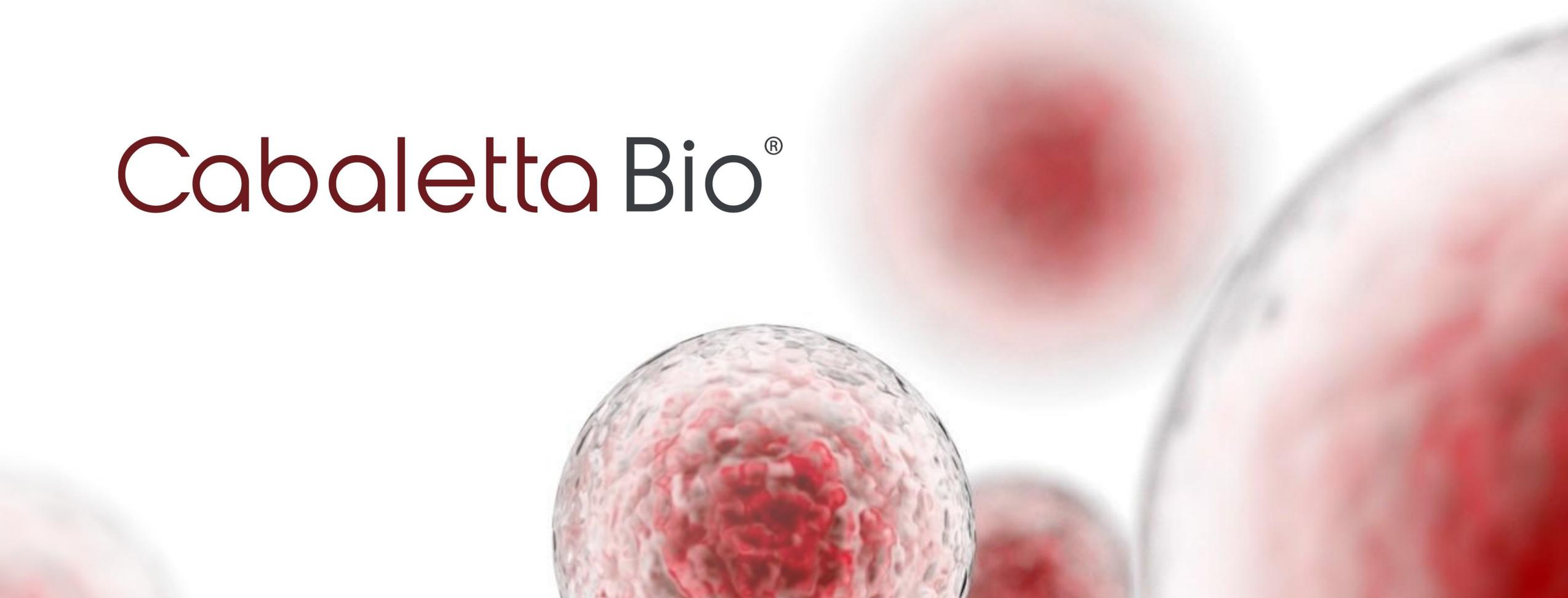


Cabaletta Bio[®]

A microscopic view of several cells, likely T-cells, with red fluorescent staining. The cells are shown in various stages of focus, with one in the foreground being sharp and others in the background being blurred. The red staining is concentrated in the nuclei and cytoplasm of the cells.

Automating CAR-T Manufacturing – A Case Study in Cellares Cell Shuttle[™] Platform
- Maintaining product quality while improving consistency, scalability, and vein-to-vein time through automation

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ADVANCED THERAPIES WEEK 2026, SAN DIEGO | FEBERARY 10TH, 2026

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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 development activities and clinical trials, risks related to our ability to demonstrate sufficient evidence of safety, efficacy and tolerability in our clinical trials, the risk that the results observed with the similarly-designed construct, including, but not limited 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, risks related to clinical trial site activation or enrollment rates that are lower than expected, 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 regulatory 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, risks related to volatile market and economic conditions and our ability to fund operations and continue as a going concern. 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 and quarterly report on Form 10-Q, as well as discussions of potential risks, uncertainties, and other important factors in our other 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.

Advancing breakthrough innovations to improve scalability and costs

Automation and elimination of preconditioning and apheresis could enhance patient experience

T cell collection

CURRENT

apheresis

Rese-cel manufacture and harvest (9 day)

cell selection and activation cell expansion cell harvest

Product release

post-production testing and QA review

Rese-cel administration

preconditioning infusion

INNOVATIONS

Blood draw to replace apheresis^{1,2}



- Cellares Cell Shuttle³**
- Fully closed, end-to-end automation
 - Rapid & global scalability
 - Shorter turn-around-time

One outpatient infusion without preconditioning⁴

1. Stratton et al, ESGCT 2024. Poster available at <https://www.cabalettatbio.com/technology/posters-publications>
 2. (https://d1io3yog0oux5.cloudfront.net/_cdcc45a1b07d9c1e0fc529e815f21ec3/cabalettatbio/db/947/8240/pdf/Whole+Blood+Mfg+Poster+ESGCT+2024.pdf)
 3. Automation run feasibility completed under TAP program, see PR on cellares.com (<https://www.cellares.com/news/cellares-and-cabaletta-bio-successfully-complete-manufacturing-technology-adoption-program-for-rese-cel-using-the-cell-shuttletm-platform/>)
 4. Under evaluation in an ongoing study in Pemphigus Vulgarus (NCT004422912); presented at ESGCT Conference 2025, presentation is available at <https://www.cabalettatbio.com/technology/posters-publications>.

Cellares Cell Shuttle™ automated manufacturing platform

Implementing automation in cell manufacturing can improve scalability, consistency, and cost-efficiency

- Fully closed, automated manufacturing system
 - Improves manufacturing consistency and reduces contamination
- Shuttles can be installed in controlled, non-classified space
 - No special cleanrooms to maintain
- Up to 16 concurrent processes in one shuttle
 - Allows great flexibility in shuttle use
- >500 rese-cel batches per year per Cell Shuttle¹
- Rapid global technology transfer
 - Rapid access to capacity



1. Based on a 10-day manufacturing process
2. Automated feasibility runs completed under TAP program, see PR on cellares.com
(<https://www.cellares.com/news/cellares-and-cabaletta-bio-successfully-complete-manufacturing-technology-adoption-program-for-rese-cel-using-the-cell-shuttleplatform/>)

Development Strategy for process transfer to the Cellares Cell Shuttle

Utilizing a risk-based comparability strategy

- **The process translational goals:**
 - Translate the existing platform rese-cel process to Cell Shuttle automation
 - Maintain product quality, safety, and clinical relevance
 - Preserve existing control strategy with no intentional product design changes
- **Leverage established platform knowledge:**
 - Defined Critical Quality Attributes (CQAs)
 - Established Critical Process Parameters (CPPs)
 - Historical clinical performance and product knowledge
- **Defined Comparability Scope:**
 - Cell growth kinetics
 - Drug product CQAs (viability, purity, %CAR+, potency and stability)
 - Safety-related attributes (e.g., vector copy number, residual impurities)
- **Comparability Approach**
 - Assess comparability using a donor-matched split apheresis approach
 - Assess comparability relative to historical platform performance range

Translation and Optimization of Each Unit Operation on the Cell Shuttle

Maintained same unit operations and performance requirements

Process Translation Strategy

- Mapping one-to-one unit operations between platform vs Cell Shuttle
- Replicating the critical process parameters of each unit operation (e.g. cell handling, mixing, timing, and other control parameters)
- Optimizing process parameters on Cell Shuttle to maintain process comparability
- Using "challenging" starting materials to mimic clinical performance

Platform Process

Frozen Apheresis

T Cell Enrichment

T Cell Activation

LVV Transduction

Expansion

Harvest

Fill / Finish and
Cryopreservation

Final Drug Product



Cell Shuttle Process

Frozen Apheresis

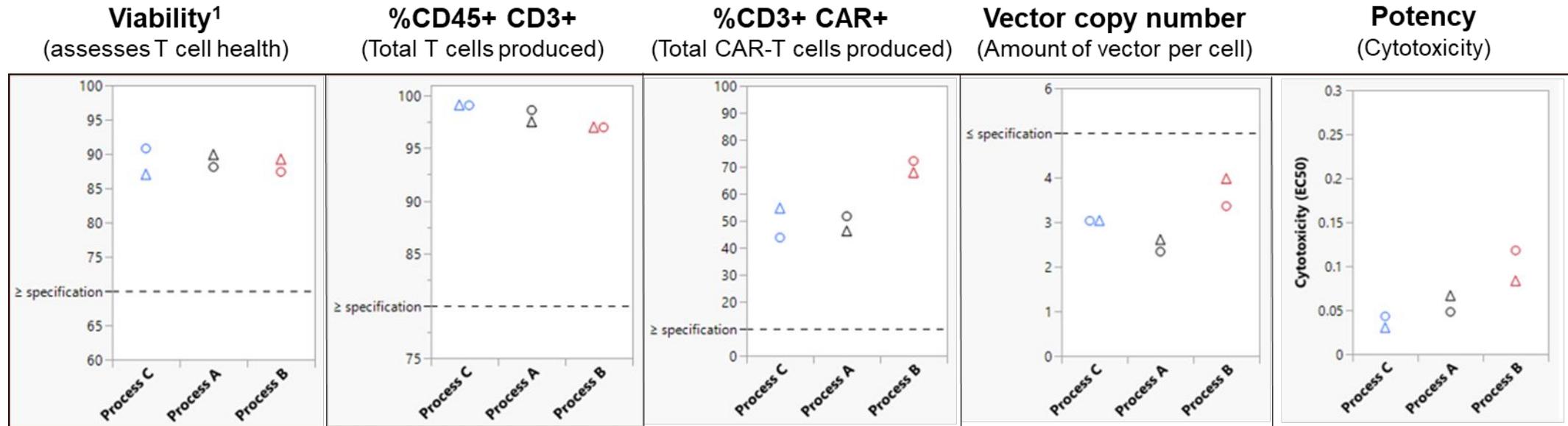


Fill / Finish and
Cryopreservation

Final Drug Product

Development split apheresis runs showed consistent product quality between Cellares process and current processes

Statistically powered comparability studies at GMP facilities to be executed



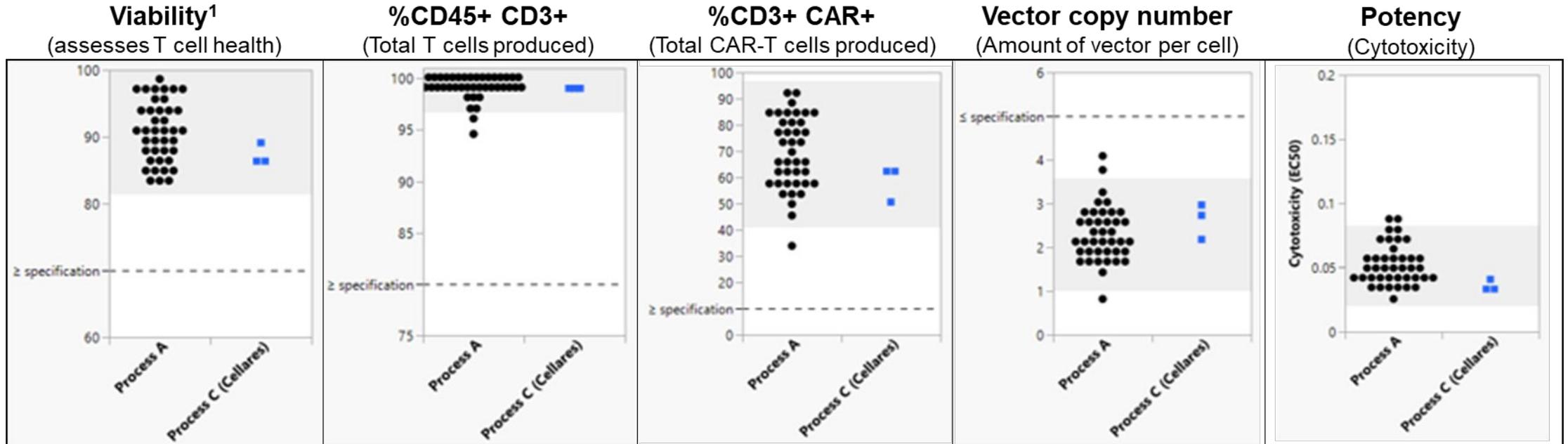
- Process A – original academic process utilized in initial clinical studies.
- Process B – partially automated, nearly fully closed and higher capacity process for pivotal and commercial use
- Process C – Cellares Cell Shuttle

1. EC50, Effective Concentration 50%, which is a measurement of product potency in a validated luciferase-based assay, designed for potency release testing on manufactured product. Lower EC50 indicates greater potency of product.

2. Dotted lines in the graphs represent acceptable release specifications.

Rese-cel engineering runs with Cellares supported INDa clearance

Three successful engineering runs³ completed in 2025 led to IND amendment (INDa) clearance



Clinical manufacturing experience with Cellares' automated manufacturing process initiated, which will confirm GMP readiness, including supply chain readiness, with the Cellares manufacturing platform

Note: Shaded areas represent historical ranges defined by tolerance intervals that covers 90% of the population with 95% confidence. Dotted lines in the graphs represent acceptable release specifications.

1. Cellares uses Celleca for cell count to enable automated testing, while historical Process A data were collected using NC200. Data generated in Cellares QC ab using NC200 showed Engineering batches are within historical ranges.
2. Effective Concentration 50, which is a measurement of product potency in a validated luciferase-based assay, designed for potency release testing on manufactured product. Lower EC50 indicates greater potency of product.
3. Shaded area in the graphs indicate range of process comparability, based on historic process data, and as aligned with FDA.

Conclusions and future opportunities

- **Automation preserved product quality**
A structured, risk-based comparability strategy enabled successful translation of a platform CAR-T process to Cell Shuttle automation while maintaining product quality
- **Automation improved manufacturing reliability**
Digital-driven automation reduced operator variability and improved manufacturing consistency and reliability
- **Automation will expedite platform expansion**
Expanding Cell Shuttle automation across programs will enhance scalability, streamline tech transfer, and support commercial readiness
- **Cabaletta aims to generate clinical experience using the Cell Shuttle platform in 1H26**
- **Collaboration with Cellares is continuing to support potential commercial supply**