

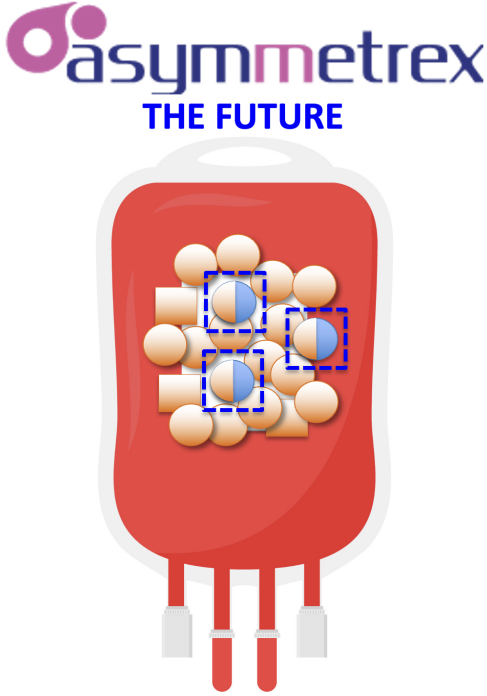
# Asymmetrex® Awarded \$1.8M NIH-NHLBI SBIR Phase II Grant to Manufacture First Differential Tissue Stem Cell Counter

*Asymmetrex® was awarded a \$1.8M NHLBI grant to develop an instrument for automated determination of the differential stem cell count of tissue cell samples.*

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Determining the differential stem cell count of a research or patient tissue cell sample is now possible, but the counting method is not convenient to perform. Stem cell biotechnology company Asymmetrex® patented differential stem cell counting in 2017, and the company published the [first research report](#) of the method in 2020. "Our customer discovery interviews told us very clearly that the reason this long-needed method has not taken off, yet, is because it is not straightforward to perform," says James L. Sherley, M.D., Ph.D., Asymmetrex®'s President and CEO.

Sherley decided to approach the National Heart, Lung, And Blood Institute for resources to address the convenience barrier. This September, his company's efforts were rewarded with a \$1.8M Phase II Small Business Innovation [Research grant](#) to design and manufacture the first automated differential tissue stem cell counter. The planned counter will enable users to conveniently accurately quantify clinically important blood stem cells, as well any other tissue stem cells used in tissue cell research, medicine, and even pharmaceutical drug development.



**Automated  
Differential Tissue Stem Cell Counting**

The future of stem cell science and medicine:  
Automated Differential Tissue Stem Cell Counting



Asymmetrex® LLC

Currently available clinical stem cell counts, like the widely-used CD34 count, do not provide a differential stem cell count. Tissue cell samples always contain other types of tissue cells; and usually the critical stem cells are a small fraction of the total cells counted. As a result, current methods used for determining the number of stem cells, like the CD34 count, over-estimate the number of stem cells in a sample.

This presently accepted stem cell counting error is known to result in failed stem cell treatments when the actual stem cell number is too low. It also causes the waste of donor samples with sufficient stem cells to treat more than one patient, which is the current clinical practice. Asymmetrex®'s [kinetic stem cell counting](#) method provides a differential stem cell count, which includes only the number of stem cells present in the sample. Sherley's vision is that "Increased adoption of differential stem cell counting will have many benefits for tissue cell research, stem cell transplant patients and donors, and the pharmaceutical industry."

Asymmetrex®'s differential stem cell counting calculators require the input of data from both the culture and conventional counting of a tissue cell sample. Generating these data requires cell culture and cell counting instruments and materials, technical personnel with the proper training and expertise, and time. Sherley explains that, "In our interviews, in a surprising number of cases, any and all of these could be lacking in any given academic lab or company! And even when these requirements were in place, inertia was a prevalent barrier to evaluation of the new calculators."

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Increased adoption of differential stem cell counting will have many benefits ...”

*James L. Sherley, M.D., Ph.D.,  
Asymmetrex® President &  
CEO*

The planned automated counter will sit on a bench top. A user will be able to introduce a sample, walk away, and

return a short while later and obtain a differential stem cell count. For the grant application, Asymmetrex® has assembled a well-experienced engineering design and manufacturing team led by Looma Design in Saco, Maine. Work is already underway, with projected delivery of a well-validated, automated, differential stem cell counter near the end of 2026.

The planned studies described here are supported by the National Heart, Lung, And Blood



Asymmetrex® CEO, James L. Sherley, MD, PhD

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## About Asymmetrex®

Asymmetrex®, LLC is a U.S. life sciences company with a focus on developing technologies to advance stem cell medicine. The company's U.S. and U.K. patent portfolio contains biotechnologies that solve the two main technical problems – differential tissue stem cell quantification and tissue stem cell expansion – that have stood in the way of more-effective use of human adult tissue stem cells for regenerative medicine and drug development. Asymmetrex® developed kinetic stem cell (KSC) counting, the first technology for accurate determination of the differential stem cell count of preparations for use in stem cell transplantation medicine and pre-clinical drug evaluations. Asymmetrex® is a member company of the Advanced Regenerative Manufacturing Institute (ARMI) | BioFabUSA. The company's development of rapid differential stem cell counting technologies was funded previously by R&D grants from the National Heart, Lung, And Blood Institute and ARMI | BioFabUSA.

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