



GoGlobal

Finland Workshop

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The vision of the is MRC :

‘Building a healthy nation through research’

The mission of the MRC is :

‘to improve the nation’s health and quality of life through promoting and conducting relevant and responsive health research’



Research Units

- Have both intra-mural and extra-mural research units (42 in total)
- The extra-mural units are in collaboration with medical schools/universities around the country



HIV and AIDS

**South African AIDS Vaccine Initiative (SAAVI)
HIV Prevention Research Unit
Genital Ulcer Disease Research Unit**

Tuberculosis

**Clinical and Biomedical Tuberculosis Research Unit
Tuberculosis Epidemiology and Intervention Research Unit
Centre for Molecular and Cellular Biology
Molecular Mycobacteriology**

Infectious Disease

**Diarrhoeal Pathogens Research Unit
Immunology of Infectious Disease Research Unit
Inflammation and Immunity Research Unit
Malaria Research Lead Programme
Respiratory and Meningeal Pathogens Research Unit**

**Cardiovascular Disease
and Diabetes**

**Chronic Diseases of Lifestyle Research Unit
Diabetes Research Group
Interuniversity Cape Heart Research Group
Exercise and Sports Science Research Unit**

Crime, Violence and Injury

Crime, Violence and Injury Lead Programme

Cancer

**Cancer Epidemiology Research Group
PROMEC Unit
Oesophageal Cancer Research Group**

Health Promotion

**Alcohol and Drug Abuse Research Unit
Health Promotion and Behavioural Interventions Research Unit**



Public Health

**Biostatistics Unit
Burden of Disease Research Unit
Cochrane Centre
Health Policy Research Group
Health Systems Research Unit
Rural Public Health and Health Transition Research Unit
Telemedicine Lead Programme**

Genomics and Proteomics

**Bioinformatics Capacity Development Research Unit
Bone Research Unit
Human Genetics Research Unit
Human Genomic Diversity and Disease Research Unit
Liver Research Centre
Molecular Hepatology Research Unit
Receptor Biology Research Group**

**Women, Maternal and Child
Health**

**Gender and Health Research Unit
Maternal and Infant Health Care Strategies Research Unit
Mineral Metabolism Research Unit**

Nutrition

nutrition Intervention Research Unit

Environment and Health

Environment and Health Research Unit

Brain and Behaviour

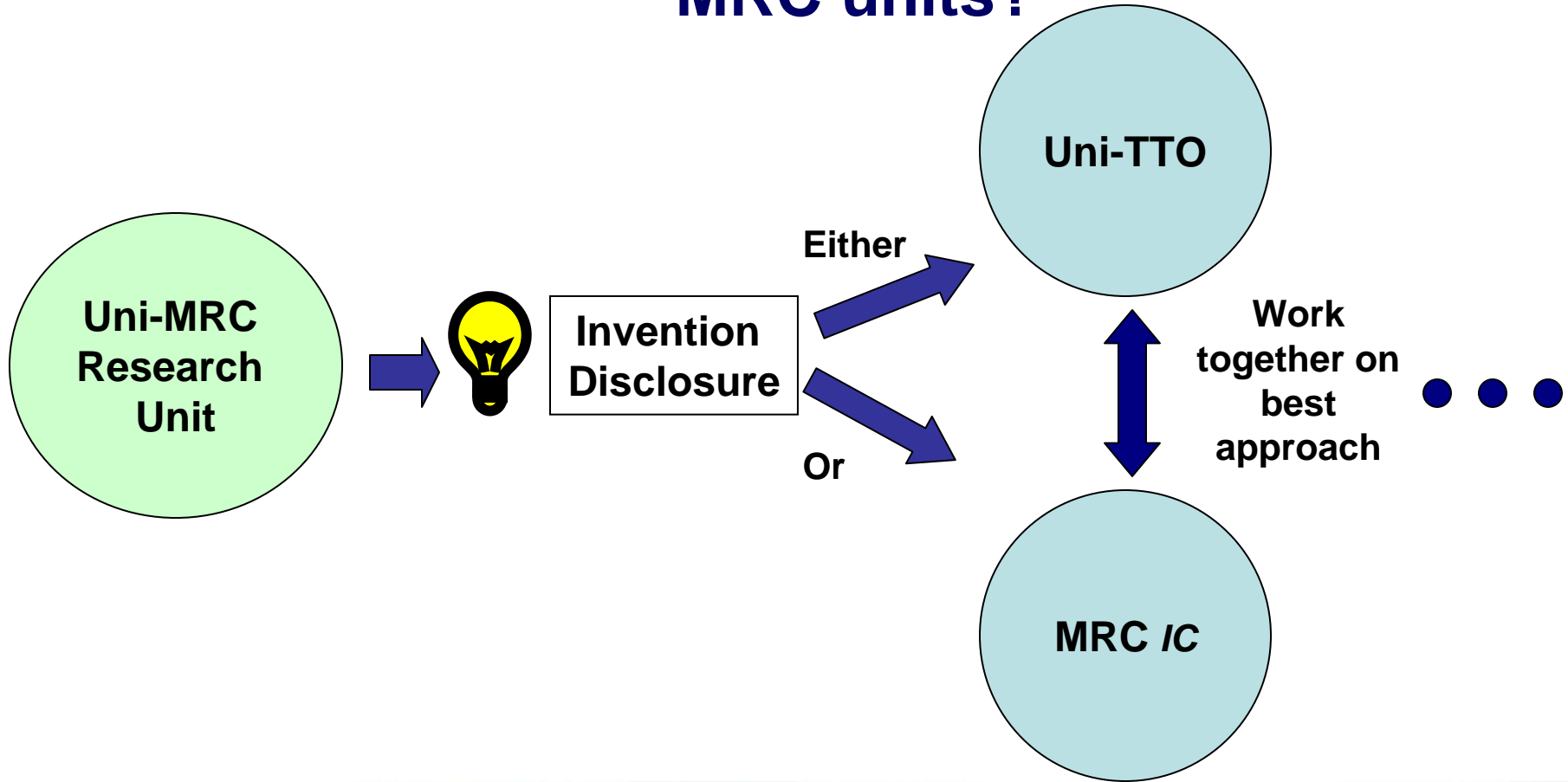
**Medical Imaging Research Unit
Anxiety and Stress Disorders Research Unit**

African Traditional Medicines

**South African Traditional Medicines Research Unit
Indigenous Knowledge Systems Lead Programme**



How do we operate with external MRC units?





Growth in MRC Income

Source of income Rands, thousands	2004/05	2005/06	2006/07	2007/08
Government Grants	156 695	154 388	157 284	180 222
Contracts, Grants and Services Rendered	128 560	162 429	176 547	237 216
Other income	19 005	17 537	18 233	39 585
Total	304 260	334 354	352 064	457 023
Year by year Increment	-	10%	5%	30%



Research Translation

MRC vision : *'building a healthy nation through research'*

Research makes no difference to health unless it is translated

GRIPPPP : Getting Research results Into :

Policy
Practice
Promotion and
Product

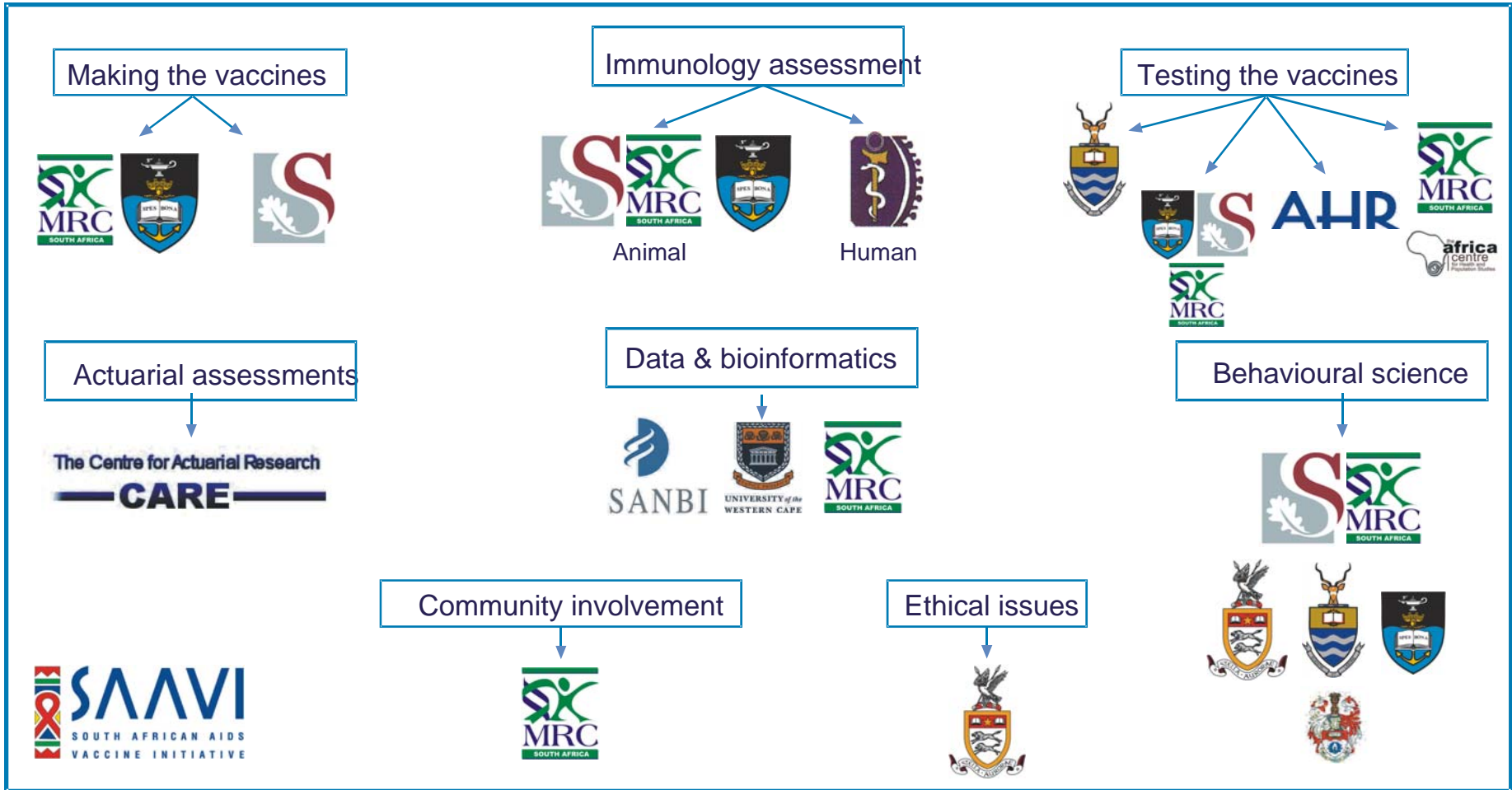
HIV and AIDS

- HIV Prevention Research Unit (HPRU) co-hosted the International Microbicide Conference 2006; and are currently conducting 4 of the 5 late stage global vaginal microbicide clinical trials.
A successful microbicide could reduce HIV transmission by 50% and would be woman-controlled
- HPRU awarded NIH Clinical Trial Unit to conduct clinical trials in microbicides, HIV vaccines, ARVs
- HPRU trial on ARVs for early seroconverters
- Cochrane Centre STEPP : Cotrimoxazole reduces mortality in AIDS by 30%
- Comprehensive Plan : 282 000 on Rx,
Mortality reduced from 30% p.a. to 10 - 15%
Research funds allocated R12m





South African AIDS Vaccine Initiative



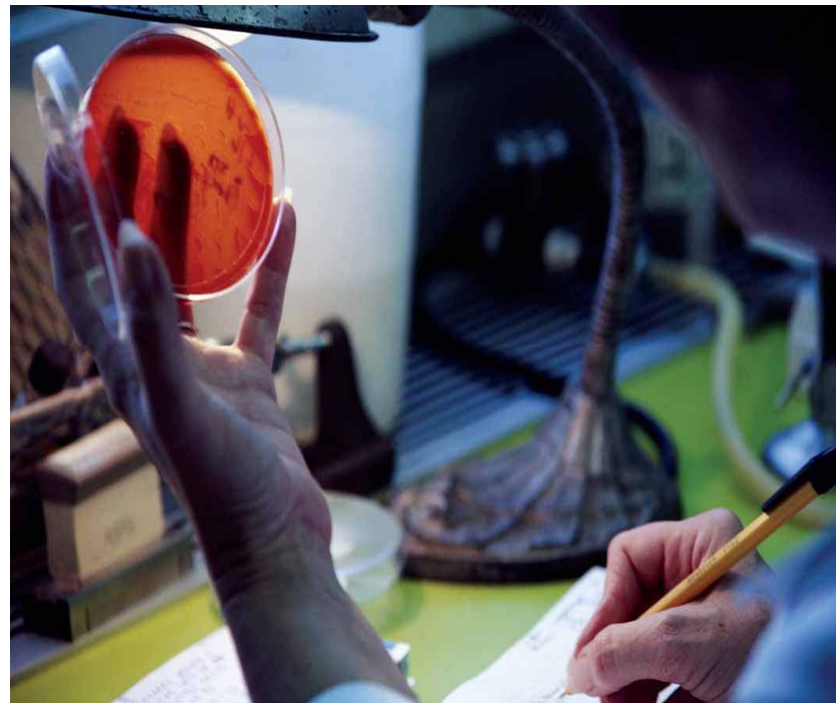


South African AIDS Vaccine Initiative

- Third round of funding for 2006–2009
- Grants totalling R50 million a year
- Competitive and internationally peer-reviewed evaluation mechanism
- Vaccine design and construction
- **22 Principal investigators**
- 14 women (60%) and 10 black investigators (40%)
- Three historically disadvantaged institutions and in rural areas
- Clinical trial sites doubled from three to six – encompassing six of the nine provinces of South Africa
- Community and behavioural science components of the research programme strengthened
- **Four Phase I trials, plus two Phase II trials completed or underway.**
- **Phase III trials should begin within a few years**
- Vaccine manufacture to be established at Biovac through technology transfer agreement with Italy via 23 million euro HIV vaccine clinical trial programme involving Department of Health, MRC and Biovac

Tuberculosis

- Centre for Molecular and Cellular Biology : molecular analysis through DNA-sequencing for resistant TB
- Molecular Mycobacteriology Research Unit : using targeted gene knockout revealed that mycobacteria are capable of modulating and redirecting the aerobic flow of electrons in response to pathway blockages
- Tuberculosis Epidemiology and Intervention Research Unit : in MDR-TB 90% cured in two-year treatment regimen. XDR TB.
- R9.5 million MDR TB rapid diagnostic demonstration begun with FIND Diagnostics and NHLS



Influenza and Pneumonia



- Influenza is the most likely infection to cause a global pandemic
- Respiratory and Meningeal Pathogens Research Unit : both HIV-negative and positive children in 30–40% of hospitalisations with influenza-associated pneumonia were due to bacterial co-infection with *Streptococcus pneumoniae*
- These episodes were prevented by administration of pneumococcal conjugate vaccine
- Prof MBewu appointed to GAVI Expert Group for US\$1.5 billion programme for Advanced Market Commitments to provide pneumococcal vaccines

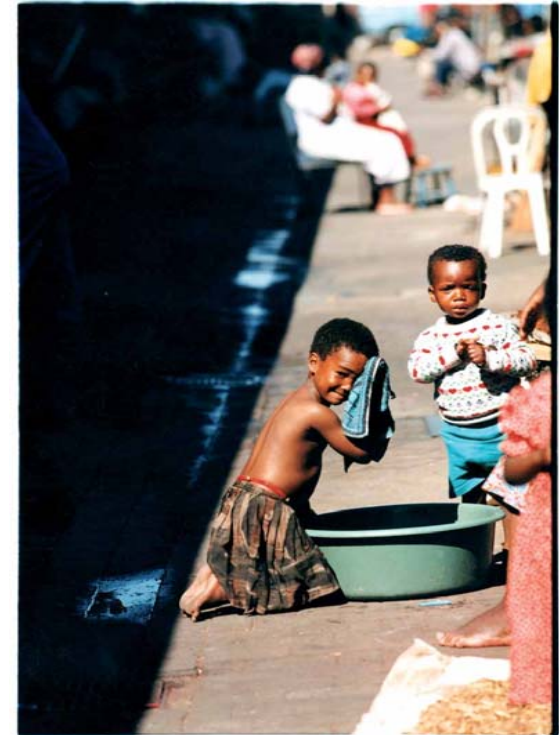
Malaria

- Lubombo Spatial Development Initiative :
Global Fund US\$20 million
- Rapid diagnostic tests for malaria
- WHO recommends vector control by indoor
residual spraying
with DDT
- Parasite control by definitive diagnosis and
effective treatment, especially of pregnant
women
- WHO : artemisinin-based combination therapy



Alcohol and Drug Abuse

- Alcohol and Drug Abuse Research Unit – increase in abuse of crack cocaine, methamphetamine ('tik') and methcathinone ('CAT')
- HIV prevention intervention in substance-abusing resulted in increased condom use, reduced alcohol and drug use



Nutrition

- Chronic Diseases of Lifestyle Unit – showed that a food intervention in a randomised controlled trial in a township of Cape Town in people with high BP could reduce BP
- Nutritional Intervention Research Unit – vitamin A important in resistance against diarrhoea and respiratory disease. NIRU showed that the orange-fleshed sweet potato provided two-and-a-half times the recommended dietary allowance of vitamin A for 4–8-year-olds.
- Distributed 10 000 calendar-posters promoting the vegetable; 4 000 orange-fleshed sweet potato cuttings



Maternal and Child Health



- Diarrhoeal Pathogens Research Unit - rotavirus vaccine phase II trials : to determine vaccine dosage; and involving HIV-positive children
- Maternal and Infant Health Care Strategies Research Unit : monitoring and evaluation of perinatal care in South Africa and in developing and testing implementation methodologies for new health strategies. Sentinel sites using the Perinatal Problem Identification Programme (PPIP)

African Traditional Medicines

- South African Traditional Medicines Research Unit – antimalarial activity *in vitro* of curcumin can be further improved by rationally-designed chemical modifications. Curcumin is a major component of turmeric spices used in food.
- Indigenous Knowledge Systems Research Lead Programme - state-of-the-art traditional medicines manufacturing facility has been established in Delft, Cape Town. Adjacent are quality assurance and quality control laboratories for validating traditional medicinal products
- Phase IIb clinical trails of 4 plant combination as immunomodulator for AIDS. Extracts of South African plant tested for activity against HIV infected PBMC cells



Telemedicine



- Telemedicine Lead Programme - primary health care telemedicine workstation has been developed specifically for developing countries. Testing site in Grabouw
- Evaluating the Mindset health channel's patterns of use and the effectiveness of its content : the channel is capable of increasing public awareness about HIV and AIDS and also of enhancing the knowledge of health professionals about the epidemic
- R17, 716,435 Telemedicine PPP project by the Department of Science & Technology in KwaZulu-Natal
- R750.000.00 for the monitoring and evaluation of the existing and planned telehealth systems in the Eastern Cape by the Provincial Department of Health



Kopano LifeSciences Consortium

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The Kopano LifeSciences Consortium was borne from the recognition that successful innovation in the life sciences can be best achieved through cooperation and collaboration. The consortium capitalizes on the collective networks, strengths and capacities of the three innovation centers located in the Western Cape, namely the **Medical Research Council Innovation Center (MRC IC)**, **Cape Biotech Trust (CBT)** and **Acorn Technologies (AT)**, so as to better deliver on our overall mandate to grow the life sciences industry in South Africa, with a specific focus on the Western Cape, while at the same time delivering on the key result areas of the three individual centers.

Anti-malarial

Technology Description

A novel substance with anti-malarial activity has been extracted from a ZZZZZZZ plant. The active compounds have been isolated and characterized. The anti-microbial activity of the compounds has been confirmed through *in vitro* tests. A unique method for extraction of the active substance from the plant material has also been developed.

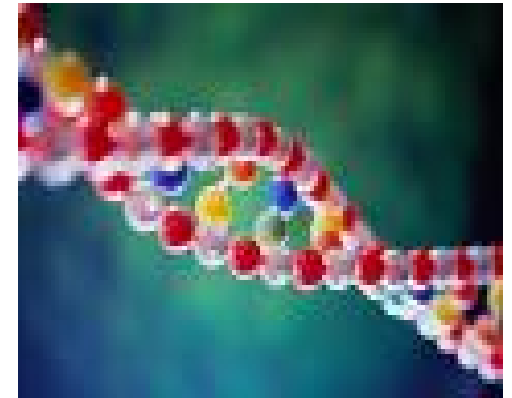




GENETIC KNOWLEDGE INTEGRATION - GKNOWMIX (PTY) LTD

Technology Description

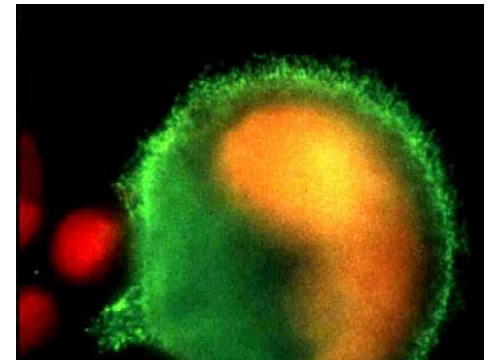
Gknowmix (Pty) Ltd offers a unique service that integrates genetic testing with clinical, pathology and lifestyle information for comprehensive health management of multi-factorial diseases. The risk factors are tested using multiple genetic markers associated with cardiovascular disease (CVD) and related conditions. An integrated web-based, knowledge and data management system under development will provide computer generated reports which will be quality controlled and validated before release back to the pathology laboratories and patients. The technology offering will be extended to incorporate various genetically-determined disease risk profiles.



OVARIAN CARCINOMA MONOCLONAL ANTIBODY

Technology Description

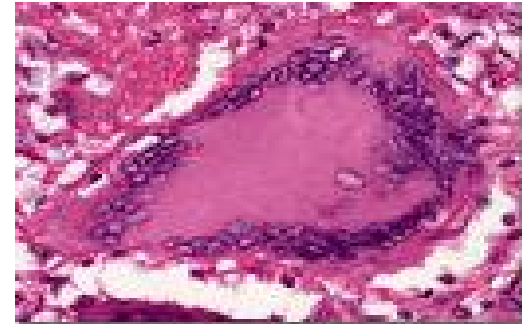
SM047 is a monoclonal antibody that binds to an epitope on a multivalent antigen which is associated with the glycocalyx of ovarian carcinoma (OvC) cells and a limited variety of other malignant and normal tissue. An SM047-based diagnostic assay for OvC has been developed, based on the detection of sialic acid residues on the tumour antigen in sera from cancer patients in ELISA format. In a small trial at the Tygerberg Hospital in Cape Town the test correctly identified a similar number of patients with cancer when compared to the well known CA125 tumour marker, with less false positive tests than CA125 at a cut off of 35 international units.



NOVEL ANTI-TUBERCULOSIS COMPOUND

Technology Description

Compound 21-57 is a novel anti-microbial compound produced by a newly discovered strain of *XXXXXXXXXXXXXXXXXX*. The compound has been isolated, purified and its anti-microbial activity confirmed in *in vitro* studies. The compound has been found to have low cytotoxicity and to be particularly active against *Mycobacterium tuberculosis*.





Thank you!

