

TECHNOLOGY INNOVATION AGENCY

BIOPROCESSING PLATFORM



science, technology
& innovation

Department:
Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA



technology innovation
AGENCY
Innovating Tomorrow Together

OVERVIEW



The TIA Bioprocessing Platform is a biotechnology facility that support projects that aim to exploit biotechnology in developing products and processes with commercial value and application.

The Bioprocessing Platform supports technology development by providing a conducive technical and business environment to entrepreneurs and researchers, allowing the development of new biotechnology products and processes through fermentation bioprocess or bioproduct development, as well as antibody development for diagnostic innovations within South Africa, Africa and beyond.

FACILITY

The 1000 m² Bioprocessing Platform facility offering fermentation, diagnostic and analytical laboratories, is located within the Umbogintwini Industrial Complex, South of Durban. It is strategically positioned in an area suitable for industrial bioprocess development as well as research and development in various fields including diagnostics and analytical services.

Beyond laboratory space, the Bioprocessing Platform offers incubation services and office space for hosted clients. The office and administration amenities offer supported enterprises access to business networks and alliances including in-house technical specialists.



Cooperative interaction with the Platform's partner network



Office and laboratory space configurations that suites the tenant's confidentiality



Desirable rental rates and flexible tenancies to suite large and small biotechnology projects



TECHNICAL OFFERINGS

The Bioprocessing Platform offers seven laboratory suites for various biotechnology processes and access to TIA scientific and bioengineering expertise in **fermentation, microbiology, and bioprocess development**.

SERVICES OFFERED



Process and product development (microbial and non-microbial expression systems)



Contract microbiological services including microbial identification, contamination testing and characterisation



Antimicrobial susceptibility toxicity and efficacy testing









FERMENTATION/MICROBIOLOGY

The fermentation facility is equipped with six (5 litre) Braun B Biostat bioreactors and four (30 litre) Braun C Biostat bioreactors. These are equipped with data acquisition and peripheral analytical systems suitable for biological control products, amino acids, enzymes, antibiotics, and bioactive compounds. The microbiology lab is equipped with modern instruments and is biohazard containment level II.

ANALYTICAL CHEMISTRY

The Analytical chemistry laboratory is SANAS ISO/IEC 17025:2017 accredited and offers the following services:

- | | | |
|---|--|--|
|  Contract analytical services |  Quantitative analytical services |  Environmental analysis |
|  Nutritional value analysis |  Material characterisation |  Method development, validation, and accreditation |

The analytical laboratory is equipped with cutting-edge instruments:

- | | |
|-------------------|---------------------|
| • HPLC (RI & DAD) | • UV-Vis Spec |
| • FTIR | • Kjelmaster |
| • GC-FID | • Moisture Analyser |
| • AA Spec | • Fluorescence Spec |
| • Rheometer | |



DIAGNOSTICS

The Diagnostic laboratory is equipped to support the various Antibody diagnostics and Molecular diagnostics processes.



Aseptic production of hybridoma clones and monoclonal antibodies against specific antigens



Immunobiochemistry (activity and toxicity assays)



In vitro monoclonal antibody production may be scaled up in bioreactors, e.g., CeLLine, FiberCell



Preparation of prototype rapid diagnostic test (RDT's) for market testing



Recombinant protein production and molecular biology

MOLECULAR DIAGNOSTICS

The Molecular Diagnostics laboratory consists of the state-of-the-art equipment and modern technology to identify, detect and characterise infectious diseases using molecular technology.

SERVICES OFFERED



Automated and manual nucleic acid extraction for DNA/RNA



Real-time PCR assay technology for detection of infectious diseases



Next-generation sequencing of samples

PARTNERSHIPS AND COLLABORATIONS



The Bioprocessing Platform derives business value in strategic partnerships, including local and international collaborations. These enable and complement the platform's capability for facilitation of technology development, validation and transfer.

The Bioprocessing Platform collaborates with technology developers, commercial entities, funders of technology development, Higher Education Institutions, Science Councils, Government Departments, Researchers and Innovators, SMME and Cooperatives.

To collaborate and partner with the Bioprocessing platform contact:

customerservice@tia.org.za

SUCCESS STORIES



Sawubona Mycelium

The Bioprocessing Platform is currently supporting client, Sawubona Mycelium, a company that produces various mycelial bioactives through a fermentation bioprocess and of extraction particularly of β -glucans. The Sawubona process development has resulted in two product streams (Filtrate and biomass) that have been tested to confirm efficacy as key additives for formulated skincare products. Sawubona Mycelium has since launched its own skin-care products, the Bluberyl hydration serum with microbiome support; and Bluberyl age-control serum.



Zuplex PTY, a South African-based manufacturer of clinically tested active botanical extracts is a former tenant of the Bioprocessing Platform that received support for successful botanical extract development. Zuplex successfully achieved FSSC 22000 accreditation while being incubated at the Platform and is in the process of acquiring an industrial facility and upscaling its manufacturing capabilities. The company has now progressed to cosmetic development and has successfully penetrated market in many with local and global jurisdiction for distribution of products including Europe, Asia and the United States.

AFROBODIES

AfrobodiesTM, is an emerging and privately held biotechnology company that is producing recombinant nanobodies for the African and global life-sciences, agricultural, immunodiagnostic and therapeutic markets, which are a first for Africa. The nanobodies developed by AfroBodies played a role in the COVID-19 pandemic response as they were able to target the spike protein of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) hence could be deployed for use as a potential therapeutic in patients with COVID-19. The nanobodies were shown to neutralise the live novel coronavirus as well as the South African variant in external laboratories.



The CSIR and the Bioprocessing Platform are collaborating in the soft landing of technology sourced from ICGB aimed for local exploitation. The transaction aims to address diabetes, which is of critical national health concern and to expand the country's biomanufacturing capabilities. The transferred technology will enable production of pharmacopoeia grade recombinant human insulin and its long-acting analog Insulin Detemir in South Africa. This collaborative effort intends to secure a mature technology from the ICGB for the training of CSIR and Bioprocessing Platform scientists in the production processes and advance the diffusion of the technology in the South African pharmaceutical industry.




TokaBio Diagnostics partnered with the Bioprocessing Platform to design and commission a mobile diagnostics facility to support the government in response to the COVID 19 pandemic. The facility was funded by Toyota South Africa, has been audited and is currently hosted at the Bioprocessing Platform. The partnership further seeks to expand the mobile facility's offering to parties and are working towards accrediting the facility for HIV drug resistance testing methods using next-generation sequencing (NGS). This is aimed at lowering the diagnostic burden in Government institutions.




CONTACT US

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