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CAR-T Cell Therapy for Autoimmune Disease

Landscape Brief & Investment Map · April 2026

The field has crossed a decisive commercial threshold. Three mechanistically distinct paradigms — Reset, Hybrid, Suppress — now compete for durable commercial value. This is a 6-page sample of the full brief.

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EDITION

Sample · April 2026

FULL BRIEF

~14 pp · 63 citations · 8 tables

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§1 · EXECUTIVE SNAPSHOT

The thesis in one paragraph.

Three mechanistically distinct CAR-T paradigms now compete in autoimmune disease: **pan-B-cell reset** (Kyverna, Cabaletta, the Erlangen / Schett group), **antigen-specific hybrid** (Cabaletta CAAR-T), and **Treg-mediated suppress** (Sangamo, Quell, Sonoma, Tr1X). Reset is at first BLA. Hybrid has narrowed. Suppress carries a 2025 Nobel endorsement and a long-runway pipeline. The shared moat across all three is something biologics structurally cannot deliver — durable, drug-free remission.

$5.7B
PHARMA M&A IN CAR-T AUTOIMMUNE SINCE Q1 2024

6 yrs
MAXIMUM CONFIRMED DRUG-FREE REMISSION (SINGLE PATIENT)

0
ICANS IN CASTLE PHASE 1/2 (N=24)

H1 2026
FIRST AUTOIMMUNE CAR-T BLA EXPECTED

CENTRAL TENSION

The question is no longer whether immune reset is achievable — but how durable it is, and whether durability extends to a population beyond the first ~50 named-patient and Phase 1/2 cases that defined the early Erlangen and CASTLE cohorts.

DECISION ARCHETYPES THIS BRIEF SUPPORTS

The brief is structured around three decision archetypes commonly faced by biotech VCs and pharma corporate development in 2026: **public-equity exposure** (CABA, KYTX, RNAC, ALLO weighting against H2 2026 catalysts), **private-stage allocation** (whether to underwrite the next CAR-Treg round on a post-Nobel re-rating thesis or wait for first human efficacy in MS), and **BD / licensing strategy** (reading AbbVie–Capstan and Lilly–Orna prints — pharma's durable preference for in vivo over autologous, and which assets remain takeable).

§2 · THE THREE-PARADIGM DIVIDE

Reset · Hybrid · Suppress.

The CAR-T autoimmune landscape resolves cleanly into three mechanistically distinct approaches. Every asset, deal, trial readout and risk in the full brief sits inside one of these three. Where data conflict, we surface the conflict rather than reconcile it.

APPROACH	TARGET	KEY 2025–26 EVIDENCE	LIMITATION	TRAJECTORY
Reset	Deep B-cell + plasma cell ablation	CASTLE 4-yr f/u (SLE/IIM/SSc); ICG318 ~6 yr (LN); KYSA-8 SPS Ph2 met all endpoints (Dec 2025)	LLPC escape; conditioning toxicity; autologous logistics	1st BLA H1 2026 (miv-cel, SPS)
Hybrid (CAAR-T)	Antigen-specific B-cell deletion	MuSK-CAART Ph1 (NCT05451212); AChR preclinical	DSG3-CAART failed without preconditioning; single-antigen ceiling	Active in MG subsets; deprioritised vs. rese-cel
Suppress (CAR-Treg)	Restore balance without depletion	Sangamo TX200 (transplant); Quell QEL-005 (RA/SSc); Tr1X TRX319 (MS); Sonoma SBT-77-7101 (RA)	FOXP3 instability under inflammation; no human efficacy in autoimmune yet	2025 Nobel (Brunkow / Ramsdell / Sakaguchi)

WHY THE PARADIGM DISTINCTION MATTERS COMMERCIALLY

The three paradigms answer the same disease question through opposite immunological logics. Reset deletes the offending cells outright and rebuilds. Hybrid removes only the antigen-specific subset, preserving the rest of the immune repertoire. Suppress changes the regulatory tone of the system without depleting anything. **Each paradigm has a different manufacturing footprint, a different safety envelope, and a different reimbursement frame.** A buyer who treats them as substitutable products will misprice the field.

§3 · RESET PARADIGM — PREVIEW

Pan-B-cell and plasma-cell ablation: first to BLA.

3.1 MIV-CEL (MIVOCABTAGENE AUTOLEUCEL) — KYVERNA THERAPEUTICS

Kyverna's miv-cel (CD19 CAR with CD28 co-stimulation; the same construct as Miltenyi's MB-CART19.1 / zorpo-cel used in CASTLE) is the most clinically advanced asset in the field. Per the company's 26 March 2026 update, **BLA submission for stiff person syndrome is anticipated in H1 2026**, with the company stating it intends to be "launch-ready by year-end 2026." The Phase 2 KYSA-8 registrational analysis was scheduled as a late-breaking oral presentation at AAN on 21 April 2026.

3.2 ERLANGEN / SCHETT GROUP — LONG-TERM FOLLOW-UP

The Schett group at Friedrich-Alexander-Universität Erlangen-Nürnberg holds the longest real-world follow-up in the field. Published September 2025: n=11 progressive, therapy-refractory SLE patients; median follow-up 2.5 years (range 0.5–4 years). All 11 reached DORIS within 6 months. All immunosuppression discontinued. 5/11 Grade 1 CRS; 1/11 Grade 2; 0 ICANS. Adaptive immunity recovered rapidly. An EULAR 2025 case confirmed 4 years drug-free remission in one lupus patient.

3.3 WANG ET AL. — ICG318 (DUAL-TARGET BCMA/CD19) IN SLE/LN

Hong, Wang, Zeng et al. (J Hematol Oncol, 29 Jan 2026) reported extended follow-up of a Phase 1 study at Zhongshan People's Hospital. n=12 adults with refractory SLE (10 with biopsy-confirmed lupus nephritis). 10/12 achieved stringent complete remission (drug-free DORIS + serological normalisation + complete renal response). Median follow-up 30 months; **maximum 67 months (~6 years) in Patient 1**. 9/10 LN patients had repeat renal biopsy at 1 year showing marked histological improvement and clearance of immune-complex deposits. 0 Grade ≥3 CRS or ICANS. One patient had two successful pregnancies post-treatment — the first documented post-dual-target CAR-T pregnancies.

— Sections 3.4 (Cabaletta rese-cel registrational programme), 3.5 (BMS NEX-T, Cartesian Descartes-08), §4 Hybrid, §5 Suppress, §6 Deals & financings, §7 Manufacturing, §8 Regulatory & pricing, §9 Risk map, §10 Sources continue in the full brief —

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ACCESS · APRIL 2026

How to read the full brief.

This sample is 6 pages of a ~14-page institutional research brief. The full edition includes the complete Reset paradigm coverage (Cabaletta rese-cel registrational programme, BMS NEX-T, Cartesian Descartes-08), the full Hybrid and Suppress paradigm chapters, the deals-and-financings comp table, the manufacturing and in vivo LNP-CAR section, regulatory and pricing analysis, and the eight-catalyst 2026 watchlist with valuation tripwires.

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What this brief is not. It is not a stock-picking note, not personalised investment advice, and not a regulatory submission. It is a current-state map of the CAR-T autoimmune landscape as of April 2026, prepared for institutional readers familiar with cell-therapy vocabulary. All trial numbers come from sponsor press releases or peer-reviewed literature; single-arm open-label results have not been independently verified.