



A Next Generation Stem Cell Therapeutics Company

Dr Kilian Kelly (CEO & MD)

10 October 2023

CELL  GENE

The logo for Cell Gene consists of a cluster of small, overlapping circles in shades of orange and red, arranged in a roughly circular shape.

MEETING ON THE MESA



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Company highlights

Cynata is a clinical stage biotech developing its proprietary Cymerus platform technology for the scalable manufacture of mesenchymal stem cell (MSC) therapeutic products to treat serious disorders



Unique Manufacturing

Single donation from a single donor
iPSC strategy overcomes suboptimalities in conventional MSC manufacturing



Strong safety and efficacy

Positive pre-clinical and clinical data
supporting versatility and efficacy of Cynata's MSCs; including in world-first iPSC trial in aGvHD Phase 1



Multiple clinical trials

Rich clinical pipeline:

- **aGvHD** (Phase 2)
- **DFU** (Phase 1)
- **Osteoarthritis** (Phase 3)
- **Renal** (Phase 1)



Large addressable market

Combined market opportunity of clinical trials underway and in planning is **~US\$28bn¹**

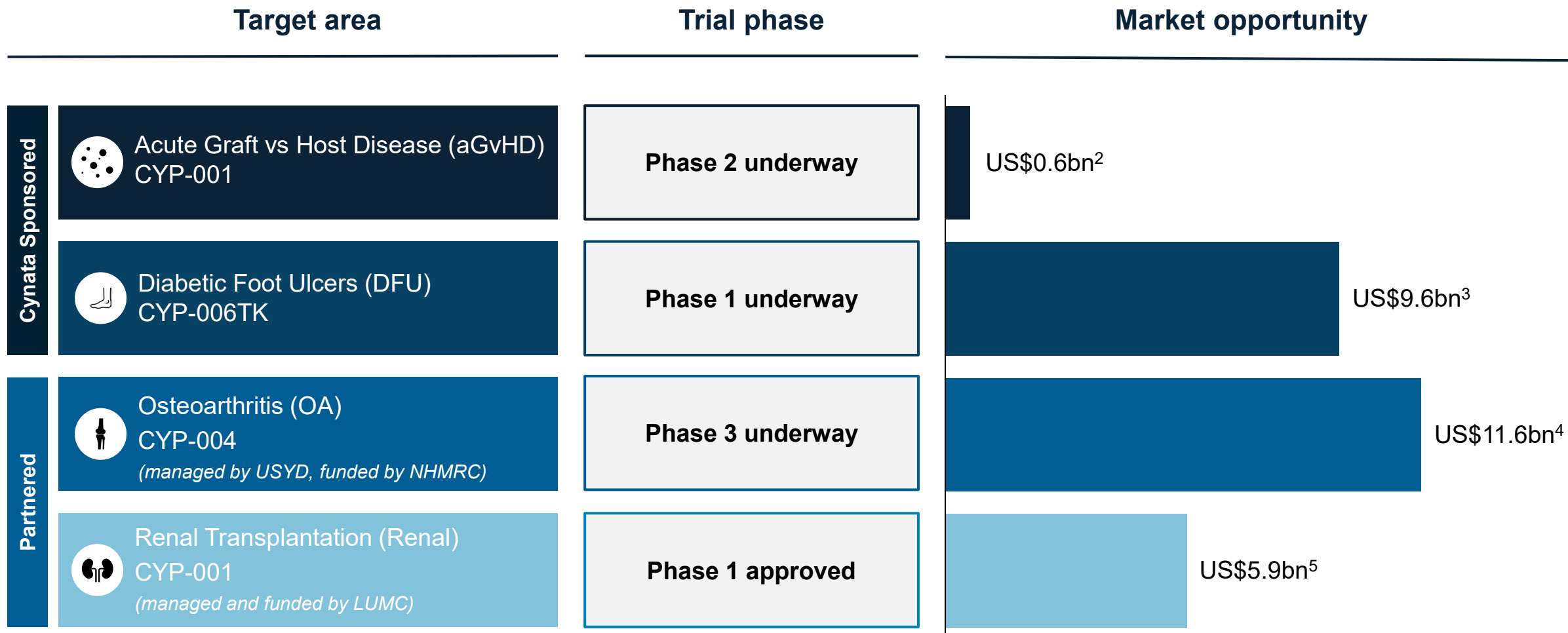


Well funded

Well-funded to complete planned clinical trials with **~A\$16m in cash²**

OA and renal trials **fully funded by external partners**

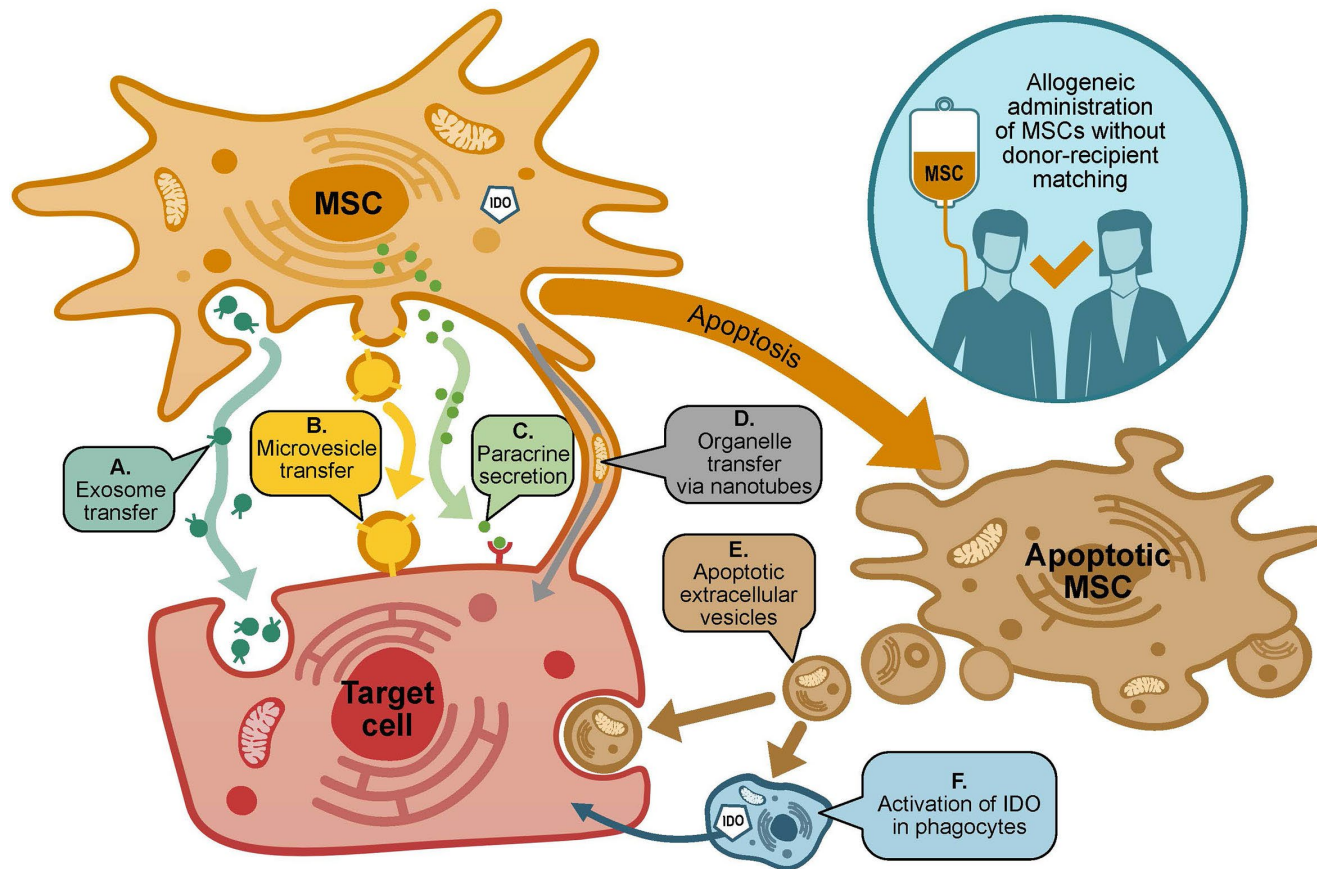
Cynata has an advanced and diverse clinical pipeline



Why Mesenchymal Stem Cells (MSCs)?

MSCs play a central co-ordinating role in many of the body's mechanisms of defence, repair and regeneration: the "sensor and switcher of the immune system"¹

They are able to be used therapeutically without matching the donor and the recipient

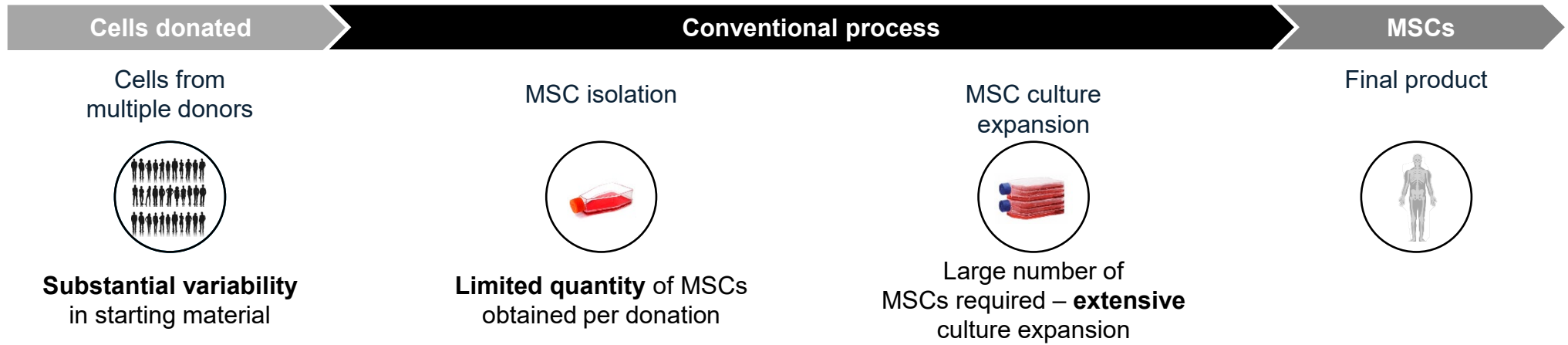


MSCs promote an immunomodulatory and immunoregulatory environment via multifactorial mechanisms, including secretion of proteins / peptides / hormones; transfer of mitochondria; and transfer of exosomes or microvesicles containing RNA and other molecules

Cymerus™ iPSC-based manufacturing process

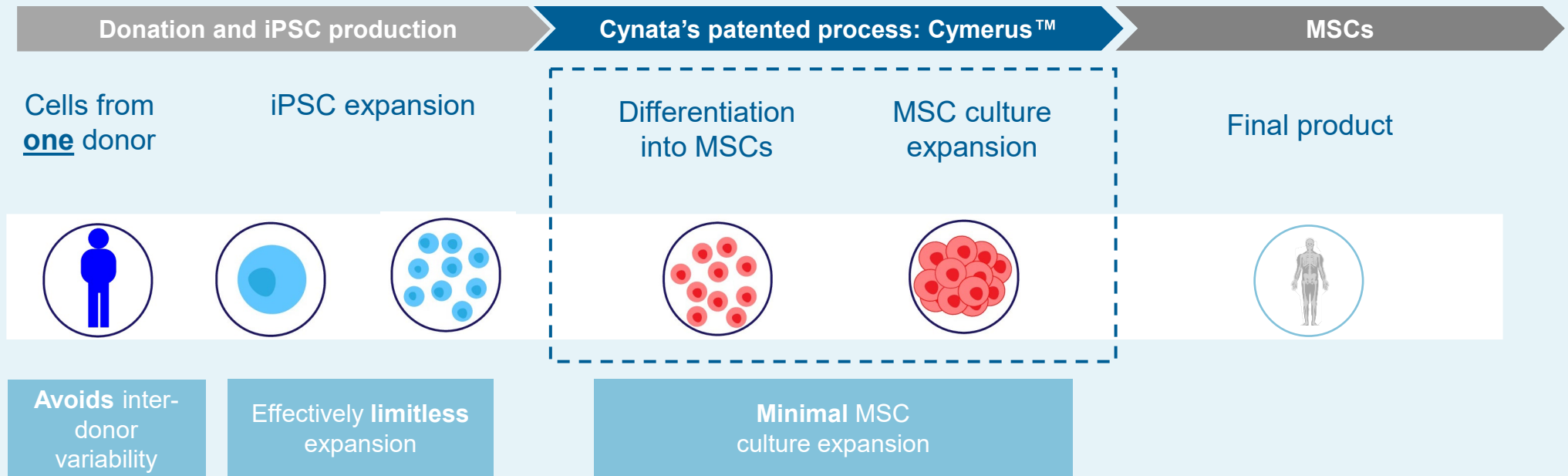
Conventional process

Major challenges include inter-donor variability and functional changes during MSC expansion



Cynata's Cymerus™ iPSC-based process

Avoids inter-donor variability and need for extensive MSC expansion



MSCs from different sources have different properties

**A comparative analysis of the MSC transcriptome:
Human iPSC-derived MSCs and their tissue-derived counterparts**

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Background

- Multipotent mesenchymal stromal cells (MSCs) have considerable therapeutic potential and are one of the most popular and versatile cell therapies¹.
- Traditionally sourced from tissue donations, clinical translation is affected by donor-dependence and significant batch-batch, source-based, and intra-population heterogeneity. This limits

MSCs cluster primarily by tissue/ source.

UMAP clustering of MSC transcriptomes indicates that tissue/ source of origin accounts for most MSC heterogeneity (Fig.3A). MSC tissue/ sources formed clades within themselves. BM.MSC and AT.MSCs branched latest while IMSC and UC.MSCs branched earlier indicating comparatively less similarity (Fig.3B).

Differentially expressed (DE) genes were identified between IMSC and tissue-derived MSCs.

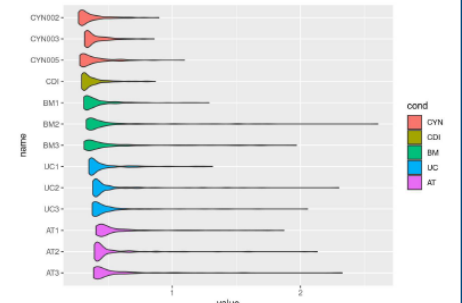
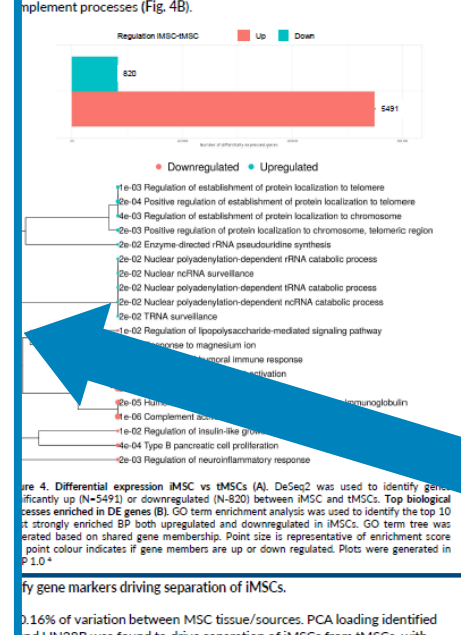
820 genes were upregulated in tissue-derived MSCs (tMSCs) while 5491 genes were upregulated in iMSCs (Fig. 4A). Gene Ontology (GO) term enrichment analysis was used to query DE genes for enriched Biological Processes (BP). BP including telomere maintenance and RNA catabolism processes were enriched in genes upregulated in iMSCs, while genes downregulated in iMSCs were enriched for humoral immune response and complement processes (Fig. 4B).

Intrapopulation variance was quantified as a factor of cell-cell gene variance within the top 200 most variable genes.

Mean cell-cell transcriptomic variance was observed to be significantly lower in iMSCs than tMSCs. Furthermore, mean cell-cell variance was comparable between iMSC populations while tMSC populations showed significant donor-donor differences.

Key Findings include:

- Source is the primary driver of MSC heterogeneity (variability)
- Cymerus MSCs differ from tissue-derived MSCs by upregulation of biological processes linked to telomere maintenance and RNA catabolism, and downregulation of humoral immune response and complement processes
- Cymerus MSCs exhibit less batch-batch variability than tissue-derived MSCs, and significantly less intra-population variability
- Cymerus MSCs successfully bypass much of the inherent variability that affects tissue-derived MSCs



Conclusions

- Key Findings:**
- Tissue/ source is the primary driver of MSC heterogeneity.
 - iMSCs are most closely related to UC.MSCs, while BM.MSCs and AT.MSCs are more closely related to each other.
 - Cymerus MSCs differ from tissue-derived MSCs by the upregulation of biological processes linked to telomere maintenance and RNA catabolism, and the downregulation of humoral immune response and complement processes.
 - iMSCs exhibit less batch-batch heterogeneity than tissue-derived MSCs, furthermore they also exhibit significantly less intra-population variation.

This data set provides a comprehensive profile of MSC transcriptomes at a single-cell level, allowing us to develop a better understanding of the sources of MSC heterogeneity and improve predictability of clinical outcomes. Moreover, this study confirms that iMSCs successfully bypass much of the inherent heterogeneity that affects the clinical application of tissue-derived MSCs, validating their promise as an off-the-shelf cell therapy.

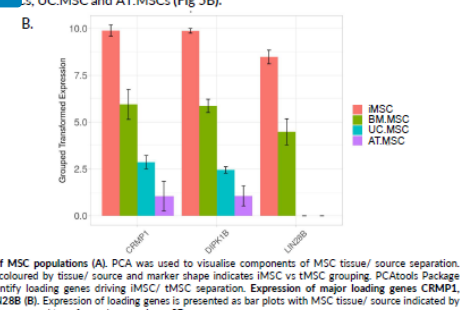
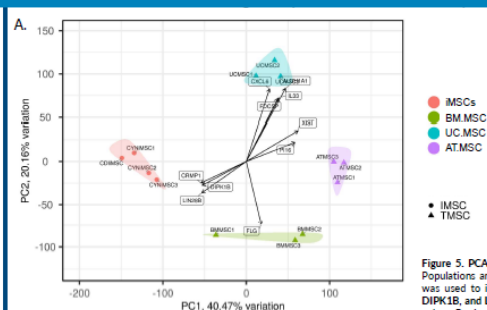
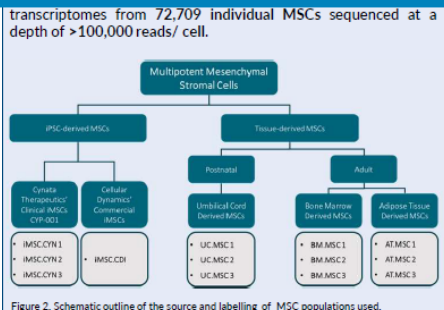
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- Ge, S. X., Sun, E. W. & Yao, R. IDEP: an integrated web application for differential expression and pathway analysis of RNA-seq data. *BMC Bioinformatics*, 2018 19:1-24 (2018).

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MONASH University

Cynata Therapeutics, RMP, ARMI, flowcore, Ritchie, CCRM



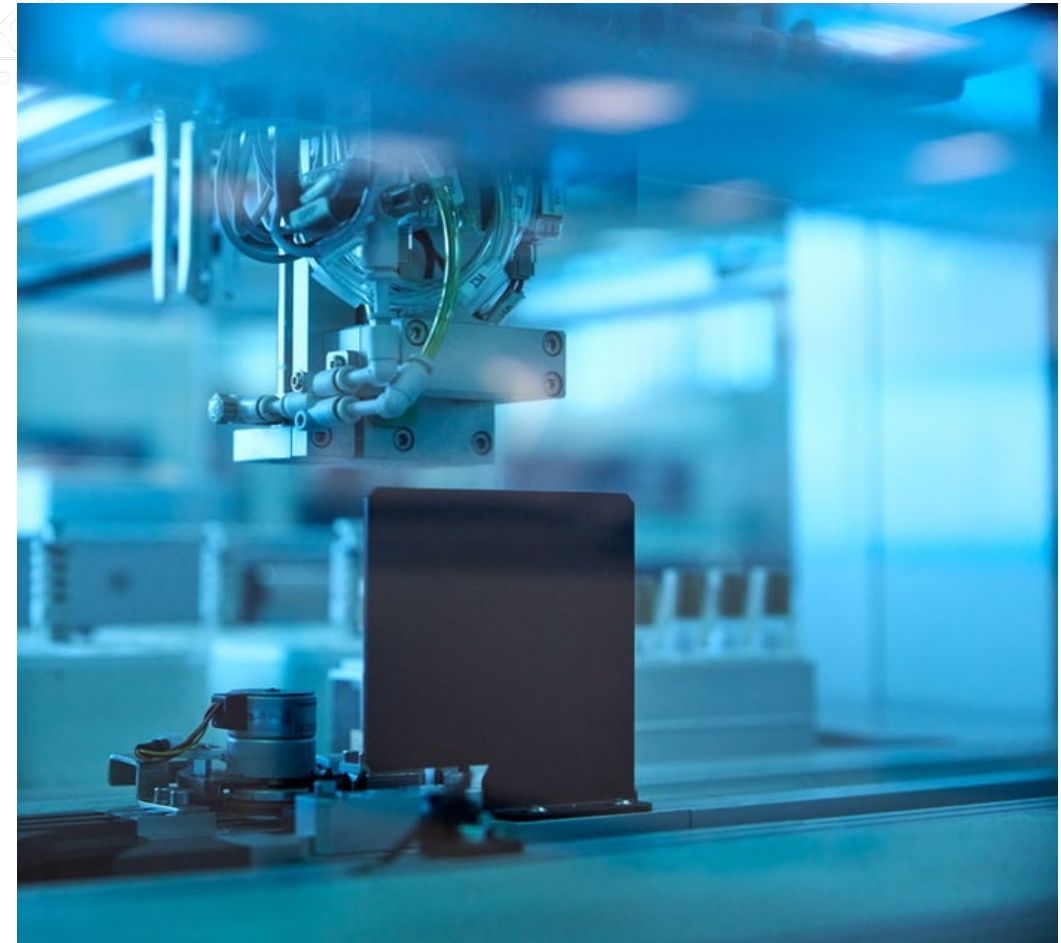
Strategic partnership with Fujifilm provides commercial benefits

Cynata executed a Strategic Partnership Agreement with Fujifilm, with Fujifilm involved in the path to market¹

Strategic benefits for Cynata

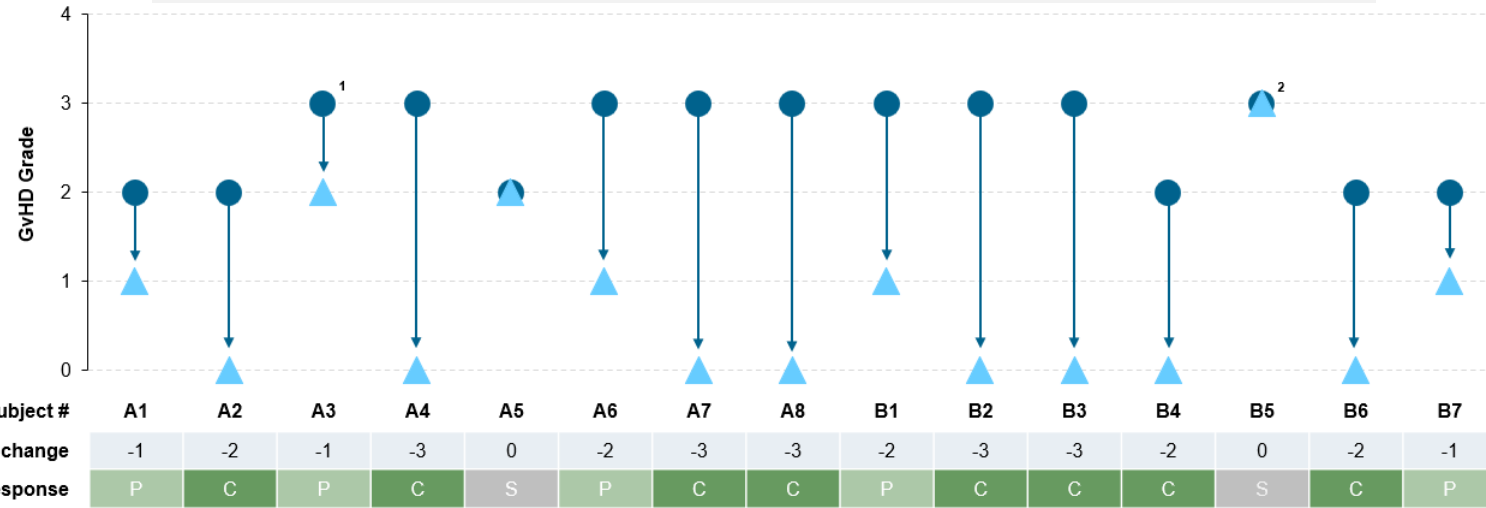
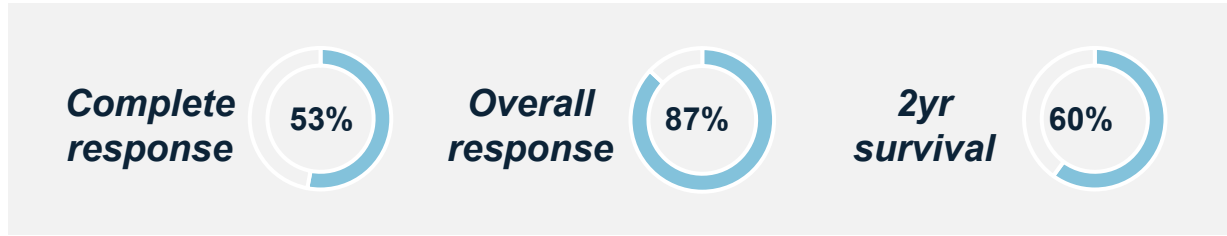
- ✓ Fujifilm is one of the largest conglomerates in the world with a significant network and assets in the biotechnology space and recent multi-billion dollar investments in expanding its business as a comprehensive healthcare company
- ✓ Fujifilm Cellular Dynamics Inc (FCDI: subsidiary of Fujifilm) developed the original iPSC line used in Cynata's Cymerus manufacturing process
- ✓ Parties now working towards establishing Cymerus manufacturing process at FCDI with Cynata's progress showcasing Fujifilm's iPSC platform
- ✓ Significant institutional shareholder; representing a 4.5% shareholding

FUJIFILM
Value from Innovation



aGvHD | Phase 1 clinical trial (completed)

The first completed clinical trial of an iPSC-derived product



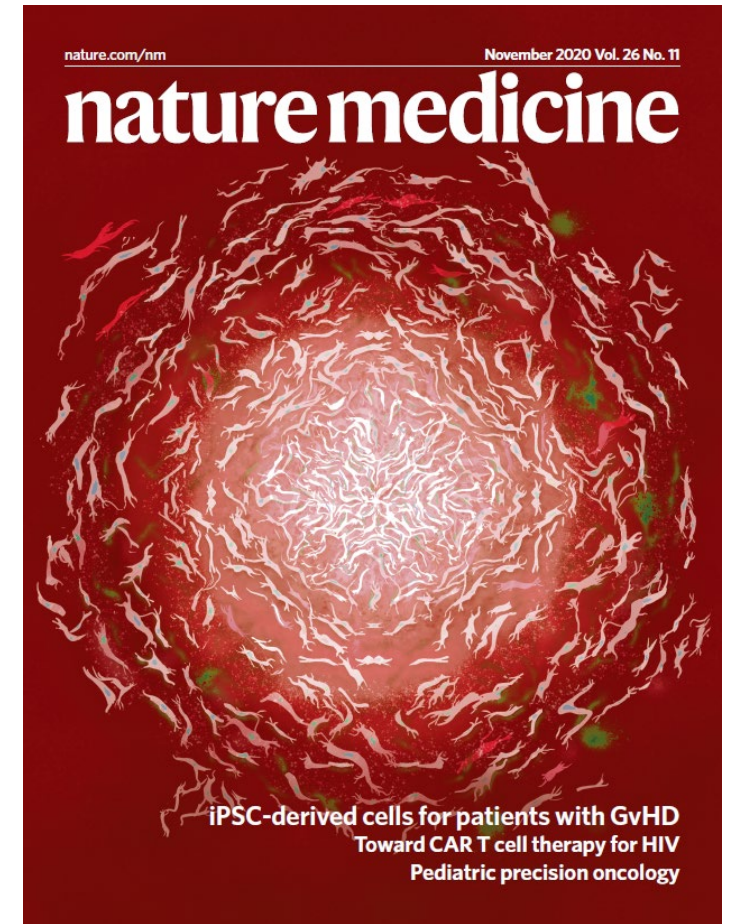
Legend

● GvHD Grade: Day 0	▲ GvHD Grade: Best Response	C Complete Response	P Partial Response	S Stable Disease
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No treatment-related serious adverse events or safety concerns identified





- Subjects received 1×10^6 cells/kg (max 1×10^8 cells) or 2×10^6 cells/kg (max 2×10^8 cells) by IV infusion on D0 and D7
- Eight subjects were enrolled in each cohort, but one subject in Cohort B withdrew prior to infusion of CYP-001
- 1. Subject A3 showed a PR at Days 14 and 21 but died due to pneumonia on Day 28
- 2. Subject B5 withdrew from the trial on Day 22 to commence palliative care
- 3. Bloor AJC, et al, Nat Med 26, 1720-1725 (2020)

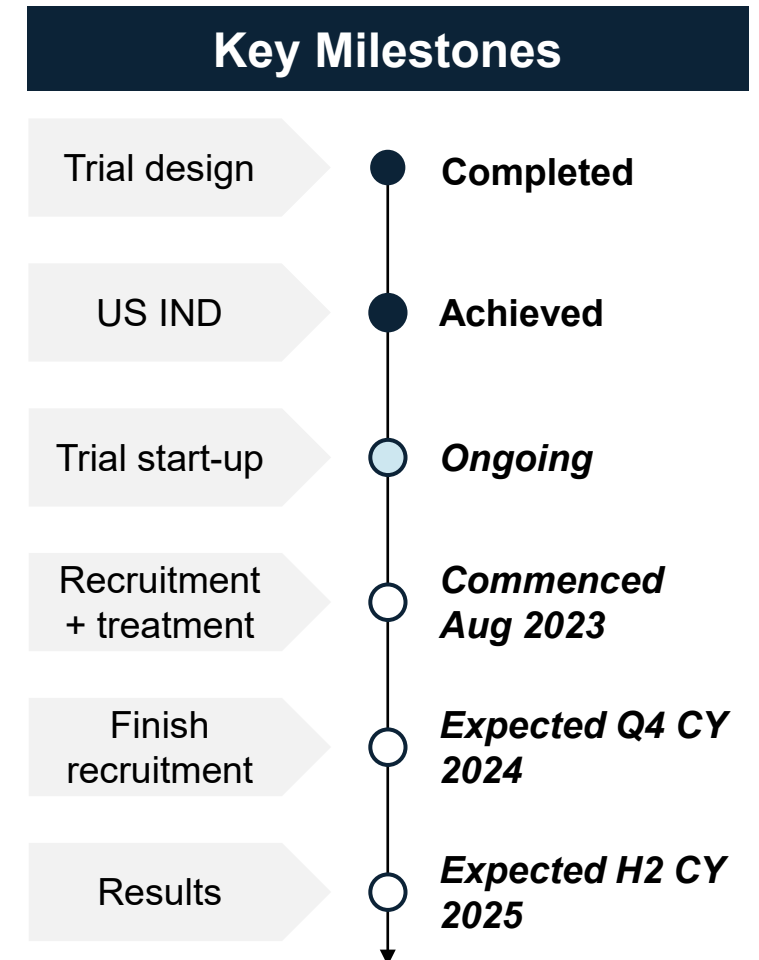
Published in Nature Medicine³



aGvHD | Phase 2 clinical trial





Cynata plans to commence recruitment during the current quarter, with results expected H2 CY 2025

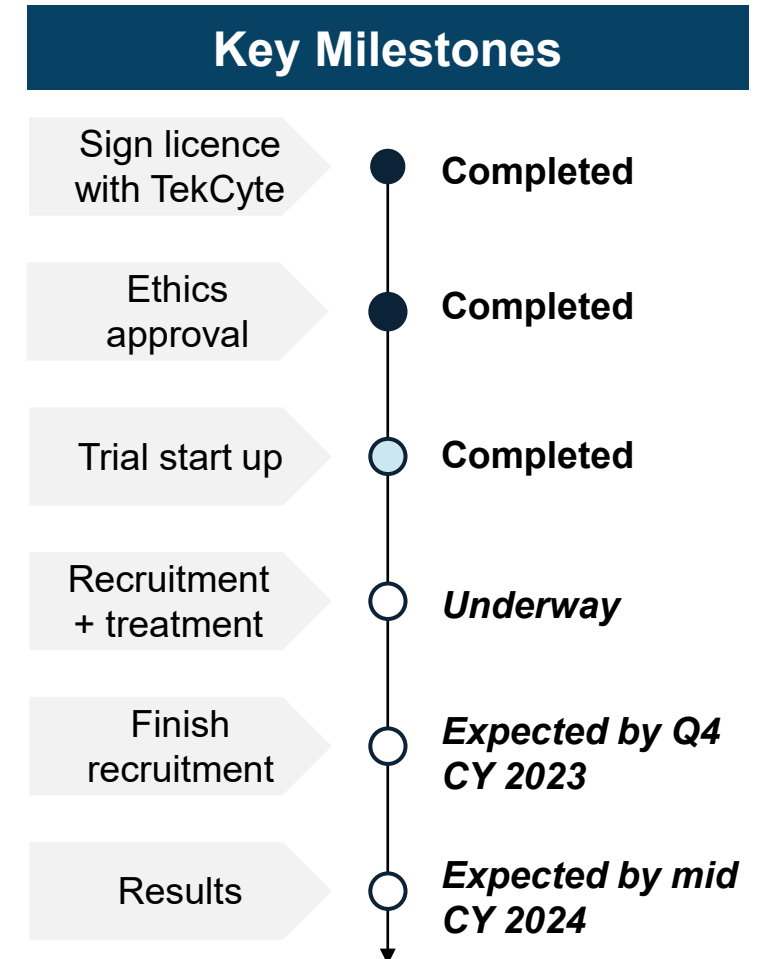
 aGvHD	<ul style="list-style-type: none">Acute Graft vs Host Disease (aGvHD) is a complication that can occur after a bone marrow transplant when the donor's immune cells (from the "graft") attack the recipient of the transplant (the "host").
 Trial design	<ul style="list-style-type: none">Randomised controlled trial in ~60 patients with high risk aGvHDClinical sites across in USA, Europe and AustraliaPrimary objective to assess efficacy of CYP-001 in subjects by Overall Response Rate (ORR) at Day 28
 Strategic review	<ul style="list-style-type: none">Currently finalising trial startup activities including securing regulatory and ethics approval – relevant approvals in Australia and the US are securedEuropean regulatory approval process ongoing
 Timing	<ul style="list-style-type: none">Recruitment commenced August 2023Patient recruitment expected to conclude by the end of CY 2024Primary evaluation results expected in H2 CY 2025



DFU | Phase 1 clinical trial

High screening failure rate has resulted in slower than expected recruitment, Cynata has undertaken steps to accelerate recruitment rate with enrolment expected to be completed by the end of CY 2023

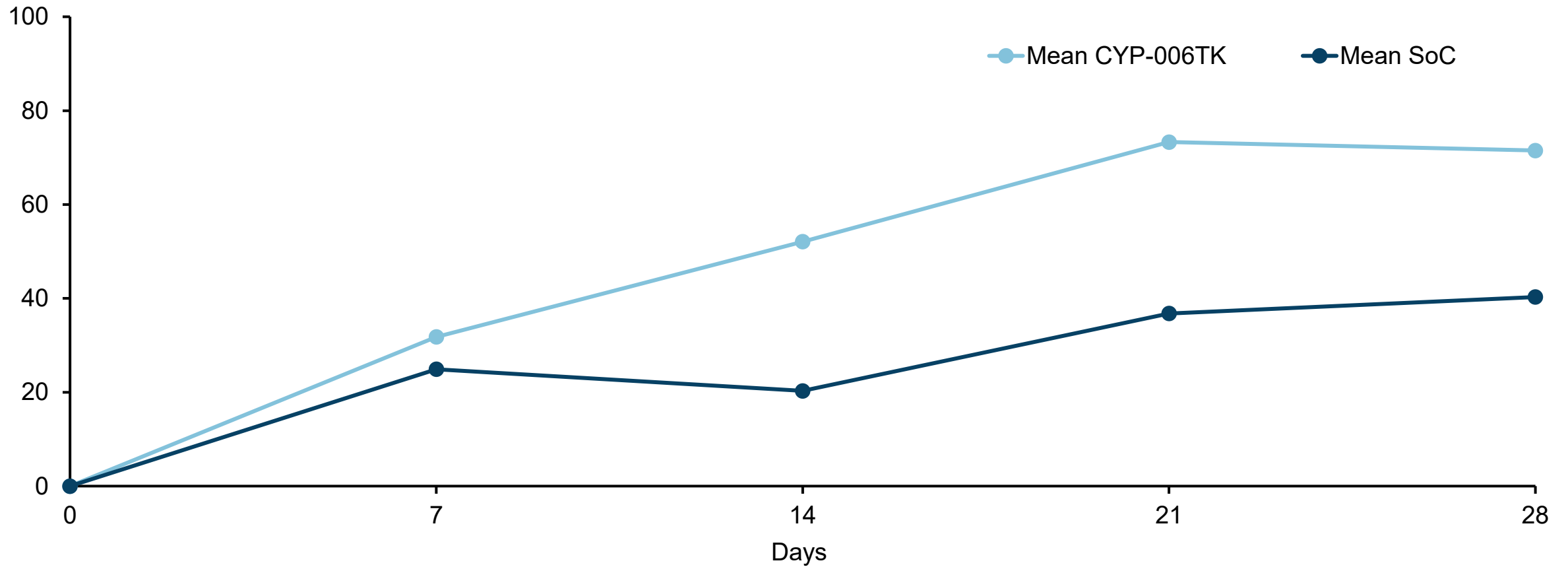
 Diabetic Foot Ulcers	<ul style="list-style-type: none">• Diabetic Foot Ulcers (DFU) are sores on the feet of patients with diabetes (also known as diabetic wounds)
 Trial design	<ul style="list-style-type: none">• 30 patients with DFU will be randomly assigned to receive CYP-006TK or standard care of treatment, over 4 weeks• The primary outcome measure of the trial is safety, while outcome measures include wound healing, pain and quality of life• Secondary outcome measures are measured at 12 and 24 weeks
 Strategic review	<ul style="list-style-type: none">• Slower than expected recruitment driven by unexpectedly high screening failure rate as potential patients failed to meet trial eligibility criteria• Trial protocol has been updated to address this issue, making it easier for patients to enrol while optimising for likelihood of a positive trial outcome• Additional centres opened taking the total number of clinical centres to four
 Timing	<ul style="list-style-type: none">• Patient recruitment expected to conclude in by the end of CY 2023• Primary evaluation results expected to be released by mid CY 2024



DFU | Initial clinical update





CYP-006TK has healed more ulcer surface area than standard of care (SoC) at every timepoint of the trial so far

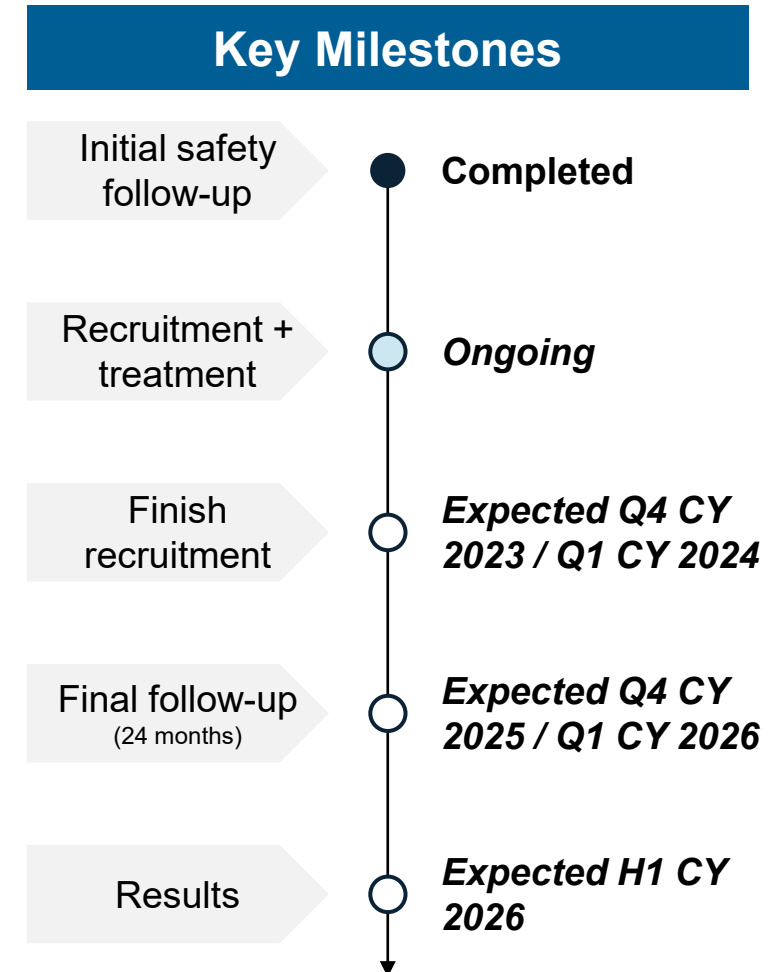
Mean % ulcer surface area healed over time (%)¹; n=6



OA | Phase 3 clinical trial¹




Recruitment accelerating and expected to be completed by the end of CY 2023, with evaluation results expected to be released in CY 2026

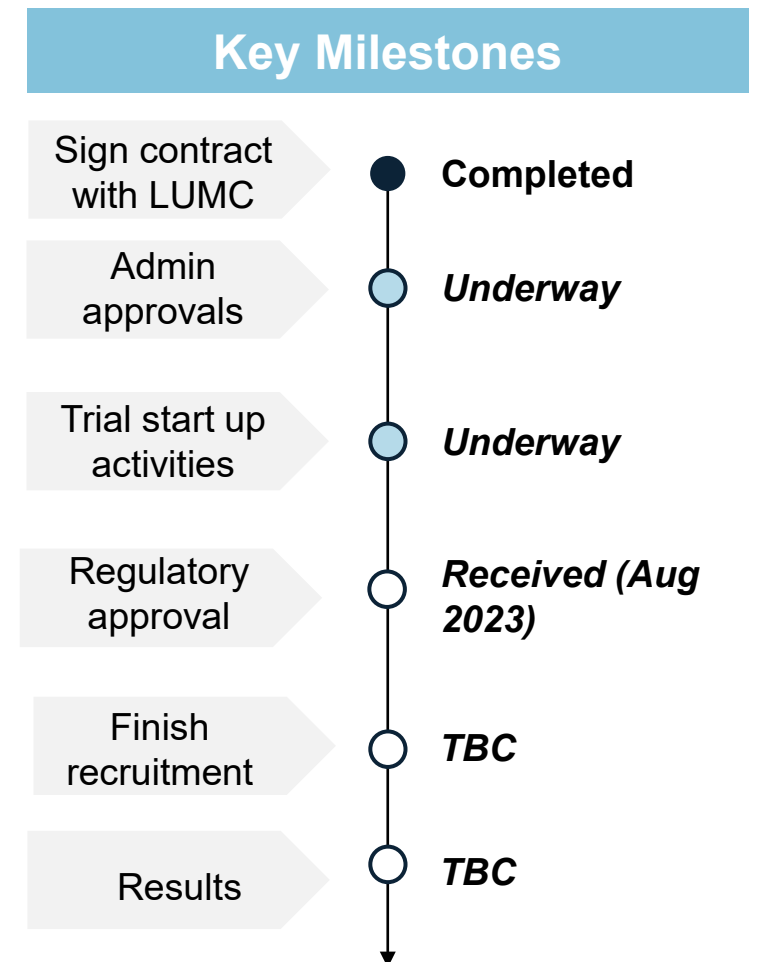
 Osteoarthritis	<ul style="list-style-type: none">• Osteoarthritis (OA) occurs when the cartilage in a joint wears away and can cause pain, inflammation, swelling and difficulty with movement
 Trial design	<ul style="list-style-type: none">• University of Sydney to enrol 440 patients to participate in the randomised, double-blind placebo-controlled trial• Co-primary endpoints include reduction of knee pain and measure of cartilage loss, secondary outcomes include general pain and quality of life• Each participant receives three injections of Cymerus MSCs over a year with a 24 months follow-up period
 Strategic review	<ul style="list-style-type: none">• Recruitment rate was initially slower than expected, largely due to the impact of the pandemic• The recruitment rate has significantly accelerated during 2023• Approximately 300 patients are now enrolled in the trial
 Timing	<ul style="list-style-type: none">• Patient recruitment expected to conclude in late CY 2023 / early CY 2024• Primary evaluation results expected to be released in H1 CY 2026








Renal | Phase 1 clinical trial

Clinical trial start up activities with partner Leiden University Medical Center (LUMC) underway, with outcome from regulatory approval process expected during the current quarter

 Renal Transplants	<ul style="list-style-type: none">MSCs may reduce or eliminate the requirement for aggressive and toxic anti-rejection drugs, leading to a substantial breakthrough in transplantation medicine
 Trial design	<ul style="list-style-type: none">16 renal transplant patients will receive Cymerus MSCs after transplantationTrial will evaluate safety and efficacy of reduction of anti-rejection medication
 Timing	<ul style="list-style-type: none">Trial has received regulatory/ethics approval (August 2023)Final trial start-up activities ongoing



Investment summary

 Next generation stem cell company	<ul style="list-style-type: none">• Market leader in burgeoning stem cell sector• Diverse and highly credentialed leadership team with proven clinical and commercial experience across a range of health sciences at leading institutions
 Scalable manufacturing process	<ul style="list-style-type: none">• Patented Cymerus manufacturing technology enables commercial-scale production of MSCs from a single donation from a single donor, overcoming multiple issues with today's on-market solutions• Cymerus MSCs have demonstrated higher potency versus conventionally manufactured MSCs
 Successful clinical trial results	<ul style="list-style-type: none">• All clinical endpoints achieved in Phase 1 trial of Cymerus MSCs in aGvHD, with no safety concerns identified and highly encouraging efficacy data• Highly encouraging initial DFU patient data in chronic wounds
 Robust and attractive pipeline	<ul style="list-style-type: none">• Broad and diverse clinical stage MSC pipeline with active clinical programs in aGvHD, DFU, OA, and renal transplantation• FDA cleared IND application for Phase 2 aGvHD clinical trial; study open for recruitment
 Significant growth potential	<ul style="list-style-type: none">• Pipeline has significant commercial opportunities: global estimated market opportunity across targeted indications of ~US\$28bn• Continued focus on indications where there is significant unmet need• Proactive B-2-B outreach to drive partnering strategy

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