cell lines

Exploring mechanical forces with automated AFM-based nanomechanical measurements to reveal powerful insights

Cell culture applications

Cancer research (Oncology)
Pharmaceutical drug development and screening
Toxicology and safety testing
Tissue engineering and regenerative medicine
Aging and degenerative diseases
Cosmetics & ophtalmology
Wound healing and inflammation
Neurological and neurodegenerative mechanisms
Infectious diseases
Immunology and autoimmune diseases
Cosmetics and dermatology

The challenges of today

Challenges for Cell Culture

Psysiological relevance
Cell line instability
Reproducibility
Standardization
Animalproduct-free testing
Translational gap
Cost of advanced models

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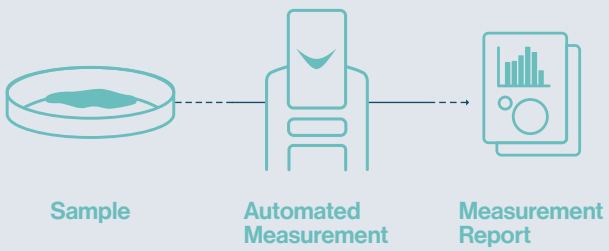
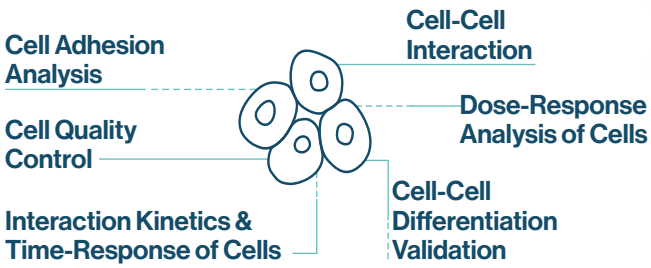
straightforward **workflow** of Artidis® nanomechanical phenotyping platform



artidis

Cell assays



Discrimination of the aggressiveness level of thyroid tumor cell lines

Background

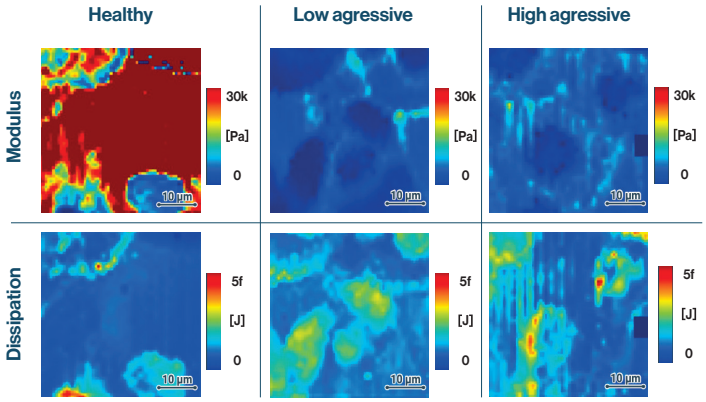
Papillary thyroid carcinoma (PTC) accounts for ~85–90% of thyroid tumors. While molecular classifications exist, understanding of PTC stem-cell metabolism remainslimited and new detection tools are needed.

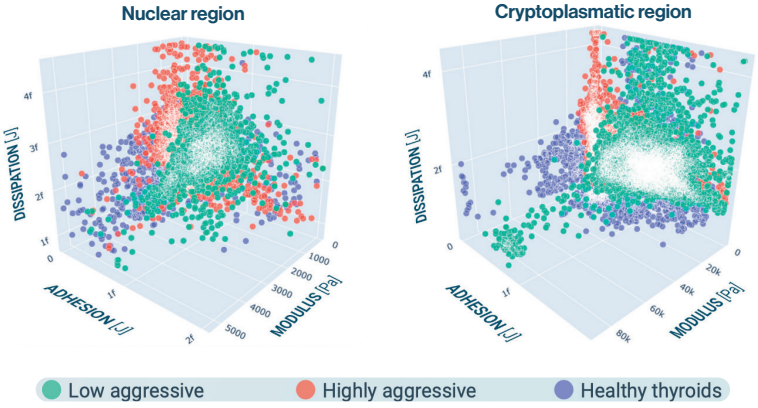
Problems

Despite advances in genomics/proteomics, current approaches donot reliably improve thyroid cancer detection, and mechanical heterogeneity across cellular regions complicates comparative assessment.

Artidis® Solution/Results

Artidis captures intrinsic nanomechanical signatures with high accuracy. By comparing high- and low-aggressive PTC lines to healthy thyroid cells and analyzing nuclear/cytoplasm regions, ARTIDIS platform enables clear separation of healthy and cancerous cells and stratifies malignancy. Healthy and low-aggressive cells show broader stiffness and adhesion distributions, whereas the high-aggressive line exhibits more dissipative nanomechanical behavior.





Scan smart, not fixed. Adaptable scan area and resolution per assay.
From pilot to cohort, fast: Quantify **5–100 cells** within **3 hours** while maintaining **physiological conditions**.

One platform, many cell lines, more information.
Adherent, patient-derived primary cells, iPSC-derived

artidisnet
AI-driven cloud platform, for secure data storage and comprehensive data analytics

Electron microscopy
Fluorescence
Light microscopy
Phase Contrast Images