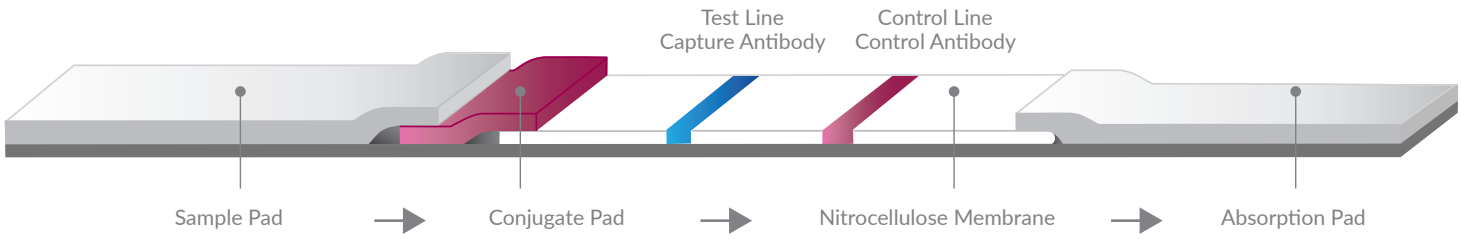
LATERAL FLOW ASSAY DEVELOPMENT

iFyber offers Lateral Flow Assay (LFA) feasibility, characterization, and development services for clinical diagnostics applications. iFyber's molecular biology and protein biochemistry team has the tools and experience to define the right combinations of materials, buffers, antibodies, bioreceptors, and process steps to optimize your LFA sandwich assay and meet your development goals and timelines.

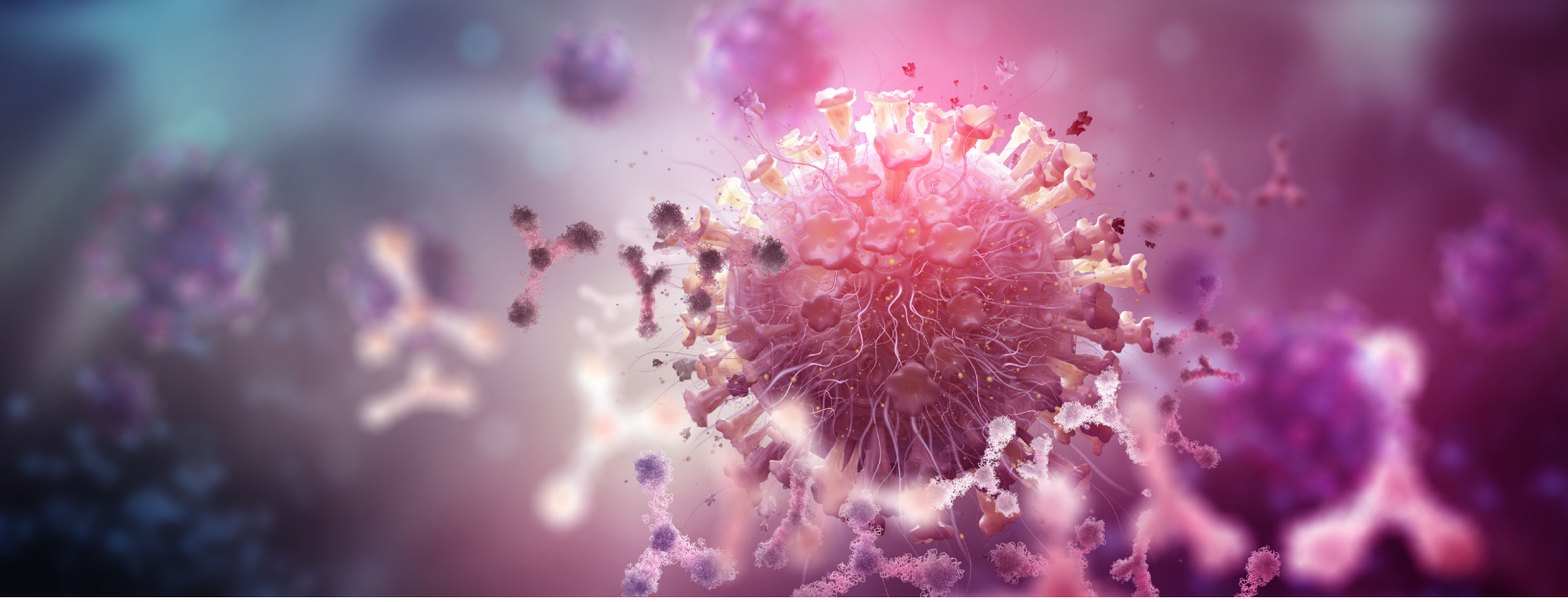
WHAT ARE LFA DEVICES?

LFA devices are easy-to-use, inexpensive, and efficient diagnostic tools applicable in a wide range of point-of-care circumstances. They can handle a variety of sample types (e.g., blood, serum, urine, sweat, and saliva) for numerous applications (e.g., pathogens, toxins, chemicals, and proteins). The most commonly recognized LFA device is a urine-based pregnancy test, first launched is 1988, which measures a specific protein (a hormone in this case) called human chorionic gonadotropin.

Figure 1: A lateral flow sandwich assay strip



After the sample is applied to the sample pad it travels via capillary action through the conjugation pad, where an analyte-bioreceptor interaction is facilitated. If the analyte (e.g., an antigen present on a pathogen) is present, it will bind to a bioreceptor (e.g., an antibody) typically labeled with a reporter material (e.g., colored dye, nanoparticle, or fluorophore) in the conjugate pad, which allows for endpoint detection. The labeled bioreceptor conjugate flows across a porous membrane (e.g., nitrocellulose) that has immobilized capture antibody and control antibody targeting the



analyte and the labeled bioreceptor, respectively. If the analyte is present in the sample, the analyte-bioreceptor complex will bind to the capture antibody resulting in visual detection. Regardless of the presence of the analyte the labeled bioreceptor will bind to a control antibody to ensure that the LFA device works correctly. Detection time and flow time can be controlled by a number of inputs including the sample viscosity, porous membrane type, and absorption pad, the latter being the region where excess sample is contained.

WHAT SERVICES CAN IFYBER OFFER?

iFyber can provide its expertise to find the right chemistry and materials to fit the LFA application:

- ***Buffers and buffer components.*** Buffer formulation parameters, such as pH, blocking agents, and surfactants and are central for your assay sensitivity. Our scientists are experienced in selecting the right sample buffer composition to ensure the success of your assay.
- ***Bioreceptors.*** Identification of bioreceptor antibodies and associated labels for your needs and optimization of the most cost-effective solution. Our scientists are skilled in various conjugation techniques to label proteins with an array of different reporting materials including nanoparticles, dyes and fluorophores that visualize the analyte-bioreceptor-immobilized antibody binding event.
- ***Capture antibodies.*** Selection of the right pairs of capture antibody and control antibody. Our scientists efficiently test various combinations to provide a selection of the best capture/detection pairs that balance cost and performance.
- ***Membranes.*** The membrane is a critical component with a crucial impact on the sensitivity of your assay. Our scientists are familiar with different types of porous membranes and will find the optimal solution for your assay.

Contact us to discuss your ideas and needs for your lateral flow assay and our experienced scientists will help to you to develop and to optimize your lateral flow assay.

iFyber is a preclinical research organization offering customized services to companies that operate at the interface of chemistry, microbiology, and materials science. iFyber is unique. We pride ourselves on providing access to top scientists and creatively solving problems with quick turnaround times.

THINK OF IFYBER AS:

- Consultants with a laboratory to back up ideas with data
- An academic lab, solving R&D problems on corporate or start-up timelines
- A testing lab that develops new methods tailored to clients' products and services
- An extension of your quality, regulatory, and R&D teams