Unlocking *Pichia* for industry

Pichia pastoris (syn. Komagataella phaffii), a methylotrophic yeast, is a proven platform for pharmaceutical protein production. However, its potential reaches far beyond. As a reliable, scalable, and cost-efficient platform for recombinant protein expression, *Pichia* is equally suited for industrial enzymes, food & feed, diagnostics, and biomaterials.

Key advantages include secretion of target proteins into the culture medium, and compatibility with chemically defined media. These streamline downstream processing and enable cost-effective scale-up. *Pichia* also supports efficient folding and disulfide bond formation, making it suitable for more complex proteins.

Tailored Expression Strategies

While *Pichia pastoris* offers a strong foundation as an expression host, its true potential is realised through advanced engineering. VALIDOGEN's proprietary UNLOCK PICHIA® system is one of the most flexible and powerful Pichia platforms available, designed to overcome expression bottlenecks across diverse applications. Importantly, its support for both methanol-based and methanol-free processes adds flexibility for varied safety and regulatory needs.

Picture: © VALIDOGEN

Their molecular toolbox includes a novel library of strong promoters (methanol-induced and methanol-free), synthetic secretion signals, native co-expression factors, and host strains optimised for robust performance. These modular components can be systematically combined and screened using high-throughput workflows to identify the best-performing expression strategies for each target protein.

UNLOCK PICHIA® in Practice

By combining rational design with process-level optimisation, VALIDOGEN transforms *Pichia pastoris* into a precision tool for recombinant protein production. Proven scalability to industrial volumes of up to 100,000 L underscores its readiness for commercial deployment. In an era demanding sustainability and efficiency *Pichia* offers a robust and scalable solution across industrial biotechnology. ■

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