

# DEPARTMENT OF MEDICINE

## Research Report 2008

**Head of Department:** Professor B.M. Mayosi

### Departmental Profile

The Department consists of 16 clinical divisions and nine major research units. The clinical divisions are Acute General Medicine, Cardiology, Clinical Haematology, Clinical Immunology, Clinical Pharmacology, Dermatology, Endocrinology and Diabetology, Geriatric Medicine, Hepatology, Infectious Diseases and HIV Medicine, Lipidology, Medical Gastroenterology, Nephrology and Hypertension, Neurology, Pulmonology, and Rheumatology.

The Department has nine major Research Units: the Allergy Diagnostic and Clinical Research Unit, Albertina and Walter Sisulu Institute for Aging in Africa, Desmond Tutu HIV Research Centre, UCT/UCL Hatter Institute for Cardiovascular Research, UCT Leukaemia Unit, UCT Lung Institute, MRC/UCT Liver Research Centre, MRC/UCT/UWC Research Unit for Traditional Medicines and the World Health Organisation Collaborating Centre for Drug Policy.

### Departmental Statistics

#### Permanent and Long-term Contract Staff

Professors	12
Associate Professors	21
Senior Lecturers/lecturers Full-time	28
Administrative and clerical staff	34
<b>Total</b>	<b>95</b>

#### Honorary Staff

Honorary Professors	5
Emeritus Professors	3
Honorary Associate Professors	2
Honorary Senior Lecturers	39
Honorary Research Associates	2
<b>Total</b>	<b>51</b>

#### Students

Doctoral	30
Masters	100

Undergraduates	1000
<b>Total</b>	<b>1130</b>

## **Research Fields and Staff**

*See Divisions and Research Units within the Department*

## **Contact Details**

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## **DEPARTMENT OF MEDICINE DIVISION OF CLINICAL IMMUNOLOGY**

**Head of Division:** Associate Professor S.R. Ress

### **Divisional Profile**

The Division of Clinical immunology undertakes multi-disciplinary activities that include the evaluation of immune function in patients with suspected immune deficiency, and a basic and translational research programme focussed largely on HIV and TB immunology. This year saw pleasing expansion of staff and projects of Associate Professor Keertan Dheda's Lung Infection and Immunity Unit. Several visitors were hosted including Prof. Graham Rook (UCLA), who gave invited talks. We completed a 5 year NIH grant investigating the host response to TB and HIV. We congratulate Dr. Lynn Semple who obtained her PhD degree and Professor K. Dheda who took up a NRF-funded SA research chair as of October 2007.

### **Divisional Statistics**

#### **Permanent and Long-term Contract Staff**

Professors	1
Associate Professors	1
Postdoctoral scientists	2
Research Staff	2
Technical Support Staff	1
<b>Total</b>	<b>7</b>

#### **Students**

Masters	1
Doctoral	2
<b>Total</b>	<b>3</b>

### **Research Fields and Staff**

Associate Professor Stanley Ress  
Immunology of tuberculosis, neonatal immunity and BCG vaccination;

Associate Professor Keertan Dheda

Innate immunity in TB infection, TH2 cytokines and T-reg in pulmonary host immunity, novel and emerging technologies in TB diagnostics, Drug resistant TB, smoking and TB, diagnostic markers in pleural effusions, HCW screening for TB development

Ms Patricia Semple

CTL mediators granulysin and perforin expression in response to BCG vaccine and IFN- $\gamma$  treatment in TB

Dr Richard van Zyl Smit

Smoking and TB, IFN- $\gamma$  release assays in TB diagnostics and pleural effusions

Ms Marcia Watkins

Neonatal immunity and dendritic cells

Dr Alice Maredza

Treg in TB

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## **DEPARTMENT OF MEDICINE DIVISION OF ENDOCRINOLOGY AND DIABETIC MEDICINE**

**Head of Division:** Professor N.S. Levitt

### **Divisional Profile**

The Division provides an inpatient and outpatient clinical service and sub-speciality training in adult endocrinology and diabetes. It has close clinical links with Paediatric Endocrinology and Diabetes and Reproductive Endocrinology. Dr Joel Dave was appointed to a UCT Department of Education Senior Lecturer/Senior Specialist post and continues to work as a senior specialist in the division. We are currently a host training centre for Endocrinologists on the African Continent with Dr Adideo Adegite from Nigeria as our current supernumary senior registrar

### **Research**

The Division is involved in a wide range of research activities, interacts with a number of international and local collaborators and is a member of the recently established Sub-Saharan Centre for Chronic Disease Control. The primary areas are:

*Metabolic consequences of antiretroviral therapy in HIV+ patients:* Cross-sectional and longitudinal studies examining the metabolic consequences of HAART are underway. These are being funded by the World Diabetes Foundation and Department of Health.

*Burden of disease:* The contribution of diabetes and other chronic diseases to the overall burden of disease pattern in the South African context has been studied in collaboration with Dr Debbie Bradshaw, BOD Group, MRC. A cross sectional survey of diabetes and other cardiovascular risk factors in the Black African community in Cape Town is underway.

*Early Antecedents of Adult Onset Chronic Diseases:* We are engaged in examining whether low birth weight is associated with programming of the neuro-hormonal axes in particular responses to exercise and psychological stimuli in a cohort in Cape Town.

*Obesity:* A number of studies are in progress examining the mechanisms underlying the aetiology of obesity and the metabolic sequelae thereof in black and white African women as well as insulin secretion and sensitivity in these women.

*Addison's Disease:* The pathogenesis of Addison's disease is being investigated in collaboration with the Universities of Florida, USA and Uppsala, Sweden. Additionally a genetic component is being undertaken with Prof She, Augusta, USA. The metabolic and cardiovascular consequences of hydrocortisone replacement are currently being investigated in relation to Addison's disease.

*Health Systems Research:* Major projects include: i) an investigation of staff knowledge, practices and perceived barriers to the provision of lifestyle education for chronic diseases of lifestyle at the primary care level in the Western Cape and ii) interventions directed at improving healthcare delivery for diabetes and hypertension at the primary care level.

*Smoking in pregnancy:* The development and testing of interventions directed at reducing smoking rates during pregnancy.

## **Divisional Statistics**

### **Permanent and Long-term Contract Staff**

Professor	1
Professor (Hon)	1
Senior Lecturer	1
Senior Clinical Research Fellow	1
Senior Registrar in Training	1
Medical Officer (sessional)	1
Diabetes Specialist Nurse	1
Administrative and Clerical Staff	1
<b>Total</b>	<b>8</b>

### **Research Fields and Staff**

Professor N S Levitt

Diabetes and hypertension health systems research; diabetes burden of disease; the foetal origins of chronic diseases; mechanisms underlying the metabolic sequelae of obesity; metabolic consequences of HAART

Professor K Steyn

Hypertension health systems research, burden of chronic disease and smoking in pregnancy

Dr I L Ross

National registry for Study of Addison's Disease and polyglandular autoimmune syndrome; Cortisone replacement therapy and impact on multiple organ syndromes in Addison's Disease; Assessment of quality of care in the Diabetic Clinic at Groote Schuur Hospital.

Dr J Dave

Prevalence of undiagnosed hyperglycaemia in patients presenting with acute strokes;  
Incidence of osteoporosis and vertebral fractures in patents with inflammatory bowel  
disease; Metabolic consequences of antiretroviral therapy

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**DEPARTMENT OF MEDICINE  
DIVISION OF GASTROENTEROLOGY  
(Gastrointestinal Clinic)**

**Acting Head of GI Clinic:** Professor JEJ Krige

**Head: Medical Gastroenterology:** Dr GA Watermeyer

### **Divisional Profile**

The Gastrointestinal Clinic is a multi-disciplinary clinical unit consisting of Medical and Surgical components. This report primarily reflects the Medical component. The Clinic carries a large clinical load and offers a number of specialised services, with clinical and applied research interests in: Hepatobiliary disease; Colorectal disease; Oesophageal disease; Inflammatory bowel disease; *H.pylori* related disease; and Nutrition. The Clinic is involved in a number of collaborative research projects.

### **Divisional Statistics**

#### **Permanent and Long-term Contract Staff**

Lecturers	3
Research Staff	1
Administrative and Clerical Staff	1
<b>Total</b>	<b>5</b>

#### **Students**

Masters	3
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### **Research Fields and Staff**

Dr Gill Watermeyer

Risk of malignancy in inflammatory bowel disease treated with Azathioprine or 6-Mercaptopurine; TB versus Crohn's disease; genetics of gastric cancer (with Prof Schalk van der Merwe, University of Pretoria); Evaluation of mucins in IBD; NOD2 mutations in TB (with Prof Schalk van der Merwe, University of Pretoria); drug trials (various)



Dr Dave Epstein

GIT diseases in HIV; Osteoporosis in IBD; creation of a national IBD registry; Azathioprine in Ulcerative Colitis; differentiating intestinal TB from Crohn's Disease; endoscopy database design

Dr Dion Levin

Bleeding Peptic Ulcer Disease; *Helicobacter.pylori* testing.

### **Contact Details**

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**DEPARTMENT OF MEDICINE  
THE ALBERTINA AND WALTER SISULU INSTITUTE OF AGEING IN  
AFRICA/ DIVISION OF GERIATRIC MEDICINE**

**Acting Head of Institute of Ageing in Africa and Head of Division of Geriatric Medicine: Dr S. Kalula**

### **Institute Profile**

The Albertina and Walter Sisulu Institute of Ageing in Africa (IAA) is a Cross-Disciplinary Group. The IAA represents a coalescence of institute – wide disciplines with a focus on ageing: specifically Geriatric Medicine; Geriatric Neurology; Geriatric Neuropsychology and Psycho-geriatrics. The International Longevity Centre–South Africa is incorporated in the Institute. The vision of the IAA is to be an academic, clinical, research and policy centre of excellence and relevance in Africa. Its mission is to facilitate the delivery of the highest standard of inter-disciplinary, in-context training for health and allied professionals and evidence-based clinical and social care for older people, whilst undertaking appropriate research and audit upon which policy and planning for older persons may be based. The mission is achieved through inter-disciplinary partnerships and teamwork, and human resources development within current legal, ethical and financial constraints. The IAA is a leader in the area of research on ageing in sub-Saharan Africa, and enjoys international recognition and acclaim.

### **Institute Statistics**

#### **Permanent and Long-term Contract Staff**

Associate Professor	1
Senior Lecturers	3
Lecturers	2
Senior Researcher	1
Technical Assistant	1
Administrative and Clerical Staff	1
<b>Total</b>	<b>9</b>

#### **Honorary Staff**

Visiting Professor	1
Visiting Researcher	1
Senior Lecturer	1
Lecturer	2
<b>Total</b>	<b>5</b>

## Students

Doctoral	2
Masters	2
Honours	2
<b>Total</b>	<b>6</b>

## Research Fields and Staff

Dr Sebastiana Kalula  
Epidemiology of dementia; falls; quality of care.

Dr Linda de Villiers  
Stroke risk factors and rehabilitation; post-discharge stroke community care.

Associate Professor Marc Combrinck  
NRF Research Chair in Clinical Neurosciences: neuro-inflammation and mechanisms of neuro-degeneration with specific reference to cognitive impairment in the elderly and in HIV-associated encephalopathy.

Dr Kevin G.F. Thomas  
Senior Lecturer, Department of Psychology: geriatric neuropsychology; dementia; impact of stress on memory; impact of life stressors on age-related cognitive decline.

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## **DEPARTMENT OF MEDICINE HATTER INSTITUTE FOR CARDIOLOGY RESEARCH**

**Directors:** Emeritus Professor L.H. Opie and Professor B.M. Mayosi

### **Institute Profile**

The focus of the Hatter Institute is to study: 1) ways of protecting the heart against insults such as lack of blood flow (ischaemia) (Cardiac Protection Unit), and 2) the genetic basis of cardiomyopathy and other forms of heart disease (Cardiovascular Genetics Unit).

To achieve research excellence, we aim at producing work that achieves publication in the best internationally recognised journals and work that is of relevance to the society in which we live.

We also have an important teaching role, not only within the Medical School, but also by virtue of conferences and courses organised with our sister Hatter Institute at University College London, directed by Professor Derek Yellon. The annual Cardiology at the Limits meeting promotes high level postgraduate education. It brings together cardiologists from the United Kingdom and all over South Africa to listen to an intense updating on crucial cardiological issues “at the limits” of modern knowledge.

### **Research Collaborative initiatives:**

1. Division of Lipidology, Department of Medicine, University of Cape Town.
2. Cardiovascular Research Unit, Department of Cardiac Surgery, University of Cape Town.
3. University of Stellenbosch (Professor Amanda Lochner’s and Associate Professor Hanlie Moolman-Smook’s groups).

### **Other collaborations**

1. Collaboration with University College London, Hatter Institute, Division of Cardiology
2. Department of Cardiology, University of Pavia, Italy
3. Harvard Medical School, Boston
4. Division of Cardiovascular Medicine, Mayo Clinic and Mayo Medical School, Rochester, Minnesota
5. Department of Pharmacology, University of Dijon, France
6. Department of Medicine, Turku University, Finland, together with Positron Centre
7. Department of Cardiology, University of Geneva, Switzerland

## Institute Statistics

### Permanent and Long-term Contract Staff

Emeritus Professor	1
Professor	1
Associate Professor	1
Clinical Staff	1
Senior Lecturers	1
Research Staff	3
Laboratory Assistants	3
Administrative and Clerical Staff	1
<b>Total</b>	<b>12</b>

### Honorary Staff

Honorary Professors	2
<b>Total</b>	<b>2</b>

### Students

Post-Doctoral	2
Doctoral	3
Masters	5
Honours	1
	<b>11</b>

## Research Fields and Staff

Emeritus Professor Lionel Opie

Delineation of cellular and molecular mechanisms promoting cardiac protection

Professor Derek Yellon

Delineation of cellular and molecular mechanisms promoting cardiac protection

Professor Bongani Mayosi / Associate Professor Hanlie Moolman-Smook

Epidemiology, genetics, and treatment of non-ischaemic heart disease

Professor Peter Schwartz / Associate Professor Hanlie Moolman-Smook

Genetics of arrhythmogenic heart disease

Dr Sandrine Lecour (Group leader)

Delineation of cellular and molecular mechanisms promoting cardiac protection with special reference to Tumour Necrosis Factor alpha

Dr Roisin Kelly

Delineation of cellular and molecular mechanisms promoting cardiac protection via ethanolamine

Dr Joy McCarthy

Molecular regulation of cardiac energy metabolism and its contribution to heart disease

Ms Lydia Lacerda

Delineation of cellular and molecular mechanisms promoting cardiac protection with special reference to tumour necrosis factor (TNF)- $\alpha$ .

Mr. Sarin Somers

Molecular regulation of cardiac energy metabolism and its contribution to heart disease with special reference to role of nuclear factor STAT3.

Ms Tasneem Adam

Molecular regulation of defective cardiac energy metabolism in the diabetic heart and its contribution to heart disease

Mr Jonathan King

Delineation of cellular and molecular mechanisms promoting cardiac protection with special reference to potential clinical application.

Ms Kim Lamont

Analysis of new protective factors in red wine

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**DEPARTMENT OF MEDICINE  
MRC/UCT LIVER RESEARCH CENTRE  
(incorporating DIVISION OF HEPATOLOGY)**

**Directors:** Professor D. Kahn (Surgery) and Professor P.N. Meissner (Medicine & Medical Biochemistry from August 2008)

**Head (Liver Clinic):** A/Professor Wendy Spearman

### **Divisional Profile**

The Centre is multidisciplinary and its members consist of physicians, surgeons, biochemists and immunologists. It has laboratories in the Departments of Medicine and Surgery, and the Centre runs the only multidisciplinary, comprehensive, liver and porphyria clinics, including a liver transplantation program, in Africa. Major areas of research include: porphyria, viral hepatitis, chronic hepatitis, immune abnormalities in liver disease, liver transplantation, the role of portal systemic shunting in abnormal energy metabolism of liver disease, laparoscopic cholecystectomy, the treatment of bile duct calculi, the management of portal hypertension, mucins in liver disease, and new methods of liver resection. Members of the Centre are also involved full time in the South African HIV vaccine development. During 2008 12 research journal articles were published by members of the Centre. The MRC will be withdrawing it's funding for liver research from mid-2009 but research will continue under a variety of funded research projects. The Liver Clinic will continue to offer it's services and will strive to generate research output based on it's unique patient database.

### **Divisional Statistics**

#### **Permanent and Long-term Contract Staff**

Professors	3
Associate Professors	3
Senior Lecturers / Research Officers	5
Technical Support Staff	5
<b>Total</b>	<b>16</b>

#### **Honorary Staff**

Honorary staff	3
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#### **Students**

PhD students	4
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## Research Fields and Staff

H.N. Hairwadzi  
Autoimmune liver disease; viral hepatitis

D. Kahn  
Liver transplantation; liver regeneration

J.E.J. Krige  
Management of portal hypertension; new methods of liver resection laparoscopic cholecystectomy; treatment of bile duct calculi

E.G. Shephard  
Development of HIV vaccines; immunology of liver disease

C.W.N. Spearman  
Liver transplantation; viral hepatitis; non-alcoholic fatty liver disease

A.V. Corrigall  
Porphyria

A. Mall  
The role of mucus in the pathogenesis of gallstones

P.N. Meissner  
Porphyria

## Contact Details

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## **DEPARTMENT OF MEDICINE DIVISION OF INFECTIOUS DISEASES AND HIV MEDICINE**

(Partners include the Groote Schuur Infectious Diseases/HIV Unit, GF Jooste HIV Unit, Desmond Tutu HIV Centre, and the Laboratory of Mycobacterial Immunology [IIDMM])

**Head of Division:** Dr Marc Mendelson

### **Divisional Profile**

The Clinical Infectious Diseases (ID) Unit at Groote Schuur Hospital provides tertiary level care for specialist ID and HIV patients in Medicine, Surgery, Psychiatry, Obstetrics and Gynaecology at Groote Schuur and UCT's secondary level hospitals. We run a busy inpatient consult service and an HIV outpatient clinic. The work of the Division is intimately linked to the NHLS departments of Microbiology and Virology, providing a comprehensive ID service. A team of HIV counsellors, infection control nurses and clinic staff provide vital ancillary services to the Division. A collaborative initiative between the ID unit and that of, the Paediatric HIV unit (Dr P Roux) and HIV Neuropsychiatry (Dr John Joska) is in operation to expedite, optimize and increase access to ARV treatment at Groote Schuur and outreach sites. This initiative is generously funded by the Presidential Emergency Plan for AIDS Relief (PEPFAR) through the Perinatal HIV Research Unit (PHRU), part of the Wits Health Consortium.

GF Jooste Hospital serves a population of 1.3 million people with local HIV prevalence levels of approximately 30% and TB rates in the local population in excess of 1600/100,000. The hospital offers two main areas of HIV care:

- Consultation service to HIV positive patients or patients with complicated infectious diseases admitted to GF Jooste hospital wards.
- HIV Referral Unit: This clinic provides support to all primary ART clinics in the hospitals catchment area (>12,000 patients on ART - approximately 36% of all patients on ART in the Western Cape). The Unit is able to help support primary ART clinics in both the work-up of complicated patients who require ART as well as provide help when patients develop new opportunistic infections, immune reconstitution syndromes or drug complications after starting ART

The major research thrusts of the division are in HIV and Tuberculosis. Specific research areas are outlined below

## Divisional Statistics

### Permanent and Long-term Contract Staff

Associate Professors	2
Senior Lecturers	4
Registrars	3
Research Medical Officer	2
<b>Total</b>	<b>11</b>

### Honorary Staff

Honorary Professor	2
Honorary Senior Lecturer	2
Honorary Lecturers	2
Honorary Research Associates	3
<b>Total</b>	<b>7</b>

## Research Fields and Staff

Dr Steve Andrews

Phase III trials of novel antiretrovirals; Epidemiology of HCV in HIV patients; Training interventions and self-assessed HIV management outcomes in general practice.

Dr Helga Antonissen

Occupational exposure to blood/body fluid exposures; the relationship between the HIV positive health care workers and their susceptibility to infectious diseases, especially TB in the workplace.

Associate Professor Linda Gail Bekker

Phase I-III clinical trials in HIV prevention strategies. Research focus on HIV and TB interaction in the field. Operational research interest in antiretroviral programs and adherence strategies and training of lay HIV counsellors. Significant interest in adolescent HIV prevention.

Dr Rosie Burton

HIV-related pulmonary hypertension

Dr Armin Deffur

Role of networks in bioinformatics; Utility of 16s Ribosomal PCR in diagnosis of bacterial meningitis.

Dr Joe Jarvis

Clinical trial of Immunotherapy for Cryptococcal Meningitis, Prevalence and natural history of cryptococcal antigenaemia in HIV positive patients.

Dr John Joska

Neurocognitive disorders in HIV, mental health services, neuropsychiatry

Dr Chris Kenyon

Psychology of HIV denialism; Climate Change and Health in South Africa; Optimal strategies of Health Care Rationing in South Africa; HIV-related Polymyositis

Associate Professor Steve Lawn

HIV-associated tuberculosis. Tuberculosis and mortality within antiretroviral treatment programmes.

Dr Graeme Meintjes

Wellcome Trust Fellow and Senior Lecturer. Major research area is the TB-Immune Reconstitution Inflammatory Syndrome (TB-IRIS): MRC-funded randomised controlled trial of prednisone vs placebo for the treatment of mild and moderate TB-IRIS; Clinical, proteomic and genomic characterisation of the immune reconstitution inflammatory syndrome in HIV-associated tuberculosis. Aetiology of clinical deterioration in patients on TB treatment; cryptococcal meningitis.

Dr Marc Mendelson

Novel diagnostics for tuberculosis – biomarker discovery, HIV-related Pyrexia of Unknown Origin; Occupational exposure to blood borne viruses, Renal transplantation in HIV-positive patients.

Dr Mishal Pandie

The effect of immune reconstitution on gut microflora;

Dr Molebogeng Rangaka

Wellcome Trust Fellow. Epidemiology and treatment of tuberculosis in HIV-infected patients; the role of isoniazid preventive therapy in reducing TB infections in patients starting highly active antiretroviral treatment.

Dr Kevin Rebe

Men's Health Project – Cape Town. Recruitment and retention strategies for men having sex with men in HIV vaccine research; Adjunctive Interferon-gamma treatment for Cryptococcal Meningitis.

Dr Helen van der Plas

Resource provision for HIV-TB co-infected patients. The role of EBV PCR in diagnosis of primary CNS lymphoma

Dr Katalin Wilkinson

Senior Investigator Scientist at the National Institute for Medical Research, Mill Hill, London (Medical Research Council UK), seconded to the Institute of Infectious Disease and Molecular Medicine. Research interest is the immunology of tuberculosis.

Professor Robert Wilkinson

Director University of Cape Town Clinical Infectious Diseases Research Initiative, Wellcome Trust Senior Fellow (Chair of Infectious Diseases) at Imperial College London and an MRC Programme Leader at the National Institute for Medical Research, Mill Hill, London, UK (both posts held at UCT). Major research interest is tuberculosis.

Professor Robin Wood

Director of clinical trials of novel antiretroviral drugs; HIV-associated tuberculosis; HIV modelling; large scale rollout of antiretroviral therapy at primary care; mortality within antiretroviral programmes.

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## **DEPARTMENT OF MEDICINE DIVISION OF LIPIDOLOGY**

**Head of Division:** Associate Professor A.D. Marais

### **Divisional Profile**

Lipidology is a division of the Department of Medicine that performs the following functions: expert clinical consultation, specialised laboratory diagnosis, clinical research including drug development studies with the pharmaceutical industry, and laboratory research with students and on contract with industry. The staff, service and research are funded chiefly by contract research but there is support from the Medical Research Council. The clinical research describes the severe dyslipidaemias occurring in the public health sector of the province but includes some referrals from the private sector and academic institutions in the country. The laboratory research involves the setting up of cost-effective special assays for diagnosis of severe dyslipidaemias. The pharmaceutical studies are for the development of lipid modifying agents in severe dyslipidaemia and their effect on the carotid artery intima-media thickness.

### **Divisional Statistics**

#### **Permanent and Long-term Contract Staff**

Professor	1
Consultants	1
Medical Officers	2
Nursing sisters	3
Contract Dietitian	1
Sonographers	2
Laboratory Technologists	2
Junior Research Fellow	1
Technical Support Staff	1
Administrative Staff	1
<b>Total</b>	<b>15</b>

#### **Students**

Doctoral	0
Masters	2
<b>Total</b>	<b>2</b>

## Research Fields and Staff

A.D. Marais, S. Jones, D J Blom, B C Brice, K H Wolmarans, R J Jooste  
Severe dyslipidaemias including Familial Hypercholesterolaemia,  
Dysbetalipoproteinaemia, chylomicronaemia.

K. H. Wolmarans, J.E. Freislich, Z. Behardien, A. D. Marais  
Carotid intima-media thickness in dyslipidaemic patients

D.J. Blom, S. Jones, B D Ratanjee, A. D. Marais  
Dysbetalipoproteinaemia. Lipodystrophy.

K H Wolmarans, S Jones, R.J. Jooste, P.L.E. Cowie, C.A. Fuller  
Familial hypercholesterolaemia responses to colesevelam, atorvastatin and torcetrapib,  
and ezetimibe and simvastatin and laropirant combination with niacin and simvastatin.

D.M.Blackhurst, A. D. Marais. Also collaboration with Universities of Western Cape and Stellenbosch.  
Anti-oxidant effects of wine. Lipid peroxidation in rodent diabetes model.

B Mahala, S Jones, B.D. Ratanjee, A.D. Marais  
Familial binding defective apolipoprotein B100.

A D Marais, Brice BC, Wolmarans KH, Blom DJ, Jones S, Ratanjee BD in Collaboratio  
with Prof G Lambert, Heart Research Institute, Sydney, Australia. Plasma PCSK9  
levels in familial hypercholesterolaemia.

A D Marais, Brice BC, Wolmarans KH, Blom DJ, Jones S, Ratanjee BD in Collaboration  
with Dr G Erez at Hadassah University Hospital in Israel. Influence of single nucleotide  
polymorphisms in PCSK9 on LDL concentration in familial hypercholesterolaemia.

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## **DEPARTMENT OF MEDICINE DIVISION OF NEPHROLOGY AND HYPERTENSION**

**Head of Division:** Associate Professor B.L. Rayner

### **Divisional Profile**

Currently the new division offers a wide range of clinical services including chronic and acute dialysis, renal transplantation, assessment and treatment of a broad range of kidney disease and resistant hypertension, 24 blood pressure monitoring renal biopsies, prevention of chronic kidney, and cardiovascular risk assessment. The unit is now supported by a dedicated team of transplant surgeons. Treatment is offered to both private and indigent patients. It also offers out reach programmes to Khayelitsha Community Health Centre and GF Jooste Hospital locally, and to George Hospital, the Northern and Eastern Cape.

The division supports the Department of Medicine training of medical students, specialist physicians and professions allied to medicine as well as training specialist nephrologists.

The main academic research activities of the division relate to renal bone disease, treatment of anaemia in patients on dialysis, growth hormone to correct hypoalbuminaemia, transplant immunosuppression, treatment of systemic lupus erythematosus (SLE), metabolic syndrome and chronic kidney disease, leptin genes and chronic kidney disease, the R563Q mutation of the epithelial sodium channel, genetics of salt sensitive hypertension, diabetic nephropathy, HIV and the kidney, bioinformatics to detect candidate genes for chronic kidney disease and salt sensitive hypertension, the genetics of ACE inhibitor related angioedema in black and coloured South Africa, treatment of renal artery stenosis due to atherosclerosis and the effects of antiviral treatment on BP in patients living with HIV.

### **Divisional Statistics**

#### **Permanent and Long-term Contract Staff**

Associate Professors	2
Senior Lecturers	1
Emeritus Professor	1
Senior Registrar	1
Part-time Consultant	1
Medical Officers	2
Medical Registrars	3
<b>Students</b>	
PhD students	2
<b>Total</b>	<b>13</b>

## Research Fields and Staff

Associate Professor C.R. Swanepoel

Treatment of renal anaemia; new phosphate binders for renal bone disease; treatment of hypoalbuminaemia with growth hormone in dialysis patients

Dr Z Barday

Once daily Tacrolimus in transplant patients; Lupus nephritis study involving Abatacept; Sirolimus and proteinuria in transplant patients

Professor Brian Rayner

Cardiovascular outcomes in renal atherosclerotic lesion; The R563Q mutation of the epithelial sodium channel; Genetics of salt sensitive hypertension; Bioinformatics to detect candidate genes salt sensitive hypertension; The genetics of ACE inhibitor related angioedema in black and coloured South Africans; The effects of antiviral treatment on BP in patients living with HIV

Dr Yvonne Trinder

Contract research

Dr Ike Okpechi

Contract research

Dr Erica Jones

The R563Q mutation of the epithelial sodium channel gene mutations in hypertension

Dr Craig Arendse

Abatacept in SLE; Growth hormone in haemodialysis patients; Sirolimus/proteinuria trial

## Contact Details

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## **DEPARTMENT OF MEDICINE DIVISION OF CLINICAL PHARMACOLOGY**

(Including the MRC/UCT/UWC Research Unit for Traditional Medicines and the World Health Organisation Collaborating Centre for Drug Policy Research)

**Head of Division:** Professor Gary Maartens

### **Divisional Profile**

The major research thrusts of the division are in malaria, tuberculosis and HIV. The research in these fields is broad, encompassing drug discovery, pharmacokinetics, clinical trials, pharmacoepidemiology and pharmacoeconomic evaluation. The analytical laboratory has expanded its capacity, now based primarily on assays conducted on liquid chromatograph–mass spectrometers. A large multicentre malaria clinical research group headed by Prof Karen Barnes has secured substantial funding from the Gates Foundation and the Global Fund – this programme is at the forefront of translational malaria research in Africa. The MRC South African Traditional Medicines Research Group was extended for a further 5 years in 2008 following a favourable evaluation. This is a drug discovery programme with Prof Kelly Chibale, Dept Chemistry, UCT and Prof Pete Smith from our division as co-directors. Compounds with antimalarial, antibacterial (including anti-tubercular) and antifungal activity are identified from plants used in traditional medicine. A series of pharmacokinetic studies evaluating antitubercular drugs and the interaction between rifampicin and antiretroviral drugs in adults and children has commenced with funding from the Wellcome Trust, Department of Health and the EDCTP. Our collaboration on population pharmacokinetics with Uppsala University is ongoing, funded by NRF. A study on the pharmacokinetic-pharmacodynamic interaction of antitubercular drugs is funded by the MRC. An NIH-funded study of an intervention to improve antiretroviral adherence is ongoing. Pharmacoeconomics is an emerging interest, with several studies on antimalarial and antiretroviral drugs. A study funded by MRC and the Wellcome Trust has just been completed to evaluate the role of corticosteroids in paradoxical reactions in tuberculosis patients induced by antiretroviral therapy (in collaboration with Robert Wilkinson, IIDMM).

### **Divisional Statistics**

#### **Permanent and long term contract staff**

Professor	1
Associate professors	3
Senior Lecturers	2
Senior research officer	1
Registrars	3
Technical Support Staff	7
Information pharmacists	4

Clinical trial monitors	3
Administrative and Clerical Staff	6
Laboratory Assistants	2
<b>TOTAL</b>	<b>32</b>

### **Honorary Staff**

Honorary Lecturers	3
Honorary Research Associates	1
<b>TOTAL</b>	<b>4</b>

### **Postgraduate Students**

Post Doctoral	1
Doctoral	12
Masters	4
<b>TOTAL</b>	<b>17</b>

### **Research Fields and Staff**

K Barnes

Malaria, combination antimalarial therapy – operational and policy research.  
Antimicrobial pharmacokinetic studies to inform optimal dosing in vulnerable populations

M Blockman

Rational and cost-effective prescribing of medicines; drug utilisation review; adverse drug reaction monitoring; drug policy and regulation

WE Campbell

Phytochemical studies on indigenous Amaryllidaceae species; structural studies on active compounds isolated from traditional medicinal plants

K Cohen

Antiretroviral pharmacokinetics and efficacy; pharmacokinetics of antiretrovirals in tuberculosis; pharmacoepidemiology; prescribing of antimicrobials by primary care practitioners.

A Evans

Drug assay development

G Gabriels

Analytical Chemistry, Pharmacokinetics, Traditional Medicines, Drug Discovery and Development, Drugs and Sport Performance

G Maartens

Adherence to antiretroviral therapy; immunopathology & diagnosis of HIV-associated tuberculosis; pharmacokinetics of antiretrovirals in tuberculosis; pharmacoeconomic evaluation of antiretroviral therapy

H McIlleron

Pharmacokinetics and pharmacodynamics of anti-tuberculosis drugs; population pharmacokinetics; drug interactions between antiretrovirals and rifampicin.

U Mehta

Adverse drug reaction monitoring; pharmacovigilance; vaccines safety, drug regulation

PJ Smith

Mechanisms of antimalarial drug resistance; pharmacokinetics of anti-tuberculosis drugs; isolation of novel drugs from traditional medicines; development of new drug assays

## **Contact Details**

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# **DEPARTMENT OF MEDICINE DIVISION OF PULMONOLOGY**

(Including the University of Cape Town Lung Institute)

**Head of Division:** Professor E.D. Bateman

## **Divisional Profile**

The Division provides an inpatient and outpatient clinical service and sub-speciality training in pulmonology. In addition, it runs specialised clinics in interstitial lung disease, cystic fibrosis, work health (together with the Dept of Occupational Medicine) and lung cancer (together with the Dept of Radiotherapy & Oncology), an Allergy Service and consultant staff play a leading role in a number of clinical outreach activities relating to tuberculosis, including multi-drug resistant and XDR tuberculosis. Professor Bateman is Managing Director of the University of Cape Town Lung Institute, a wholly owned subsidiary of UCT, of which Professor S.R. Benatar is also a director. Assoc. Prof Gillian Ainslie served as acting head of the Division until September 2008 and with Professor Paul Potter is an alternate director of the Institute. Professor Bateman is Chair of the Global Initiative against Asthma (GINA), and serves on the Executive of the Global Alliance against Respiratory Diseases (GARD) of the World Health Organisation. He was an invited lecturer at several international congresses and visiting professor at several overseas universities during the year. Assoc. Prof Gillian Ainslie is convener of the Asthma Educator course of the National Asthma Education Program. Professor Paul Potter, Head of the Allergology Clinics, was appointed as a full professor in 2008, and is on the Board of Directors of the World Allergy Organization (WAO) and a member the WHO ARIA (Allergic Rhinitis and its Impact on Asthma) Executive Committee. The Division has had a productive year in research, and the recently formed Lung Infection and Immunity Unit has commenced an active programme. Assoc. Prof. Keertan Dheda took up the NRF-funded chair of Infection and Immunity and was awarded a UCT Junior Fellows Award for 2008. He assisted as faculty at the Pan African Thoracic Society MECOR course in Malawi to train African doctors in Research Methods. Professor Christopher Cooper, Visiting Professor from the University of California, Los Angeles, provided teaching and ran a course on Clinical Exercise testing and lung physiology and initiated several collaborative research projects. Dr Richard Raine undertook a six month study leave period at the Lung Institute. The third annual Clinical Tuberculosis Course for pulmonologists from the Netherlands was held in January. Dr Lara Fairall was nominated for membership of the WHO Expert Advisory Panel on Clinical Practice Guidelines and Research Methods and Ethics. Dr Rodney Dawson has set up satellite clinics at the Langa and Chapel Street Tuberculosis Clinics with the support of the City of Cape Town Health Department to assist recruitment for clinical studies and to support services in these clinics. At the former site a new building was constructed together with a novel booth for collection of induced sputum for diagnostic and research purposes.

## **Visitors**

Professor Christopher Cooper, University of California, Los Angeles, California, USA; Dr James Colthurst, London, England. Dr Michael Schull, University of Toronto, Canada. Dr Don Enarson, and Dr Christian Leinardi, International Union Against Tuberculosis and Lung Disease, Paris; Dr Max Bachmann, University of East Anglia, UK; Dr Merrick Zwarenstein, University of Toronto; Professor Madhu Pai, McGill University, Canada, Professor Ali Zumla, UCL, London. Professor Richard Chaisson and Professor Susan Dorman, Johns Hopkins University, Baltimore, USA; Professor Eugene Premmereur, Global Alliance; Dr Andrew Guise, London School of Health and Tropical Medicine, London; Professor Graham Rook, UCL, London, UK; Dr Stephan Schwander, USA;

## Divisional Statistics

### Permanent and Long-term Contract Staff

Professors	3
Associate Professors	3
Senior Lecturers	5
<b>Research Staff</b>	
Medical Officers	8
Nursing study co-ordinators	11
Scientists	6
Clinical Technologists in Pulmonology	7
Administrative and clerical staff	16
<b>Total</b>	<b>59</b>

### Students

Post-Doctoral Fellow	0
PhD	8
MPhil	6
<b>Total</b>	<b>14</b>

### Research Fields and Staff

Professor Eric Bateman

Epidemiology of lung disease; asthma management; chronic obstructive pulmonary disease; tuberculosis immunology and host defences, and management; respiratory disease management and knowledge translation

Associate Professor Gillian Ainslie

High resolution CT scanning in idiopathic pulmonary fibrosis; asthma education

Professor Paul C Potter

Clinical, diagnostic and laboratory allergology; immunotherapy; drug allergy; complement deficiency; latex allergy; antihistamines

Associate Professor Paul Willcox

Multi-drug-resistant tuberculosis; lung cancer; cystic fibrosis; community-acquired pneumonia

Associate Professor Keertan Dheda

Immunology of tuberculosis and lung disease; TB diagnostics; cigarette smoke and pulmonary pathogens; drug-resistant TB; poverty-related lung disease; cost-analysis studies and pulmonary infections

Dr Richard Raine

Epidemiology of sleep-disordered breathing; effects of cortisol on dreaming and sleep; dynamic hyperinflation during exercise

Dr Rodney Dawson

Immunology of tuberculosis; new drugs in tuberculosis, chest radiology reporting systems

Dr Lara Fairall

Guideline development and integrated management in primary health care; asthma, COPD tuberculosis and HIV treatment, knowledge translation

Dr Mary Bateman

Smoking cessation; pharmacology of asthma and COPD

Dr Anamika Jithoo

Epidemiology of lung disease

Dr Kim Narunsky

Tuberculosis drug development

Dr Jeanette Holtshausen

Asthma and COPD drug development

Dr Geoffrey Fatti

Asthma and COPD drug development

Dr Ruth Cornick

Integrated care guideline development and PALSAPlus training

Dr Kerry Uebel

PALSAPlus STRETCH programme for nurses in the Free State Province

Dr Di Hawarden  
Latex allergy; Drug allergy

Dr Richard van Zyl Smit  
Effect of cigarette smoke on pulmonary host immune responses to *Mycobacterium tuberculosis*; tuberculosis diagnostics

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## **DEPARTMENT OF MEDICINE DIVISION OF RHEUMATOLOGY**

**Head of Division:** Professor Asgar Ali Kalla

### **Divisional Profile**

The Division of Rheumatology has several research interests relating to different aspects of the rheumatic diseases. Osteoporosis is an area of interest for many years and there is ongoing collection of longitudinal bone mineral density data in patients with rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE). Age-related bone loss at different skeletal sites is being prospectively studied in collaboration with the Department of Nuclear Medicine and the Endocrine Unit. Clinical drug trials are in progress to study the safety and efficacy of the newer non steroidal anti inflammatory drugs (NSAIDS), in collaboration with the GIT Unit. These newer COXIBS are being evaluated in patients with RA and osteoarthritis (OA). All of these include collaborative participation with the GIT Unit, where gastropathy is an outcome variable, measured by gastroscopy. Recently, the trials of coxibs have included cardiovascular outcomes as well. We have also been looking at SLE genetics in collaboration with the Hepatology Unit at UCT. The rheumatic diseases unit provides in- and outpatient rheumatology services for the entire Western Cape region. Sessions are carried out at the Heideveld and Khayelitsha Community Health Centres 6 times a year. Training is provided on a continuous basis for medical students, allied health professionals, a senior house officer, two rotating medical registrars and two career registrars. Research is largely clinically orientated, but a laboratory-based approach is being used to study the genetics of SLE and the differentiation between flares and infection in SLE patients. Family studies have also been started in patients with SLE. In addition, there is very significant involvement in clinical drug trials in rheumatoid arthritis, systemic lupus erythematosus and osteoarthritis. Collaborative research is being carried out with the Liver Unit to study bone density in auto-immune hepatitis.

### **Divisional Statistics**

#### **Permanent and Long-term Contract Staff**

Professor	1
Lecturers	2
Research Staff	2
Nurse practitioner	1
Administrative and Clerical staff	1
<b>Total</b>	<b>7</b>

#### **Honorary Staff**

Honorary Lecturers	3
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## Students

Rotating Medical Registrar	2
Medical Officers (SHO)	1
<b>Total</b>	<b>3</b>

## Contact Details

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