



# Diagnostics

## Antibiotics removal

In case of infections, the identification and susceptibility of the infecting organism should be determined as early as possible in the course of bacteremia, since the early administration of the appropriate antibiotic greatly improves the chances of survival of the patient. However, rapid isolation of the offending organisms may be difficult when the patient has already been administered antibiotic, which are transferred along with the bacteria in the blood into the culture broths and often inhibit the growth of the agent. An antimicrobial Removal Device (ARD) removes as much as 100 µg of antibiotics per ml from whole blood without a significant decrease in bacteria. This device consists of rubber-capped vial loaded with an ion exchange resin or/and a polymeric adsorbent and depending the diagnostic type, a culture media. Polymeric adsorbents from **DuPont™ AmberLite™ XAD™** and **DuPont™ AmberChrom™** portfolio as well as **AmberLite™ CG50 Type 1** can be used for this application.

## Radio-contrast agents

Radio-contrast agents are substances used to enhance the visibility of internal structures in X-ray-based imaging techniques such as computed tomography (contrast CT), projectional radiography, and fluoroscopy. Radio-contrast agents are typically iodine, barium sulfate or gadolinium based compounds. They absorb external X-rays, resulting in decreased exposure on the X-ray detector. Iodine-based contrast dyes are taken intravenously and are most commonly used during a CT scan.

Production of iodine agents (for instance iohexol) involves a multistep chemical synthesis and an exhaustive purification process. One step of this process consists of desalting the solution before solvent evaporation and crystallization of the iohexol. A strong acidic macroreticular resin, **AmberLite™ FPC22H** followed by an acrylic weak base resin, **AmberLite™ FPA53**, can advantageously perform this step.

| <b>Biomolecule</b>                 | <b>Application</b>                        | <b>Resin</b>   |
|------------------------------------|---|--|
| Antimicrobial Removal Device (ARD) | Removal of antibiotics from blood culture | AmberLite™ XAD™<br>AmberChrom™ portfolio<br>AmberLite™ CG50 type 1 |
| Radio-contrast agents              | Desalting and purification of iohexol     | AmberLite™ FPC22H<br>AmberLite™ FPA53<br>AmberLite™ XAD™ 1600N     |

Picture credit p.1: istock



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