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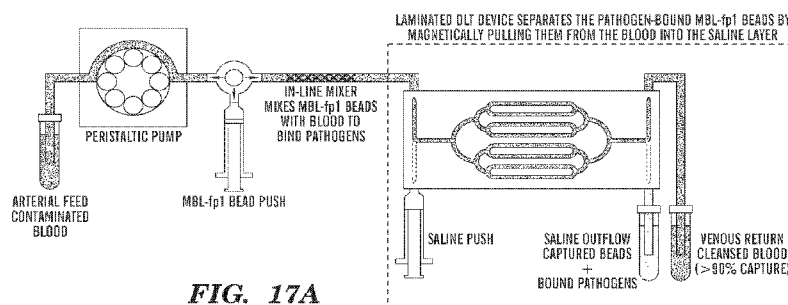


FIG. 17A

(57) Abstract: A dialysis like therapeutic (DLT) device is provided. The DLT device includes at least one source channel connected to at least one collection channels by one or more transfer channels. Fluid contacting surface of the channels can be an anti-fouling surface such as slippery liquid-infused porous surface (SLIPS). Fluids can be flowing at high flow rates through the channels. The target components of the source fluid can be magnetic or bound to magnetic particles using an affinity molecule. A source fluid containing magnetically bound target components can be pumped through the source channel of the microfluidic device. A magnetic field gradient can be applied to the source fluid in the source channel causing the magnetically bound target components to migrate through the transfer channel into the collection channel. The collection channel can include a collection fluid to flush the target components out of the collection channel. The target components can be subsequently analyzed for detection and diagnosis. The source channel and the collection channels of the microfluidic device are analogous to the splenic arterioles and venules, respectively; the transfer channels mimic the vascular sinusoids of the spleen where opsonized particles are retained. Thus, the device acts as a dialysis like therapeutic device by combining fluidics and magnetics.

