ACGT

AFRICAN CENTRE FOR GENE TECHNOLOGIES

About us

The African Centre for Gene Technologies (ACGT) is a collaborative biotechnology initiative founded in partnership with leading academic and research institutions. ACGT supports scientific innovation, capacity building and sustainable development in the biosciences. Together, we are dedicated to driving innovation and excellence in advanced biotechnology research across Africa, with a core focus on "-omics" sciences.

Our mission

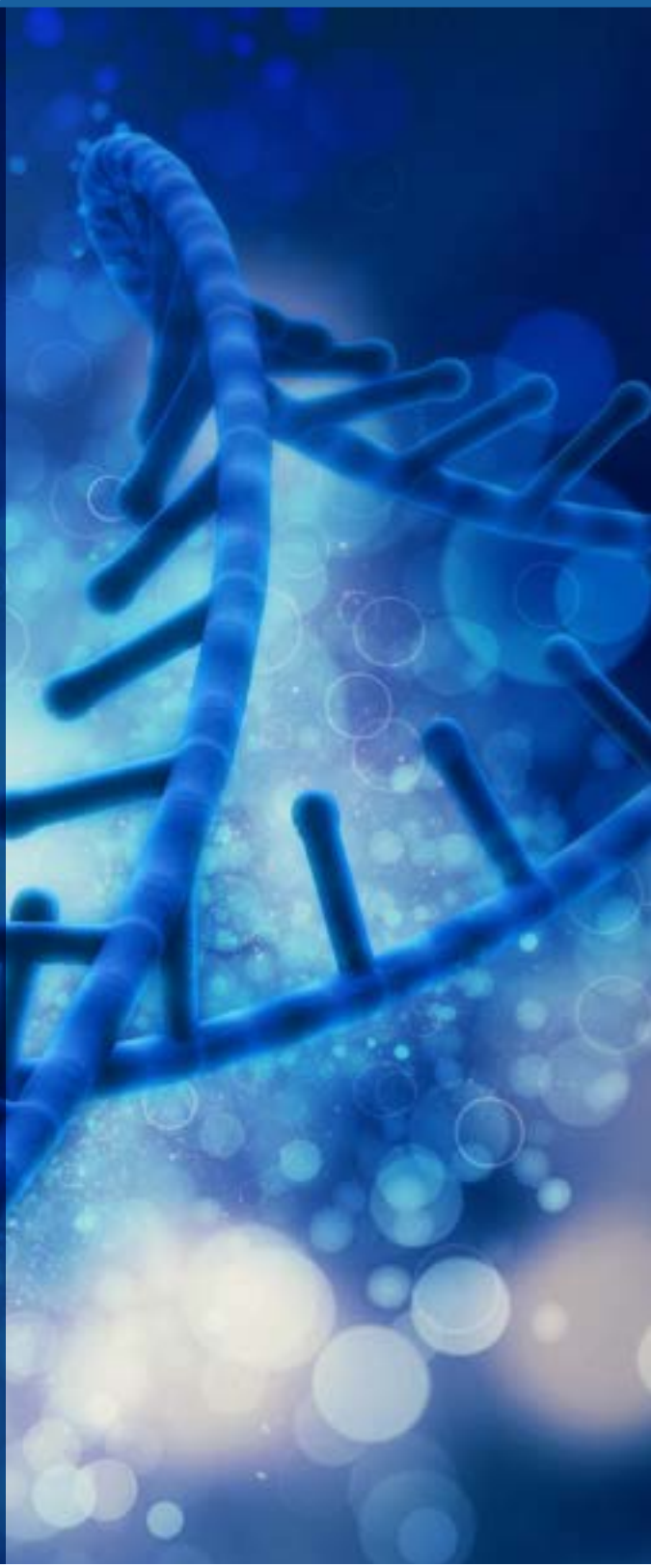
ACGT's mission is to foster collaborative, innovative and advanced biotechnology research that addresses critical areas such as agriculture, health, industry, environmental sustainability and emerging technologies. By creating a network of excellence, we aim to empower African scientists, especially those from historically disadvantaged backgrounds, while establishing impactful connections with both national and international research communities.

What we do

Capacity building and training: ACGT is committed to empowering the next generation of African scientists. We assist in coordinating training workshops, seminars and courses aimed at developing essential technical and analytical skills.

Collaboration and networking: As a regional hub, we promote synergy among scientists and research institutions, linking them with international partners, funding bodies and industry to foster meaningful, impactful collaborations.

Fundraising for collaborative research and development: ACGT has a strong track record of securing local and international funding for its partners and associated critical networks for large programmes.



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

UNIVERSITY OF JOHANNESBURG

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

CSIR

PROGRAMMES

Advancing genomics through collaboration

Next-generation Sequencing (NGS) Information Day
The African Centre for Gene Technologies (ACGT), in collaboration with the University of Pretoria Genomics Laboratory (UPGL), plays a pivotal role in strengthening genomics research and training. One of the flagship events under this partnership is the Next-Generation Sequencing (NGS) Information Day. The NGS Information Day is an annual scientific event co-organized by the UPGL and the ACGT. This hybrid-format event aims to provide a platform for researchers, scientists and industry experts to exchange insights and advancements in NGS technologies and their diverse applications across human, animal and environmental health.

Workshops
The ACGT, in collaboration with the UPGL, presents a series of cutting-edge workshops aimed at advancing genomics research and skills development in Africa. These workshops, facilitated by leading experts in the industry, cover critical aspects of quantitative PCR (qPCR) and NGS. This programme provides a blend of theoretical foundations and hands-on laboratory training designed for postgraduate students, technical staff and academic professionals. This series not only enhances technical expertise, but also builds a network of genomics professionals across institutions, fostering collaboration and innovation in the biosciences.

Regional Plant Biotechnology Forums

The Regional Plant Biotechnology Forum (RPBF) is an annual event organised by the ACGT in collaboration with its key partners, including the University of Pretoria, the University of Johannesburg, the University of the Witwatersrand and the Council for Scientific and Industrial Research (CSIR). Each year, the forum addresses a specific theme aligned with the latest trends and challenges in plant biotechnology research.

The RPBF serves as a vital platform for fostering collaboration, advancing knowledge exchange and addressing key scientific questions relevant to African challenges. By bringing together leading researchers, industry experts, policy stakeholders and academic institutions, the Forum stimulates interdisciplinary discussions, network development and the formation of impactful partnerships.

Themes vary annually to reflect emerging research priorities, with past topics including:

Plant-microbe interactions: Investigating beneficial and detrimental interactions, plant-defense mechanisms and applications for sustainable agriculture.

Affordable biologics for health: Addressing the African opportunity for the local production of essential vaccines and therapeutics to combat diseases.

Advanced biotechnology in agriculture: Focusing on genome editing, biofortification and environmental resilience.

Sessions typically include keynote addresses by renowned international and local experts, followed by panel discussions and presentations from young and established researchers. Attendees also gain exposure to advanced technologies and methodologies relevant to their work.

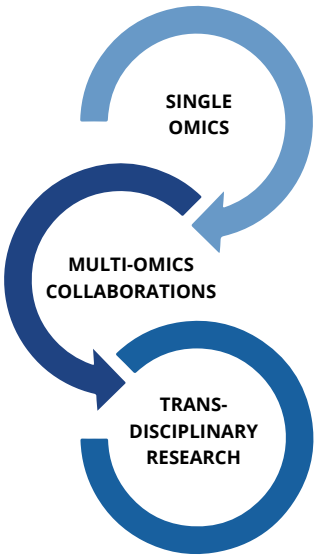
Ubuntu Proteomics Summer School

A legacy of collaboration and excellence in proteomics training
The Ubuntu Proteomics Summer School has established itself as a flagship event, advancing proteomics training and fostering impactful collaborations across academia, industry and global participants. This initiative represents a strong commitment to capacity building in proteomics and bioinformatics across Africa and beyond.

MSA
METABOLOMICS SOUTH AFRICA

Laying the foundation for strong -omics networks
Metabolomics South Africa (MSA) has made remarkable strides in promoting the field of metabolomics through training initiatives and workshops.

It fosters international collaboration, positioning Africa as a key player in the global metabolomics community.



A multi-omics approach will require expertise in genomics, proteomics, metabolomics, proteomics, transcriptomics, phenomics, epigenomics bioinformatics and systems biology. Partner with the ACGT to shorten the time and effort needed to establish both the capacity and interdisciplinary frameworks that will accelerate innovation and discovery.

Sustainable Agriculture Project

The ACGT, in collaboration with the University of Johannesburg, Omnia and experts from the University of Edinburgh, coordinated a groundbreaking project focused on developing sustainable alternatives to chemical fertilizers. The research investigated the use of naturally occurring bacteria from plant root systems as biostimulants to enhance crop yields, stress tolerance and nutritional value.

Maize, a staple crop in South Africa, was a key focus. Advanced metabolomics techniques were applied to assess the impact of these biostimulants on plant growth and nutrient content, with a particular emphasis on improving levels of essential nutrients such as Vitamin A, iron and zinc.

The Plant Phenotyping Network of South Africa (**PhenoSA**)

The Department of Science and Innovation (DSI) has provided funding for a groundbreaking national plant phenotyping infrastructure initiative, of which ACGT forms a part. This investment will expand South Africa's high-tech plant phenotyping capabilities, fostering innovation in plant breeding and crop improvement.

Plant phenotyping – studying plant growth characteristics under varying conditions – has emerged as a vital research area for tackling agricultural challenges in the face of climate change. The grant will support the establishment of two state-of-the-art indoor controlled-environment facilities at Stellenbosch University and the University of Pretoria. These will complement the Agricultural Research Council's (ARC) existing outdoor phenotyping platform, which features advanced sensor technologies. Together, these facilities will form a cohesive national infrastructure.

The initiative builds on nearly a decade of collaborative efforts that have laid the foundation for this ambitious project, which aims to unite researchers in advancing plant science.

www.phenosa.org.za

Capacitating One Health in Eastern and Southern Africa (**COHESA**)

The COHESA project aims to generate an inclusive research and innovation ecosystem that facilitates uptake, adaptation and adoption of solutions to global health threats affecting people, animals and the environment that can be addressed by a One Health approach. This will be done through capacity building initiatives in 12 eastern and southern Africa countries.

Project activities will be undertaken through four work packages, namely, knowledge sharing, One Health governance, research and education, and delivery of One Health solutions.

It is co-funded by the Research and Innovation Programme of the Organization of African, Caribbean and Pacific States (OACPS), with the financial support of the European Union.

NURTURING THE NEXT GENERATION OF SCIENTISTS

The ACGT is committed to fostering the next generation of scientists by supporting initiatives that empower early-career researchers in genetics, genomics and related fields. Through strategic collaborations with its partner institutions, ACGT facilitates networking opportunities, skills development, and knowledge sharing. One such initiative is the Young Emerging Genetics and Genomics (YEGG) Symposium, which brings together young researchers to showcase their work, exchange ideas, and engage with experts. By supporting platforms like YEGG, ACGT plays a vital role in strengthening research capacity and innovation in the region.

Research Collaboration Camp

ACGT hosts the Research Collaboration Camp, a vibrant and interactive gathering designed to cultivate meaningful connections among researchers from diverse scientific backgrounds. This initiative serves as a dynamic platform where scientists, academics, and industry professionals can engage in insightful discussions, exchange knowledge, and share expertise across multiple research disciplines. Participants have the opportunity to present their ongoing research, explore potential synergies, and develop innovative joint projects that address pressing scientific challenges. Beyond knowledge sharing, the camp encourages problem-solving and creative thinking, offering attendees the chance to form new partnerships that drive impactful research outcomes. ACGT's Research Collaboration Camp plays a vital role in bridging the gap between researchers and fostering groundbreaking collaborations that can transform the scientific landscape.

NURTURING THE NEXT GENERATION OF SCIENTISTS

Bioinformatics training

The ACGT has significantly advanced bioinformatics in South Africa through strategic collaborations with leading institutions, nationally and internationally. Partnering with the Centre for Bioinformatics and Computational Biology at the University of Pretoria, ACGT has hosted workshops to equip life scientists with essential data analysis skills. Additionally, ACGT has worked alongside the University of the Witwatersrand's Bioinformatics Facility, which offers courses and research projects in bioinformatics, including studies on viral diversity and genome-wide association studies. The Centre has also collaborated with the University of Johannesburg, the University of South Africa, North-West University, and Tshwane University of Technology to promote metabolomics research through Metabolomics South Africa (MSA), facilitating training workshops, webinars, and symposiums to foster networking and capacity building among researchers and students. Internationally, the ACGT have strong links with European and American experts, many of whom have hosted in-person, hands-on bioinformatics courses for the partnership. These initiatives underscore ACGT's commitment to enhancing bioinformatics expertise and research capabilities across the region.

CAPACITY BUILDING

SABINA Network

The Southern African Biochemistry and Informatics for Natural Products (SABINA) Network focuses on the training of postgraduate students by creating opportunities for networking within the SADC region. Funding by the Carnegie Corporation of New York, through SIG-RISE, as well as the South African Department of Science and Innovation (DSI), has contributed to the development of a virtual research environment and the provision of full bursaries for postgraduate scholars, including research costs.

The African, Caribbean and Pacific group of states of the European Union Science and Technology Programme (ACP-EU S&T) funded a parallel programme to develop policies and support specific complementary programmes of the SABINA network (POL-SABINA).

GMASSURE

The GMASSURE Action (Assuring Agricultural and Food Safety of Genetically Modified Organisms (GMOs) in Southern Africa) was also funded by the ACP-EU S&T programme. In addition to the South African partner institutions, it included partners in Zimbabwe, Namibia and Denmark, and offers numerous networking opportunities between partners, institutions and beneficiary countries.

Its focus was on increasing agricultural productivity in SADC by improving knowledge about, and increasing capacity in, agricultural biosafety and biotechnology, and the safe use of genetically modified agricultural crops. It presented various capacity-building workshops to role-players from academia, government and industry from all countries in the SADC region.

Contact us

Innovation Africa @UP
University of Pretoria, South Street, Hillcrest Campus

John Becker – Centre Manager
Email: john.becker@up.az.za
Tel: +27 12 420 6147

Molati Nonyane – Programme Manager
Email: molati.nonyane@up.ac.za
Tel: +27 12 420 6139

Daizy Masemola – Senior Liaison Officer
Email: daizy.masemola@up.ac.za
Tel: +27 12 420 6007

Itseng Malao – Office Manager
Email: itseng.malao@up.ac.za
Tel: +27 12 420 6000/10

Get involved

Whether you are a researcher, industry partner
or science enthusiast, we invite you to be part of a growing community dedicated to transformative science. Together, we can harness the power of biotechnology to foster sustainable development and improve lives across Africa.

Networking: Contribute to and access skills and expertise based on collaborative needs.

Mailing list: Stay updated on collaborative and funding opportunities.

Join our community!

www.acgt.co.za