UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of The Securities Exchange Act of 1934

October 7, 2024
Date of Report (Date of earliest event reported)

CABALETTA BIO, INC.
(Exact name of Registrant as Specified in its Charter)

Delaware	**001-39103**	**82-1685768**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(I.R.S. Employer Identification No.)**

2929 Arch Street, Suite 600, Philadelphia, PA	**19104**
(Address of principal executive offices)	**(Zip Code)**

(267) 759-3100
(Registrant's telephone number, including area code)

Not Applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock, par value $0.00001 per share	CABA	The Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 7.01 Regulation FD Disclosure.

On October 7, 2024, Cabaletta Bio, Inc. (the "Company" or "Cabaletta") posted to the "Investors & Media" section of the Company's website at *www.cabalettabio.com* an updated corporate presentation providing a corporate overview and updated development plan (the "Corporate Presentation"). A copy of the Corporate Presentation is attached hereto as Exhibit 99.1 and is incorporated by reference into this Item 7.01 of this Current Report on Form 8-K.

The information contained in Item 7.01 of this Current Report on Form 8-K, including Exhibit 99.1 attached hereto, is being furnished and shall not be deemed to be "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section and shall not be incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

Item 8.01 Other Events.

On October 7, 2024, the Company issued an updated corporate presentation providing additional clarity on its upcoming milestones, including that additional clinical data from the RESET-SLE and RESET-Myositis trials along with initial clinical data from the RESET-SSc trial will be presented at the American College of Rheumatology Convergence 2024 Meeting in November 2024. Initial clinical data from the RESET-MG trial is anticipated in the first half of 2025.

Forward Looking Statements

The information under this Item 8.01 contains "forward-looking statements" of the Company within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including without limitation, express or implied statements regarding expectations regarding the upcoming data milestones. Any forward-looking statements in this Item 8.01 are based on management's current expectations and beliefs of future events, and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. For a discussion of these and other risks and uncertainties, and other important factors, any of which could cause the Company's actual results to differ from those contained in the forward-looking statements, see the section entitled "Risk Factors" in the Company's most recent annual report on Form 10-K as well as discussions of potential risks, uncertainties, and other important factors in the Company's other and subsequent filings with the Securities and Exchange Commission. All information in this Item 8.01 is as of the date of this Current Report on Form 8-K, and the Company undertakes no duty to update this information unless required by law.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

99.1	Cabaletta Bio, Inc. Corporate Presentation, dated October 7, 2024, furnished herewith.
104	Cover Page Interactive Data File (embedded within the Inline XBRL Document).

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, hereunto duly authorized.

CABALETTA BIO, INC.

Date: October 7, 2024

By: /s/ Steven Nichtberger
Steven Nichtberger, M.D.
President and Chief Executive Officer

Exhibit 99.1

Cabaletta Bio®

Corporate Presentation

OCTOBER 2024

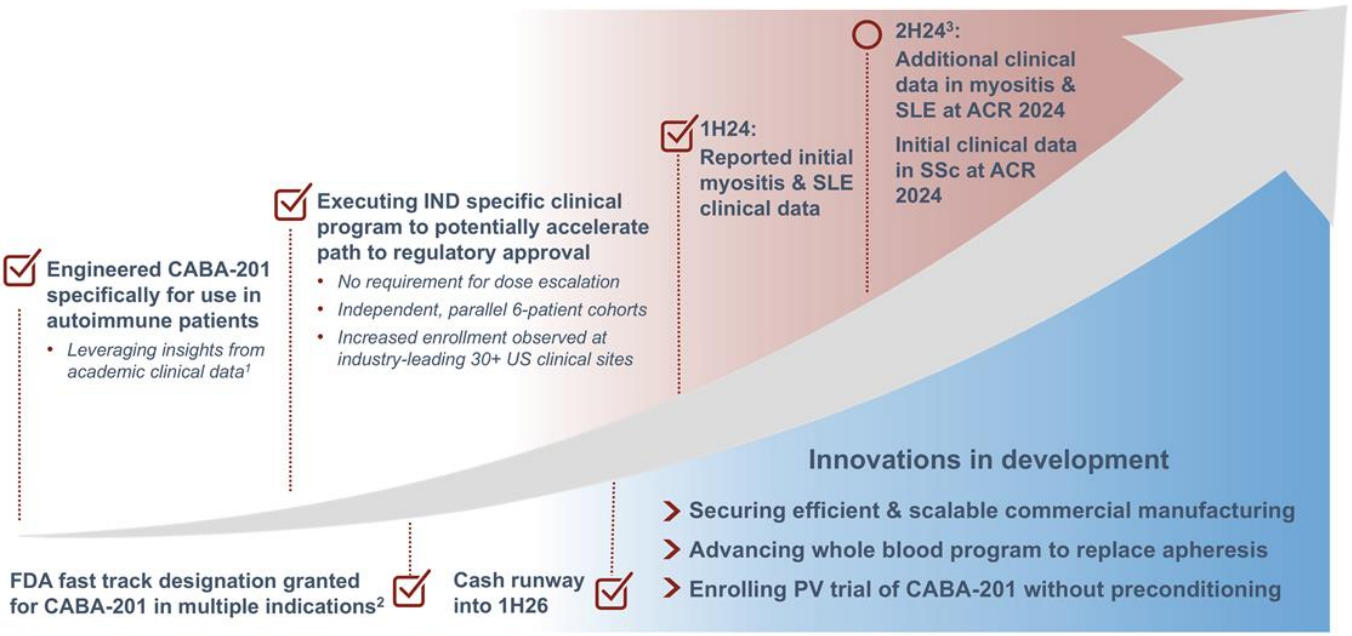
Disclaimer

The following presentation, including any printed or electronic copy of these slides, the talks given by the presenters, the information communicated during any delivery of the presentation and any question and answer session and any document or material distributed at or in connection with the presentation (collectively, the "Presentation") has been prepared by Cabaletta Bio, Inc. ("we," "us," "our," "Cabaletta" or the "Company") and is made for informational purposes only. This Presentation does not purport to be a prospectus, to be complete or to contain all of the information you may desire. Statements contained herein are made as of the date of this Presentation unless stated otherwise, and this Presentation shall not under any circumstances create an implication that the information contained herein is correct as of any time after such date or that information will be updated or revised to reflect information that subsequently becomes available or changes occurring after the date hereof. 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 and CARTA technologies; 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 CABA-201 in patients with autoimmune diseases; the Company's business plans and objectives; our expectations around the potential success and therapeutic and clinical benefits of CABA-201 and our other product candidates, including our belief that CABA-201 may enable achieving drug-free, durable meaningful clinical responses, through an immune reset; Cabaletta's belief of the potential for CAR T to enable a paradigm shift in autoimmunity treatment; our plans for Phase 1/2 clinical trials of CABA-201 in patients with systemic lupus erythematosus (SLE), myositis, SSc, and generalized myasthenia gravis (gMG), and for advancement of a RESET-PV sub-study within the ongoing DesCAARTes trial in PV, including the timing thereof, including our anticipated progress, timing of enrollment, expectations for the efficiency of trial designs, updates related to status, safety data, or otherwise and the expected timing of the related data read-outs, and 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 advance the trial as planned in our Phase 1/2 clinical trials of CABA-201; the timing any planned regulatory filings for our development programs, including IND applications; the progress and results of our MusCAARTes™ Phase 1 trial, including the significance and impact around reported safety and clinical and translational data of cohorts from our MusCAARTes™ Phase 1 trial; Cabaletta's potential to eliminate the need for apheresis by using a simpler collection process to obtain the starting material for the CABA-201 manufacturing process; the expectation that Cabaletta may improve outcomes for patients suffering from SLE, SSc, myositis, gMG, mucosal pemphigus vulgaris, MuSK myasthenia gravis, or other autoimmune diseases; the ability of our clinical strategy to reduce risk, maximize reach and accelerate timelines of our Phase 1/2 clinical trials of CABA-201; expectation that clinical results will support CABA-201's safety and activity profile; statements regarding the timing of regulatory filings and interactions with regulatory authorities, including such authorities' review of safety information from our ongoing clinical trials; 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; 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 Orphan Drug Designation and Fast Track Designations for our product candidates, as applicable; our ability to accelerate our pipeline 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 CABA-201; our potential commercial opportunities, including value and addressable market, for our product candidates; and our expectations regarding our use of capital and other financial results, including our ability to fund operations into the first half of 2026. 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 CABA-201 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 CABA-201, 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 CABA-201; 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.

Cabaletta Bio®

Realizing the vision to transform autoimmune disease treatment

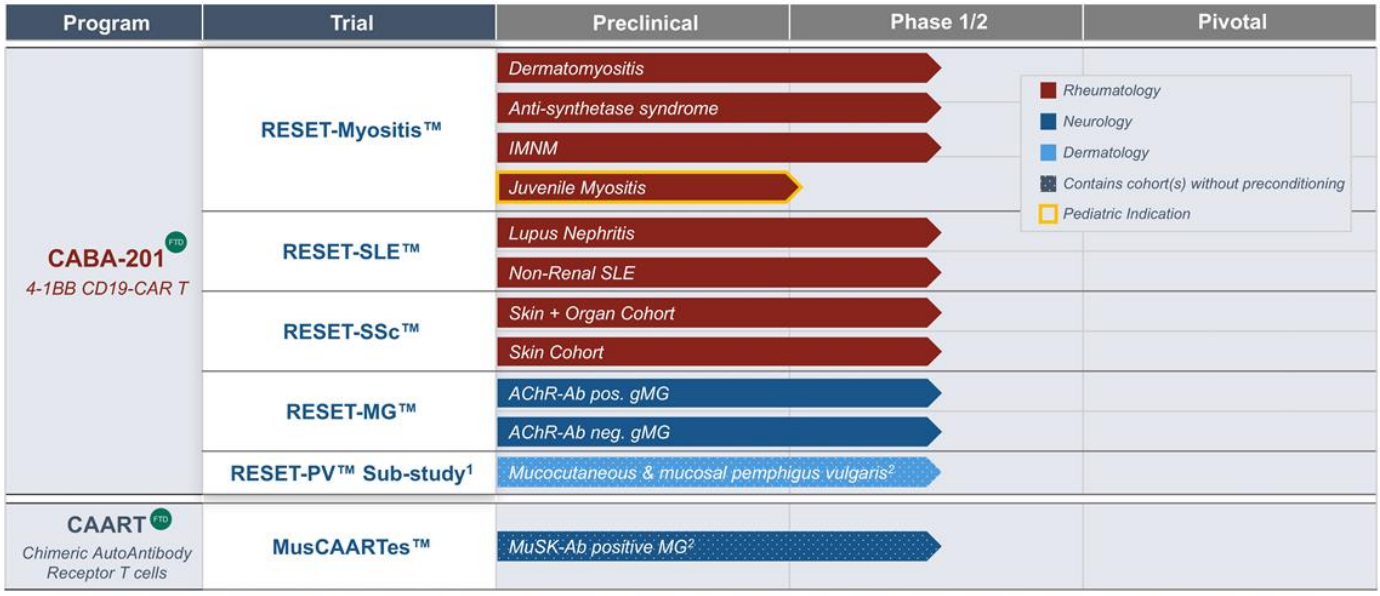


SLE – Systemic lupus erythematosus; SSc – Systemic sclerosis; PV – Pemphigus vulgaris; ACR 2024 – American College of Rheumatology 2024 annual meeting from November 14-19, 2024.

1. 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. The construct utilized in these studies has a similar design to CABA-201, sharing the 4-1BB costimulatory domain, but is a different construct.
2. FDA Fast Track Designation received in dermatomyositis, SLE, lupus nephritis and systemic sclerosis.
3. Initial clinical data in myasthenia gravis anticipated in 1H25.

Pipeline targeting autoimmune diseases with high unmet need

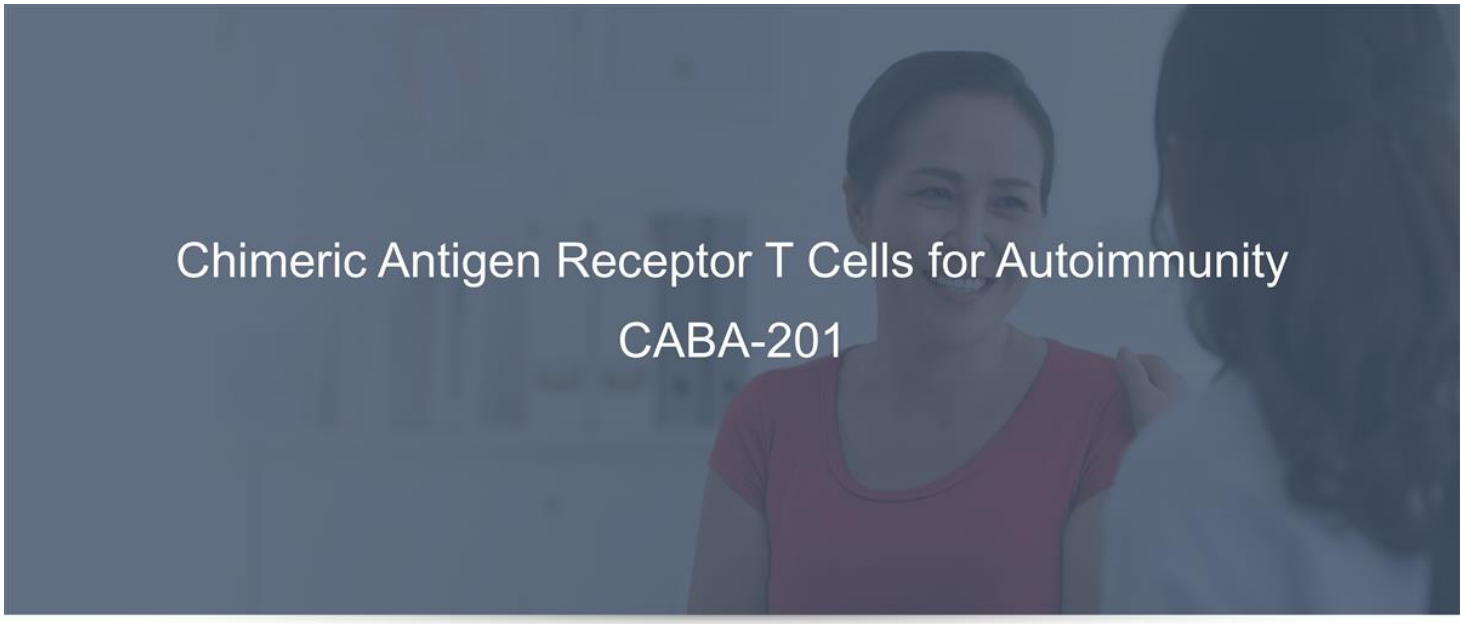
Innovative and scalable clinical strategy with potential for accelerated development path



RESET™ – **RE**storing **SE**lf-**T**olerance; IMNM – Immune-mediated necrotizing myopathy; SLE – Systemic lupus erythematosus; Ab – Antibody; AChR – Acetylcholine receptor; gMG – Generalized myasthenia gravis

1. Sub-study incorporated into DesCAARTes™ study. 2. Currently being evaluated in a Phase 1 trial.

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



Cabaletta Bio®

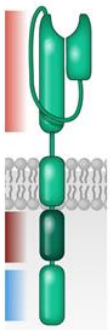
CABA-201: CD19-CAR T specifically designed for autoimmunity

Cabaletta's CD19 binder with similar *in vitro* & *in vivo* activity to construct used in academic studies[1,3]

Fully human anti-CD19 binder
Similar binding affinity & biologic activity to FMC63, with binding to the same epitopes[1,2]

4-1BB costimulatory domain
Same co-stim. domain as used in academic studies

CD3-ζ signaling domain



CABA-201[5]

Clinical data reported by IASO using licensed CD19 binder in oncology[4]

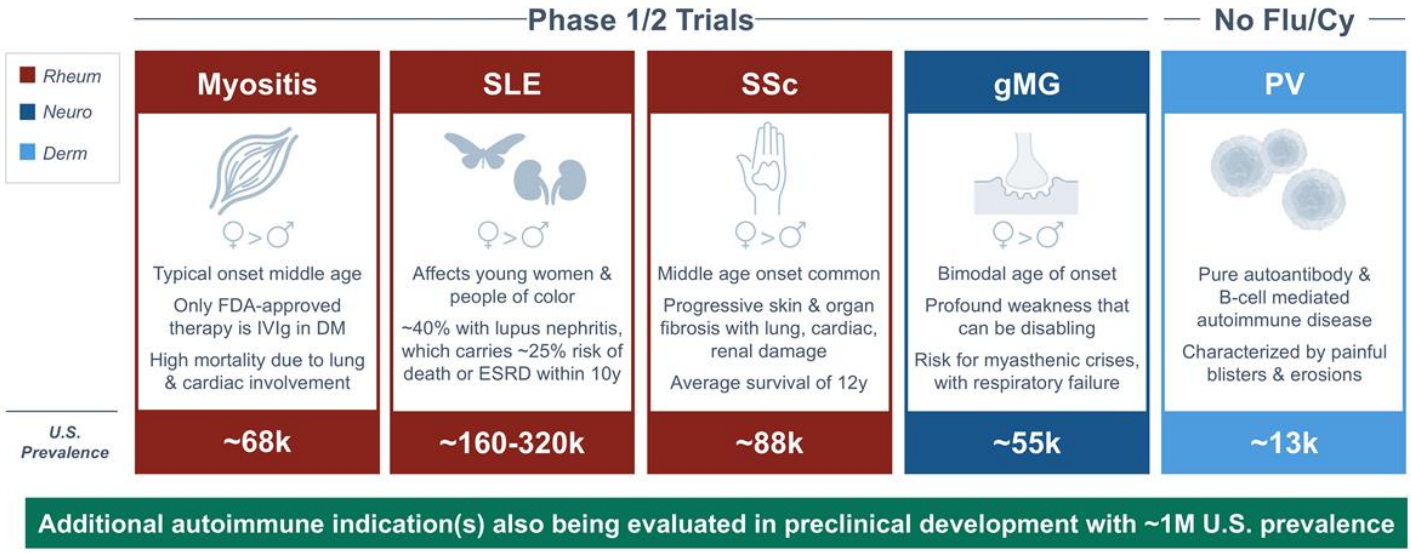
- **Fully human binder**
  Evaluated as dual-CAR combined with CD22 binder with standard Flu/Cy preconditioning
- **Data reported in ~20 patients to date**
  B cell leukemia and lymphoma in IIT in China
- **Safety data supports autoimmune development**

IIT – Investigator-initiated trial; Flu/Cy – Fludarabine/Cyclophosphamide

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. Evaluated as part of CT120, a dual-CD19xCD22 CAR T product candidate under development by Nanjing IASO Biotherapeutics, Co., Ltd. (IASO Bio).
5. Transmembrane domain in CABA-201 is CD8α 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 CD8α transmembrane domain is employed in tisagenlecleucel.

REstoring **SE**lf-**T**olerance (**RESET**™) Clinical Program for CABA-201

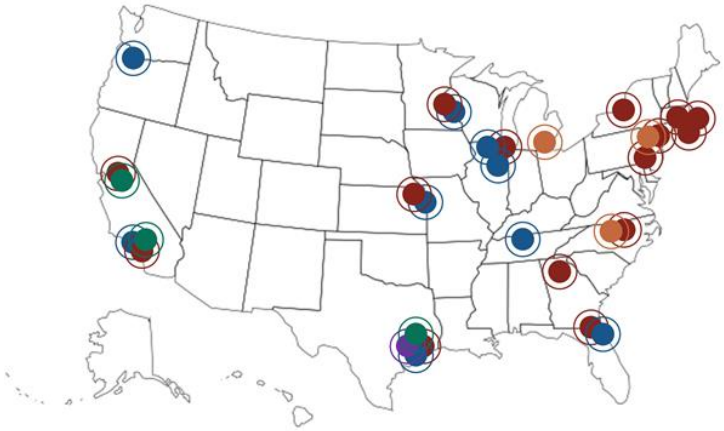
Below RESET trials are currently enrolling, with a broadening portfolio to realize the potential of CABA-201



Additional autoimmune indication(s) also being evaluated in preclinical development with ~1M U.S. prevalence

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

Industry-leading U.S. clinical site footprint across RESET™ program[1]



SLE sites | Myositis sites | SSc sites | MG sites | PV sites

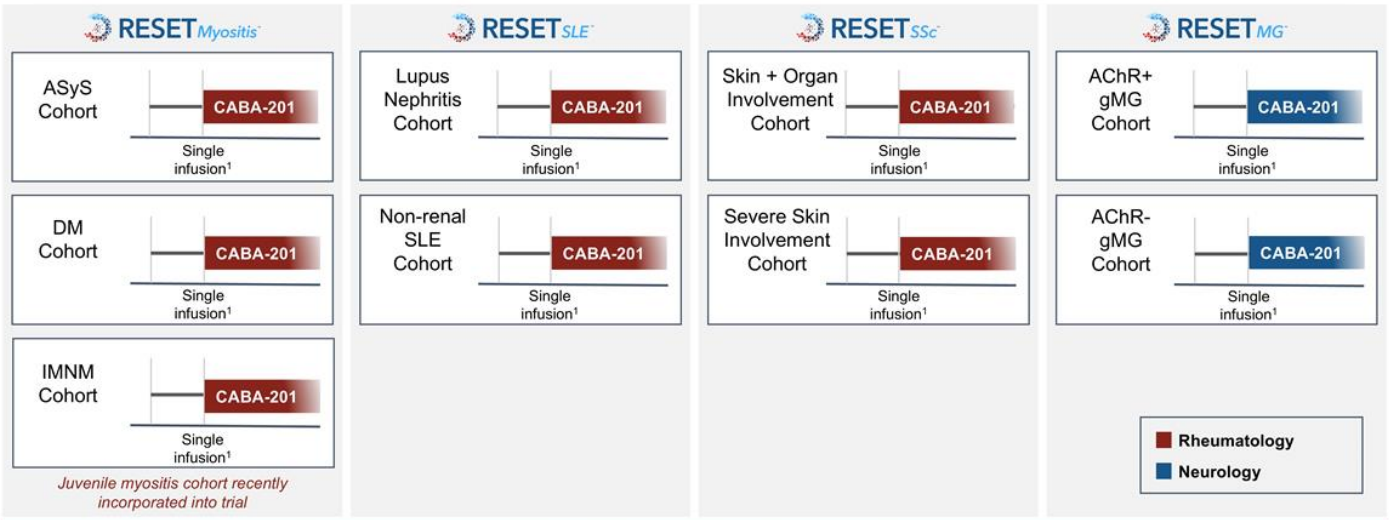
30+ actively recruiting clinical sites in the U.S. across the RESET™ studies (15 SLE, 9 Myositis, 3 SSc, 3 MG, & 1 PV)

1. Data per clinicaltrials.gov as of October 4, 2024, as compared to companies with actively recruiting U.S. clinical sites for autoimmune cell therapy trials under company-sponsored INDs.

Cabaletta Bio®

Clinical strategy to reduce risk, maximize reach & accelerate timelines

Broad investigation of CABA-201 in well-defined patient populations with the same dose & similar design



Ten disease-specific cohorts of 6 patients at the same dose – designed to inform discussions with FDA on registrational path for each indication

SLE – Systemic lupus erythematosus; SSc – Systemic sclerosis; gMG – Generalized myasthenia gravis; ASyS – Anti-synthetase syndrome; DM – Dermatomyositis; IMNM – Immune-mediated necrotizing myopathy

1. Subjects will be treated with a standard preconditioning regimen consisting of fludarabine and cyclophosphamide prior to a single dose CABA-201, followed by short inpatient stay.

RESET-Myositis™: Phase 1/2 study design for CABA-201

Clinical data to be presented at ACR 2024; enrolling patients with active myositis with DM, ASyS and IMNM

Screening

Key inclusion criteria

- Adults 18-75y with a clinical IIM diagnosis
- Subtype based on serology
- Evidence of active disease despite standard of care

Key exclusion criteria

- Cancer associated myositis
- Significant lung or cardiac impairment
- B cell-depleting agent within prior ~6 months
- Previous CAR T cell therapy and/or HSCT

Phase 1/2 Study Design

Open-label trial with parallel 6-subject cohorts

DM: CABA-201 — *Single dose of 1x10⁶ cells/kg[1]*

ASyS: CABA-201 — *Single dose of 1x10⁶ cells/kg[1]*

IMNM: CABA-201 — *Single dose of 1x10⁶ cells/kg[1]*

Equivalent to dose of 4-1BB CD19-CAR T used in academic report along with standard preconditioning[1,2]

Juvenile myositis cohort recently incorporated into trial

Study Objectives

Primary objective

Safety & tolerability within 28 days of infusion

Categories of key secondary objectives

- **Myositis clinical activity**
- **CK / muscle enzymes**
- **Myositis-specific autoantibody levels**
- **Adverse events**
- **PK / PD analysis**

Our goal is to achieve compelling, drug-free, and durable clinical responses through an immune reset

IIM – Idiopathic inflammatory myopathy; DM – Dermatomyositis; ASyS – Anti-synthetase syndrome; IMNM – Immune-mediated necrotizing myopathy; CK – creatine kinase

1. Subjects will be treated with a standard preconditioning regimen consisting of fludarabine and cyclophosphamide prior to a single dose CABA-201, followed by short inpatient stay.
2. 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.

RESET-SLE™: Phase 1/2 study design for CABA-201

Clinical data to be presented at ACR 2024; enrolling patients with active SLE with or without renal disease

Screening

Key inclusion criteria

- Adults 18-65y with an SLE diagnosis
- Confirmatory serology
- SLE: active, moderate to severe SLE, SLEDAI 2K ≥8 despite standard therapy
- LN: active, biopsy-proven LN class III or IV, ± class V

Key exclusion criteria

- B cell-depleting agent within prior ~6 months
- Presence of kidney disease other than LN
- Previous CAR T cell therapy and/or HSCT

Phase 1/2 Study Design

Open-label trial with parallel 6-subject cohorts

SLE with lupus nephritis — **CABA-201** — *Single dose of 1x10⁶ cells/kg[1]*

SLE without renal disease — **CABA-201** — *Single dose of 1x10⁶ cells/kg[1]*

Equivalent to dose of 4-1BB CD19-CAR T used in academic report along with standard preconditioning[1,2]

Study Objectives

Primary objective

Safety & tolerability within 28 days of infusion

Categories of key secondary objectives

- **SLE disease activity**
- **Complete renal response**
- **Adverse events**
- **PK / PD analysis**
- **Biomarker analyses**

Similarly designed Phase 1/2 trials – RESET-SSc™ & RESET-MG™ – advancing in SSc & gMG

SLE – Systemic lupus erythematosus; SSc – Systemic sclerosis; gMG – Generalized myasthenia gravis

1. Subjects will be treated with a standard preconditioning regimen consisting of fludarabine and cyclophosphamide prior to a single dose CABA-201, followed by short inpatient stay.
2. 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.

Initial CABA-201 clinical & translational data

IMNM Patient #1

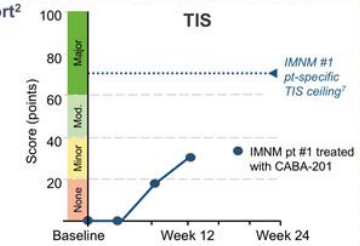
33 year old male with ~2 years disease duration, anti-SRP positive, prior disease-specific therapies incl. IVIG, rituximab, MTX, & glucocorticoids

Safety

- **No CRS, ICANS, or infections observed within 28 days of infusion**

Activity

- **CAR T cell expansion & B cell depletion kinetics consistent with academic experience**
- **Remains off all disease-specific therapies at 3 months post infusion**
- **Repopulation with naïve B cells occurred at month 2, which subsequently mature[6]**
- **12-week TIS consistent with Schett IMNM case report[2]**



Non-renal SLE Patient #1[1,2]

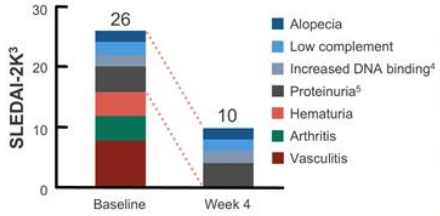
26 year old male with ~6 years disease duration with class V LN, prior disease-specific therapies incl. Cy, voclosporin, belimumab & tacrolimus

Safety

- **No CRS, ICANS, or infections observed within 28 days of infusion**

Activity

- **CAR T cell expansion and B cell depletion kinetics consistent with academic experience**
- **Discontinuation of all disease-specific therapies at infusion, except prednisone taper at 1 month (10mg/day)**
- **Vasculitis, arthritis and hematuria resolved within 4 weeks**



LN Patient #1

24 year old female with severe, very active, refractory disease, including history of lupus-related pericarditis, dosed with CABA-201

Safety

- **Grade 1 CRS and Grade 4 ICANS observed within 28 days of infusion, which resolved rapidly and completely following standard management**
- **Independent data monitoring committee recommended the study to proceed as designed, without delay, at the same dose**
- **Implemented protocol modifications designed to improve patient safety, including enhanced monitoring for fever and neurologic symptoms along with seizure prophylaxis for all pts, in line with routine practice at many academic sites**

Activity

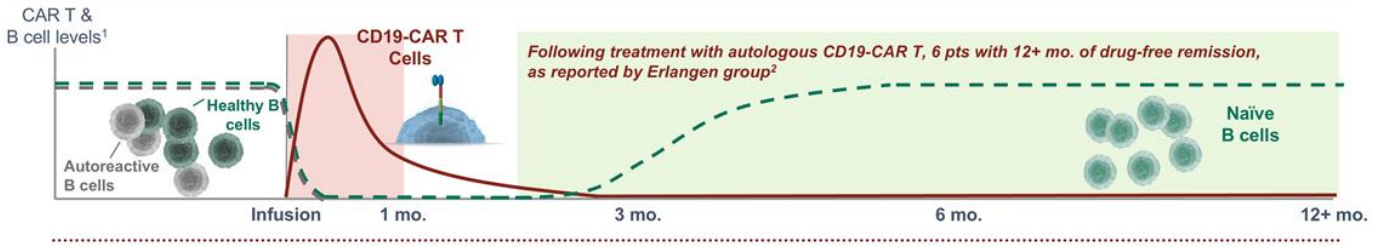
- **3-month clinical & translational data to be reported at ACR 2024**

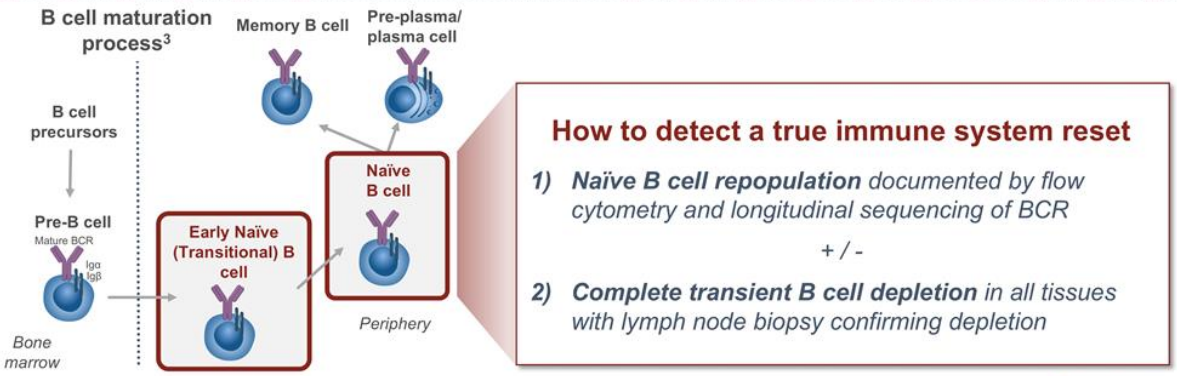
Additional clinical data in myositis & SLE, as well as initial clinical data in SSc to be presented at ACR 2024

1. Patient in non-renal SLE cohort due to isolated Class V LN.
2. Data cut-off as of 28 May 2024.
3. Baseline and Day 29 SLEDAI-2K score are reflective of disease activity at study visit day.
4. Anti-dsDNA antibody titer decreased from 1:40 to 1:10 from Baseline to Week 4.
5. Urine Protein Creatinine Ratio decreased from 1.08 to 0.80 from Baseline to Week 4.
6. 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 (2024).
7. Based on patient's moderate level of muscle disease at baseline, mild-moderate disability and limited extramuscular manifestations, the maximum achievable score is 70 points on the 100-point TIS scale.

Achieving ‘immune system reset’ may predict long-term durability

Autologous CAR T is the only modality to date that has facilitated an immune system reset in autoimmune patients





How to detect a true immune system reset

1) ***Naïve B cell repopulation*** *documented by flow cytometry and longitudinal sequencing of BCR*

\+ / -

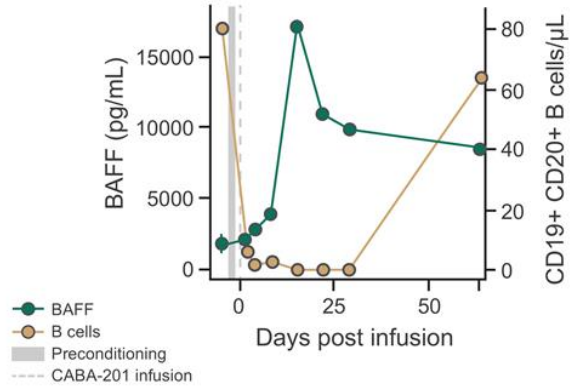
2) ***Complete transient B cell depletion*** *in all tissues with lymph node biopsy confirming depletion*

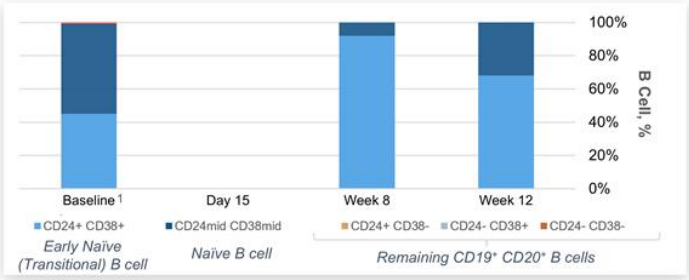
1. Illustrative graphic, adapted from Taubmann, J., et al. "OP0141 Long Term Safety and Efficacy Of CAR-T Cell Treatment in Refractory SLE-Data from the First Seven Patients." (2023): 93-94.
2. Müller, Fabian, et al. "CD19 CAR T-Cell Therapy in Autoimmune Disease—A Case Series with Follow-up." New England Journal of Medicine 390.8 (2024): 687-700.
3. Image adapted from Cambier JC, et al. *Nat Rev Immunol.* 2007;7(8):633-643.

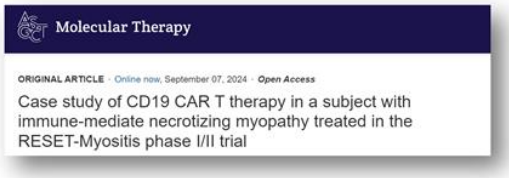
Naïve B cell repopulation occurred at 2 months in first IMNM patient

Initial patient phenotyping data consistent with potential immune system reset; confirmatory analyses ongoing

Systemic B cell depletion triggers BAFF to encourage bone marrow B cell repopulation







B cell phenotyping data

Note: Flow plot gating reflects CD19⁺ CD20⁺ live lymphocytes.
1. Data cut-off as of May 28, 2024.

Cabaletta Bio®

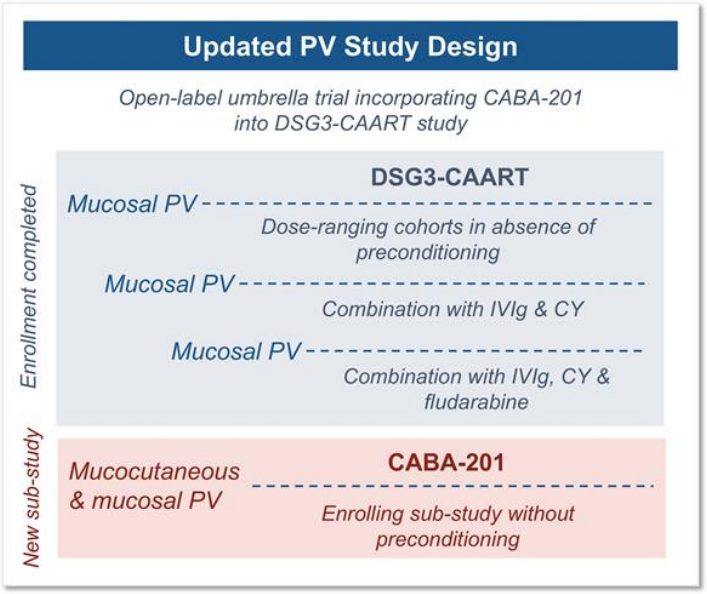
Enrolling trial of CABA-201 without preconditioning in pemphigus

Published data and experience with our legacy CAART platform suggest that preconditioning may not be necessary in autoimmune patients

- Published data in multiple myeloma suggests preconditioning may not be necessary[1]
- Experience with DSG3-CAART on disease outcomes with and without preconditioning in PV in DesCAARTes™ study

As a well-defined autoantibody-mediated disease, PV is a potentially ideal evaluation setting

- Anti-DSG antibodies necessary & sufficient for disease
- Anti-DSG antibodies 98-100% sensitive & specific[2]
- Anti-DSG antibodies correlate with disease activity
- Depletion of B cells or antibodies improve disease
- Clinical scoring based on mucosal & skin disease



DSG – Desmoglein; PV – Pemphigus vulgaris

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. Schmidt, Enno, et al. "Novel ELISA systems for antibodies to desmoglein 1 and 3." Experimental dermatology 19.5 (2010): 458-463.

Manufacturing strategy – secure reliable supply then innovate

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

Clinical & Commercial Supply:
Penn, CDMOs & CABA Process

- **Penn has reliably provided timely product for years**
- **WuXi partnership provides additional CABA-201 supply**
- **Advancing paths to commercial-ready manufacturing:**
  - ✓ **Expansion of CDMO partnerships**

    Lonza
  - ✓ **Secured commercial supplier for vector**

    Oxford Biomedica
  - **Future consideration – Cabaletta-operated facility**
  - **Opportunity for strategic partnership(s)**

Innovative Manufacturing:
Scale-Up & Reduced COGs

- **Expanded partnerships for automated manufacturing**

  CELLARES
- **Continuous focus on innovations to address scale:**
  - **Further closing and automating our commercial process**
  - **Advancing Cellares technology assessment program**
  - **Evaluating whole blood process to eliminate apheresis**

Securing & expanding our leadership in autoimmune cell therapy

Increased enrollment since EULAR

Advancing the RESET™ clinical trials at over 30 US clinical sites with the goal of delivering on our commitment to patients

Myositis
Systemic lupus erythematosus
Systemic sclerosis
Generalized myasthenia gravis
Pemphigus vulgaris

- Minimizing the requirement for inpatient stay
- Innovating to address scale in autoimmune disease
- Seeking to remove the burden of apheresis[1]
- Evaluating CABA-201 without preconditioning

Broadening potential to serve patients

Biologic opportunity for potential cure or paradigm-shifting treatment may be possible in dozens of autoimmune diseases

Rheumatology	• Rheumatoid arthritis • ANCA-associated vasculitis • Sjögren's syndrome
Neurology	• Multiple sclerosis • Neuromyelitis optica • CIDP
Nephrology	• Membranous nephropathy • Goodpasture's syndrome
Dermatology	• Pemphigus foliaceus • Epidermolysis bullosa acquisita • Bullous pemphigoid
Hematology	• Immune thrombocytopenic purpura • Thrombotic thrombocytopenic purpura • Antiphospholipid syndrome • Autoimmune hemolytic anemia
Endocrinology	• Type 1 diabetes • Graves' disease • Hashimoto's disease

1. Abstract 1372: Autologous CD19 CART Manufacturing from Whole Blood Collection for the Treatment of Autoimmune Disease. ASGCT 2024.

Cabaletta Bio®

Cabaletta Bio leadership

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

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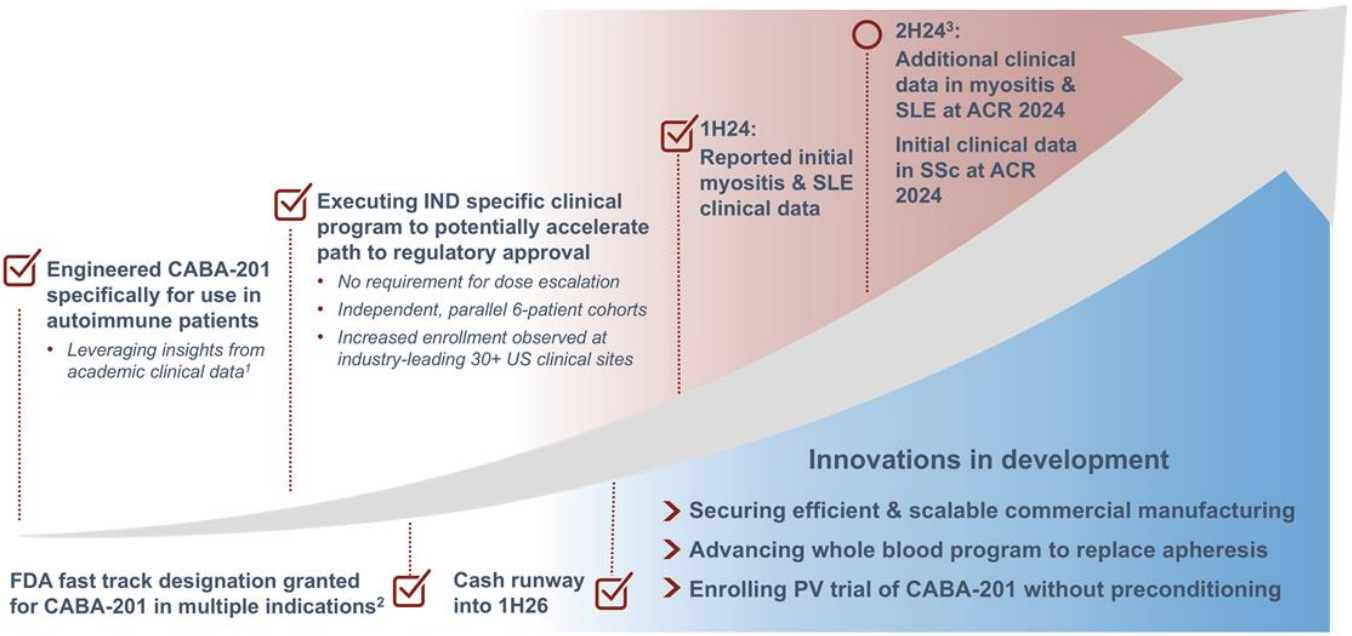
Realizing the vision to transform autoimmune disease treatment



SLE – Systemic lupus erythematosus; SSc – Systemic sclerosis; PV – Pemphigus vulgaris; ACR 2024 – American College of Rheumatology 2024 annual meeting from November 14-19, 2024.

1. 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. The construct utilized in these studies has a similar design to CABA-201, sharing the 4-1BB costimulatory domain, but is a different construct.
2. FDA Fast Track Designation received in dermatomyositis, SLE, lupus nephritis and systemic sclerosis.
3. Initial clinical data in myasthenia gravis anticipated in 1H25.

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Corporate Presentation

OCTOBER 2024