

## ELIGIBILITY

The course is offered to African manufacturers, scientists and other key players in the development and scaling-up of vaccine production processes and active pharmaceutical ingredients. Preference will be given to the following candidates:

- Current staff in the vaccine production sector who require skills expansion/upgrading;
- New or developing staff in the vaccine production sector; and
- Staff from vaccine production facilities that are currently under construction that will require a skilled workforce.

Limited space will be reserved for candidates who have recently completed their PhDs (2019-2023) in a field that is related to bioprocessing of recombinant proteins or biologics. Applications from qualified persons from all African Union member states will be accepted and young females are encouraged to apply. A limited number of partial scholarships is available to eligible participants.

## COURSE DELIVERY

This course will be delivered as a mixed model of applied and advanced knowledge

transfer in the form of online-based lectures, industry tours and hands-on training (onsite at the CSIR). Online lectures will be conducted via Microsoft Teams and in-person, hands-on training will be onsite at the CSIR, Pretoria, South Africa.

## FACILITATORS

Facilitators of the course are scientists and engineers employed by the CSIR with skills across all aspects relating to vaccine production, including development and scale-up across various expression platforms, including fungal, yeast, bacterial, mammalian and plant systems. International experts will be involved, especially in aspects relating to quality management and GMP.

## WHERE ARE THE COURSES OFFERED?

The hands-on aspects of the training will be conducted in CSIR facilities on the CSIR Scientia campus in the east of Pretoria. Pretoria is the capital city of South Africa, near OR Tambo International Airport and several universities within Gauteng, the economic hub of the country.



# AFRICAN BIOMANUFACTURING WORKFORCE TRAINING AND SKILLS DEVELOPMENT PROGRAMME

## THE HOST – CSIR FUTURE PRODUCTION: CHEMICALS

The African Biomanufacturing Workforce Training and Skills Development Programme is hosted at CSIR Future Production: Chemicals. The cluster's customised approach to scientific research and development contributes to a sustainable, vibrant and competitive (South) African chemical and pharmaceutical industry. The cluster stays ahead of the curve by collaborating with industry and (inter)national academic institutions to find impactful solutions that focus on green chemicals, pharmaceuticals and material advancements. It does this through three research platforms, namely, (bio)-chemical conversions, pharmaceutical innovation technology and advanced materials.

For more information on how you can participate, contact us via email at [BIDC@csir.co.za](mailto:BIDC@csir.co.za)



science & innovation

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



The Council for Scientific Industrial Research (CSIR) launched the African Biomanufacturing Workforce Development and Training Programme in June 2023. The programme, aimed at developing a skilled and competent workforce in the biomanufacturing sector in Africa offers several courses crafted to address skills development in biomanufacturing, with a focus on aspects that are integral to vaccine manufacture.

The biotech industry is one of the fastest growing and most vibrant sectors of the global economy. Historically, the focus has been almost exclusively on drug discovery and development activities. A paradigm shift to bioprocess development and commercial manufacturing – fueled by a large increase in the number of products that are gaining market and regulatory approval (e.g., Covid-19 vaccines) – has taken place. The rapid pace of technology development in these industries will require staff to adopt evolving skill sets. Driven by this need, the CSIR has developed a comprehensive training programme to address various aspects that are critical to rapidly establishing vaccine manufacture in Africa.

## AIM AND OUTPUTS

The CSIR's training programme is committed to delivering the relevant transfer of skills across all aspects relating to biomanufacturing, using in-house developed courses and in collaboration with recognised local and international service providers.

The courses aim to:



Develop scarce skills in Africa in the fields of bioprocess development and biomanufacturing



Develop human capital for science and technology graduates and industry staff



Contribute to sustainable bioeconomies in Africa



Stimulate more collaborative and innovative technology development in countries in Africa and globally

## COURSES OFFERED

### Course 1

#### Biomanufacturing Technologies (2025)

Bioprocess development: Upstream process operations

Bioprocess development: Downstream process operations

Hands-on production of a recombinant product (30 L bench scale)

### Course 2

#### Vaccine Production (2025)

Production stages – Upstream and downstream

Single-use and perfusion systems

Hand-on production – Bench-scale cell culture (CHO)

### Course 3

#### Biopharmaceutical Quality Management Systems (QMS) (2025)

Compliance and regulation

Introduction to QMS

Hands-on training in fill-finish methods and Certificate of Analysis development

### Course 4

#### Good Manufacturing Practice (GMP) Biomanufacturing at Scale (2025)

Process validation

Process scale-up simulations

Hands-on GMP biomanufacturing (bacteria, yeast and CHO)

