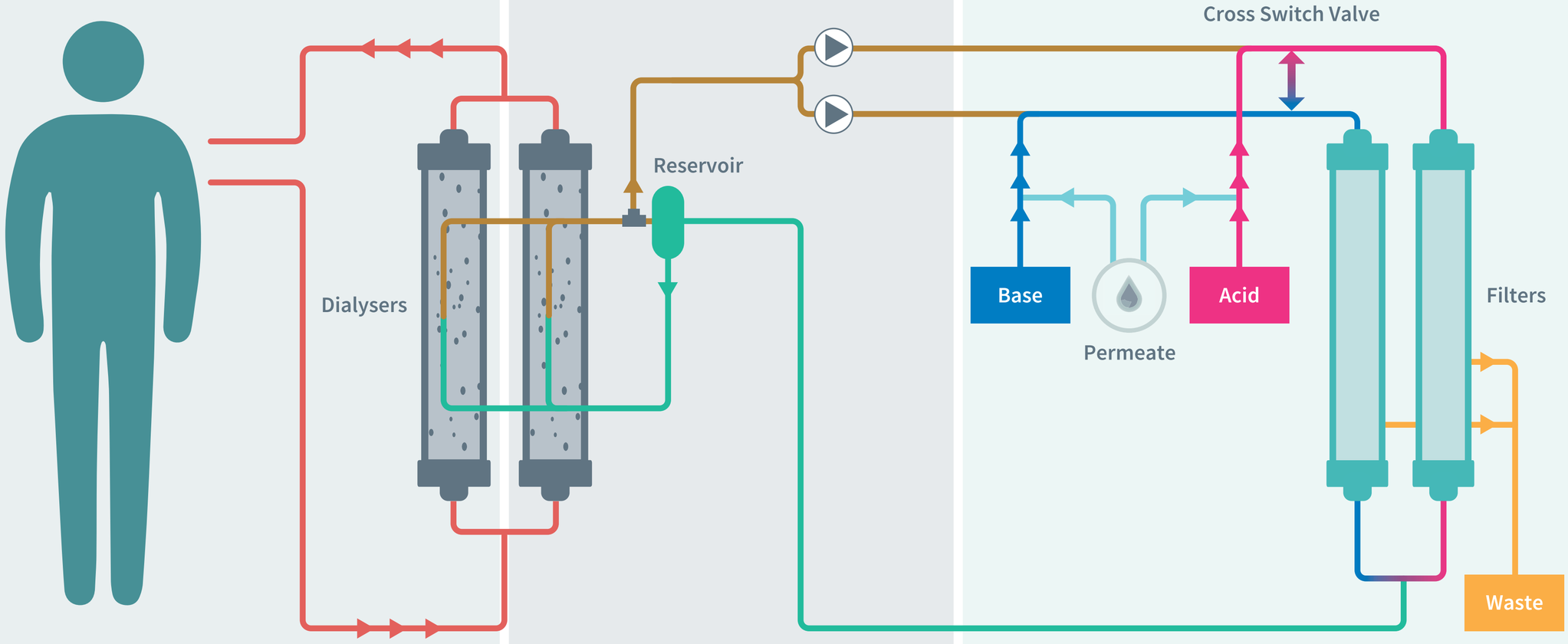
ADVOS THERAPY: COMBINED 4-IN-1 ORGAN SUPPORT

Blood pH Management, Kidney, Liver and Lung

Extracorporeal circuit	Dialysate circuit	ADVOS multi circuit
Detoxification with two dialysers (blood flow up to 500 ml/min)	Recirculation with 2% albumin (200 ml human albumin 20%)	Albumin purification by pH change; toxins removed as waste



FUNCTION	WHO?	WHAT?	HOW?
Removal of water-soluble substances		Removal of e.g. creatinine, urea, NH_3, lactate	Glomerular filtration and tubular processing
		Indirect excretion via kidney or directly via bile	Metabolism of toxins into water-soluble substances (e.g. ammonia)
		Removal of all above mentioned substances	<u>In the extracorporeal circuit</u> Diffusion of toxins from blood into the dialysate through the dialysers <u>In the ADVOS multi circuit</u> Convection of toxins from the dialysate into waste through the filters
Removal of protein-bound substances		Removal of e.g. indoxyl sulfate, nitrate and bilirubin	Secretion of toxins with specific membrane transporters (e.g. OAT, OCT) into urine
		Removal of e.g. bilirubin, bile acid and copper	Secretion of hepatic, hydrophilically altered toxins into bile or blood, in blood transport of substances bound to albumin
		Removal of all above mentioned substances	<u>In the extracorporeal circuit</u> Removal of toxins from blood using albumin-enriched dialysate <u>In the dialysate circuit</u> Transport of albumin-bound toxins <u>In the ADVOS multi circuit (continuous)</u> Detoxication of the dialysate from toxins by filtration based on chemical-physical principles
Correction of respiratory acidosis		Removal of H^+ and production of HCO_3^-	■ Excretion of H^+ as titratable acid (H^+) with urine buffers (HPO_4^{2-}, NH_4^+) ■ Production and transport of HCO_3^- from tubule cells into blood
		Adjustable removal of H^+ and CO_2 and production of HCO_3^-	<u>In the extracorporeal circuit</u> Diffusion of H^+ from blood into the dialysate (concentration gradient) and binding to albumin and phosphate and production of HCO_3^- <u>In the ADVOS multi circuit</u> ■ Removal of HCO_3^- both in the base (depending on bicarbonate concentration of base concentrate) and in the acid circuit of the ADVOS multi circuit ■ Removal of CO_2 in the acid circuit
Correction of metabolic acidosis		Removal of CO_2	Respiration
		Removal of H^+	Cori cycle: Conversion of lactate to glucose and removal of H^+ with production of HCO_3^-
		Removal of H^+ and CO_2 and production of HCO_3^-	<u>In the extracorporeal circuit:</u> Support of the acid-base function of liver and kidney ■ Diffusion of H^+ from blood (low pH) into the dialysate (high pH) and binding to albumin and phosphate and production of HCO_3^- ■ Further increase of the HCO_3^- level in the blood, depending on the concentration of the base concentrate

Kidney Liver Lung ADVOS

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ADVOS THERAPY - THE 4-IN-1 ORGAN SUPPORT FOR THE TREATMENT OF MULTI-ORGAN FAILURE