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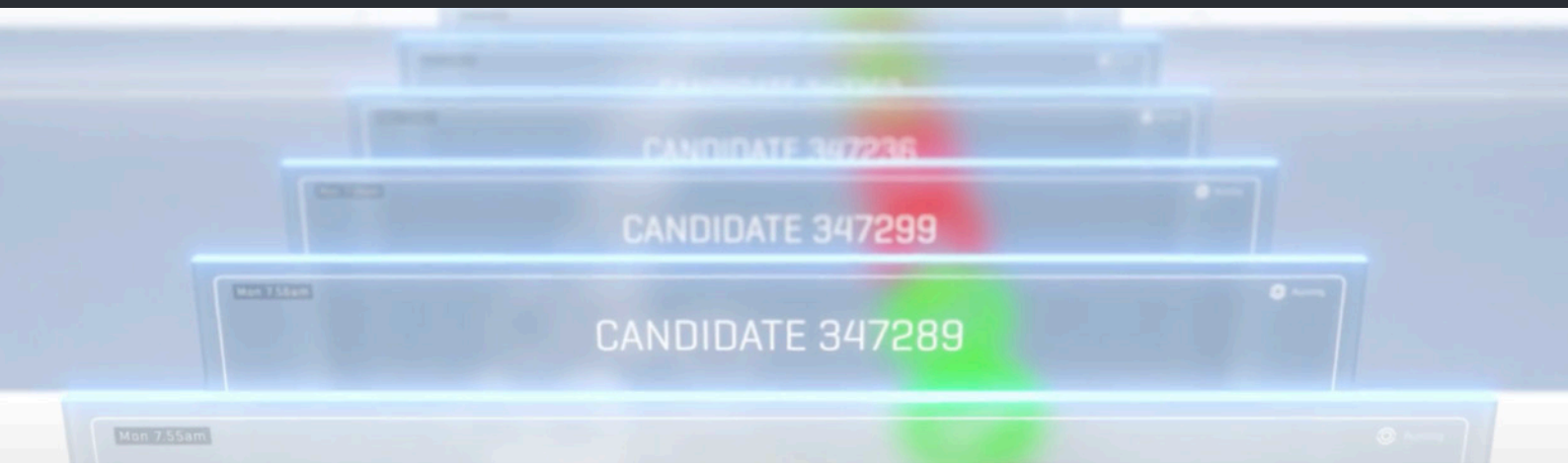
Analytical solution for high-throughput drug discovery assays

On average, it takes 10-15 years and 1-2 billion dollars to approve a new pharmaceutical for clinical use.[1] Since approximately 90% of new drug candidates fail in clinical development, the ability to **make early, informed and accurate decisions** on the safety and efficacy of new hits and leads is key to increasing the chances of success.[2]

Selecting the right analytical technology to support drug discovery is a key decision. This infographic compares different analytical technology in this space.



AEMS at a glance

Fast method development time

Low consumable requirements

≥ 2.5 nL
Sample volume used

Fast sample preparation time

Up to 1 sample per
1 sec
Data acquisition time
(30 min 1536 well plate)

Data quality you can rely on
(Low false positive/negative rate)

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Desirability score: ●●● High ●●○ Medium ●○○ Low	AEMS *Acoustic ejection mass spectrometry*	SPE – MS *Solid phase extraction – mass spectrometry*	Plate Reader
Instrument purchase price	●○○	●●○	●●●
Instrument size			
Method development time	●●●	●●○	●○○
Consumable requirements and costs	●●●	●●○	●○○
Sample volume	 ≥ 2.5 nL	 5 - 50 µL	 25 - 50 µL
Sample preparation time	●●●	●●○	●○○
Data acquisition time	●●○ 10 mins *(384 well plate)* 30 min *(1536 well plate)*	●○○ Approx. 8 sec per sample with SPE	●●● 21- 38 sec per plate *(6 to 1536 wells per plate)*
False positive/negative rate	●●●	●●○	●○○

Don't compromise

Obtain high-quality data, at speed

Selecting the right analytical technology for drug discovery is a challenging and complex decision that can have a significant effect on the efficiency of this stage of the drug development pipeline.

Plate readers are well established for high throughput screening assays because they are cost-effective and have a favorable throughput for common assays. However, they require significant skill and method development time to select the optimum labelling-reagent, and the reagents themselves can be expensive.

AEMS is more expensive to purchase but benefits from the specificity of mass spectrometric detection and the ability to measure a more diverse range of compounds. Being a label-free technique reduces the method development time and confidence in the accuracy of the results.

For more information on acoustic ejection mass spectrometry please visit sciex.com

Learn more →

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References: 1. Sun D, Gao W, Hu H, Zhou S. Why 90% of clinical drug development fails and how to improve it? Acta Pharmaceutica Sinica B. 2022;12(7):3049-3062. doi:10.1016/j.apsb.2022.02.002. **2.** Lowe D. The latest on drug failure and approval rates. Science. https://www.science.org/content/blog-post/latest-drug-failure-and-approval-rates. Published May 9 2019. Accessed October 28, 2022. MKT-33499-A

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