

Cleaning blood

Department of Extracorporeal Therapy Systems

Rostock has an excellent reputation for its contributions to the field of extracorporeal blood treatment therapies.

The Department of Extracorporeal Therapy Systems, in close collaboration with the University Medicine Rostock, strives to continue these contributions and works on the development of new extracorporeal therapies as well as on testing and optimizing existing technologies and devices for blood purification. The team comprises a number of specialists from engineering, medicine, physics and biology to work on a wide range of innovative projects.

Examples for these ongoing projects are the development of a wearable artificial kidney, new separation technologies and a blood cell-based approach to sepsis therapy.

We are experienced specialists in the implementation of new therapeutic approaches based on the treatment of blood outside the patient's body. Our expertise includes the analysis of clinical needs as well as the consideration of regulatory requirements to medical devices.

The team has excellent connections to partners within the medical and scientific community, especially in the field of extracorporeal blood treatment.

Therefore, we are your ideal partner to assess new concepts or realize your ideas.

Our engineering and medical experts will help you with the design, development or clinical evaluation of medical products for blood treatment.



Product testing

In our specialized test lab we perform testing and performance measurements of medical products for blood treatment therapies (hemofilters, dialyzers, adsorbers).

Tests can be performed according to relevant European guidelines or can be designed according to individual requirements. For the in vitro experiments fully equipped labs and state-of-the-art instruments are available.

Examples of assessable performance parameters are:

- Diffusive permeability (clearance, Overall Mass Transfer Coefficient KoA)
- Convective permeability (Sieving coefficients)
- Hydraulic permeability (ultrafiltration rates)
- Rheology (pressure drop, long-term characteristics)
- Drug depletion kinetics in adsorbers

Diagnostics

Experimental samples are analyzed in-house or in cooperation with certified labs. This list specifies some of the predominantly tested parameters:

Uremic toxins

- Small molecules
- Albumin-bound uremic toxins
- Middle molecules
- Cytokines

Endotoxins

ABIC – Albumin Binding Capacity

Biocompatibility

- Hemolysis
- Cell counts
- Immunoactivation
- Cytotoxicity
- Coagulation parameters

IP situation

We patented extracorporeal organ support and replacement therapies and systems.

Selected Partners

- ARTCLINE GmbH
- Asahi Kasei Corp.
- Clearum GmbH
- CytoSorbents Europe GmbH
- Ernst Moritz Arndt University of Greifswald
- Evonik Creavis GmbH
- Gambro Dialysatoren GmbH
- Leibniz Institute for Plasma Science and Technology (INP Greifswald)
- MTP Medical Technologies GmbH
- NIPRO Europe
- University Medicine Rostock



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