

VELSSON Monoclonal Intelligent Integrated Solution: Advancing Microbial Monoclonal Screening and Innovation

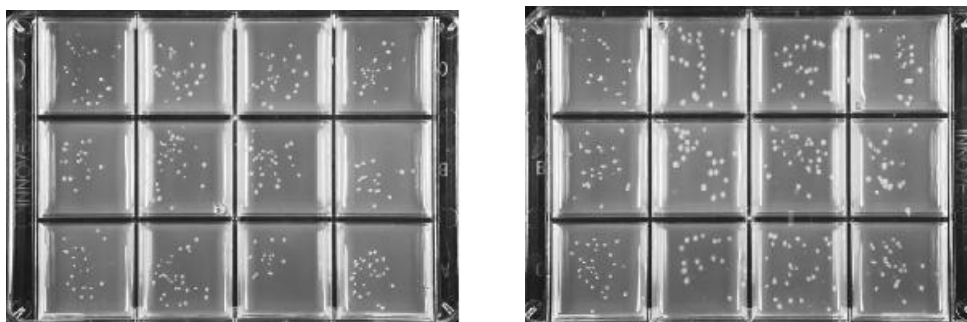
Introduction

In 1975, the advent of hybridoma technology marked a new era in monoclonal antibody production. As life sciences continue to evolve, monoclonal technologies have expanded into molecular biology, synthetic biology, protein expression, and beyond.

To meet the growing demands of research and production, VELSSON has developed the "Monoclonal Intelligent Integrated Solution"—combining high-throughput automated monoclonal equipment with advanced cultivation environments. This solution provides cutting-edge technology and tools to drive breakthroughs in monoclonal research and production.

Fully Automated Workflow

The VELSSON Monoclonal Intelligent Integrated Solution integrates the INNOSMART® MONOCLONE intelligent monoclonal picking system, the INNOSHAKER™ SATELLITE static incubator, and the INNOSHAKER™ PULSAR high-speed plate incubator. With sensors, controllers, and automated devices, it monitors and adjusts parameters such as temperature, humidity, pH, nutrients, and metabolic states while automating sample handling. This enables fully automated processes, from plating to high-performance cultivation, monoclonal selection, and expansion.

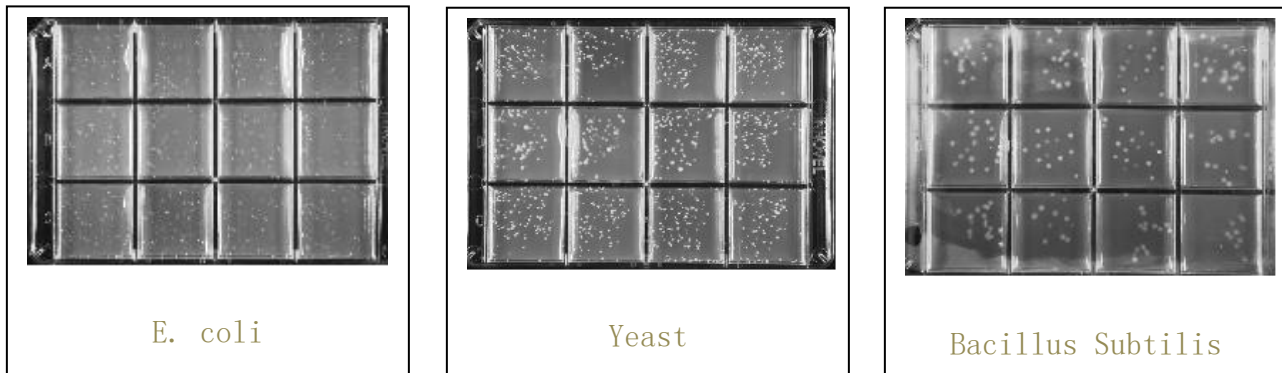


Automated coating results: The coating surface is smooth and even, with consistent thickness and no blotches. It provides full coverage of the substrate, with a bright appearance and a glossy reflection.

Automated operations reduce human error, enhance consistency, and relieve researchers from repetitive tasks, allowing them to focus on data analysis and research interpretation. Stir the mixture until homogeneous and sterilize at 121°C for 30 minutes.

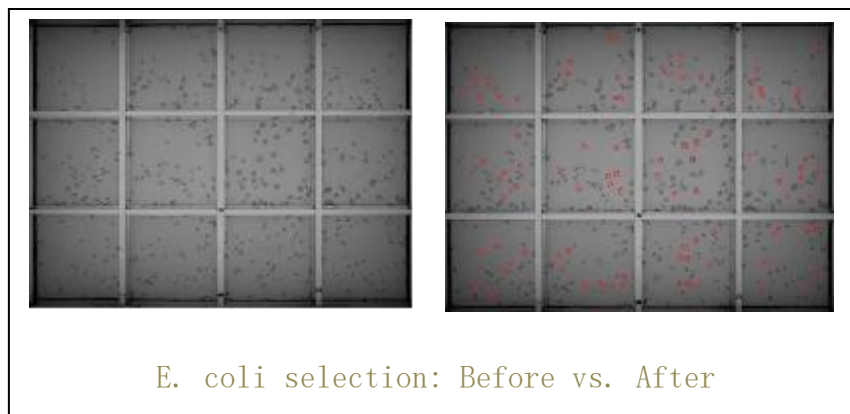
High-Performance Cultivation

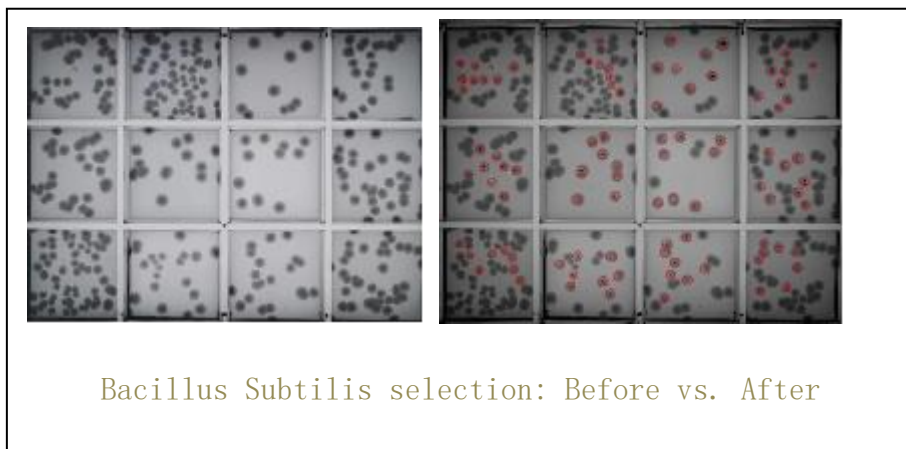
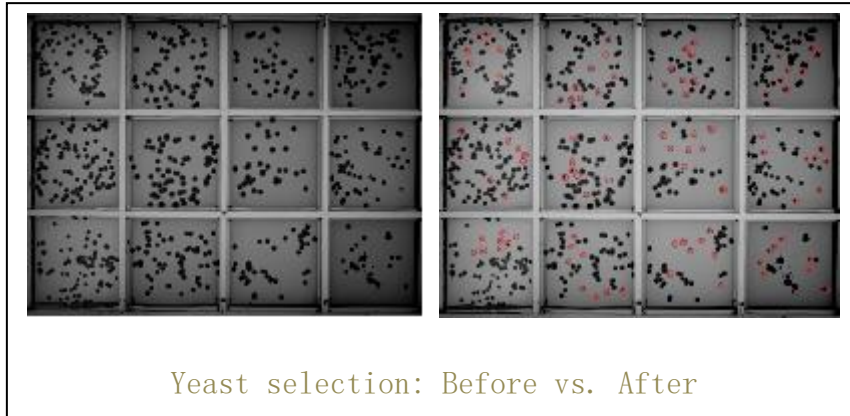
After plating, samples are transferred to the INNOSHAKER™ SATELLITE incubator. Observing high-performance cultivation of E. coli, yeast, and Bacillus subtilis, INNOLAB has validated the static cultivation effectiveness within the integrated system. Cells maintain healthy growth conditions, showing increased yield and exceptional consistency.



99.5% Selection Efficiency

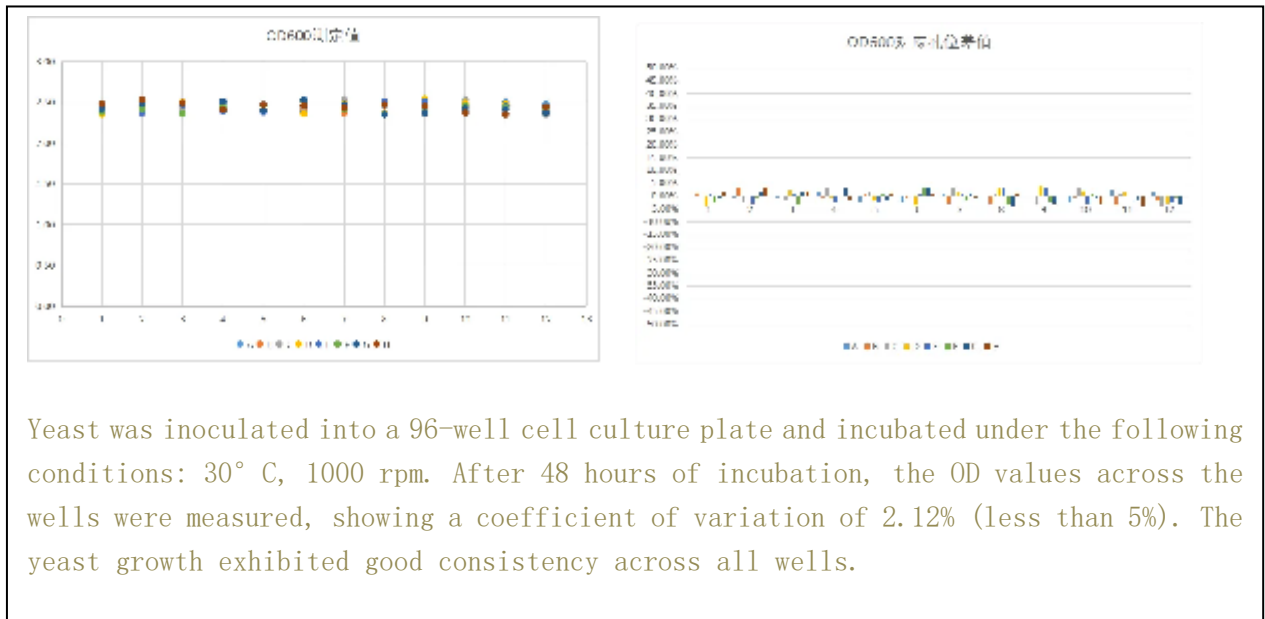
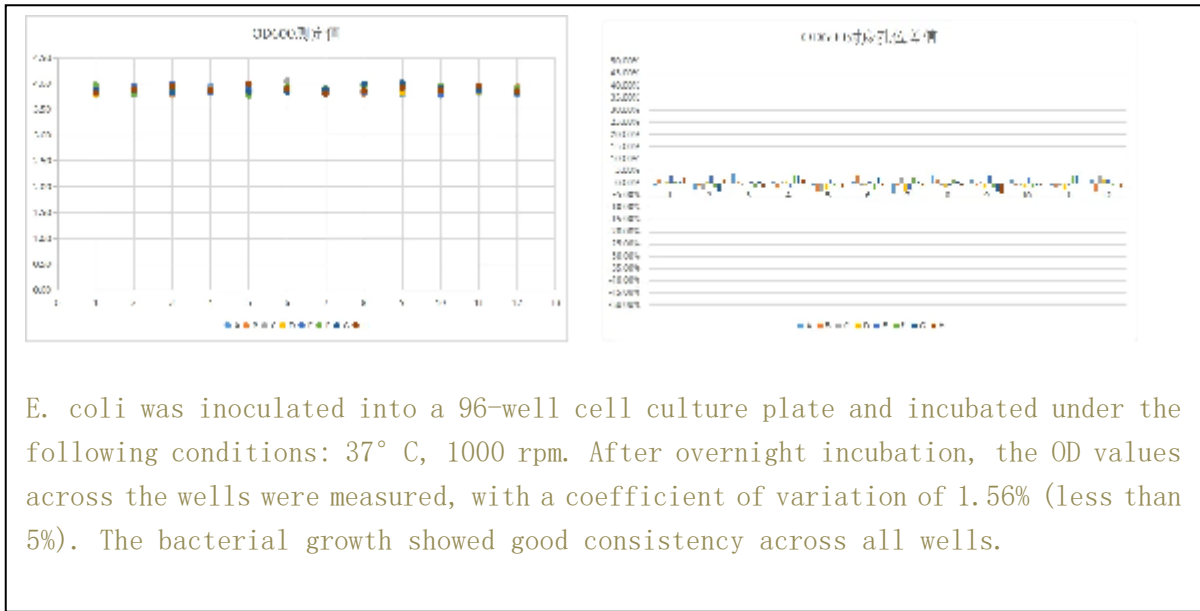
Compared to manual methods, INNOSMART® MONOCLONE exponentially increases selection throughput. Laser ranging and intelligent image recognition technology precisely adapt to target monoclonals. Analysis of pre- and post-selection cells shows that the system can select over 30,000 monoclonals per day, with an accuracy rate above 99.5%, significantly reducing screening time while providing highly pure and consistent cell resources.

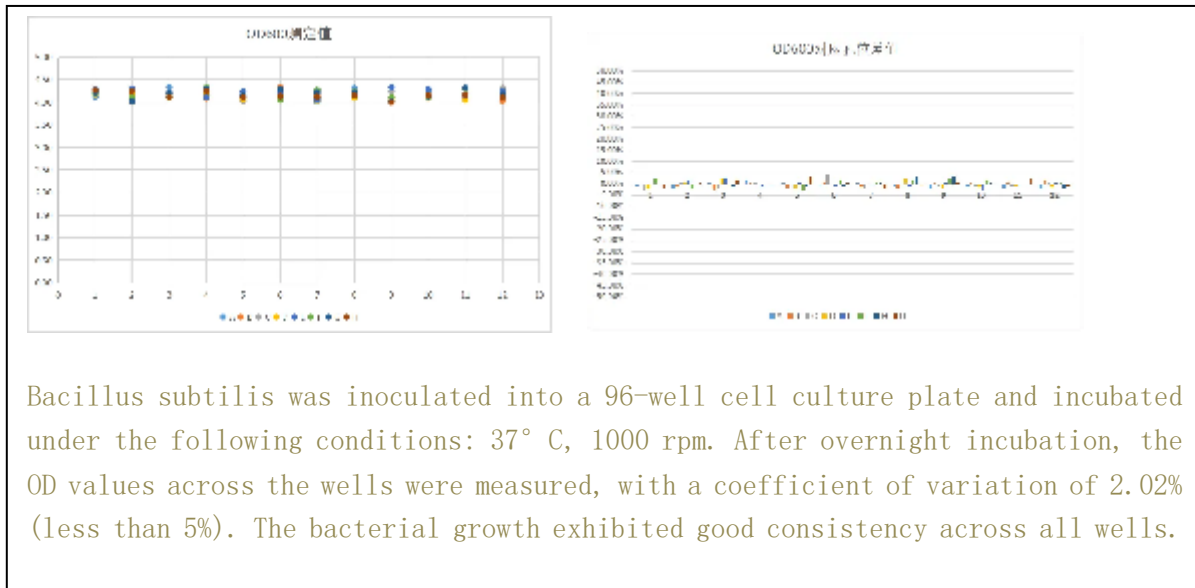




High-Throughput, Stable Expansion

After selection, samples are transferred to the INNOSHAKE™ PULSAR incubator for high-throughput expansion. Data from spectrophotometry indicates excellent consistency in cell growth across different species, including E. coli, yeast, and Bacillus subtilis, with minimal variability in optical density (OD) values.

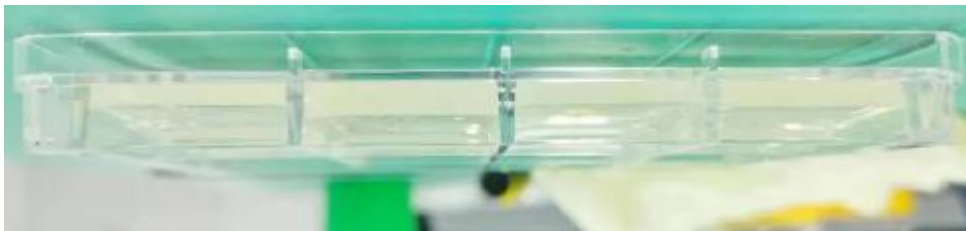




The integration of INNOSMART® MONOCLONE and INNOSHAKE™ PULSAR offers large-scale, high-dimensional analysis of cellular behavior, helping researchers understand cell diversity and function in greater depth.

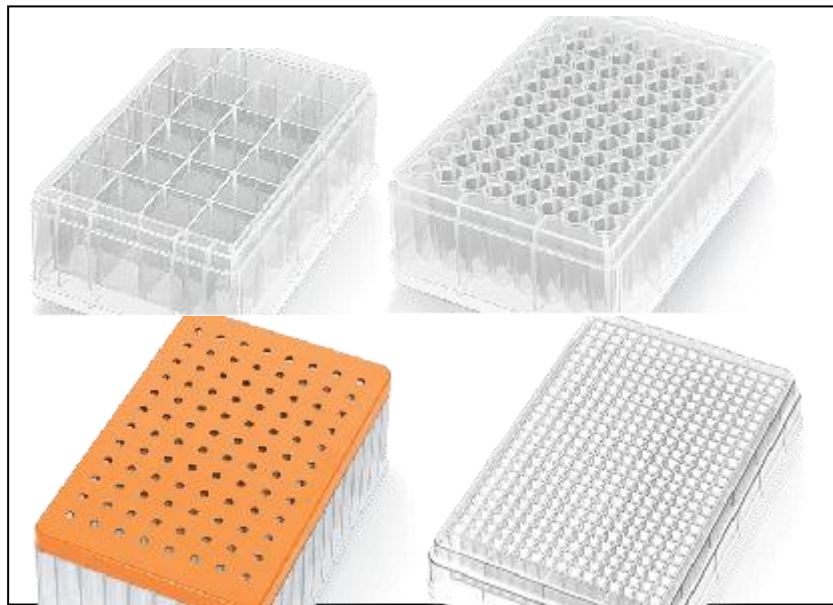
Proprietary Consumables, In-House Development

The agar plates and deep-well cell culture plates, designed to be used with the monoclonal intelligent integrated system, are independently developed and manufactured by VELSSON. Made from high-quality materials with stable performance, the plates feature beveled edges for easy directional identification, adhere to ANSI standards, and are compatible with multi-channel pipettes and VELSSON's automated operation units.



The high-transparency agar plates offer a clear view for observation and analysis, ensuring the accuracy and reliability of experimental results.

The deep-well cell culture plates come in 24, 96, and 384 formats with various bottom types. They can withstand high-temperature autoclaving, ultra-low temperatures down to -80°C, and centrifugation forces up to 3500xg. Liquid at the bottom can be fully removed without residue. When used with a cover plate, evaporation is reduced, ensuring consistent well conditions.



As high-quality consumables, the agar plates and deep-well culture plates developed by VELSSON not only enhance the reproducibility and accuracy of experiments but also improve workflow efficiency and ensure consistency in experimental data.

Conclusion

VELSSON's Monoclonal Intelligent Integrated Solution combines high-throughput, precise monoclonal selection with advanced cultivation environments, dramatically increasing the efficiency and accuracy of monoclonal antibody production. This innovative approach offers significant potential in fields such as molecular biology, nucleic acid therapeutics, protein expression, synthetic biology, and small molecule drug development.

By improving screening speed and accelerating drug development, VELSSON's solution empowers researchers to better understand cellular behaviors and drive innovation forward.