



PATsmart™ REBEL® XT

Boost your bioprocess

Cell culture media analysis
in minutes, not weeks.

Meet REBEL XT

Cell Culture Media analysis matters

In upstream bioprocessing, understanding and monitoring cell culture media from the development stage through manufacturing is critical.

Real-time analysis of key media components, such as amino acids, is beneficial at all stages of process development, including cell line development, media quality control, and media development. This information provides insight not just on media composition and performance, but also on clone selection, feed strategy, optimal harvest time, product quality, and more.

Ultimately, having greater insight offers more opportunities to **create products faster, more cost effectively, and with greater therapeutic success.**

The **PATsmart™ REBEL® XT** is a novel, dedicated cell culture media analyzer designed for rapid, easy, and efficient amino acid analysis. Combining award-winning design with proven capillary electrophoresis and high pressure mass spectrometry technologies, the **REBEL XT** provides process development scientists access to critical data at-line, any time.

Analysis in four easy steps



Pull a sample

Pull a sample from your bioreactor, shake flask, or well plate. The **REBEL XT** only needs 10 µL.



Spin and dilute

Spin out your cells and dilute. That's as complicated as it gets.



Load your samples

Load your samples, reagents, and calibrants.

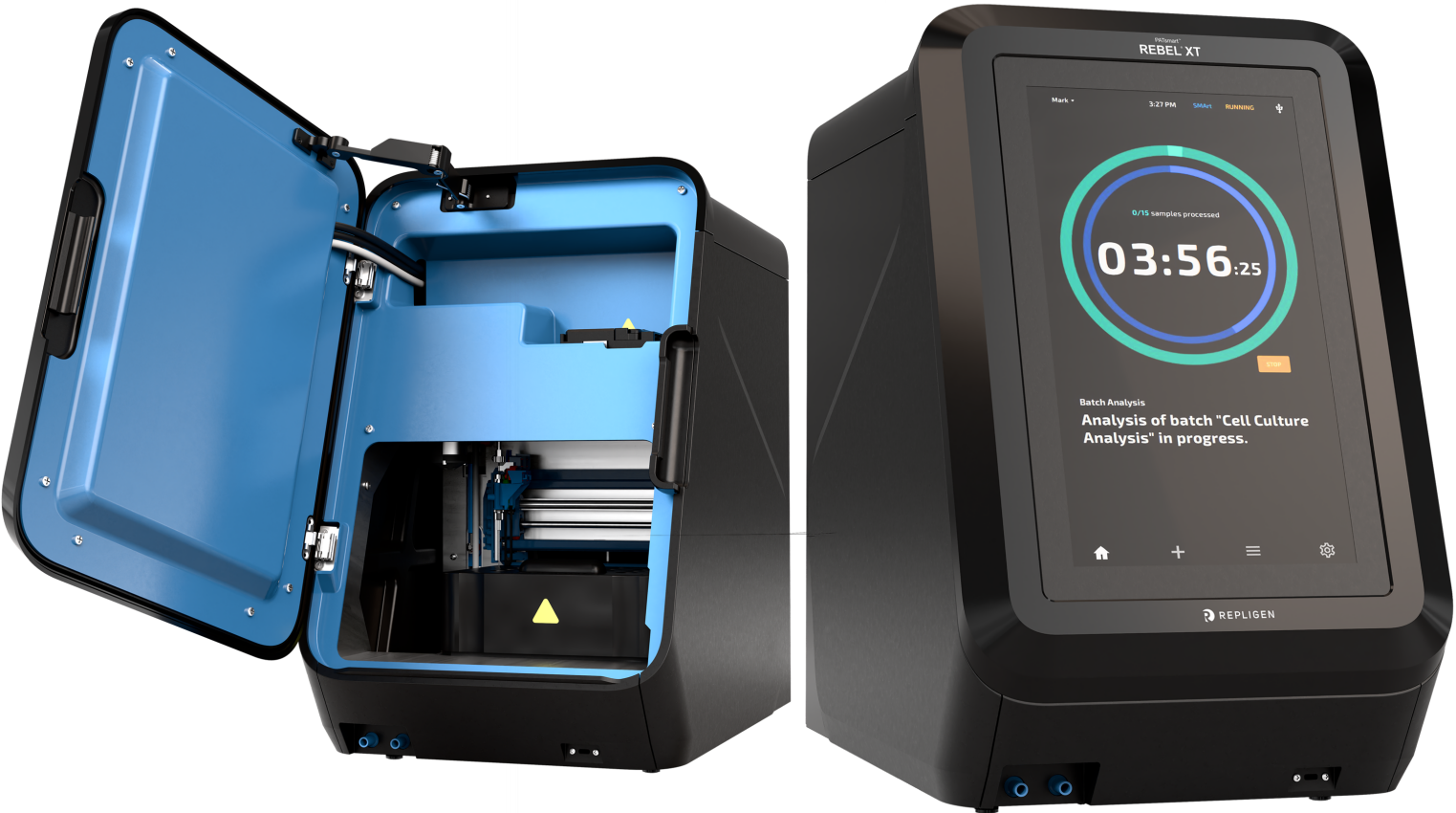
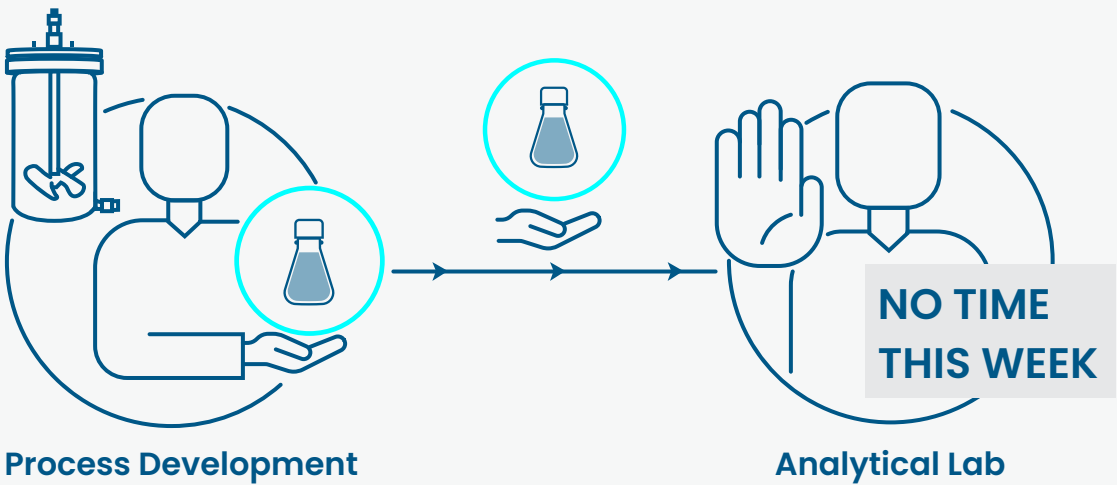


Generate results

Hit start, get results. Results can be quickly reviewed in a simple report.

Getting results hasn't always been easy

Typically, process development groups haven't had the analytical tools or resources to gain in depth process understanding. Sending samples to on-site or off-site core labs can take days to weeks and can be costly.



REBEL XT Benefits



At-line
Media Analysis

15 min.
or less
per sample



A comprehensive panel to meet your needs

Easy to operate

Designed for simplicity

Minimal sample preparation

Pull a sample from your bioreactor, shake flask or well plate, then spin out your cells and dilute.

No more waiting for results

Get a fully processed at-line report for 22 analytes in 15 minutes.

Data integration

Easy data alignment and interpretation with third-party platforms.

Screens for 22 analytes in every run, all in 15 minutes

Analytes			
• Alanine	• Cystine	• Leucine	• Threonine
• Alanyl-Glutamine	• Glutamic Acid	• Lysine	• Tryptophan
• Arginine	• Glutamine	• Methionine	• Tyrosine
• Asparagine	• Glycine	• Phenylalanine	• Valine
• Aspartic Acid	• Histidine	• Proline	
• Choline	• Isoleucine	• Serine	

Know what's in your media

With the **REBEL XT System**, you can measure key nutrients in both fresh and spent media, at-line in real time, to gain deeper insight into your process and obtain high titer faster.

CHO Media screening

Nine commercial CHO media were measured using the REBEL System in a media screening evaluation (Figure 1). This comparison shows that the concentrations of several amino acids, such as serine and arganine, two potentially important amino acids for cell growth and protein production, vary widely among the media tested, while other amino acids are more consistent. The amino acid profile reveals some diversity in nutrient composition across the media panel.

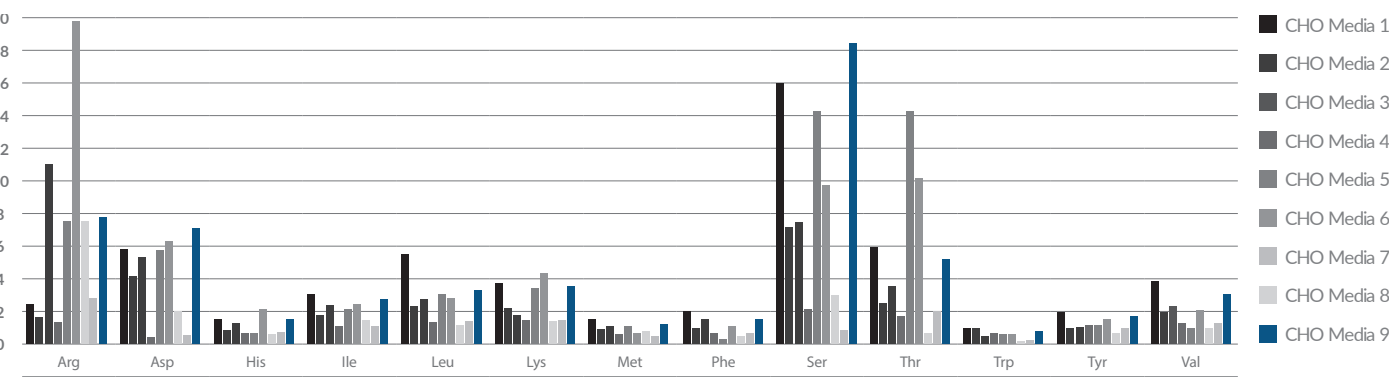


Figure 1. Diversity of nutrient composition in a panel of chemically defined CHO media.

Compact without compromise

The **REBEL XT System** delivers high accuracy and reproducibility, ensuring confidence in results. In a spiking experiment, 17 analytes with known concentrations were added into a chemically defined medium and measured using the REBEL System.

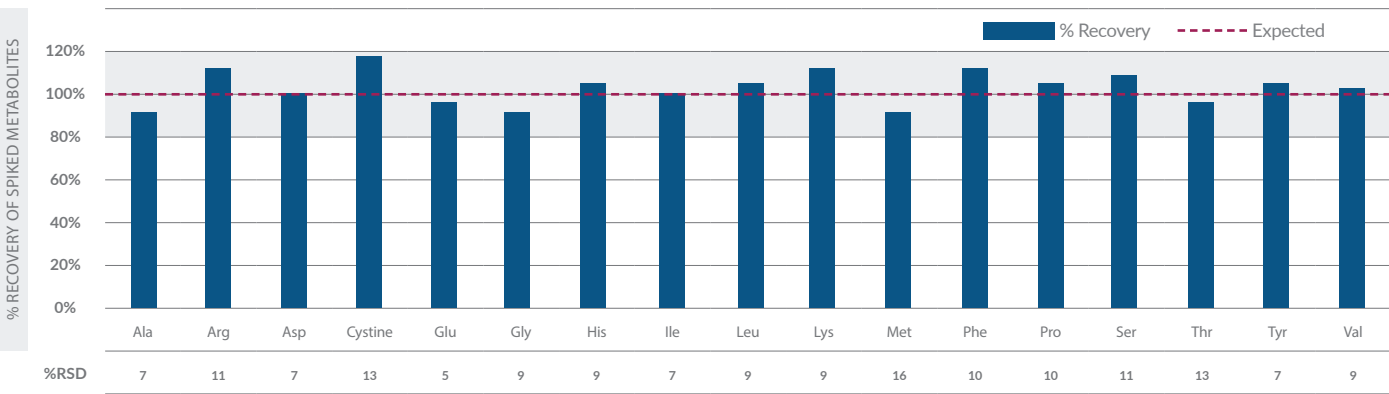
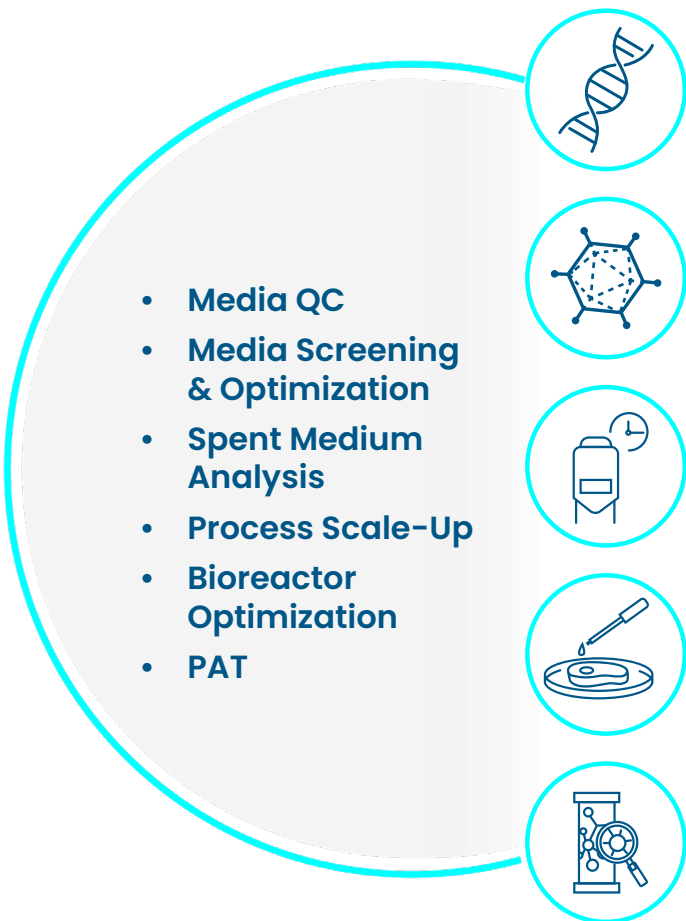


Figure 2. Representative REBEL data shows the recovery of analyte concentration using the analyzer. 17 analytes (Sigma AAS18 amino acid standard) were spiked at 1 mM, and cystine at 0.5 mM, into a commercial chemically defined medium in triplicate and measured four times on the REBEL (total of 12 replicates). All measurements were within 93–118% of expected values.

How will you use REBEL XT?

- Monitor analytes throughout your bioreactor time course.
- Refine feeding strategies on the fly.
- Correlate media selection to product quality and yield.



Cell & Gene Therapy

Cut development times for critical individualized therapeutics with accurate nutrient profiles, even with fetal bovine serum (FBS) in the mix.

Viral vector production

Screen and optimize media for HEK293 or insect cells to boost viral vector titers and improve transduction.

Fermentation

Analyze bacterial medium at-line to handle your supplements with ease.

Industrial Bio

Understand growth media components at any scale, from cellular agriculture to chemicals and materials.

Biologics

Enhance cell productivity and desired Critical Quality Attributes (CQA) of your biotherapeutics and vaccines using actionable intelligence from rapid spent media analysis.



Boost your bioprocess today!

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