

A breakthrough in hemodialysis technology

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Universitätsmedizin Berlin have developed a biophysical treatment method that allows up to 50 percent more toxins to be removed from the blood of dialysis patients. Use of this technology may result in patients with kidney disease seeing a considerable reduction in the length of dialysis sessions. An initial patent application for this technology was filed in 2011. Now, an international medical technology manufacturer has paid a seven-figure sum to secure ownership of the relevant know-how.

Originally developed at Charité, this innovative method breaks new ground in the area of [dialysis technology](#). It utilizes the effect of alternating current fields to remove toxic substances from the blood. Many substances that are produced naturally in the body during the course of normal metabolism become toxic, particularly once their levels in the blood increase. In persons whose kidneys are diseased, and no longer capable of filtering out toxic substances, these levels will continue to increase and, without intervention, that person will die. Until such a time as an affected patient can undergo a kidney transplant, the only option is to undergo regular dialysis.

A proportion of the toxins that need to be eliminated bind to proteins. However, conventional dialysis techniques have so far been unable to filter out toxins in protein-bound form. "After a long period of development, we have achieved a promising breakthrough," says Prof. Dr. Walter Zidek, Head of Charité's Department of Nephrology and Endocrinology, adding that "this new technology makes it possible to separate [toxic substances](#) from proteins. It achieves this by guiding them

through an alternate current field of a specific frequency and strength." Prof. Zidek goes on to explain that "once the connection between toxins and proteins has been broken, the toxins can be removed from the patient's blood using conventional dialysis technology, and the patient's overall burden of toxins reduced."

Since first being patented by Charité, the underlying process has undergone further and intensive development, and the technology has now been sold to a large, international medical technology manufacturer. The new technology has considerable potential for application within the health care industry of the future. Not only does it promise a reduction in dialysis time, in addition to an increase in patient quality of life, it also promises to lead to improved survival times in [patients](#) waiting to undergo a [kidney transplant](#). In conjunction with German developers, Prof. Zidek's team at Charité will continue to test and develop the technology, with the aim of transferring it to clinical practice. A clinical trial in patients is scheduled for next year, and constitutes the final testing stage.

Provided by Charité - Universitätsmedizin Berlin

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