

Terumo Blood and Cell Technologies and Santerus AG collaborate on therapeutic apheresis technology for sepsis treatment

- Sepsis is one of the most frequent causes of death worldwide, claiming nearly 11 million lives, accounting for 20% of all global deaths [1, 2] and taking more lives than cancer [3]. This is more than 20 deaths every minute [3].
- Terumo BCT will support the clinical development of novel therapeutic apheresis technology for sepsis. Death from sepsis is potentially preventable.

LAKEWOOD, Colo., USA and Zurich, Switzerland - November 12, 2025 – Terumo Blood and Cell Technologies (Terumo BCT) and Santerus AG today announced an exclusive partnership to advance a novel technology to improve clinical outcomes for patients who become critically ill due to sepsis. The collaboration combines Santerus' first-in-class NucleoCapture blood purification technology with Terumo BCT's industry-leading Spectra Optia™ Apheresis System. Santerus' therapeutic device has been designated a Breakthrough Device by the U.S. Food and Drug Administration (FDA) based on its preclinical and early clinical data. Together these technologies aim to selectively remove neutrophil extracellular traps (NETs), which are linked to the progression of severe sepsis.

Sepsis occurs when the body's immune system has an extreme response to an infection, causing widespread inflammation and life-threatening organ dysfunction. Each year, sepsis affects over 48 million people globally, claiming nearly 11 million lives — making it one of the most frequent causes of death worldwide [1]. Of every 1,000 hospitalized patients, an estimated 15 patients will develop sepsis as a complication of receiving healthcare, according to the World Health Organization [1]. Current sepsis treatments are primarily supportive care, including the use of antimicrobials and intravenous fluids, leaving a significant unmet need for targeted therapies.

Emerging evidence indicates that a key factor contributing to sepsis severity is the overproduction of NETs, which are networks of extracellular DNA released by immune cells during inflammation. When NETs accumulate excessively in the bloodstream, they can trigger a chain reaction that rapidly leads to organ failure.

Santerus' NucleoCapture device is designed to selectively remove NETs from the blood plasma. By leveraging the therapeutic plasma exchange with a secondary plasma device (SPD) procedure, the Spectra Optia system draws blood from the patient and separates plasma from the other blood components. The plasma is then passed through the NucleoCapture device to reduce the level of NETs. The treated plasma is recombined with the rest of the blood and then returned to the patient — all in one session. This procedure has the potential to improve sepsis outcomes by reducing mortality, minimizing organ support requirements and shortening intensive care unit stays when administered early in the diagnosis.

Under this collaboration, Santerus will lead the pivotal NUC-CAP clinical study in the U.S., UK, and EU. Terumo BCT will support the clinical development of the research. Additionally, Terumo Ventures, the corporate venture capital arm of Terumo Corporation, is investing in Santerus' Series A financing round to accelerate the development of this technology.

"Therapeutic apheresis has untapped potential to address unmet medical needs by selectively removing disease-related elements from a patient's blood and returning the rest," said Veerle d'Haenens, General Manager of Global Therapy Innovations at Terumo Blood and Cell Technologies. "As a leader in this field, we are committed to advancing innovative treatment options using therapeutic apheresis through various collaboration opportunities. In the U.S. alone, sepsis is the leading cause of death in hospitals, and the risk of mortality from sepsis rises by 4% to 9% for every hour treatment is delayed [3]. Our partnership with Santerus reflects our mission to transform care for critically ill patients and offer hope where current treatments fall short."

"This partnership is a key milestone for NucleoCapture as we strive to bring this technology to patients globally," said Scott Maguire, Chairman of Santerus. "NETs are a major driver of inflammation in acute and chronic conditions, and NucleoCapture has the potential to be used in other conditions like

Alzheimer's disease, systemic lupus erythematosus and organ transplantation. The partnership with Terumo BCT will help accelerate the development of NucleoCapture as a unique technology to treat various life-threatening and debilitating conditions."

[1] World Health Organization. Fact sheets: sepsis. [https://www.who.int/news-room/fact-sheets/detail/sepsis#:~:text=Sepsis%20is%20one%20of%20the,all%20global%20deaths%20\(2\)](https://www.who.int/news-room/fact-sheets/detail/sepsis#:~:text=Sepsis%20is%20one%20of%20the,all%20global%20deaths%20(2).). Published May 3, 2024. Accessed November 3, 2025.

[2] Rudd KE, Johnson SC, Agesa KM, *et al*. Global, regional, and national sepsis incidence and mortality, 1990-2017: analysis for the Global Burden of Disease Study. *Lancet*. 2020;395(10219):200-211. doi:10.1016/S0140-6736(19)32989-7

[3] Sepsis Alliance. Sepsis fact sheet. <https://www.sepsis.org/education/resources/fact-sheets/>. Revised November 2024. Accessed November 3, 2025.

Spectra Optia Apheresis System

The Spectra Optia Apheresis System is a versatile therapeutic apheresis and cell collection platform that enables multiple protocols. When paired with the NucleoCapture device, the system selectively removes NETs from plasma and returns treated blood to the patient. The secondary plasma device (SPD) procedure is applicable to a variety of conditions, including neurological, autoimmune and other diseases affecting vital organs.

Product and protocol availability varies by country. Therapeutic plasma exchange with a secondary plasma device is not cleared for use in the United States.

Spectra Optia™ is either a registered trademark or trademark of Terumo BCT, Inc. in the United States and/or other countries. See [TerumoBCT.com/Trademarks](https://www.terumobct.com/trademarks) for details.

About Terumo Blood and Cell Technologies

Terumo Blood and Cell Technologies is a medical technology company. Our products, software and services enable customers to collect and prepare blood and cells to help treat challenging diseases and conditions. Our employees worldwide believe in the potential of blood and cells to do even more for patients than they do today. This belief inspires our innovation and strengthens our collaboration with customers.

Terumo Blood and Cell Technologies' customers include blood centers, hospitals, therapeutic apheresis clinics, cell collection and processing organizations, researchers and private medical practices. Our customers are based in over 160 countries across the globe. We have 750+ granted patents, with more than 150 additionally pending.

We have global headquarters in Lakewood, Colorado, U.S.A., along with four regional headquarters, eight manufacturing sites and six innovation and development centers across the globe. Terumo Blood and Cell Technologies is a subsidiary of Terumo Corporation (TSE: 4543), a global leader in medical technology.

About Santerus AG

Santerus AG is a privately held therapeutic apheresis company founded in 2017 with headquarters in Zurich, Switzerland and London, England. The company's medical objective is to revolutionize the ways in which we can control the human immune and inflammatory response to disease. Santerus specializes in the development of medical devices used to cleanse patient blood of neutrophil extracellular traps (NETs). NETs are fibers of decondensed DNA decorated with cytotoxic proteins that have been released from activated neutrophils. NETs are now recognized as one of the major driving factors in the development of sepsis, COVID-19, cancer, acute organ failure, autoimmune flares, and neurodegenerative diseases, including Alzheimer's disease. These indications are either currently in clinical trials or planned for future trials.

The company's flagship patented therapeutic device, NucleoCapture, has been granted designation as a Breakthrough Device by the US Food & Drug Administration for sepsis and lupus. NucleoCapture blood purification technology is based on biocompatible, highly porous polymer beads conjugated with proprietary human recombinant histone H1.3 protein. As nature's ultimate DNA-binding and compacting protein, histone H1.3 has single-digit nanomolar DNA binding constants, making it a potent component of the innate immune defense system.

As a result, during a single pass of NETs and cell-free DNA-contaminated blood through the NucleoCapture device, over 95% of NETs are effectively removed.

SanterSus AG holds a robust portfolio of recently granted patents protecting the NucleoCapture device. For more information visit: www.santerSus.com | LinkedIn

NucleoCapture is either a registered trademark or trademark of SanterSus AG in the United States and/or other countries.