

CUSTOMER SUCCESS STORY

Axxam is using the UP.SIGHT™
to generate monoclonal cell lines

CYTENA 

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+

AXXAM

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Axxam is a Contract Research Organization (CRO) specializing in providing high-quality integrated early drug discovery services. Their core expertise lies in developing customized cell-free (biochemical) and cell-based in-vitro assays, as well as conducting high-throughput screening (HTS) and hit-to-lead campaigns to identify hit and lead compounds across a wide range of therapeutic areas and target classes. Axxam utilizes various advanced detection technologies, including optical readouts (luminescence/fluorescence), electrophysiology, high content screening, and quantitative gene expression, to test both in-house and client-provided compound collections. They offer comprehensive support from target validation and hit identification to lead generation programs, accelerating the discovery of promising drug candidates and advancing therapeutic development.

» Industry

CDMO / CRO

» CYTENA Instruments in Use

UP.SIGHT

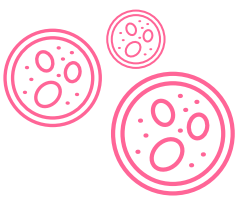
» Using CYTENA Products Since

2022

» Cell Types

HEK, CHO, iPSCs
and Neural

Key Results



50%

faster clone
development



>60%

reduction in
consumables

BACKGROUND

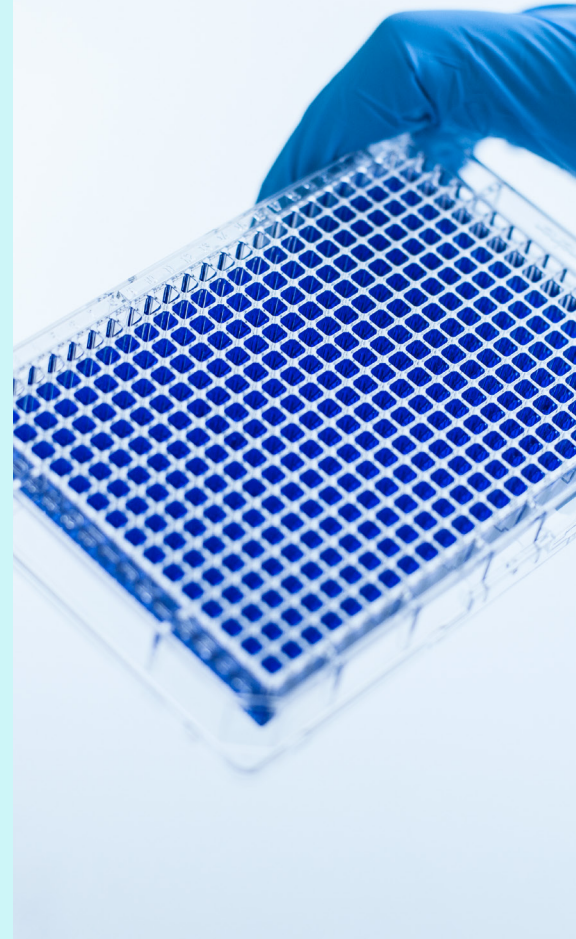
Monoclonal cell lines are an essential part of modern biomedical research. They can be used as therapies and as crucial tools for drug discovery. In the latter case, cell lines are modified to express constructs that indicate a drug's impact on a particular cellular target. Cell-based assays like this are central to drug discovery by allowing researchers to screen many potential therapies simultaneously and quickly identify promising hits. The stability, viability, and monoclonality of cell lines used in HTS assays are essential for achieving reliable results and selecting the best candidates for further testing.



Developing cell lines for cell-based assays and HTS presents significant challenges that hinder the progress of drug discovery projects. Manual methods of generating clones, including limiting dilution, are time- and resource-intensive and rely on a theoretical indication of monoclonality. Cellular viability and construct expression are essential for achieving meaningful results and meeting tight deadlines. Slow-growing cells or cells that are overly sensitive to external stressors delay workflows and prevent researchers from generating meaningful results. Technologies that help researchers overcome these challenges are essential for streamlining monoclonal cell line development.

CHALLENGE

Axxam encountered some challenges during the development of monoclonal cell lines for their clients. Firstly, they used a manual limiting dilution method to generate their clonal cell lines. This method assumes that each well starts with only one cell, but genuine clonality is not guaranteed and is difficult to verify. Single cells are challenging to spot down the microscope, and inspecting the individual wells of several multiwell plates is incredibly time-consuming. Furthermore, manual pipetting increases the chances of contamination and prevents researchers from engaging in more meaningful tasks.



To better serve their clients and improve efficiency, Axxam looked for ways to shorten their workflows and improve resource efficiency without sacrificing quality. A central focus for Axxam is generating high-performing cell lines with stable and strongly reproducible activity. They strive to continually improve their workflows.

Dr. Paola Picardi, Principal Scientist at Axxam noted that:

"The main challenges of limiting dilution in single-cell cloning, including low cloning efficiency, lack of definitive proof of clonality, and the risk of non-clonal outgrowths, led us to adopt a more efficient methodology."

SOLUTION

Axxam sought an all-in-one solution to enhance their limiting dilution process, improve cell line performance, and optimize workflows. After weighing up their options, they found the UP.SIGHT dual-imager and single-cell dispenser from CYTENA.

The UP.SIGHT's dual-imaging technology allowed them to verify the monoclonality of cell lines by providing a snapshot of cells as they were being dispensed and after they had settled in the well. This meant they could move away from the theoretical assumptions of limiting dilutions and free up time for other tasks.



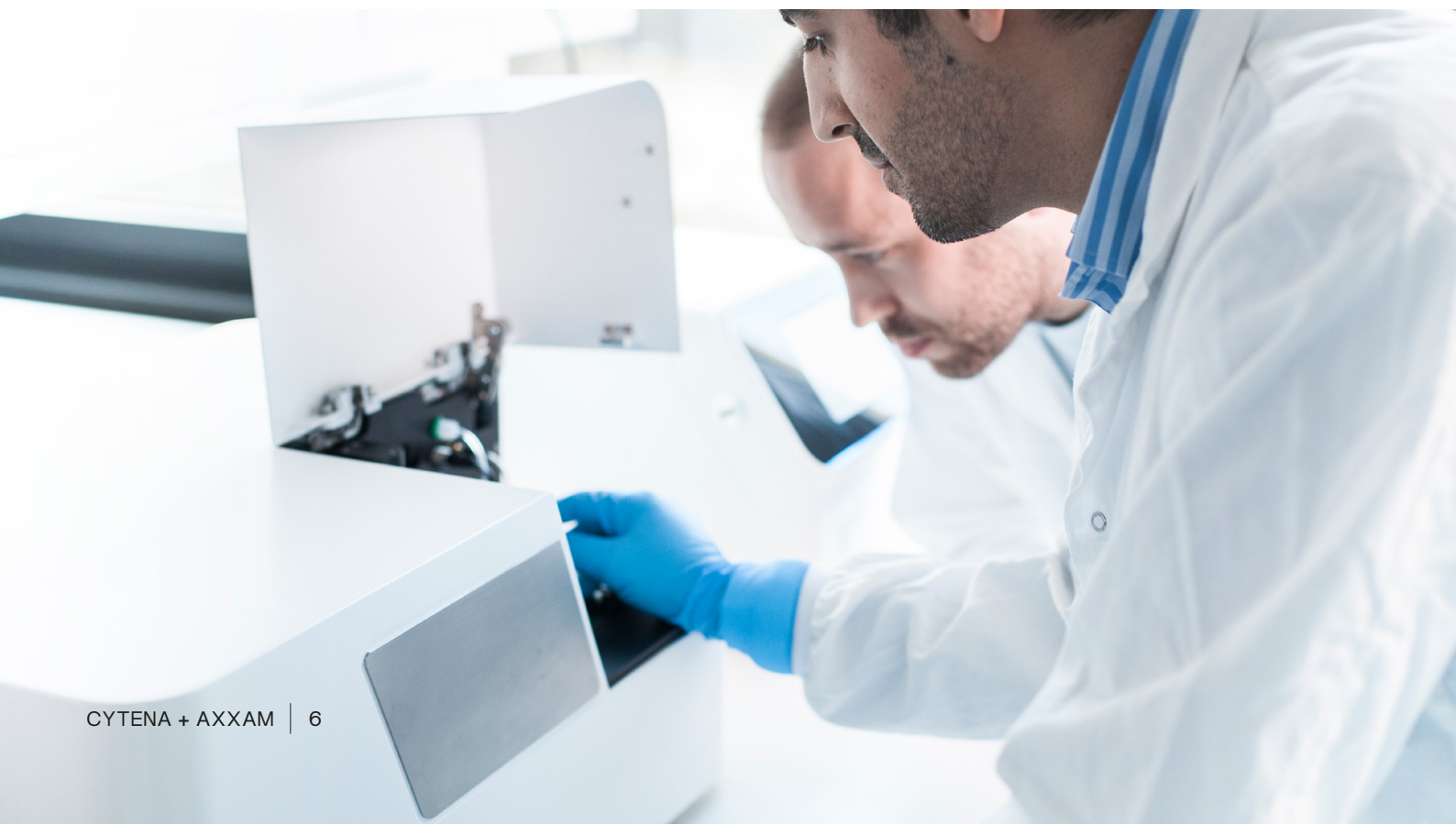
SOLUTION

The UP.SIGHT's ability to provide a >99.99% probability of clonal derivation meant that Axxam could allocate fewer resources, such as cell plates and culture medium, to their workflow while achieving better results. Furthermore, while the UP.SIGHT came with an upfront cost, it offered Axxam significant savings in the long run and allowed them to serve more clients.

Axxam noticed an improvement in clonal performance, likely attributable to the UP.SIGHT's delicate single-cell dispensing technology. This feature is vital when handling induced pluripotent stem cells (iPSCs), which are essential for drug discovery but also sensitive to shear stress associated with dispensing methods like FACS.

Dr. Picardi considers the UP.SIGHT an:

“Essential instrument for monoclonal cells in HTS”



IMPACT

The UP.SIGHT has significantly improved the excellent quality services Axxam already provides to its clients while allowing them to streamline their workflows.

The UP.SIGHT instantly cut Axxam's timeline for generating clones from 6 to 3 weeks, a 50% time save compared to previous methods. Furthermore, the UP.SIGHT reduced their consumable usage by over half. Specifically, they went from using 13 96-well plates to just 5 plates for each workflow, saving money on plates and culture medium.



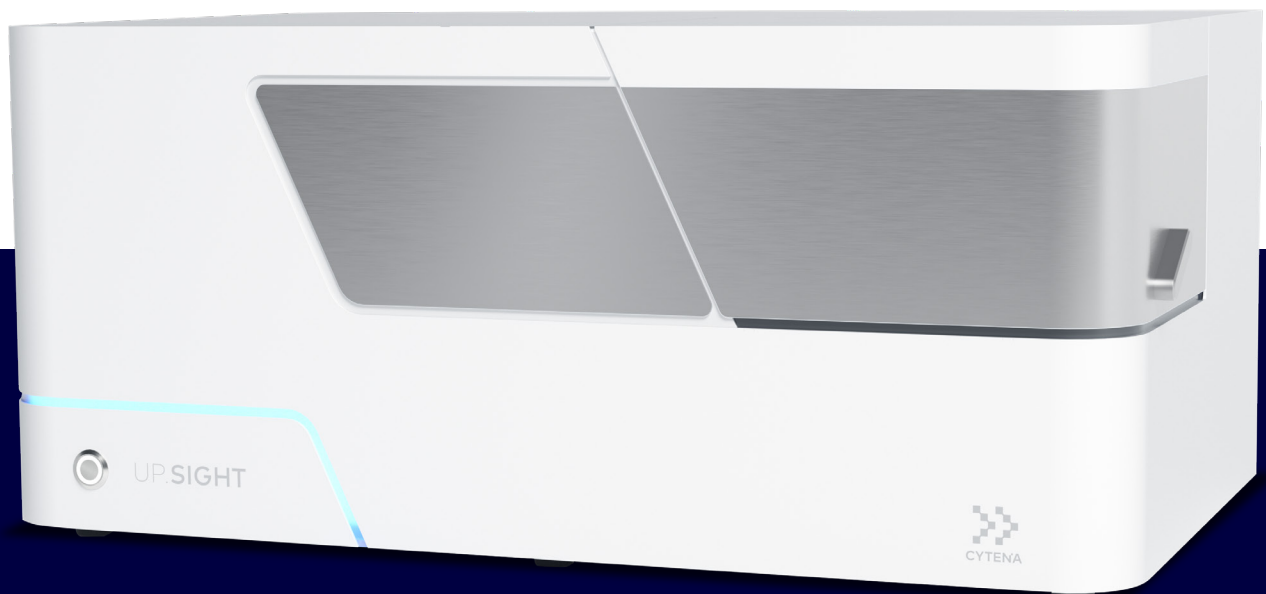
Axxam wanted to ensure their observations were backed up with data, so they performed experiments to compare the UP.SIGHT and manual limiting dilution directly. To do this, they generated clones using both methods in parallel and performed a clone pool analysis to select the best clones in an unbiased manner. Of the 15 best-performing clones, 13 (87%) were generated using the UP.SIGHT. They retested the clones and found that the top 5 were generated using the UP.SIGHT.

IMPACT

With the UP.SIGHT, Axxam has transformed its cell line development processes. They now have a more time- and resource-efficient workflow and offer a superior product to their customers compared to their previous methods. In an industry where achieving fast turnaround times is essential for success, a 50% acceleration in clonal generation represents a massive leap forward.

Here's what Dr. Picardi had to say after Axxam incorporated the UP.SIGHT into its workflows.

"We experienced the power of this remarkable tool with its intuitive interface and double assurance of clonality, enabling us to accelerate the production of stable monoclonal cell lines expressing a diverse range of targets for our high-throughput screening campaigns. This invaluable asset has been an integral part of our cutting-edge research programs, ensuring our work remains at the forefront of scientific innovation."



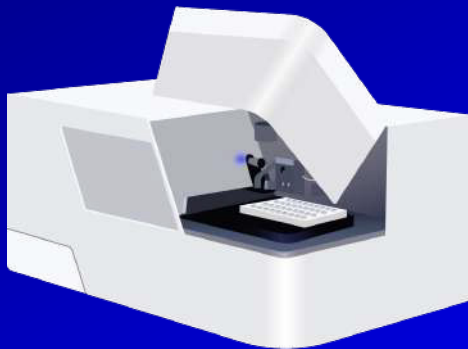
GET STARTED

Connect with our experts to learn more about the UP.SIGHT™



 Book a demo

Check Out The
UP.SIGHT™ 2nd Generation



We create the future of health.



CYTENA, A BICO COMPANY

CYTENA is a leading provider of high-precision instruments for isolating, dispensing, imaging, analyzing and handling biological cells. The company continues to build on the success of the single-cell dispensing technology it patented as a spin-off from the University of Freiburg, Germany, in 2014. Today, as part of BICO, the world's leading bio convergence company, CYTENA's award-winning devices are still manufactured in Germany and used at prestigious academic and pharmaceutical labs around the world to automate workflows in numerous application areas, including stable cell line development, single-cell omics, high-throughput screening and drug discovery. CYTENA's breakthrough innovations for the lab combine advanced automation, state-of-the-art software engineering and the latest insights in cell biology to maximize efficiencies in the life sciences and create the future of health. Learn more at www.cytena.com

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