQ, hydroxychloroquine; HMGCR, 3-hydroxy-3-methylglutaryl-coenzyme A reductase; IVIG, intravenous immunoglobulin; LEF, leflunomide; MMF, mycophenolate mofetil; MMT-8, manual muscle testing 8; mRSS, modified Rodnan skin score; MSC, mesenchymal stem cell; MTX, methotrexate; RESET, REStoring SELF-Tolerance; RNA P III, RNA polymerase III; RTX, rituximab; SAE, small ubiquitin-like modifier activating enzyme; SLEDAI-2K, SLE disease activity index 2000; SRP, signal recognition particle; TAC, tacrolimus; U/L, units per liter; UPCR, urinary protein-to-creatinine ratio; VOC, voclosporin, y, years.

Cabaletta Bio: Data on file.

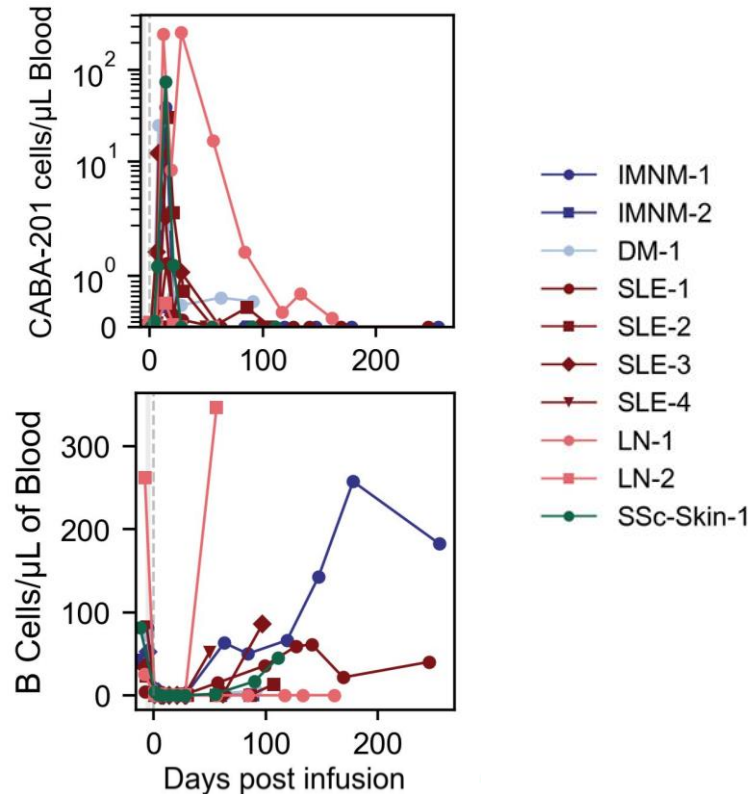
Consistent and deep B cell depletion by Day 22¹

B cell repopulation with transitional naïve cells started as early as 2 months post-infusion

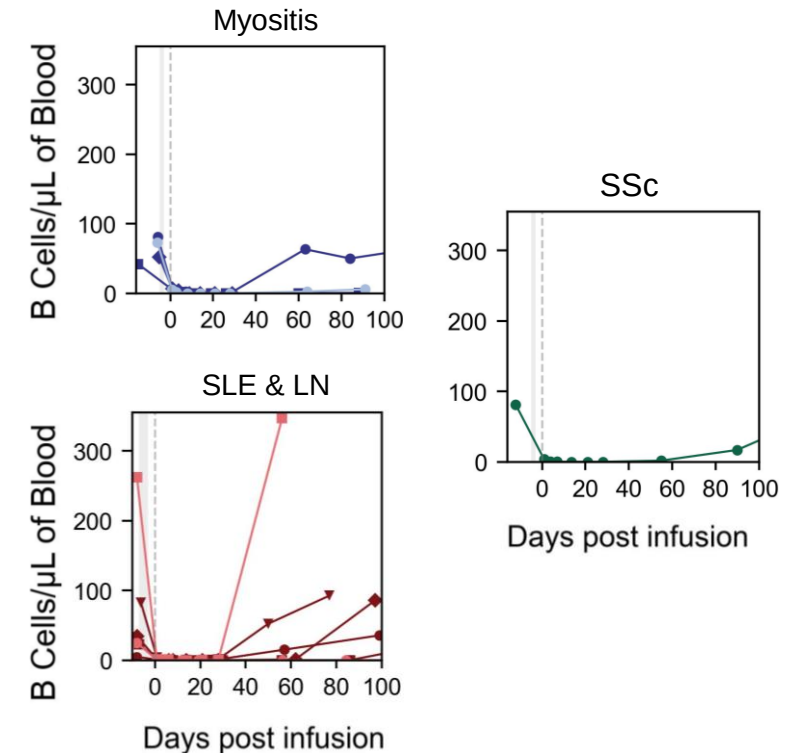
Peak expansion typically day 8 to 15;
B cell depletion by day 22



B cell repopulation as early as
8 weeks post-infusion



B cell repopulation across
all indications to date



Rese-cel exhibited a PK/PD profile with peak expansion between Day 8 and 15 as expected, with a later 2nd peak for the first LN patient, suggestive of a possible occult infection¹

PK, pharmacokinetic; PD, pharmacodynamic

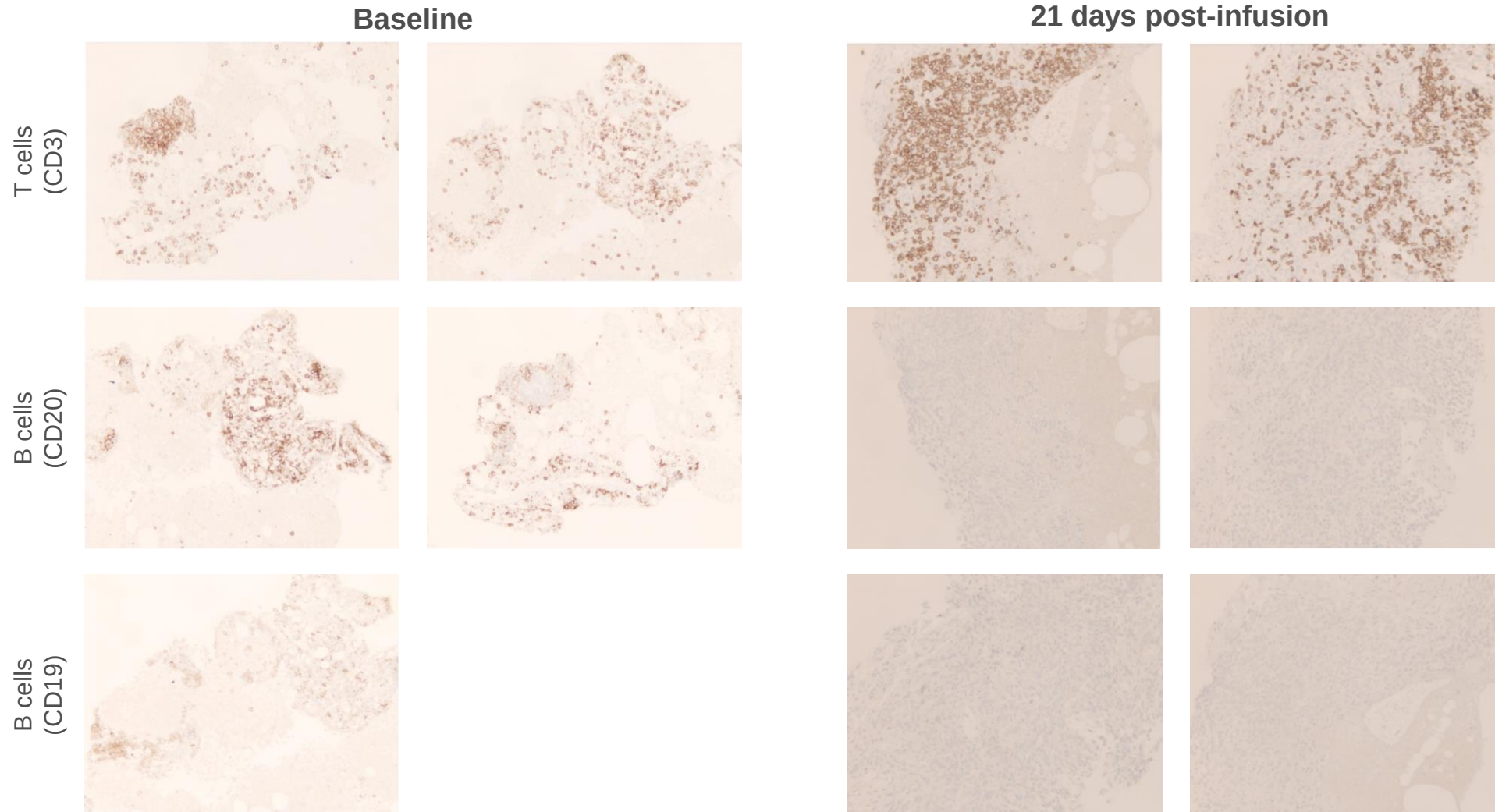
* Pre-infusion B-cell levels were measured at pre-preconditioning for all subjects other than IMNM-2 where apheresis was used

1. Nunez et al. Correlative Studies of CABA-201 from the RESET-Myositis™ and RESET-SLE™ Clinical Trials. Presented at ACR Convergence 2024. Abstract 0324

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Lymph node B cell depletion 21 days post infusion in first SSc patient

Tissue resident depletion, consistent with the deep B cell depletion in circulation, observed via lymph node biopsy



1. LN biopsies were from the left inguinal area using USG at U. Michigan by Dr. Khanna
2. All Images are 20X magnification

Incidence and severity of adverse events in the first 10 patients*

			RESET-Myositis™			RESET-SLE™						RESET-SSc™	
Cohort	IMNM		DM	Non-renal SLE				LN		Severe Skin			
Patient	IMNM-1	IMNM-2	DM-1	SLE-1	SLE-2	SLE-3	SLE-4	LN-1**	LN-2	SSc-Skin-1			
CRS†	None	None	None	None	Grade 1	None	None	Grade 1	None	Grade 2			
ICANS†	None	None	None	None	None	None	None	Grade 4	None	None			
Serious infections‡	None	None	None	None	None	None	None	None	None	None			
Hypogammaglobulinemia	None	None	None	None	None	None	None	Grade 2	None	None			
Related SAEs (Grade)§ (excluding CRS and ICANS)	None	None	None	None	None	None	None	Fever (1) Neutropenic fever (1) Pancytopenia¶ (4)	None	None			

****Prior to infusion, LN-1 patient experienced acute, febrile inflammatory events & highly elevated pro-inflammatory cytokines¹ that continued after treatment, suggesting a possible occult infection; supportive data from TCR clonal sequencing². ICANS event resolved completely with standard therapies.**

*As of Jan 8, 2025; Primary endpoint is incidence and severity of adverse events through Day 29. †Graded per ASTCT Consensus Grading Criteria. Of these patients, DM-1, SLE-2, SLE-3, SLE-4, LN-2, and SSc-Skin-1 received medication for seizure prophylaxis. ‡Coded in System Organ Class of Infections and Infestations and meets seriousness criteria. §As assessed per FDA guidelines.

¶Consistent with “Prolonged Cytopenias,” which is a labeled warning and precaution for approved oncology CAR T products.

1. MIP-1β, IL-27

2. Nunez et al. Correlative Studies of CABA-201 from the RESET-Myositis™ and RESET-SLE™ Clinical Trials. Presented at ACR Convergence 2024. Abstract 0324

CRS, cytokine release syndrome; CY, cyclophosphamide; FLU, fludarabine; ICANS, immune effector cell-associated neurotoxicity syndrome; SAE, serious adverse event.

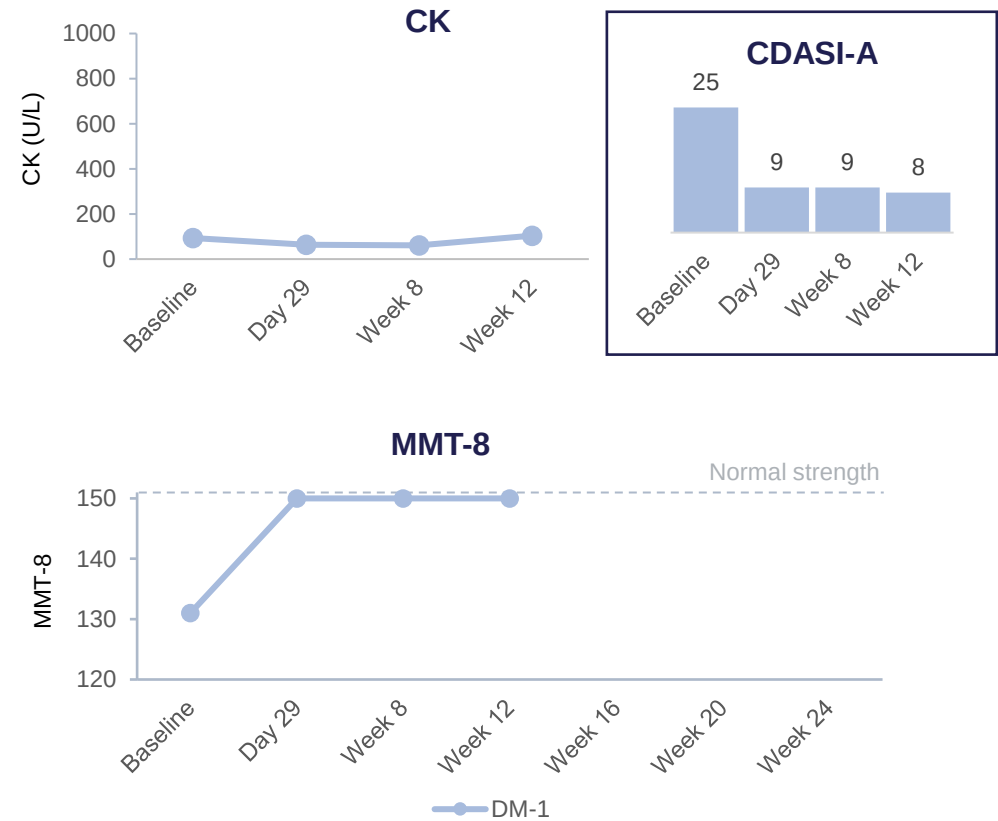
Cabaletta Bio: Data on file.

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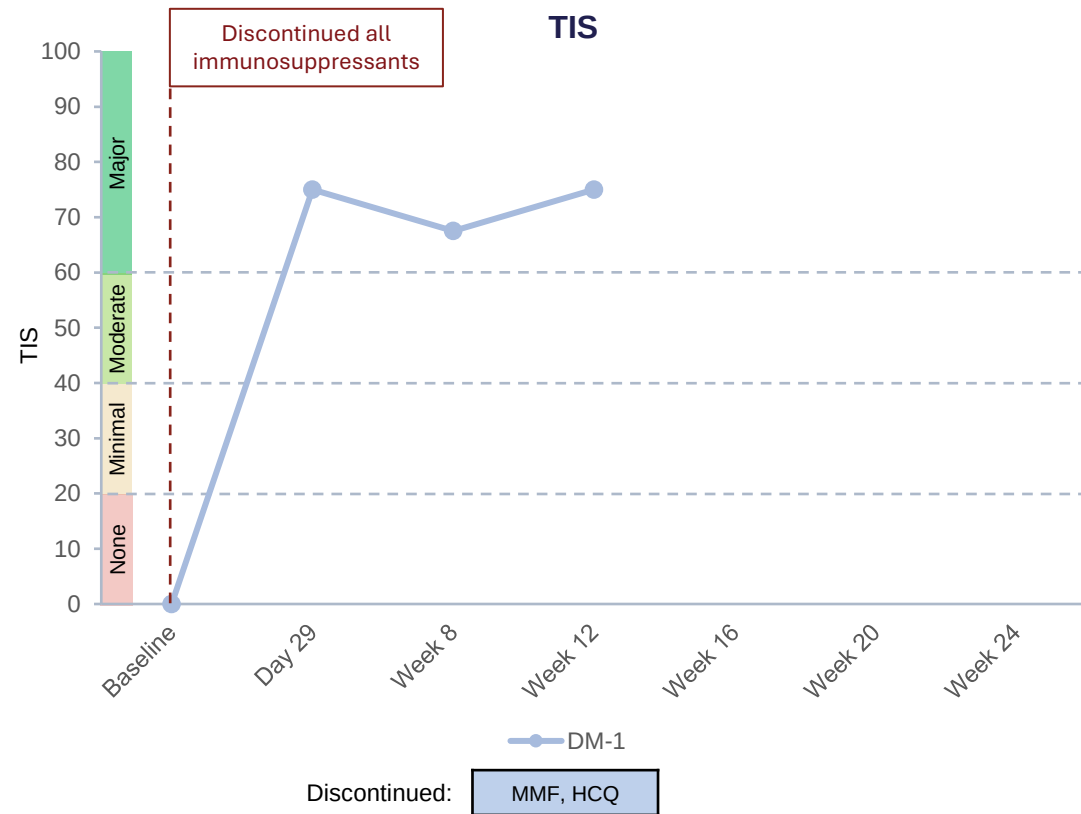
RESET-Myositis™: Efficacy data following rese-cel infusion

1st known adult DM patient dosed with CAR T demonstrated compelling early response off immunosuppressants*

Disease activity & improvement measures



DM patient maintained a major TIS response at Week 12



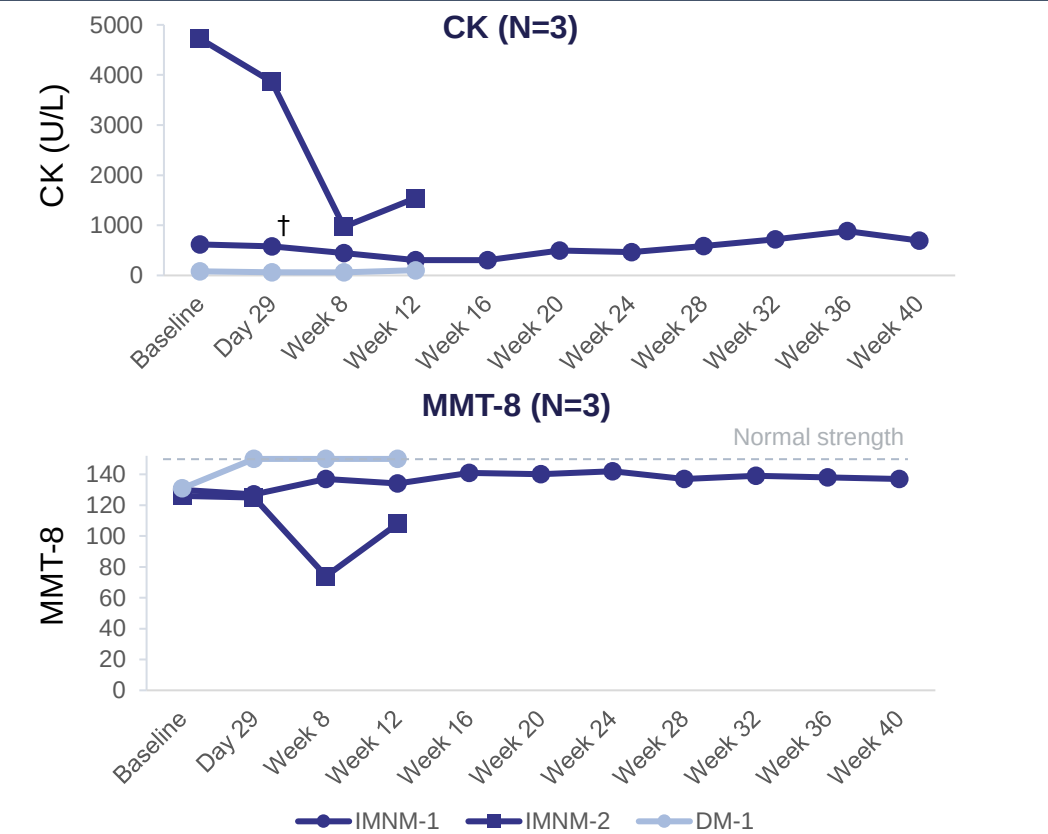
Maintenance of major response to treatment (TIS) in DM-1 shows potential for achieving drug-free remission in patients with refractory myositis

*As of Jan 8, 2025.
CDASI-A, Cutaneous Dermatomyositis Disease Area and Severity Index – Activity; CK, creatinine kinase; HCQ, hydroxychloroquine; MMF, mycophenolate mofetil; MMT-8, manual muscle testing 8; TIS, total improvement score; U/L, units per liter.
Cabaletta Bio: Data on file.

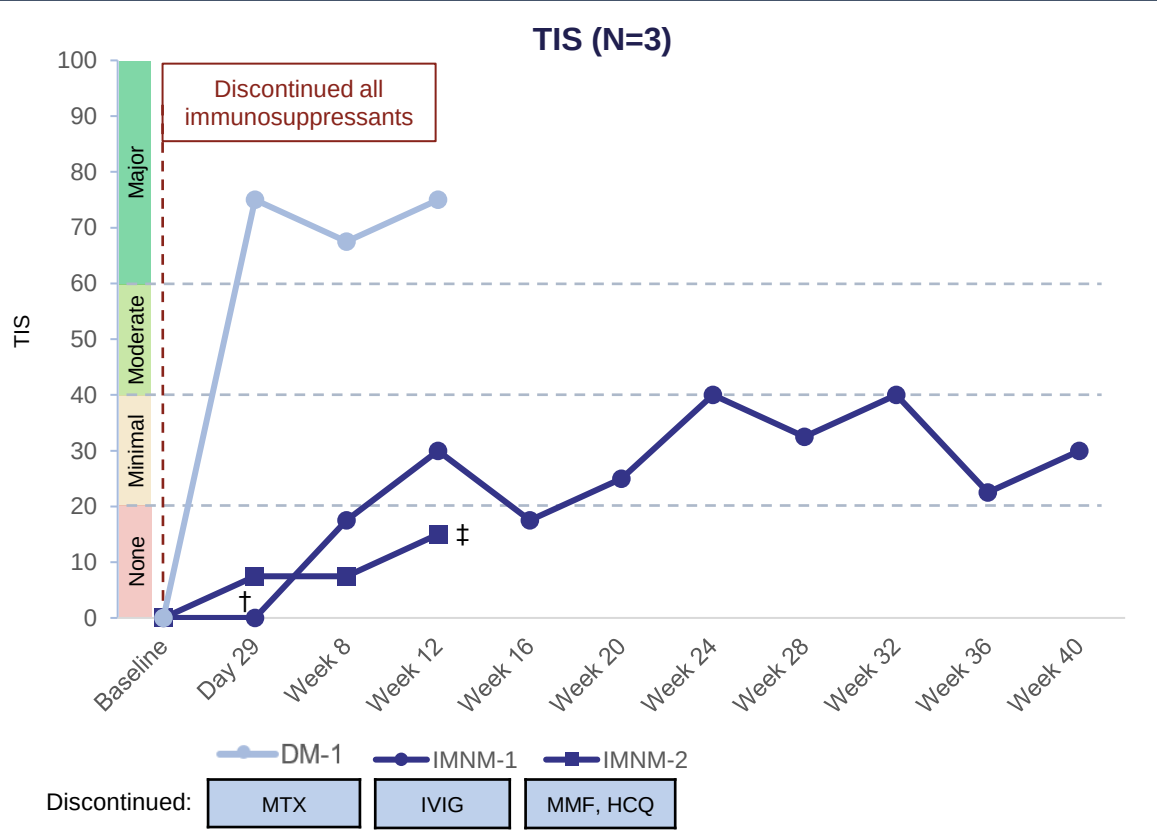
RESET-Myositis™: Efficacy data following rese-cel infusion¹

1st IMNM patient with longer follow up demonstrated continuing clinical response off immunosuppressants*

Disease activity & improvement measures



1st IMNM patient demonstrated continuing clinical response off immunosuppressants without flares at Week 40



Initial clinical responses in IMNM are consistent with published data;² response kinetics seem to differ among myositis subtypes

*As of Jan 8, 2025. †IMNM-1 Day 29 CK measurement was unavailable; Day 22 used. ‡IMNM-2 developed a PE at Day 38 with a prolonged hospitalization and recovery and received IVIG just after Week 12 visit and increased prednisone from 5 mg to 20 mg 2 weeks later. CK, creatinine kinase; HCQ, hydroxychloroquine; IVIG, intravenous immunoglobulin; MTX, methotrexate; MMF, mycophenolate mofetil; MMT-8, manual muscle testing 8; TIS, total improvement score; U/L, units per liter.
1. Cabaletta Bio: Data on file. 2. Schett, G. 'CAR-T Cell Therapy: "The Future is Now."' 5th Global Conference on Myositis. iMyoS. Pittsburgh, PA.

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18

RESET-SLE™: Efficacy data following rese-cel infusion*

3 out of 4 SLE patients have achieved DORIS remission and 1st LN patient achieved CRR off all IS and steroids

	SLE				LN	
Patient	SLE-1 [†]	SLE-2	SLE-3	SLE-4	LN-1	LN-2
Latest follow-up (weeks)	36	16	8	8	24	4
DORIS remission (at latest follow-up)	–	✓	✓	✓	–	–
LLDAS (at latest follow-up)	–	✓	✓	✓	✓	–
SLEDAI-2K score[‡] (baseline to latest follow-up)	26→8	10→0	8→2	8→2	22→2	14→11
Urine protein-creatinine ratio (baseline to latest follow-up)	1.08→0.55	N/A	N/A	N/A	7.22→0.45	4.85→2.56
Complete renal response (at latest follow-up)	–	N/A	N/A	N/A	✓	–
Glucocorticoid-free[#]	✓	✓	✓	✓	✓	✓
Immunosuppressant-free	✓	✓	✓	✓	✓	✓

*As of Jan 8, 2025

[†] Enrollment in the LN cohort requires class III/IV +/- V LN. SLE-1 had isolated class V LN and extra-renal SLE disease activity that met inclusion criteria for the non-renal cohort. Proteinuria contributed 4 SLEDAI-2K points at all assessments.

[‡] SLEDAI-2K components at latest follow up: SLE-1: proteinuria-4, complement-2, dsDNA-2; SLE-3: dsDNA-2; SLE-4: dsDNA-2; LN-1: rash-2; LN-2: proteinuria-4, leukopenia-1, alopecia-2, complement-2, dsDNA-2

[#] SLE-4 and LN-1 had discontinued GC as of the data cut; as of the latest follow up SLE-4 was on 2.5mg/d of prednisone (week 8) and LN-1 was on 7mg/d of prednisone (week 24)

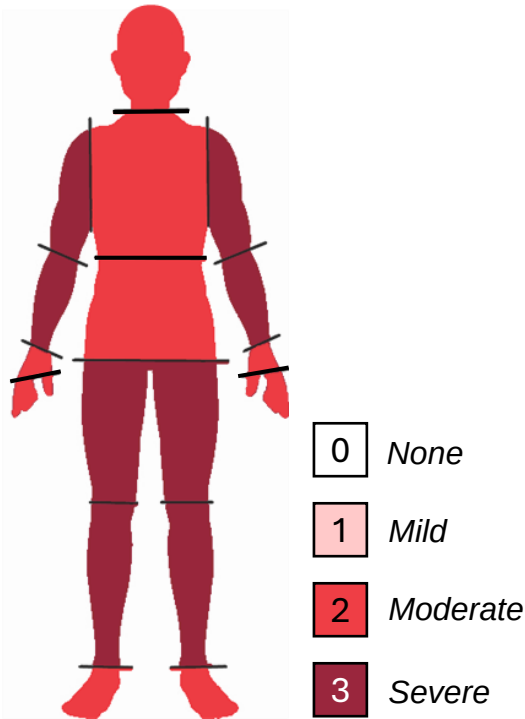
CRR, complete renal response; DORIS, definition of remission in SLE; IS, immunosuppressant; LLDAS, lupus low disease activity state; N/A, not applicable; SLEDAI-2K, Systemic Lupus Erythematosus Disease Activity Index 2000.

Cabaletta Bio: Data on file

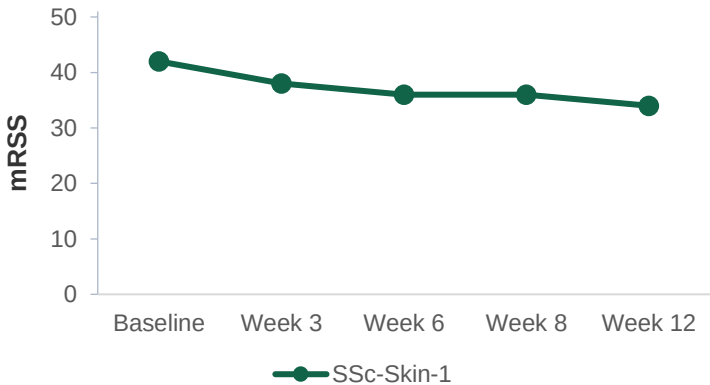
RESET-SSc™: efficacy data in first SSc patient post rese-cel infusion¹

Improvements in skin across multiple body areas and in lung function, after discontinuing immunosuppressants*

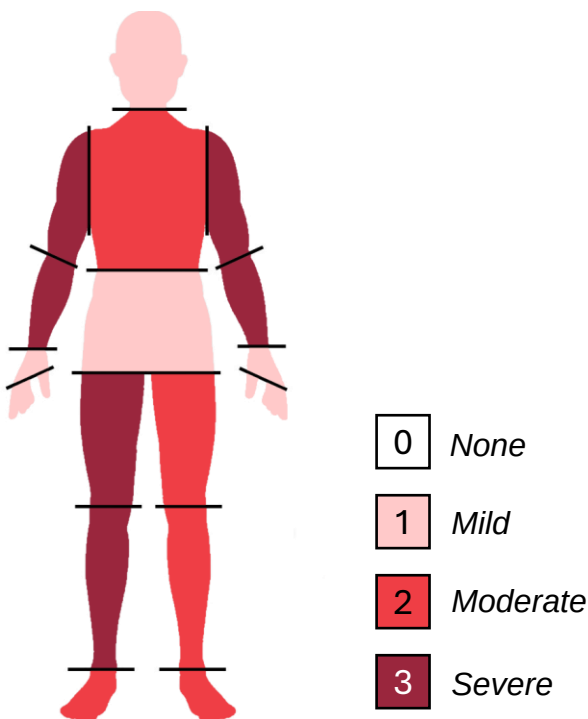
Baseline mRSS score by body area¹



Overall mRSS score¹



Week 12 mRSS score by body area¹



Pulmonary function tests

	Baseline	Week 12
DLCO	70%	85%
FVC	91%	97%

Early clinical data in SSc-Skin-1 indicate potential emergence of a drug-free clinical response*

*As of Jan 8, 2025 patient is not taking immunosuppressants or steroids.
DLCO, % predicted diffusing capacity for carbon monoxide; FVC, % predicted forced vital capacity; mRSS, modified Rodnan Skin Score (measure of skin thickness in SSc across 17 body areas, with a maximum score of 51. Used as an outcome measure in SSc clinical trials as a surrogate for disease activity, severity, and mortality)².
1. Cabaletta Bio: Data on file. 2. Khanna D, et al. J Scleroderma Relat Disord. 2017;2(1):11–18.



Rese-cel Product/Process Innovations & Indication Expansion

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Securing & expanding our leadership in autoimmune cell therapy

Several innovations to enhance patient experience, expand access and address scale in autoimmune disease

Product/Process Innovations in development

➤ Evaluating rese-cel in PV without preconditioning

- Published data and CAART platform experience suggest that preconditioning may not be necessary in autoimmune patients^{1,2}
- As a well-defined autoantibody-mediated disease, PV is a potentially ideal evaluation setting
- Expected to present clinical data from the RESET-PV trial in 2025

➤ Advancing whole blood program to remove the burden of apheresis³

➤ Minimizing the requirement for inpatient administration and follow-up

➤ IND application cleared for RESET-MS trial in patients with multiple sclerosis (MS)

- RESET-MS is a Phase 1/2 dose-escalation study in relapsing MS and progressive MS
- FDA has granted Fast Track Designation to rese-cel for the treatment of relapsing MS and progressive MS

1. Cohen, Adam D., et al. "B cell maturation antigen-specific CAR T cells are clinically active in multiple myeloma." The Journal of Clinical Investigation 129.6 (2019).
2. Poster P0744: Clinical and translational findings following MuSK-CAART infusion without preconditioning in patients with Myasthenia Gravis (MuSCAARTes™ trial). ESGCT 2024.
3. Abstract 1372: Autologous CD19 CART Manufacturing from Whole Blood Collection for the Treatment of Autoimmune Disease. ASGCT 2024.

Manufacturing strategy – securing reliable supply then innovating

Staged approach allows for efficient allocation of capital while leveraging experienced partners

Clinical & Commercial Supply: Penn, CDMOs & CABA Process

Clinical Supply:

- Penn has reliably provided timely product for years
- WuXi partnership provides additional and expanded global rese-cel supply

Advancing Commercial-readiness Efforts:

- Commercial-ready drug product tech transfer process expected to be completed with Lonza as early as 2H25

Lonza

- Partnered with commercial supplier for vector



- Opportunity for additional manufacturing partners

Innovative Manufacturing: Scale-Up, Reduce COGs & Improve Patient Experience

- Expanded partnerships for automated manufacturing
 - Completing Cellares technology assessment program



- Evaluating whole blood process to eliminate apheresis



Corporate Summary

Cabaletta Bio[®]

Cabaletta Bio leadership

Track record of operational success evaluating & developing novel cell therapy candidates in autoimmunity

LEADERSHIP TEAM



Steven Nichtberger, M.D.
President, CEO & Chairman



Samik Basu, M.D.
Chief Scientific Officer



Gwendolyn Binder, Ph.D.
President, Science & Technology



David J. Chang, M.D., M.P.H., FACR
Chief Medical Officer



Arun Das, M.D.
Chief Business Officer



Michael Gerard
General Counsel



Heather Harte-Hall
Chief Compliance Officer



Anup Marda
Chief Financial Officer



Nicolette Sherman
Chief HR Officer



Gerwin Winter
Head of International



Sarah Yuan
Chief Technology Officer



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Cabaletta's Anticipated Key Milestones for 2025

☐ 1H25

Align with FDA on
registrational trial
designs for rese-cel

☐ 2025

Present rese-cel
clinical & translational
data at medical and
scientific meetings

☐ 2025

Enroll and complete
dosing in multiple
disease-specific
RESET™ cohorts

☐ 2025

Present clinical data
evaluating rese-cel with
no preconditioning from
the RESET-PV™ trial

Cabaletta Bio[®]

A microscopic view of several cells, likely cancer cells, with prominent red nuclei. The cells are shown in various stages of focus, with one cell in the foreground being sharp and others in the background being blurred.

Corporate Presentation

FEBRUARY 2025