INSTITUTE OF INFECTIOUS DISEASE AND MOLECULAR MEDICINE (IDM)

Director: Professor Valerie Mizrahi

Institute Profile

The IDM is a trans-faculty postgraduate research institute with research focusing on infectious diseases, particularly HIV/AIDS and tuberculosis; non-communicable diseases including prevalent cancers; genetic medicine; and molecular medicine. The Institute is distinguished by research that is carried out at the laboratory-clinic-community interface, and across a wide range of scientific and clinical disciplines.

The IDM’s Ten-Year Anniversary Symposium was held in November under the theme “Driving Research for Human Health in Africa”. The symposium opened with the 3rd annual Wolfson Memorial Lecture, presented by Prof Mark Davis from Stanford University and the HHMI. The symposium coincided with the biannual meeting of the IDM’s International Scientific Advisory Committee and the URC’s quinquennial review of the IDM, both of which were very successful.

Journal publications co-authored by Full or Associate Members of the IDM totalled 292 and included papers in the New England Journal of Medicine, Nature, PLoS Medicine and Lancet Infectious Diseases. Significant scientific advances with implications for health policy and practice were made in the areas of HIV vaccine development (Prof Carolyn Williamson & colleagues), treatment regimens for cryptococcal meningitis (A/Prof Graeme Meintjes, CIDRI, with colleagues from the USA and Uganda), and TB prevention in HIV-infected individuals (involving Prof Robert Wilkinson, CIDRI).

Research income totalled R337.8 million from funders including the US NIH, Bill & Melinda Gates Foundation, Wellcome Trust, Aeras Global TB Vaccine Foundation, and South African Medical Research Council (SAMRC). Personal awards included an A1 NRF rating to Prof Robert Wilkinson (CIDRI); the Weber-Parkes Medal 2014, Royal College of Physicians of London, and A2 NRF rating to Prof Robin Wood (DTHC); the SAMRC Platinum Medals for lifetime outstanding scientific achievements to Profs Gregory Hussey & Robin Wood; and the SAMRC Silver Medal for substantial contributions to science or capacity building in medical research in South Africa to A/Prof Tom Scriba (SATVI).

Capacity building remained a priority, with the IDM’s Mid-Career Fellowship Programme funded by the Hasso Plattner Foundation supporting 5 emerging researchers; and the UCT Carnegie Corporation-funded Developing the Next Generation of Academics programme supporting 9 PhD students and 6 postdoctoral fellows. Two Master Classes in advanced areas of research technology, presented by international experts, contributed to staff and student development. New equipment acquisitions included a TSQ Vantage triple quadrupole mass spectrometer, and an automated liquid handler for use in TB drug screening (totaling R8 million).

Collaborations continued with researchers based at 16 South African institutions, 36 institutions in 21 other African countries, and 110 institutions in 21 countries further afield. Researchers participated in 52 research consortia, and in co-operative research initiatives with 20 international and 9 national industrial partners. Member groups continued to lead major outreach programmes to local communities, training health care workers across multiple organisations; and facilitating the establishment of a new public/private clinic in George. A Wellcome Trust International Engagement Award was won by 3 IDM laboratory-based PhD students for their programme using innovative methods to empower youth with knowledge about TB. The IDM hosted 53 international visitors, and the DTHF Youth Centre at Masiphumelele hosted the EU Commissioner for Research, Science & Innovation together with the Minister of Science & Technology, Dr Naledi Pandor.

Institute Statistics

Staff

All IDM Members and academic staff in Member groups are appointed in academic departments.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
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<tbody>
<tr>
<td>Professors</td>
<td>22</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>11</td>
</tr>
<tr>
<td>Senior Researchers</td>
<td>8</td>
</tr>
<tr>
<td>Research officers &amp; lab, clinical and field site assistants</td>
<td>205</td>
</tr>
</tbody>
</table>
Finance and procurement staff | 26  
Technical, operational and administrative staff | 25  
**Total** | **297**  

**Students and Postdoctoral Fellows**

These figures reflect only those based in the IDM Complex and Falmouth building where the majority of IDM Members’ research groups are based:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
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<tbody>
<tr>
<td>Postdoctoral fellows</td>
<td>61</td>
</tr>
<tr>
<td>Doctoral</td>
<td>104</td>
</tr>
<tr>
<td>Masters</td>
<td>60</td>
</tr>
<tr>
<td>Honours</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>255</strong></td>
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**Areas of Interest/Expertise**

**Full Members**

**PROFESSOR VALERIE MIZRAHI**  
IDM Director  
MRC/NHLS/UCT Molecular Mycobacteriology Research Unit & DST/NRF Centre of Excellence for Biomedical TB Research  
Department of Clinical Laboratory Sciences  
Mycobacterial physiology & metabolism relevant to TB drug resistance and drug discovery

**PROFESSOR LINDA-GAIL BEKKER**  
Desmond Tutu HIV Centre (DTHC)  
Department of Medicine  
Pathogenesis of tuberculosis and HIV infection

**PROFESSOR JONATHAN BLACKBURN**  
SARChI Chair in Applied Proteomics & Chemical Biology  
Department of Clinical Laboratory Sciences

**PROFESSOR FRANK BROMBACHER**  
SARChI Chair in Immunology of Infectious Diseases in Africa  
MRC/UCT Immunology of Infectious Diseases Unit  
Department of Clinical Laboratory Sciences

**PROFESSOR KELLY CHIBALE**  
SARChI Chair in Drug Discovery  
H3-D Centre for Drug Discovery & Development  
Department of Chemistry

**PROFESSOR CLIVE GRAY**  
Department of Clinical Laboratory Sciences  
Immunopathogenesis of HIV, CD4 and CD8 T cells, vaccine-induced immunity

**PROFESSOR JANET HAPGOOD**  
Department of Molecular and Cell Biology  
Steroid receptors, glucocorticoid receptor, immune function and HIV-1 pathogenesis

**ASSOC PROFESSOR MARK HATHERILL**  
SA Tuberculosis Research Initiative (SATVI)  
Department of Paediatrics & Child Health  
Childhood TB

**PROFESSOR GREGORY HUSSEY**  
Vaccines for Africa  
Department of Clinical Laboratory Sciences  
Vaccinology, clinical trials, tuberculosis, paediatric infectious diseases

**ASSOC PROFESSOR MUAZZAM JACOBS**  
Department of Clinical Laboratory Sciences  
Experimental tuberculosis and immunology

**PROFESSOR ARIEH KATZ**  
MRC/UCT Receptor Biology Research Unit  
Department of Clinical Laboratory Sciences  
G protein-coupled receptors, kisspeptin, cervical cancer, Kaposi sarcoma

**PROFESSOR SUSAN KIDSON**  
Department of Human Biology  
Cell and developmental biology, embryonic and skin stem cells

**ASSOC PROFESSOR DARREN MARTIN**  
Computational Biology  
Department of Clinical Laboratory Sciences  
Bioinformatics, virus evolution, genetic recombination

**ASSOC PROFESSOR GRAEME MEINTJES**  
Clinical Infectious Diseases Research Initiative (CIDRI)  
Department of Medicine  
HIV-associated TB, TB-associated immune reconstitution inflammatory syndrome (TB-IRIS), cryptococcal meningitis

**PROFESSOR PETER MEISSNER**  
Porphyrins, porphyrias, liver disease

**PROFESSOR ROBERT MILLAR**  
MRC/UCT Receptor Biology Research Unit  
Department of Clinical Laboratory Sciences  
Peptide regulators of reproductive hormones

**PROFESSOR NICOLA MULDER**  
Computational Biology  
Department of Clinical Laboratory Sciences  
Bioinformatics of infectious diseases

**PROFESSOR MARK NICOL**  
Department of Clinical Laboratory Sciences  
Novel diagnostics for tuberculosis, strain biology of tuberculosis

**ASSOC PROFESSOR JO-ANN PASSMORE**  
Department of Clinical Laboratory Sciences  
HIV/HPV mucosal immunology

**PROFESSOR RAJKUMAR RAMESAR**  
MRC/UCT Human Genetics Research Unit  
Department of Clinical Laboratory Sciences  
Genetic predisposition to cancer, eye or neuropsychiatric diseases
PROFESSOR ED RYBICKI
Department of Molecular and Cell Biology
Vaccine, viral and plant biotechnology, molecular virology and viromics

PROFESSOR TREVOR SEWELL
Director: Electron Microscope Unit
Department of Clinical Laboratory Sciences
Large biological structures, inter-molecular interactions, chaperoning nitrilases and chromatin

PROFESSOR ED STURROCK
Department of Clinical Laboratory Sciences
Protein biochemistry, protease inhibitor design, ectodomain shedding of angiotensin-converting enzyme

HON. PROFESSOR ROBERT WILKINSON
Clinical Infectious Diseases Research Initiative (CIDRI)
Department of Medicine
Tuberculosis and the effect of HIV infection

PROFESSOR ANNA-LISE WILLIAMSON
SARChI Chair in Vaccinology
Department of Clinical Laboratory Sciences

PROFESSOR CAROLYN WILLIAMSON
Department of Clinical Laboratory Sciences
HIV diversity and pathogenesis, HIV-1 vaccine development, microbicides

EMER. PROFESSOR ROBIN WOOD
Desmond Tutu HIV Centre (DTHC)
Department of Medicine
Pathogenesis of tuberculosis and HIV infection

ASSOC PROFESSOR VIRNA LEANER
Department of Clinical Laboratory Sciences
Transcriptional regulation and cancer biology

DR SUZAAAN MARAIS
Clinical Infectious Diseases Research Initiative (CIDRI)
Department of Medicine
Tuberculous meningitis; neurological TB-associated immune reconstitution inflammatory syndrome; HIV-associated neurological disorders

ASSOC PROFESSOR CATHERINE ORRELL
Desmond Tutu HIV Centre (DTHC)
Department of Medicine
HIV: adherence, retention and resistance

DR CATHERINE RIOU
Department of Clinical Laboratory Sciences
T cell immunology, HIV/TB co-infection

DR GEORGIA SCHÄFER
Department of Clinical Laboratory Sciences
Oncogenic viruses, host-pathogen interactions, cancer biology, transcriptional regulation

ASSOC PROFESSOR THOMAS SCRIBA
SA Tuberculosis Research Initiative (SATVI)
Department of Paediatrics & Child Health
Clinical immunology, tuberculosis and mycobacterial infection, novel TB vaccines

ASSOC PROFESSOR DIGBY WARNER
MRC/NHLS/UCT Molecular Mycobacteriology Research Unit & DST/NRF Centre of Excellence for Biomedical TB Research
Department of Clinical Laboratory Sciences
Mycobacterial physiology, DNA repair and replication in Mycobacterium tuberculosis, drug resistance, role of vitamin B₁₂ in mycobacterial pathogenesis

ASSOC PROFESSOR KATALIN WILKINSON
Clinical Infectious Diseases Research Initiative (CIDRI)
Department of Medicine
Immunology of HIV associated tuberculosis

DR WENDY BURGERS
Department of Clinical Laboratory Sciences
HIV pathogenesis & vaccine immunology, HIV-TB co-infection

DR HELEN COX
Department of Clinical Laboratory Sciences
Epidemiology of TB & drug-resistant TB, TB diagnostics & treatment

ASSOC PROFESSOR COLLET DANDARA
Department of Clinical Laboratory Sciences
Pharmacogenomics, drug metabolism, human genetic variation, genetic susceptibility

DR WILLIAM HORSNELL
Department of Clinical Laboratory Sciences
Immunology of infectious diseases, helminth infections, acetylcholine signalling

DR HEATHER JASPAN
Department of Clinical Laboratory Sciences
HIV/AIDS, paediatrics, vaccines, adolescent and neonatal HIV prevention

Contact details

Physical address: Institute of Infectious Disease and Molecular Medicine
Wolfson Pavilion, UCT Faculty of Health Sciences
Campus, Anzio Rd, Observatory, Cape Town
Tel: 021-406 6063 / Fax: 021-406 6068
Postal address: Institute of Infectious Disease and Molecular Medicine
Faculty of Health Sciences, University of Cape Town
Private Bag X3, Rondebosch 7701, Cape Town
Website: http://www.idm.uct.ac.za