

# T2MR® Technology

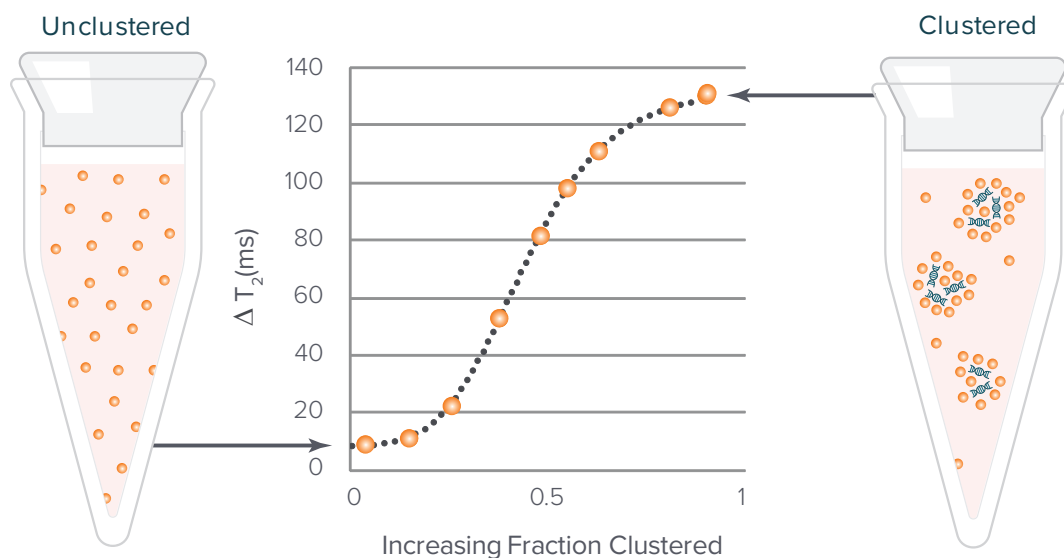
## Pathogen detection direct from whole blood

**T2 Magnetic Resonance (T2MR)** is a proven diagnostic detection method—combining magnetic resonance with innovative nanotechnology to accurately identify pathogens or molecular targets within patient samples without the need for purification or extraction. The T2MR technology platform offers a fast, simple and sensitive alternative to existing diagnostic methodologies.

**How it works:** T2MR technology works by measuring how water molecules react—the T2 relaxation signal—in the presence of magnetic fields, utilizing the same magnetic resonance-based approach found in MRI, but on a miniaturized scale.

- T2MR introduces superparamagnetic particles coated with one or more probes that bind DNA from target pathogen
- If a patient sample contains the target pathogen, the superparamagnetic particles cluster around the pathogen DNA
- The clustering alters the microscopic magnetic fields experienced by the surrounding water molecules, which in turn, alters the T2 relaxation signal, indicating the pathogen's presence in the sample

*Particles bind to and cluster around the target.*



## Low limits of detection & high sensitivity

T2MR Technology offers low limits of detection – as low as 1 CFU/mL – allowing species identification directly from a 4mL draw of whole blood, with proven high sensitivity and specificity. Powered by T2MR, T2 Biosystems Panels enable the lab to more rapidly identify infections, as compared to post-blood culture molecular tests. An independent, peer-reviewed meta-analysis confirms that utilization of T2MR for identification of bloodstream infections provides faster time to detection, faster transition to targeted therapy, faster de-escalation of empiric therapy, and shorter intensive care unit (ICU) and hospital stay versus the current blood culture standard of care.<sup>1</sup>

## T2MR delivers species ID before the second dose of empiric therapy

- Direct from whole blood
  - » No blood culture
  - » No purification of nucleic acids
  - » No extraction of nucleic acids
- High sensitivity
- Detection as low as 1 CFU/mL
- No interference from many commonly used broad-spectrum antimicrobials

## T2 Biosystems Sepsis Panels

Three tests, 24 targets. **3-5 hours** run time.

### T2Bacteria® Panel

- *Enterococcus faecium*
- *Staphylococcus aureus*
- *Klebsiella pneumoniae*
- *Acinetobacter baumannii*
- *Pseudomonas aeruginosa*
- *Escherichia coli*

### T2Resistance® Panel\*

- *mecA/C*
- *vanA/B*
- KPC
- AmpC (CMY/DHA)
- OXA-48 Group
- NDM/VIM/IMP
- CTX-M 14/15

### T2Candida® Panel

- *Candida albicans*
- *Candida tropicalis*
- *Candida parapsilosis*
- *Candida krusei*
- *Candida glabrata*

	T2Bacteria	T2Resistance	T2Candida
<b>SAMPLE TYPE:</b>	Whole Blood	Whole Blood	Whole Blood
<b>SAMPLE VOLUME:</b>	4 mL	4 mL	4 mL
<b>PERFORMANCE:</b>	90% sensitivity & 98% specificity <sup>2,3</sup>	>99% sensitivity & >99% specificity <sup>4</sup>	91% sensitivity & 99% specificity <sup>5,6</sup>
<b>LIMIT OF DETECTION (LOD):</b>	2-11 CFU/mL <sup>2,3</sup>	3-11 CFU/mL <sup>4</sup>	1-3 CFU/mL <sup>5,6</sup>



## Watch video on T2MR Technology

For more information about T2 Biosystems visit [www.t2biosystems.com](http://www.t2biosystems.com) or email [info@t2biosystems.com](mailto:info@t2biosystems.com)

\*T2Resistance has not yet been reviewed by FDA for clearance

1. Giannella, M, et al. *Expert Review of Medical Devices*, 2021 2. Nguyen, M. H., et al. *Annals of Internal Medicine*, 2019. 3. T2Bacteria Instructions for Use 4. T2Resistance Instructions for Use 5. T2Candida Instructions for Use 6. Mylonakis, E., et al. *Clinical Infectious Diseases*, 2015.

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