PIONEERING WORLD-CLASS DRUG DISCOVERY IN AFRICA
MISSION AND VISION

Prof Kelly Chibale
H3D Director

Vision
To be the leading organisation for integrated drug discovery and development on the African continent.

Mission
- Discover and develop innovative, life saving medicines for African patients
- Through excellence in interdisciplinary, translational science
- We embrace partnerships
- We train scientists to be world experts
SCIENTIFIC ADVISORY AND MANAGEMENT BOARD

Prof. Dennis Smith
Former Vice President, Pharmacokinetics, Pfizer, UK

Prof. Brian Cox
Professor of Pharmaceutical Chemistry, University Of Sussex, UK. Former Head of Chemistry, Novartis Institute of Biomedical Research, Horsham, UK

Dr. Brigitta Tadmor
Former Vice President and Global Head, Education, Diversity and Inclusion, Novartis Institute for Biomedical Research, Cambridge, USA

Prof. Paul Herring
Chair Novartis Institute for Tropical Diseases, and former Head of Pharma Research and Head of Corporate Research at Novartis, Switzerland

Sir Simon Campbell
Former Senior Vice President and Head of World Wide Discovery, Pfizer, UK

Prof. Tanya Parish
Vice President, Drug Discovery Infectious Disease Research Institute, USA

Dr. Tim Wells
Chief Scientific Officer, Medicines for Malaria Venture, and former Head of Research at Serono, Switzerland

H3D’s Scientific Advisory and Management Board (SAMB) consists of world-renowned, industry experts who offer their guidance and expertise to the drug discovery projects.

SCIENTIFIC LEADERSHIP

Prof. Kelly Chibale
Academic drug discovery >20 years

Dr. Greg Basarab
AstraZeneca and DuPont >30 years

Dr. Leslie Street
Merck & Co. and Cortex >25 years

Dr. Sandeep Ghorpade
AstraZeneca >10 years

Prof. Joe Eyermann
AstraZeneca and DuPont >30 years

Dr. Rudolf Mueller
Biotech and Chemical Industry >15 years

H3D was founded in 2010 as a University of Cape Town (UCT) accredited research centre. The Centre officially opened its doors in 2011 and has grown rapidly to > 54 personnel by Jan 2017. To complement the phenomenal growth of the centre, H3D recruited industry professionals with over 100 years of combined experience in the Pharmaceutical and Biotech Industry.
MEDICINAL CHEMISTRY AND COMPUTER-AIDED DRUG DISCOVERY

Medicinal chemistry involves a thorough understanding of synthetic organic chemistry, the drug discovery principles required to optimise hit compounds for potency against the target and the many other properties that lead to a new drug. H3D has a fully equipped world-class medicinal chemistry laboratory with >20 chemists working across the various drug discovery projects.

H3D has a dedicated Computer-Aided Drug Discovery (CADD) laboratory which employs state-of-the-art technologies to help decrease the time and cost of discovering new drugs. Using specialized software packages to integrate the available physical properties of a drug candidate and structural biology of the drug target, the computational chemists develop in silico models which guide medicinal chemistry projects.

BIOLOGY: TUBERCULOSIS, MALARIA AND DRUG RESISTANT INFECTIONS

H3D has a dedicated TB (Tuberculosis) biology team housed at the Institute of Infectious Disease and Molecular Medicine (IDM). The TB biology team routinely conducts whole cell screening, biology triage and target identification studies for the TB projects. In addition, H3D has access to TB assays through the Tuberculosis Drug Accelerator (TBDA) partners.

H3D has a parasitology team that performs in vitro blood stage screening as well as in vivo efficacy studies in a humanized Plasmodium falciparum mouse model. H3D also has access to secondary screening in gametocytes and liver stage through partnerships with the Council for Scientific and Industrial Research (CSIR), University of Pretoria (UP), University of the Witwatersrand (Wits) and National Health Laboratory Services (NHLS).

H3D is currently developing a Drug Resistant Infections (DRI) biology team, also based at the IDM, investigating antibacterial medicines to address global DRIs and focussing on the most problematic bacteria that are resistant to current antibiotics. Besides whole cell screening against bacterial pathogens, efforts are ongoing to understand specific resistance mechanisms.
H3D has a dedicated drug metabolism and pharmacokinetics (DMPK) team of >10 scientists housed in laboratories at Groote Schuur Hospital on the Medical School campus at UCT. H3D DMPK capabilities include world-class in vitro Absorption, Distribution, Metabolism, Excretion and Toxicology (ADMET) assays. These include measuring the metabolic stability of compounds and identifying metabolites as well as drug physicochemical properties such as aqueous solubility and ability to permeate into tissues - critical information for designing new drug leads.

The H3D DMPK team routinely conducts in vivo PK (pharmacokinetics) evaluations in rodents to aid decision making with respect to progressing compounds into in vivo efficacy assays and to delineate PD (pharmacodynamics) relationships.
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