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Accelerate your Next-Gen Safety Assays

Predictive, Integrated, Future-Ready Solutions

The Evolution of *in vitro* Safety Assays

Preclinical safety testing still relies heavily on animal models or simple cell assays, yet both often fall short in predicting human-specific responses. Human based New Approach Methodologies (NAMs) offer more ethical, relevant, and predictive alternatives.

Regulatory agencies now encourage the use of advanced *in vitro* platforms to identify safety risks earlier. This shift reduces late-stage failure rates and supports the 3Rs principles:

Replacement, Reduction, and Refinement.

Modern human cell-based technologies enable early, high-content safety assessments with fewer animals, greater translational value, and more efficient workflows. Automated patch-clamp electrophysiology and human cell-based assays provide reproducible, physiologically relevant data that align with evolving regulatory expectations.

A photograph of two female scientists in a laboratory. They are both wearing white lab coats. The scientist on the left is holding a petri dish up to the light, and the scientist on the right is looking at it with a focused expression. The background is a bright, slightly blurred laboratory environment.

Why Early Safety Assessment Matters in Drug Discovery?

Predictive *in vitro* testing reduces late-stage failures, strengthens regulatory submissions, and accelerates the delivery of safer therapies.

Early Safety Insight Drives Predictive Power

Detect safety risks early with precise insights and rapid, automated ion channel analysis.

Uncover functional effects on human cells to accurately predict clinical outcomes.

Evaluate drug impact in human-relevant systems to build stronger regulatory submissions.



SyncroPatch 384 is built to meet regulatory demands with precision and scalability.

Ready-to-go protocols compliant with regulatory guidelines.

Automated patch clamp technology provides accurate measurements of key cardiac ion channels (hERG, $\text{Na}_v1.5$, and $\text{Ca}_v1.2$).

High-throughput capabilities enable large-scale screening with increased efficiency, relevance, and predictive power.

Reproducible, standardized and high-quality data are suitable for regulatory submissions.

Flexible operation modes support a wide range of assay requirements and experimental needs.

Human-Relevant Approach for Predictive Cardiac Risk Evaluation.

From excitability to cellular contractility, CardioExcyte 96 reveals subtle changes long before they manifest clinically.

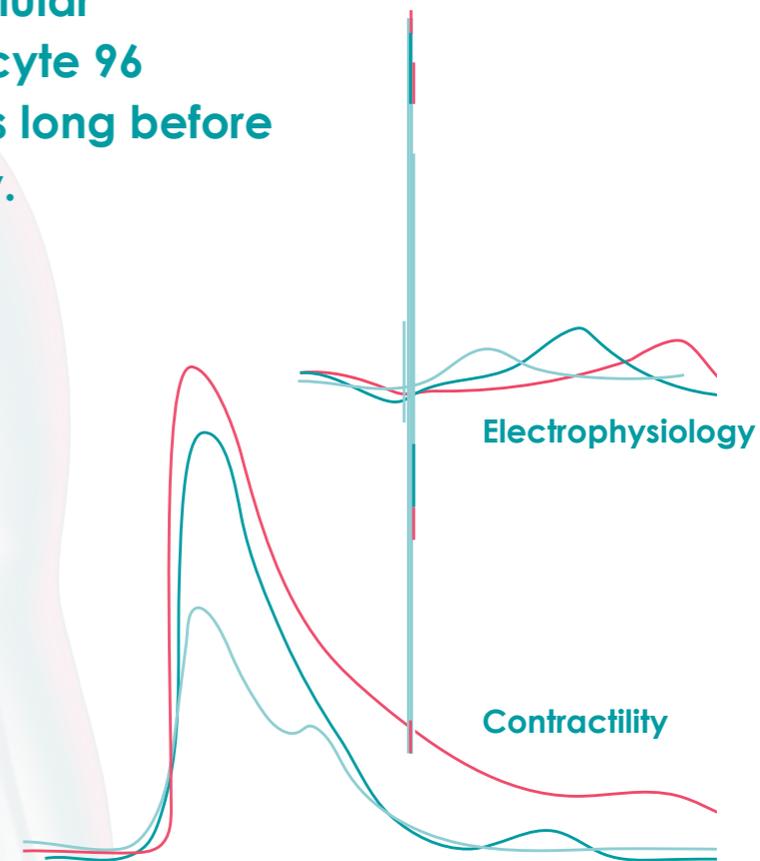
Continuous monitoring of contractility, viability, and beating patterns.

Multi-parameter real-time readouts without dyes or labels.

Integrated electrophysiology and cytotoxicity data.

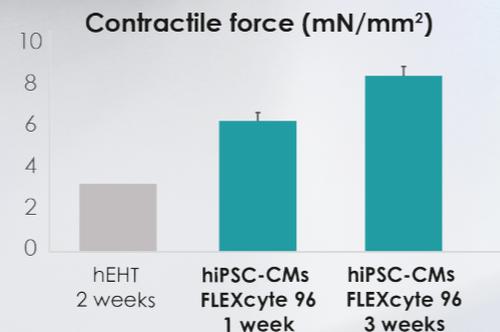
ECG-like human recordings in a dish for physiologically relevant insights.

Highly predictive cardiac liability screening.





FLEXcyte 96 closes the gap between traditional assays and human heart physiology.

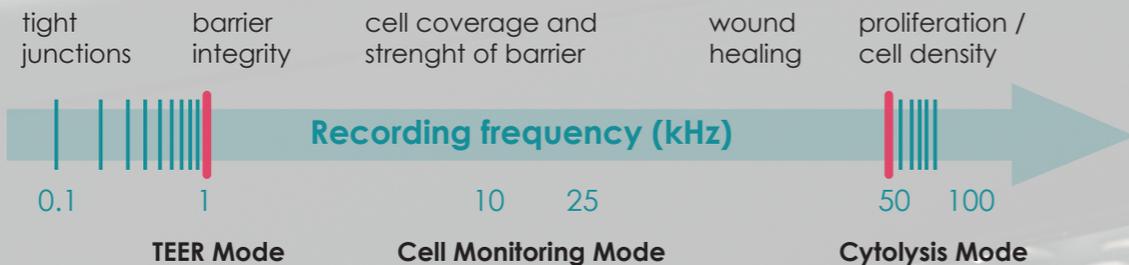
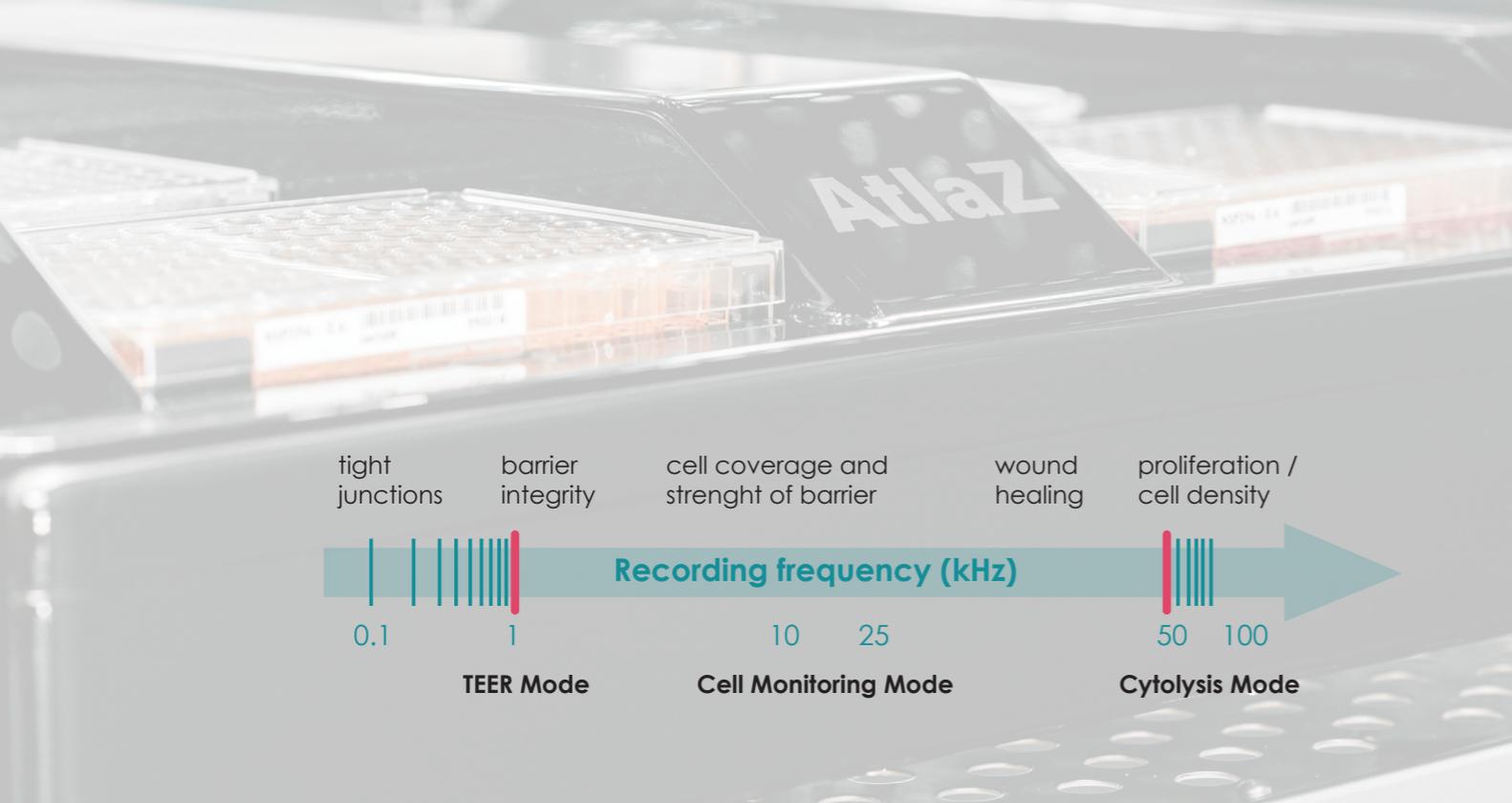


Bringing physiological relevance and throughput together.

	Traditional assays	FLEXcyte 96
Native-like contractility	✓	✓
Human-relevant cardiac mechanics		
Scalability for safety testing		
Predictive translational accuracy		
Genetic disease modeling	✗	✓



AtlaZ delivers GxP-ready workflows, maximizing productivity with up to six 96-well plates run in parallel.



In depth cellular information at scale.



Cell adhesion

Monitor changes in cell number, cell size, cell barrier function, and cell-substrate attachment.



Cell characterization / QC

Suitable for standardized screens, with fast, precise and reproducible results.



Cytotoxicity

Test compound toxicity and cytolysis effects on a wide range of cell types.



Immuno-oncology

Highly reproducible measurements provide a great insight into immune cell killing.



GPCR / Receptor signaling

Decipher complex cellular signaling and receptor activation.

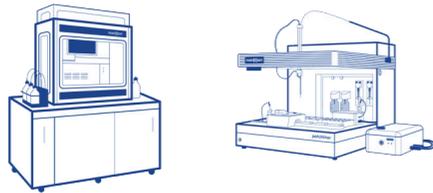


Barrier function (TEER)

Measure barrier integrity via Transepithelial Electrical Resistance (TEER) detection.

Comprehensive Approach to Next-Gen Safety Pharmacology

Automated patch clamp (SyncroPatch 384 and Patchliner)



Reliable drug profiling: precise compound application, concentration-response curves, kinetic data.

High throughput and reliability: supports large data sets required for regulatory decision-making.

Cardiac safety: assesses arrhythmia liability, cardiac conduction effects and action potential shaping.

Standardized protocols: ensure consistent, reproducible data for cardiac safety assessments.

Cell Analytics (CardioExcyte 96, FLEXcyte 96 and AtlaZ)



Real-time data: continuous monitoring of cell activity in 2D and 3D.

Non-invasive: records without damaging cells, preserving long-term function.

Complex signal detection: captures complex patterns like cell viability, morphology and connectivity.

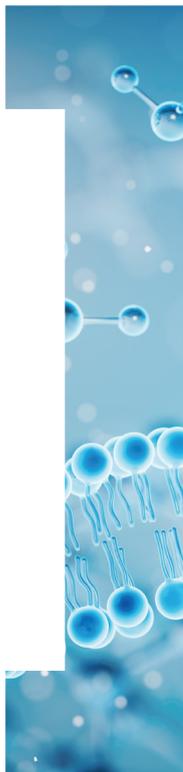
Early cardiotoxicity detection: assesses drug-induced QT prolongation and arrhythmias early.

Our platforms are validated solutions shaping regulatory science.

Trusted worldwide by pharmaceutical companies, CROs, and academic centers.

Validated through collaboration in CiPA and FDA working groups.

Proven predictive power with strong correlation to *in vivo* and clinical outcomes.



nanion Europe

info@nanion.de
phone: +49 89 2190 95-0
www.nanion.de

nanion USA

info@naniontech.com
phone: 1-888-9-NANION
www.nanion.de

nanion China

andy.di@nanion.cn
phone: +86 10 82 17 6388
www.nanion.de/zh-hans

nanion Japan

info@nanion.jp
phone: +81 3 6457 8773
www.nanion.de/ja

innoVITro (CRO partner)

info@innoVITro.de
phone: +49 2461 3170561
<https://innovitro.de/>



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representative, visit our website:
www.nanion.de

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