

# INTERNATIONAL MICROFLUIDICS CONGRESS

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### International Conference on

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#### Microfluidic trends and techniques: From cell separation and diagnosis to the blood brain barrier

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Microfluidics research has long left its infancy behind and is increasingly applied to solve health problems. Even when just trying to answer the simple question “How can microfluidics be applied to isolate African Trypanosomes in blood?”. there is a multitude of microfluidic techniques that come into play. The difference between *Trypanosoma brucei* spp. (causative agents of disease in humans and livestock), and red blood cells have readily been exploited to separate them from each other, using dielectrophoresis, deterministic lateral displacement, and optical traps. Even techniques that are already acquired textbook character experience broad usage towards separation (like H-filters

and Dean flows). All these techniques are increasingly applied to other pathogens and their diagnosis. But microfluidics can do more than actively separate cells. Within the same biological/health framework, microfluidic platforms have been developed to ensure stable condition for cells cultures and highly ordered monolayers of samples which mimic artificial blood brain barriers. Contained in a transparent cube, artificial blood brain barriers can be cultured and even pathogens can be studied actively transgressing the last line of defence our body has against a hostile and often fatal take-over.

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