

Safety and Efficacy of an Off-the-Shelf Anti-CD19 CAR T-Cell Therapy With Reduced Conditioning in SLE Supporting Same-Day Discharge

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Background

Anti-CD19 CAR T-cell therapy shows promise in autoimmune diseases but remains limited by access and scalability. FT819 was developed to overcome these challenges.

Autologous CAR T-cell therapies involve prolonged pre- and post-apheresis timelines, with limited access to treatment centers, drug product inconsistency, high cost, and limited production capacity.

FT819 is an investigational, off-the-shelf CD19-targeting CAR T-cell product derived from an iPSC clonal master cell bank and designed to be mass produced and administered in the outpatient setting.

FT819 is designed to improve efficacy and safety through:

- Extension of T-cell effector function without uncontrolled expansion via a 1XX CAR-signaling domain, balancing safety and efficacy
- CRISPR-targeted integration of the CAR transgene into the TCR alpha chain constant region locus, leading to uniform CAR expression, enhancing product consistency while maintaining CAR expression under control of the T-cell promoter
- Complete bi-allelic disruption of TCR expression at the CAR insertion site, reducing risk of GvHD

FT819 is currently being evaluated in a Phase 1, open-label, dose-finding study (FT819-102; NCT06308978) in patients with B-cell-mediated autoimmune diseases (SLE, SSC, IIM, and AAV).

Figure 1. Unique Platform for Delivery of Off-the-Shelf Cellular Therapies

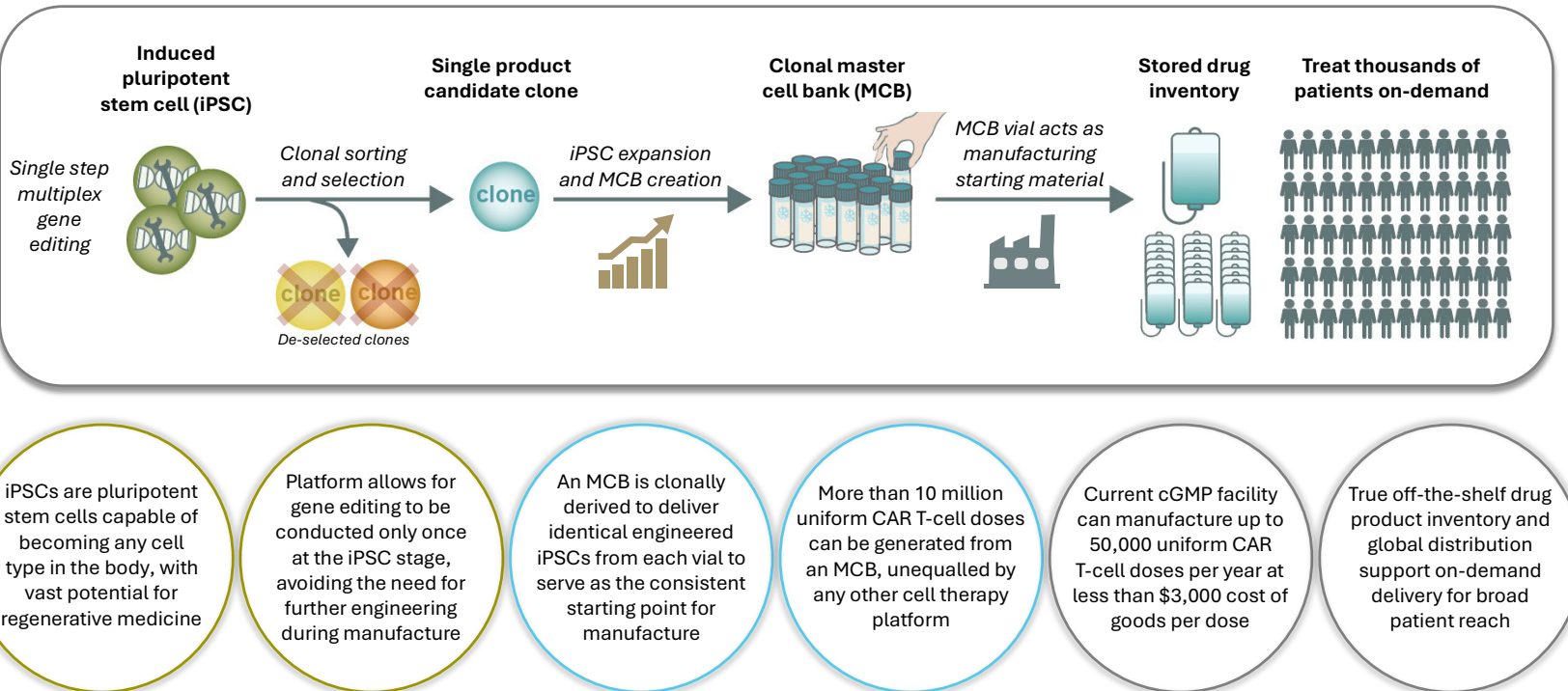
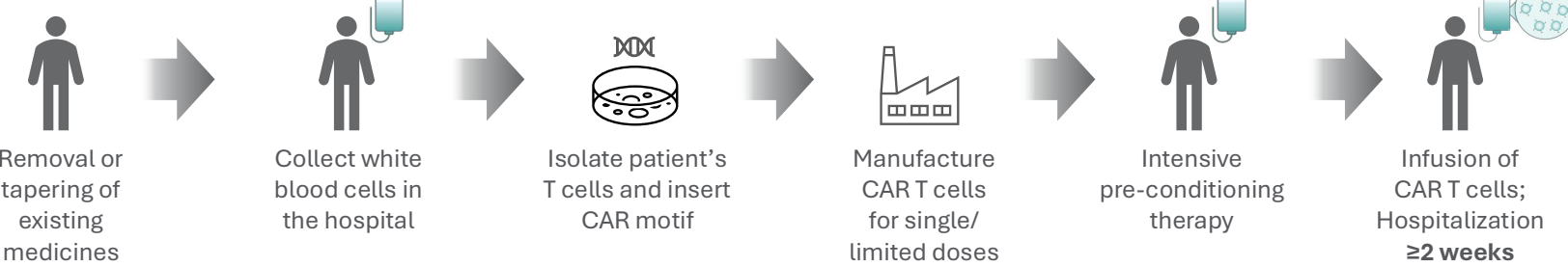


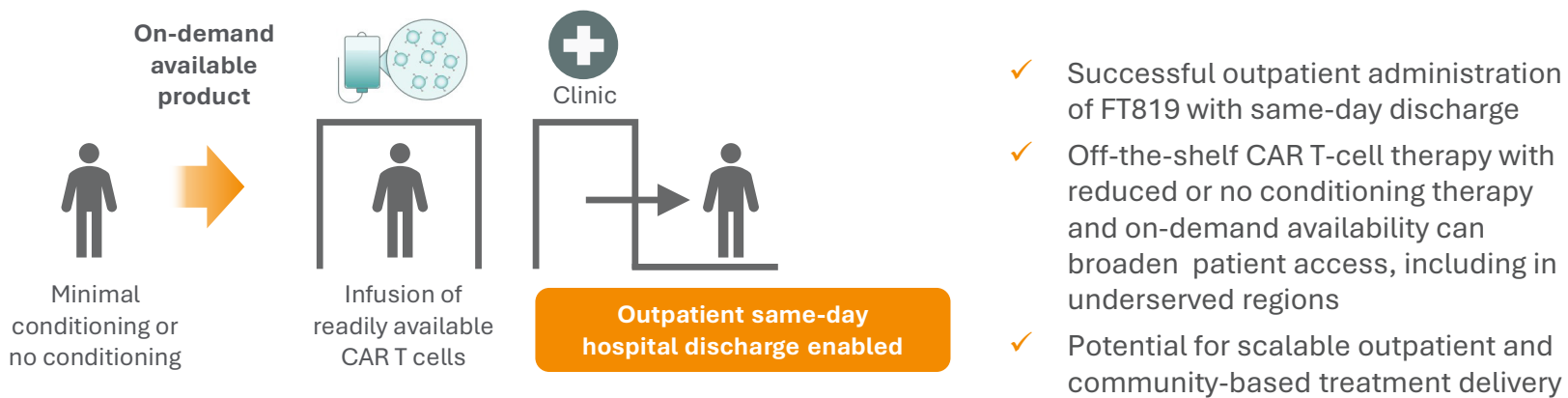
Figure 2. Conventional Versus Off-the-Shelf, iPSC-derived CAR T-Cell Therapy

Conventional Autologous CAR T-Cell Therapy

Not available on-demand



Off-the-Shelf CAR T-Cell Therapy

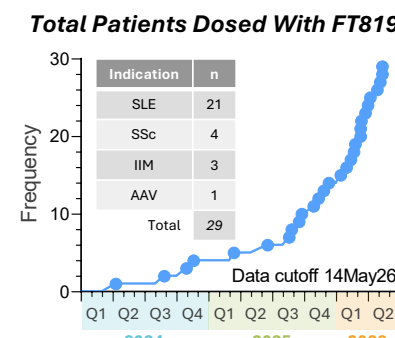
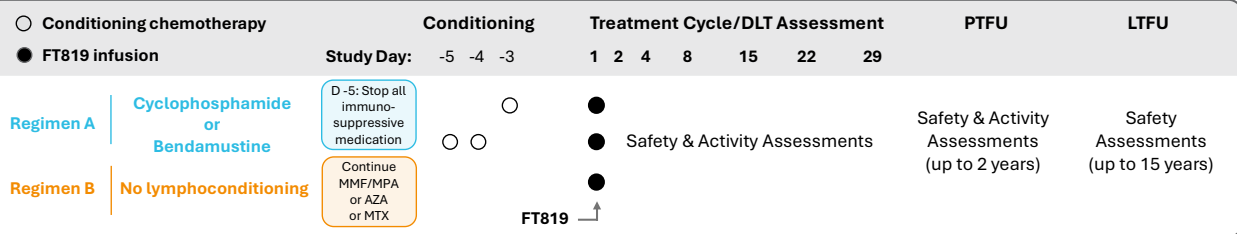


Abbreviations: AAV = ANCA-associated vasculitis; AESI = adverse event of special interest; AZA = azathioprine; BILAG = British Isles Lupus Assessment Group; BCR = B-cell receptor; BL = baseline; CAR = chimeric antigen receptor; CRISPR = clustered regularly interspaced short palindromic repeats; CRS = cytokine release syndrome; cSLEDAI-2K = clinical Systemic Lupus Erythematosus Disease Activity Index 2000; D = Day; DLT = dose-limiting toxicity; DL = dose level; GvHD = graft-versus-host disease; FACIT = Functional Assessment of Chronic Illness Therapy; IIM = idiopathic inflammatory myositis; ICANS = immune effector cell-associated neurotoxicity syndrome; IPSC = induced pluripotent stem cell; LTFU = long-term follow-up; M = Month; PGA = Physician Global Assessment; MMF/MPA = mycophenolate mofetil/mycophenolic acid; MTX = methotrexate; PTFU = post-treatment follow-up; SLE = systemic lupus erythematosus; SSC = systemic sclerosis; TCR = T-cell receptor; UPCr = urine protein-to-creatinine ratio.

Methods

Ongoing Phase 1 dose-finding study evaluating the safety, pharmacokinetics, and anti-B-cell activity of FT819 in patients with SLE, SSC, IIM, and AAV.

Figure 3. Phase 1 Trial Design



Here, we report findings from the SLE arm in Regimen A:

- Single-dose FT819 administration
- Less-intensive conditioning therapy with a single dose of cyclophosphamide or 2 days of bendamustine prior to FT819 administration on Day 1
- Omission of fludarabine may improve tolerability, reduce risks associated with conditioning chemotherapy, and provide a more patient-friendly experience with improved treatment accessibility

Patient Enrollment

As of 14 May 2026, 16 patients with SLE in Regimen A have received a single dose of FT819 across 16 active sites; 13 patients have completed at least 1 month of follow-up. Outpatient administration is enabled in the US.

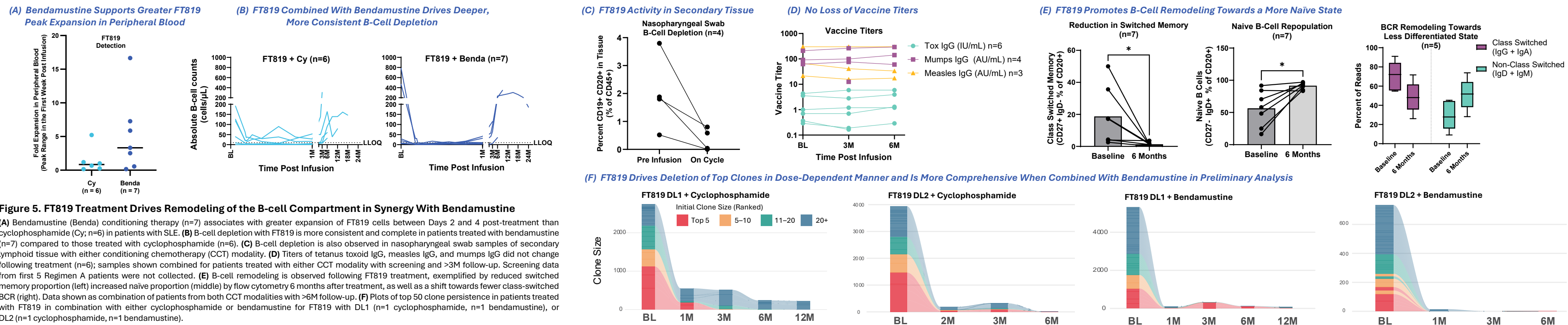
At baseline, patients were young (mean age 33.8 years), predominantly female (87.5%), and had refractory SLE with median disease duration of 7.56 years and 7 prior treatment failures.

Table 1. Baseline Characteristics (SLE; Regimen A)

SLE Parameter	Regimen A (N=16)
Age, y, mean (range)	33.8 (19, 57)
Female, n (%)	14 (87.5)
SLE duration, y, median (range)	7.56 (1.0-33.7)
Anti-dsDNA or anti-Smith positive at baseline, n (%)	13 (81.3)
Prior therapies, n, median (range)*	7 (3-10)
Follow-up, months, median (range)	6.01 (0.3-25.3)
Active lupus nephritis, n (%)	10 (62.5)
Class III ± V	3 (30)
Class IV ± V	6 (60)
Class V	1 (10)
UPCr, mean ± SD	2.80 ± 1.992
BILAG A or B, n (%)	Renal 10 (62.5); Muc 10 (62.5); MSK 7 (43.8); Cardio 5 (31.3); Heme 1 (6.3); Const 1 (6.3)
SLEDAI-2K, mean ± SD	13.6 ± 4.27
PGA, mean ± SD	2.18 ± 0.391
FACIT-Fatigue score, mean ± SD	26.4 ± 13.79

Data cutoff 14 May 2026. All patients had previously received glucocorticoids and hydroxychloroquine. * Includes data entered after data cutoff. Cardio = cardiorespiratory; Const = constitutional symptoms; Heme = hematological; MSK = musculoskeletal; Muc = mucocutaneous.

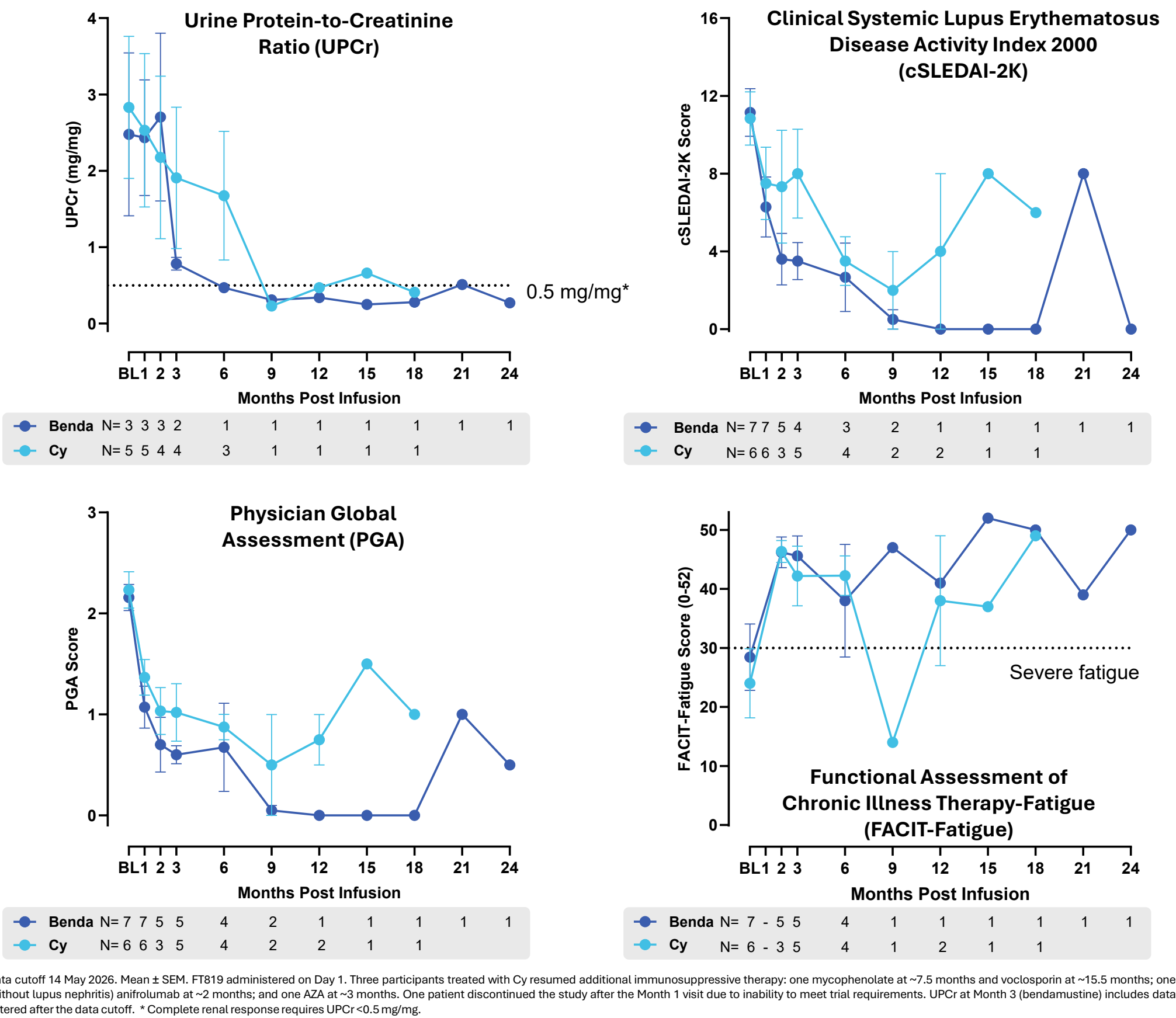
FT819 combined with less-intensive conditioning cooperate to drive deep B-cell depletion with reconstitution of the preferred naïve state and meaningful decrease of top clones.



Results

FT819 with less-intensive conditioning demonstrated early and sustained clinical improvement, with a trend toward more favorable responses with bendamustine conditioning, consistent with translational data.

Figure 4. Disease Activity Measures Among Patients With SLE in Regimen A With at Least 1-Month Follow-up



- Clinically meaningful improvements were observed in disease activity and patient-reported outcome measures, including fatigue (Figure 4).
- UPCr levels in patients with active lupus nephritis at baseline decreased by 1.8 g/g with bendamustine, and 0.9 ± 0.5 g/g (mean ± SEM) with cyclophosphamide at Month 6.
- Improvements were observed early following treatment with FT819 using less-intensive conditioning therapy in Regimen A (≥1-month follow-up) and were maintained over time.
- FT819 was well tolerated with a favorable preliminary safety profile.

All Regimen A SLE patients tolerated FT819 without DLT. No Grade >2 CRS; no ICANS, GvHD, or deaths reported in these patients on study.

Table 2. Preliminary Safety Data of FT819 in Regimen A SLE: Select AESIs

Safety Parameter	Incidence, n (%); (N=16)
CRS (Grades 1 and 2)	4 (25.0)
CRS (Grade ≥3)	0
ICANS	0
GvHD	0
Hypogammaglobinemia	0
Dose-limiting toxicity	0
Grade ≥3 adverse event (any)	6 (37.5)
Infection (Grade ≥3)*	3 (18.8)
Cytopenia (Grade ≥3)†	3 (18.8)

Data cutoff 14 May 2026. * Infection includes urinary tract infection (2) and tooth abscess (1). † Cytopenia includes the MedDRA preferred terms anaemia, leukopenia, lymphopenia, and neutropenia, corresponding to haemoglobin decreased, white blood cell count decreased, lymphocyte count decreased, and neutrophil count decreased, respectively.

Conclusion

- Favorable safety and tolerability:** Preliminary results from this study in patients with moderate-to-severe SLE treated with FT819 support outpatient administration (enabled in the US).
- Clinically meaningful improvement:** Persistent reductions in UPCr, cSLEDAI, PGA, and FACIT-fatigue were observed with less-intensive conditioning therapy.
- Robust activity against B cells:** Effective B-cell depletion with reconstitution of naïve B-cell subtypes and elimination of top clones best supported by FT819 at dose level 2 and bendamustine; vaccination titers maintained.
- On-demand accessibility:** Large-scale manufacturing enables production of off-the-shelf drug product inventory, including potential availability in underserved regions.
- Supports Phase 2 advancement:** Collectively, these results support advancement into a planned, potentially registration Phase 2 study of FT819 with bendamustine conditioning in patients with refractory moderate-to-severe SLE with lupus nephritis.
- Broader development potential:** The observed safety, clinical activity, and outpatient feasibility also support further evaluation of FT819 combined with less-intensive or no conditioning therapy in SLE and continued investigation across other B-cell-mediated autoimmune diseases, including SSC, IIM, and AAV.

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