

# SECTION B

## BRIEF SUMMARY

## CATEGORIES : PUBLIC HEALTH RESEARCH (1, 2, 3)

No	Title	Name	Surname	Project title	Brief Summary
1	Prof	LH	Opie	Cost-effectiveness of cardiovascular therapy.	Prof Opie is linked to the Hypertension Clinic and to the research therein. He is also closely linked to Harvard Medical School through Dr Tom Gaziano, a visiting established scientist, with whom contributions to understanding the cost-effectiveness of treatment of hypertension, heart attacks and stroke in the South African context are made.
2	Prof	F.	Raal	Evaluation of lipid changes and changes in insulin resistance during the Ramadhaan fasting month	
3	Prof.	HH	Vorster	THUSA Study (Transition, Health and Urbanisation in South Africa)	A cross-sectional epidemiological study conducted in 1850 African people throughout the NW Province during 1996-1998 to determine the effect of various strata of urbanisation on CVD and nutritional status.
4	Prof.	HS	Kruger	THUSA BANA (Transition, Health and Urbanisation in South African children)	A cross-sectional study conducted in 1237 children from 4 ethnic groups in the NW Province from 1999-2001, with the same aim as the THUSA study.
5	Dr.	A	Kruger	PURE study (Prospective Urban and Rural Epidemiological)	A longitudinal epidemiological study conducted in 1000 rural and 1000 urban African people, as well as 17 other developing countries. Project is steered by Prof. Salim Yusuf from Canada. Study started in 2005.
6	Dr	C	Draper	Evaluation of Community Health Intervention Programmes (CHIPs)	<p>This project is a retrospective, qualitative evaluation of CHIPs, a community-based physical intervention designed for disadvantaged communities, focusing on CHIPs' three main programmes: Healthnutz (for primary school learners), Optifit Outreach (a walking and aerobics programme for adults), and Live it Up (for older adults).</p> <p>The focus of this project is to obtain an understanding of the factors contributing to or hindering the success of CHIPs in the Western Cape, as well as to investigate members, leaders, staff and stakeholders' perceptions of CHIPs – it's strengths and areas that could be improved. The findings of this project should help to inform and guide the future of CHIPs, both in the Western Cape and nationally.</p>
7	Dr	C	Draper	Discovery Healthy Lifestyles Programmes (DHLPs)	<p>The DHLPs is a national pilot of CHIPs. Two CHIPs programmes, Healthnutz and Live it Up, are being piloted in Alexandra Township in Johannesburg, and two rural villages, each approximately 30kms outside Tzaneen in Limpopo province. The research arm of this project involves qualitative investigation and pre- and post- intervention testing with members of both programmes. The pre-testing for the Healthnutz programme includes a formative assessment in the schools concerned.</p> <p>The focus of this project is to track changes in physical fitness measures, as well as knowledge, attitudes and practices around physical activity in those receiving the intervention. In all settings (besides Live it Up in Alexandra), a control or delayed intervention group has been included. Qualitative methods have been used to identify factors contributing to the success and sustainability of these interventions.</p>

No	Title	Name	Surname	Project title	Brief Summary
8	Dr	N.	Morojele	South African Adolescent Smoking: A longitudinal study	The project involves research and capacity development components. The primary goal of the research is to determine the risk and protective factors for tobacco initiation, use and cessation among adolescents. A community survey involving 736 adolescents aged 12-17 years was completed in Johannesburg, South Africa. The capacity development component of the project seeks to improve the capacity of South African researchers by providing junior researchers with didactic and hands-on experiential training in the USA research site, and conducting training visits to various institutions in South Africa.
9	Prof	A.A	Motala	Prevalence of diabetes mellitus, obesity and metabolic syndrome and associated risk factors in a rural South African community of Zulu descent	
10	Prof	DP	Naidoo	Cardiovascular risk profile of an urban working class community	
11	Prof	K	Steyn	Adult Health Section of the South African Demographic and Health survey in 1998 and 2003	
12	Prof	S	Yusuf	INTERHEART Study - A case-control study to evaluate the impact on known CVD risk factors on acute Myocardial Infarction In 52 countries.	
13	Dr	S	Norris	Birth-to-Twenty Birth Cohort Study The risk factors for CVD and metabolic Diseases in children born in 1990 in Johannesburg and Soweto.	
14	Dr	R	Norman	The burden of disease of the risk factors hypertension and hyperlipidaemia in South Africa.	
15	Dr	N	Peer	The CVD and Metabolic Disease risk factor patterns in the peri-urban black townships of Cape Town	
16	Prof	S	Leeder	The Economic Impact of CVD in South Africa and 5 other countries	
17	Prof	NS	Levitt	Diabetes Mellitus and other cardiovascular disease risk factors in the Cape Peninsula Urban Black Population	
18	Prof	NS	Levitt	The prevalence of glucose abnormalities in acute stroke	
19	Prof	NS	Levitt	The contribution of diabetes to lower extremity amputations in the Cape Town metropole public sector	

No	Title	Name	Surname	Project title	Brief Summary
20	Prof	NS	Levitt	Development of a strategy for early identification of diabetes and impaired glucose tolerance in HIV-positive people on highly active antiretroviral therapy in South Africa	
21	Prof	NS	Levitt	Prevalence of metabolic complications (dysglycaemia, dyslipidaemia, hyoerlactataemia and the lipodystrophy syndrome) of antiretroviral therapy in South African HIV-infected patients	
22	Prof	NS	Levitt	Development and application of diabetes care (Type 2) indicators at primary level in the Cape Town Metropole region	
23	A.Prof	A	Bryer	Development of a community based stroke care model for use in urban and rural South Africa	The study will also seek to determine effective and realistic methods of improving community based management and rehabilitation of stroke patients in an urban and rural setting of South Africa. When a South African/Sub-Saharan African model for stroke management has been finalized it will, in a forthcoming project, be evaluated with a view to implementation of intervention in a later phase
24	Prof	K	Steyn	Determinants of the control of hypertension in peri-urban black South Africans	
25	Dr	K	Charlton	The development of dietary intervention to modify dietary cation content and the evaluation of its effect on BP in hypertensive black South Africans	
26	Dr	K	Steyn	A RCT to evaluate the impact of a structured record with guideline prompts for hypertension and diabetes control in 18 primary health care clinics in Cape Town	
27	Ms	K	Everett	The development and evaluation of a smoking cessation intervention for disadvantaged, coloured pregnant women	The overall aim of the Smoking in Pregnancy Project is to develop and evaluate a smoking cessation intervention for disadvantaged, coloured pregnant women for the purposes of increasing quit rates and thereby improving perinatal outcomes among this group of women.
28		FH	Epstein	Cine-DENSE MRI to study right-and left ventricular forms of cardiomyopathy in SA – this project will study the role of cine-DENSE wall motion imaging in heart diseases that are particular relevant to South Africa	
29	Prof	AD	Marais	Dyslipidaemia	

No	Title	Name	Surname	Project title	Brief Summary
30	Dr	N	Steyn	Lifestyle Modification Education In Chronic Diseases Of Lifestyle: Insight Into Counseling Provided By Health Professionals	This project comprises the development and evaluation of an intervention program for the prevention of diabetes and related chronic diseases which are highly prevalent in adults in disadvantaged communities of South Africa. The intervention program will focus on (1) healthy eating and optimal physical activity for learners, their teachers and parents; (2) addressing factors in the school environment that could prevent healthy eating and physical activity practices.
31	Dr	N	Steyn	A School-based intervention program to reduce diabetes risk factors in disadvantaged communities in South Africa	The intervention will comprise a curriculum which teachers at primary schools will be trained to implement with children in grades 5-7. The curriculum will focus on healthy eating and optimal physical activity as the primary focus area to prevent type 2 diabetes. Tobacco control and alcohol will be dealt with as secondary focus areas. Parents will also be involved in the program by means of activities planned for them and their children. The intervention will also attempt to improve the school environment so that the school facilities are supportive of building a healthy lifestyle.
32	Prof	P	Reddy	A national representative sample of South African learners for the Global Youth Tobacco Survey 1999	
33	Prof	P	Reddy	A national representative sample of South African learners for the Global Youth Tobacco Survey 2002	
34	Prof	P	Reddy	The Youth Risk Behaviour Survey: A national representative sample of behaviours that contribute to cardiovascular disease: Nutrition, Heights and Weigh (Obesity), Physical Exercise, Tobacco and Alcohol use.	
35	Prof	P	Reddy	The determinants of behaviours that lead to cardiovascular disease	
36	Prof	P	Reddy	The development of a School based curriculum For tobacco prevention: Harm Minimization Lifeskills	
37	Prof	P	Reddy	A group randomized controlled trail to test the effectiveness of a school based tobacco prevention curriculum.	
38	Prof	P	Reddy	Smoking cessation behaviour among high school learners	
39	Prof	HS	Kruger	PLAY study (Physical Activity in the Young)	Was a physical activity intervention study conducted in 2005-2006 in 300 African children, to determine whether physical activity might reduce the effects of stunted growth, i.e. the abnormal increases in visceral fat during puberty stages.

No	Title	Name	Surname	Project title	Brief Summary
40	Dr	P	Wolmarans	National survey on adult South Africans to determine major sources of fat in the diet and to establish vegetable and fruit intake patterns in order to develop a nutritional intervention research model for cardiovascular disease prevention in a population in transition.	The aim of this study is to determine in adult South Africans major sources of fat in the diet and to establish vegetable and fruit intake patterns in order to develop a nutritional intervention research model for cardiovascular disease prevention. The data will be collected by means of a face-to-face interview by questionnaire. The questionnaire will be part of a national OMNIBUS questionnaire that is completed three times per year. (This was only a protocol development project)
41	Prof	FE	Smit	A model for the development of thoracic surgery in Central South Africa	Thoracic surgery focuses on the diagnosis and treatment of non-cardiac ailments in the chest. Thoracic disease is responsible for both a significant individual, and a collective burden on society, and imposes a considerable economic load on the community. In spite of the high prevalence of thoracic disease in Central South Africa, Thoracic Surgical Service provision is inadequate. The development of an accessible and sustainable Thoracic Surgical service is an issue of national importance. The project is registered for a PH D. The protocol has been compiled and ethical approval gained. The study will commence in January 2007.
42	Prof.	K	Sliwa	Idiopathic Dilated Cardiomyopathy and Management of Heart Failure	Since 1996 Prof. Karen Sliwa is conducting various research projects investigating the impact of inflammatory cytokines and markers of apoptosis on the progression of heart failure due to idiopathic cardiomyopathy. Numerous publications resulted from those research projects summarized in Sliwa et al. Circulation 2005. The research in that condition is ongoing and one of the new projects forms part of the Heart of Soweto Study. A randomised controlled study of a multidisciplinary, community-based, chronic heart failure management program in Soweto. We are planning a project where we will investigate if culturally specific programs focussed on primary/secondary prevention and chronic disease management initially based at Baragwanath Hospital and extending to nurse-led community centres in Soweto improve the risk factor profile and cardiac-related outcomes in that community. We have already initiated studies investigating the impact of diet ( dietician Sandra Pretorius) and drug compliance in heart failure ( Dr. Verena Ruf).
43	Prof.	K	Sliwa	INTERHEART-II-Pilot-Study	The objectives are: 1) to compare the Coronary Heart Disease (CHD) risk factor levels of family members of an individual with CHD with similar family members of matched controls; 2) to explore the risk factor aggregation patterns within and between case and control families; 3) to understand the relative contributions of shared lifestyles and common genetic endowment to risk factor presence; 4) to explore the gene-environment interactions related to CHD risk factor expression. These major goals are motivated by the primary hypothesis that "high risk" individuals with CHD are markers of "high risk" families by virtue of increased risk factor levels in family members, as compared with family members of individuals without CHD. A collaborative project between University of the Witwatersrand, Republic of South Africa ( K. Sliwa) & The Mac Master University, Toronto, Canada (Prof. Salim Yusuf)
44	Mr	D.	Bourne	Rapid assessment of changing South African mortality (including effects of HIV/AIDS interventions)	
45	Prof	D	Bradshaw	2.1 Estimating the burden of disease and other indicators of population health	
46	Prof	D	Bradshaw	Demographic ageing	
47	Prof	D	Bradshaw	South African Demographic and Health Survey	

No	Title	Name	Surname	Project title	Brief Summary
48	Prof	D	Bradshaw	2.3. Methods research to support BOD and surveillance	
49	Prof	D	Bradshaw	Shortlist for coding cause of death	
50	Prof	D	Bradshaw	Improving vital registration	
51	Dr	L	Micklesfield	(x) Physical activity and healthy aging	
52	Prof	M	Lambert	(i) Youth Fitness Charter Dr. Karen Sharwood,	
53	Prof	M	Lambert	(ii) "Health of the Nation" database and evaluation testing kit	
54	Prof	M	Lambert	(iii) CAPCoD (Community Actions to Prevent Chronic Diseases) School-based Intervention (Multi-country study, initially funded by the Oxford Health Alliance)	
55	Prof	M	Lambert	(iv) Programme evaluation of Community Health Intervention Programmes (CHIPs) and implementation in KwaZulu-Natal and Eastern Cape provinces	
56	Prof	M	Lambert	(v) "Vuka South Africa" programme evaluation	
57	Prof	M	Lambert	(vi) "Risk Related Age" model	
58	Prof	M	Lambert	(vii) 10 000 steps	
59	Prof	M	Lambert	(viii) Discovery Vitality research questions	
60	Prof	JM	Pettifor	Ethnic differences in pubertal development and bone mass in South African children.	
61	Dr	M	Senekal	Association between conventional (dietary, physical activity and behavioural) treatment outcome (weight loss) in young obese adults and genotype.	
62		CM	Smuts	Development of a protein-based product rich in n-3 polyunsaturated fatty acids and the effect thereof on the nutritional, health and mental status of learners 6 - 10 years of age in a low socio-economic community	
63	Prof	S	Tollman	Agincourt Health and Demographic Surveillance System: Foundation for the MRC/Wits research portfolio	

No	Title	Name	Surname	Project title	Brief Summary
64	Ms	M.	Toman	(Rs) Nutrition during pregnancy and its influence on susceptibility of offspring to NIDDM	
65	Prof	C.	Venter	The effect of the omega 3/omega 6 fatty acid ratio of the diet on selected risk markers for non-communicable disease in an Indian community in Kwa-Zulu Natal	
66	Dr	M	Chopra	PALSA Practical Approach to Lung Health in South Africa	
67	Dr	R.	van Rooyen	An educational framework to optimize Diabetes Mellitus management in the Eastern Cape	

No	Title	Name	Surname	Project title	Brief Summary
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## CATEGORIES : CLINICAL RESEARCH (4)

1	Dr	P	Wolmarans	Effect of Columbus® eggs and fish on the blood lipid and fatty acid profiles of normal and moderate hypercholesterolaemic human volunteers	The aim of this study was to compare the effect of n-3 polyunsaturated fatty acids (PUFA) from eggs or from fish on the blood lipid and fatty acid profiles of normal and moderate hypercholesterol-aemic human volunteers. Men and women between the ages of 19 and 55 years participated. The Ethics Committee of the South African Medical Research Council gave permission for the study and subjects gave written consent.
2	Prof	JA	Moolman	Activation of markers of gene activation of arteriogenesis in patients with diabetes mellitus and familial hyperlipidaemia.	Arteriogenesis is impeded in patients and experimental animals with diabetes and dyslipidaemia. To elucidate the factors involved, we are studying the response of monocytes of such patients in terms of activation of the arteriogenic gene programme ( expression of monocyte surface markers such as CD11b, CD34, CD44 and gene activation of MCP-1, MCP-5, MMP-12, Bcl-2rpA1 and CISH as measured by quantitative PCR in response to GM-CSF and LPS.
3	Prof	AD	Marais	Proteinuria related to statin use	
4	Prof	AD	Marais	Dysbetalipoproteinaemia	
5	Prof	AD	Marais	Rosuvastatin in Dysbetalipoproteinaemia	
6	Prof	AD	Marais	Torcetrapib and atorvastatin in heterozygous FH	
7	Prof	AD	Marais	Torcetrapib and atorvastatin in homozygous FH	
8	Prof	AD	Marais	Ezetimibe and simvastatin in adolescents with FH	
9	Prof	AD	Marais	Colesevelam in adolescent FH	
10	Dr	B.	Mayosi	Genetic epidemiology of arrhythmogenic right ventricular cardiomyopathy in South Africa	
11	Dr	B.	Mayosi	The Investigation of the Management of Pericarditis in Africa (IMPI Africa Studies)	
12	Dr	C	Amira	Risk Factors For Atherosclerosis In Black South African Patients On Haemodialysis	HD patients have a high prevalence of traditional and non-traditional risk factors for atherosclerosis. Traditional risk factors like lipids were much lower in ESRD patients. Inflammation appears to play an important role in the pathogenesis of atherosclerosis in ESRD. HD patients showed a high prevalence of atherosclerosis as measured by increased carotid intima-media thickness and plaque occurrence in carotid arteries. MSc (Wits) degree awarded with distinction; 1 manuscript complete and being submitted; 3 others in preparation
13	Dr	J	Kabahizi	Impact Of Dialysis Adequacy On Patient Outcomes	A retrospective review of patients on chronic haemodialysis with a prospective study for quality of life and cardiovascular comorbidities evaluation. 75% of patients had LVH with 68% having concentric LVH. 10% had dilated LV. The mean EF was 63.2%; 59% of patients had diastolic dysfunction, 5% had systolic dysfunction, whereas 7% had mixed systolic and diastolic dysfunction. Dialysis dose correlated with a significant number of parameters including Hb and the physical components of the SF-36. MMed (Wits) awarded; 2 manuscripts being finalised

No	Title	Name	Surname	Project title	Brief Summary
14	Dr	L	Ezekiel	The Prevention of Progression Diabetic Nephropathy Among Black South Africans: Impact on Cardiovascular and Renal Outcomes	Project Objectives i)To determine the prevalence of risk factors for progression of chronic kidney disease ii)To determine the correlation between atherosclerosis, as measured by Carotid Intimal media thickness (CIMT) and progression of diabetic nephropathy (DN) iii)To determine the efficacy of aldosterone blockade (Spironolactone) versus standard accorded care in prevention of progression of DN in black South Africans. Data collection; seeking funding; registered for PhD with Wits University
15	Dr	J	Chabu	Factors impacting on LVH in haemodialysis patients	Project Objectives i). To estimate the prevalence of LVH and its geometric models in patients on hemodialysis. ii). To investigate the risk factors of myocardial remodeling in ESRD with established LVH iii) To assess the risk factors impacting on LVH in these chronic haemodialysis patients, correlating ambulatory BP readings and arterial stiffness with LVM in this patient group Data collection; seeking funding; registered for PhD with Wits University
16	Prof	F.	Raal	Genotypic vs phenotypic expression of homozygous and heterozygous FH in the different population groups of South Africa.	
17	Prof	F.	Raal	Evaluation of 'long term' survivors of FH	
18	Prof	F.	Raal	Microalbuminuria in subjects with familial hypercholesterolaemia receiving high dose statin therapy	
19	Prof	F.	Raal	The contribution of glucose to in vivo formation of cholesterol in human subjects	
20	Prof	J	Wing	Insulin resistance in black subjects with various metabolic disorders related to the Metabolic Syndrome	
21	Sr	D	Taylor	Impaired glucose tolerance in hypertension	
22	Dr	L	Ntyintyane	Coronary artery disease in the emerging black population of South Africa	This is an ambitious study which forms a major part of the present and future research of the Unit. It involves an oral glucose tolerance test, administration of a lipid rich meal and assessment of postprandial lipid profiles, as well as assessment of insulin resistance by means of the hyperinsulinaemic euglycaemic clamp technique in black vs white subjects with and without documented coronary artery disease. This study was initiated in January 2003 and is progressing well. Paper or posters have been presented at local meetings, and manuscripts are now being written up.
23	Dr	C	Menezes	The role of increased gastrointestinal ethanol production in obese patients: Implications for the pathogenesis of non-alcoholic fatty liver disease	

No	Title	Name	Surname	Project title	Brief Summary
24		A	Ramjeeth	The evaluation of low-density lipoprotein cholesterol goals achieved in patients with established cardiovascular disease and/or hyperlipidaemia receiving lipid lowering therapy	
25	Prof	B	Rayner	Clinical importance of the R563Q mutation in South Africa	
26	Prof	B	Rayner	Genetic determinants of salt sensitivity in African populations	
27	Prof	B	Rayner	Clinical and Genetic Determinants of renal disease in hypertensive Africans with metabolic syndrome	
28	Prof.	P.	Rheeder	Determinants of Intima Media Thickness (IMT) in Black Subjects with Diabetes Mellitus'	Cardiovascular disease is the major cause of mortality in type 2 diabetes. Carotid intima media thickness (IMT) has been used as surrogate for atherosclerosis and as such predicts future macrovascular events. The role of the known risk factors for vascular disease in black South African diabetics still needs to be clarified. To determine the association between femoral and carotid IMT and established cardiovascular risk factors, we will measure IMT in the carotid and femoral vessels, as well as various known risk factors, such as lipids, renal function and inflammatory markers. The results will clarify the independent role of the various risk factors for atherosclerosis in this population. 109 of the required 200 patients have been recruited and their blood and urine specimens obtained. Of these, 63% have already had IMT evaluation
29	Dr.	D.G.	van Zyl	Evaluation and improvement of inpatient glucose control in subjects with diabetes mellitus. (Audit, knowledge and attitudes survey, before and after study)	Randomised controlled trial evaluating different fluid strategies in diabetic keto acidosis management.
30	Prof	FE	Smit	Endothelial function as predictor of post intervention outcomes in coronary disease	The aim of the study is to assess whether patient outcomes can be influenced regarding specific procedures or pre-procedure treatments by assessing arterial reactivity before and after intervention. The protocol has already been compiled and must just be submitted to the ethics committee before the project can commence. The study will deliver three master degrees and one Ph D. <i>The protocol has already been compiled and must just be submitted to the ethics committee before the project can commence.</i>
31	Prof	FE	Smit	A Multicentre Experience with the Irrigated Radiofrequency Maze Procedure for Permanent Atrial Fibrillation undergoing a CABG procedure.	The Maze procedure for atrial fibrillation is being done by nearly all cardiac surgeons in South Africa. There has been no analysis of the outcomes of patients undergoing this operation in South Africa. In order to evaluate the validity of doing this procedure, retrospective analysis of patients who have a Maze procedure over the last 54 months was undertaken. Dr James Fulton in collaboration with our department is looking into the subject of Maze procedures for permanent atrial fibrillation. This project is registered for a Ph D at UOVS. A SA Audit has already been published and presented. <i>Busy with the literature review before setting up the protocol</i>

No	Title	Name	Surname	Project title	Brief Summary
32	Dr	AJ	van Rooijen	A daily physical activity and diet intervention for individuals with type 2 diabetes mellitus	To measure the efficacy of a daily walk-diet-intervention programme to decrease the HbA1c over a period of 6 months in a sample of Type 2 Diabetes Mellitus patients. Follow-up measurement will be done at 12 months. Primary outcome: Glycosylated haemoglobin A1c values Secondary outcomes: Body Mass Index, Waist circumference, Resting heart rate, Blood pressure, Total cholesterol, LDL-cholesterol, HDL-cholesterol. Triglycerides, Health-related quality of life, Dietary intake (energy, percentage distribution of macronutrients [protein, carbohydrate, fat]), Knowledge of diabetes
33	Dr	JMM	Koning,	Vascular complications in black South African patients with type 2 diabetes	This is a clinical epidemiology study to determine the prevalence and incidence of macro- and microvascular complications in a cohort of 250 patients followed for at least 5 years.
34	Prof.	AE	Schutte	POWIRS study (Profiles of Obese Women with the Insulin Resistance Syndrome)	Was conducted in 2003-2004 in 102 African and 115 Caucasian women with various levels of obesity who stayed overnight at a Metabolic Unit. Various markers of CVD, IR were determined. (Full 5 point OGTT with glucose, insulin, pro-insulin, C-peptides, FFA).
35	Prof.	AE	Schutte	SAfrEIC study (South African study on the influence of Sex, Age, and Ethnicity on Insulin sensitivity and Cardiovascular function)	A cross sectional study to be conducted in 2007-2008 in 720 African and Caucasian men and women from Potchefstroom district.
36	Dr	HB	Bacus	The investigation of the genetic, biochemical, immunologic, clinical and diagnostic features of coronary heart disease in African and Indian subjects with type 2 diabetes.	
37	Dr	I	Paruk	Non alcoholic fatty liver disease and diabetes mellitus	
38			Lawrenson	Pilot study on HIV chronic lung disease	
39	Prof	NS	Levitt	Mechanisms underlying the association between low birthweight, increased blood pressure and glucose intolerance in young South Africans	
40		M	Nlooto	Effect of stavudine dosage reduction on the incidence of symptomatic hyperlactataemia / lactic acidosis in adult female HIV/AIDS infected patients treated at Dr George Mukhari Hospital	
41		G	Malangu	Patterns of drug utilization, side effects, and adherence to anti-retroviral therapy in human immunodeficiency virus patients treated in Dr George Mukhari Hospital	
42		WJ	du Plooy	Non invasive assessment of arterial compliance in cardiovascular drug therapy, life-style and disease	

No	Title	Name	Surname	Project title	Brief Summary
43	Dr	E	Osuch	Correlation between elastic properties of the aorta and the endothelial function in cardiovascular drug therapy	
44		E	Mntla	A description of glucose and lipid abnormalities associated with atypical antipsychotic use in females	
45		R	Kilare	A description of glucose and lipid abnormalities in a psychiatry out-patient clinic	
46	Prof	S.	Kagee	Treatment adherence among type II diabetes and hypertensive patients attending primary care clinics in a historically disadvantaged community in the Western Cape	
47			The Metabolic Research and Obesity Group	2. To determine whether the increased prevalence of hypertension and diabetes in obese black South African women can be explained by their characteristic body fat distribution that is associated with alterations in local cortisol metabolism and the expression of adipocyte-derived proteins.	
48			The Metabolic Research and Obesity Group	4. Examine the socio-cultural and attitudinal factors associated with obesity in mothers and their daughters.	
49	Dr	A	Madiehe	Effects of a HF diet in development of gestational diabetes	
50	Prof	G.	Maritz	Is maternal copper supplementation preventing the adverse effects of maternal nicotine exposure on lung development	
51	Prof	S	Tollman	Southern Africa Stroke Prevention Initiative (SASPI)	

No	Title	Name	Surname	Project title	Brief Summary
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## CATEGORIES : LABORATORY RESEARCH (5, 6, 7, 8)

1	Dr	EF	du Toit	Obesity and the Heart: The effects of PPAR $\alpha$ and PPAR $\gamma$ agonists on cardiac function, metabolism and tolerance to ischaemia in obesity.	PPAR- $\alpha$ and PPAR- $\gamma$ agonists have been shown to normalize myocardial metabolism, but not myocardial function in models of genetically created animals with diabetes. Controversy surrounds the effects of PPAR- $\alpha$ and PPAR- $\gamma$ agonists on myocardial tolerance to ischaemia in normal and diabetic hearts. We hypothesize that these agonists will improve myocardial metabolism, function, and tolerance to ischaemia in our model of diet induced obesity and insulin resistance.
2	Dr	EF	du Toit	Obesity and the Heart: The effects of chronic adiponectin administration on cardiac function and tolerance to ischaemia in obesity.	Hypoadiponectinaemia as seen in obesity has been associated with systemic and cardiac insulin resistance and increased susceptibility to cardiovascular disease. We hypothesize that long term adiponectin treatment will improve insulin sensitivity, cardiac function, and ischaemic tolerance in our rodent model of diet induced obesity.
3	Prof	FE	Smit	Histological comparison of the effects of warm ischemic times on harvested homografts.	Most heart valve banks worldwide require that donor tissue be harvested up to 24 hrs after death, and few with an absolute maximum time limit of 30-36 hrs. Applying this criteria in our harvesting setup limits the availability of valves dramatically, and with this study we would like to see whether perfectly suitable valves can in selective cases be harvested up to 48 hrs after death and beyond. This project is registered for a Masters degree at the CUT and a Ph D at UFS. <i>Ethical approval has already been obtained and the study will commence within the next month.</i>
4	Prof	FE	Smit	A comparative assessment of the calcification potential and cross-linking stability of three different treatment modalities of bovine pericardium and one commercially available product	The aim is to establish a better quality pericardium patch for both local use and marketing. The aim of the study is to compare the cross-linking stability and calcification potential of bovine pericardium treated with AIC13 before fixation in gluteraldehyde (GA), treated with Glycosaminoglycans (GAG) and then fixed in gluteraldehyde and a commercially available pericardium from St Jude with that of pericardium fixed in gluteraldehyde alone (control). The project is done in collaboration with Prof L Neethling at Freemantle Hospital, Australia. This project is registered for a Masters degree at UFS. <i>The protocol compiled, thical approval gained</i>
5	Prof	FE	Smit	Evaluation of a new mitral ring design in the mitral position of sheep.	Glycar designed a new mitral ring and the aim of the study is to conduct experimental animal research on the device. The ring is being inserted into 5 sheep models to evaluate performance. The study is performed for Prof R Frater, Albert Einstein Hospital, New York. <i>This project's protocol has already been approved by the ethics committee. The study will be completed December 2006.</i>
6	Prof	L	Hay	The effects of leaf extract of plant X (alien) on the blood pressure of spontaneous hypertensive rats	
7	Prof	L	Hay	The effects of leaf extract of plant Y (Indigenous) on cardiovascular parameters in the spontaneous hypertensive rat model	
8	Prof	ML	Channa	Antioxidant and Trace Element Status in a Rat Model of Salt Sensitive Hypertension.	This project was undertaken to elucidate whether the endogenous antioxidant systems and their associated trace elements were any in way altered during the development of non-salt loaded and salt-loaded hypertension in the Dahl rat model of Hypertension.
9	Dr	PJ	van Jaarsveld	The effect of palm oil on the metabolism of plasma lipoproteins and atherosclerosis in African vervet monkeys consuming high carbohydrate or high fat diets.	

No	Title	Name	Surname	Project title	Brief Summary
10	Dr	PJ	van Jaarsveld	The effect of palm oil antioxidants on the progression of atherosclerosis in a non-human primate model.	To determine whether natural occurring palm oil antioxidants, added to a Western-type high-fat high-cholesterol atherogenic diet (HFD), will reduce the incidence and intensity of peripheral and aortic atheromas in non-human primates that model the progression of human atherosclerosis through lesion types I-VIII.
11	Dr	EF	du Toit	Obesity and the Heart: The effect of obesity on myocardial infarct size, mechanical function and cardiac remodeling in an ex vivo and in vivo model of myocardial infarction.	Obesity is characterized by chronic, low-level, systemic inflammation and abnormal myocardial metabolism. We propose that the heart from obese individuals is more susceptible to ischaemic/reperfusion injury and adverse cardiac remodeling.
12	Dr	A	Madiehe	The effects of leptin-reducing agents during gestational diabetes.	The project involves the establishment of a rat model for gestational obesity and diabetes. A high fat diet is used to induce obesity before and GDM during pregnancy. Offspring are then monitored for predisposition to chronic diseases later in life. One group of mothers will be treated with a leptin-reducing agent and compared to controls. The offspring will be monitored into adulthood for obesity/diabetes development or effect of treatment on such.
13		P	Zilla	Reinforcement of blood vessel replacements	The use of saphenous vein grafts to bypass blockages in coronary arteries is a well-established procedure. However, their success in the long-term has been restricted and is believed to be mainly due to atherosclerosis resulting from remodelling of the implanted vessel in response to exposure to an arterial pressure. The main objective of this project is the development of an external synthetic reinforcement structure which improves the longevity of vein grafts.
14		P	Zilla	Vascularisation of polymeric scaffolds	Increased vascularisation of implanted scaffolds is a prerequisite for tissue engineering approaches to organ replacement/repair. Delivery of growth factors is being intensively pursued world wide. In this project, a novel animal angiogenesis model has been developed and the regression of growth factor induced vessels is being investigated at the cellular level. In addition, the sustained delivery of growth factors through the use of surface modifications and specifically degradable hydrogels is being researched
15	Dr	A	Madiehe	The potential use of aloe extracts as anti-obesity and anti-diabetic agents obese rats.	The project involves the use of different aloe extracts supplemented in diets to treat obesity and diabetes caused by high fat diet in rats. Serum samples and body composition analysis will be performed to determine the effect of these extracts on obesity and diabetes progression.
16	Dr	MF	Essop	The role of uncoupling proteins in the heart	
17	Dr	MF	Essop	Metabolic remodeling in response to chronic hypobaric hypoxia	
18	Dr	MF	Essop	Fatty acid metabolism and impaired cardiac function	We hypothesize that elevated cardiac fatty acid utilization has detrimental consequences contributing to impaired contractile reserve. To test our hypothesis, we are employing a well-characterized rat model of adaptive right ventricular cardiac hypertrophy. Here, we increase cardiac fatty acid utilization by chronic administration of a specific ligand for peroxisome proliferator-activated receptor $\alpha$ (PPAR $\alpha$ ), a well-described transcriptional activator of several cardiac fatty acid enzyme-encoding genes. We are currently evaluating the effects of elevated fatty acid utilization on cardiac mitochondrial energy production, metabolic gene expression and contractility.

No	Title	Name	Surname	Project title	Brief Summary
19	Dr	MF	Essop	Cardiac energy metabolism in heart failure	We hypothesize that chronically, elevated cardiac fatty acid utilization by the compensated hypertrophied heart will result in impaired contractility. We will employ a well-characterized rat model of adaptive right ventricular cardiac hypertrophy. We will increase cardiac fatty acid utilization by a) chronic administration of a specific ligand for peroxisome proliferator-activated receptor $\alpha$ (PPAR $\alpha$ ), a well-described transcriptional activator of several cardiac fatty acid enzyme-encoding genes, and b) high fat diets. The effects of elevated fatty acid utilization on cardiac mitochondrial energy production, metabolic gene expression and contractility will be evaluated.
20	Dr	MF	Essop	The regulation of cardiac acetyl-CoA carboxylase gene expression in response to different nutritional states	
21	Dr	EF	du Toit	Pathophysiology of the ischaemic myocardium: The effect of dietary creatine supplementation on cardiac metabolism, function, and tolerance to ischaemia	Dietary creatine supplementation is used by athletes to enhance athletic performance and reduce post-exercise recovery time and in the treatment of patients with certain myopathies. The effect of chronic creatine ingestion on myocardial metabolism, function, and ischaemic tolerance is however unknown. We hypothesize that dietary creatine supplementation improves myocardial mechanical function and tolerance to an ischaemic event.
22	Dr	EF	du Toit	Pathophysiology of the ischaemic myocardium: A role for levosimendan as a pre- and post-conditioning mimetic in the heart.	Levosimendan is a cardiac inodilator currently used to treat patients with heart failure. Levosimendan has KATP channel opening properties in both the sarcolemma and mitochondria of cardiomyocytes. Opening of these channels has been implicated as the end-effector in ischaemic pre- and post-conditioning. By virtue of these effects of levosimendan, we hypothesize that levosimendan could be used as a pre- and/or postconditioning agent in the heart.
23	Prof	B	Huisamen	Cardiovascular dysfunction associated with obesity, insulin resistance and type 2 diabetes: Angiotensin II as link between insulin resistance, endothelial dysfunction & atherosclerosis.	Angiotensin II as link between insulin resistance, endothelial dysfunction and atherosclerosis. The renin-angiotensin system is overly activated in diet induced obesity. This negatively impacts on aspects of myocardial insulin signalling, in particular also, NO production. Attenuated NO production by endothelial cells is at the root of vascular dysfunction. We therefore set out, in a rat model of diet induced obesity and insulin resistance, to determine the effects of treatment with the AT1 receptor antagonist, Losartan, on insulin signalling and NO production by microvascular endothelial cells and cardiomyocytes.
24	Prof	B	Huisamen	Cardiovascular dysfunction associated with obesity, insulin resistance and type 2 diabetes: Can the DPP-IV inhibitor, valine pyrrolidide, improve the cardiovascular risk associated with insulin resistance in a rat model of diet induced obesity.	The incretin hormone glucagon-like peptide-1 and inhibitors of the enzyme DPP-4 are the most promising recent treatments for insulin resistance and type 2 diabetes. This study will investigate whether GLP-1 in the presence of the DPP-4 inhibitor valine pyrrolidide, will enhance glucose utilization in insulin resistant rat hearts and protect them against an ischaemic incident without having long-term detrimental consequences.
25	Prof	B	Huisamen	Cardiovascular dysfunction associated with obesity, insulin resistance and type 2 diabetes: An investigation into the role of altered protein expression associated with the detrimental effects of adiposity on the heart.	Diet induced obesity is associated with increased cardiovascular risk. We wish to investigate, in an appropriate rat model already characterized in our laboratory, altered myocardial expression of key proteins associated with fatty acid and glucose transport into cells as well as their metabolism and utilization as fuel substrates.

No	Title	Name	Surname	Project title	Brief Summary
26	Prof	B	Huisamen	Cardiovascular dysfunction associated with obesity, insulin resistance and type 2 diabetes: An investigation into ability of the over-the-counter dietary supplement, Diavite™, to improve type 2 diabetes.	Dried parts of an indigenous plant are currently sold as treatment for type 2 diabetes mellitus under the trade name Diavite™. We have been contracted to prove or disprove the ability of this substance to regulate blood glucose and –pressure and to decrease the detrimental cardiovascular effects of insulin resistance and type 2 diabetes mellitus. This study will include toxicity studies on non-human primates, studies on rat models of type 2 diabetes as well as studies using the isolated, perfused rat heart.
27	Prof	B	Huisamen	Cardiovascular dysfunction associated with obesity, insulin resistance and type 2 diabetes: The signalling involved in the cardioprotective effects of insulin.	This study investigates the mechanisms involved in the well-known cardioprotective effects of insulin on a level of the signal transduction involved. A model of low-flow ischaemia, induced in an isolated rat heart and simulating a heart attack in humans, is used. Special attention will be given to the role of cAMP as second messenger as well as the involvement of the key enzyme, PI-3-kinase in elicited protection.
28	Prof	ML	Channa	The Effect of Exercise and Hyperoxia on Antioxidant and trace Element Status in a Rat Model of Hypertension	
29	Dr	MF	Essop	Increased flux through the hexosamine biosynthetic pathway leads to insulin resistance in the heart	The diabetic heart exists within a hyperglycemic milieu and the accumulation of intracellular glucose metabolites has been suggested to contribute to various pathologies. This may lead to increased flux through the hexosamine biosynthetic pathway (HBP). We hypothesize that increased flux through the HBP leads to the development of insulin resistance in the heart by altering cardiac metabolic gene transcription.
30	Dr	A	Madiehe	The use of proteomics in finding possible biomarkers for controlling diet-induced obesity.	The project involves the use of different high fat diets to induce obesity in rats. Serum samples will be analyzed for any differentially expressed proteins using 2D-gel electrophoresis and mass spectrometry. Hypothalamic samples are also being analyzed for diet-resistant and diet-sensitive rats.
31	Dr	A	Skepu	The use of Matrix metalloproteinases (MMPs) as markers of adipocyte inflammation during obesity development.	This study involves the determination of MMP expression and activity during diet-induced obesity and weight loss. The study aims at determining whether MMPs can be used as markers for adipocyte inflammation prior to chronic disease progression.
32	Dr	J	Paiker	The role of cellular immunity in the pathogenesis of atherosclerosis in patients with familial hypercholesterolaemia	
33		P	Zilla	Reduction of myocardial infarct size through delivery of stem cells embedded in hydrogels	Adult stem cells are a potential treatment for myocardial infarcts. A rat model for a myocardial infarct has been developed in collaboration with the Hatter Institute at the Cape Heart Group. The use of adipose derived stem cells is being explored in a collaboration with Carola Niessler, Dept of Biochemistry, UKZN. Novel hydrogels are being investigated as cell delivery vehicles.
34		P	Zilla	Prevention of vascular in-stent restenosis in obese and diabetic patients	Obesity is the principal risk factor for Type II Diabetes mellitus. In diabetic patients undergoing coronary angioplasty, the in-stent restenosis rate is alarmingly high, dictating the use of open-chest coronary artery bypass grafting. This project comprises a two-pronged approach to accommodate both pre-diabetic and Type II diabetic patients requiring coronary intervention. The development of a combination pharmaceutical treatment combined with a delivery vehicle for the systemic treatment of patients in this risk group is being investigated.

No	Title	Name	Surname	Project title	Brief Summary
35	A.Prof	G	Norton	Mechanisms of $\beta$ -Adrenergic induced cardiac dilatation and pump dysfunction.	$\beta$ -adrenergic receptor blockers are an important part of heart failure therapy. As $\beta$ -adrenergic receptor blockers reduce cardiac contractility, not all patients in chronic heart failure can tolerate these agents. Hence, it is important to identify those pathways involved in mediating $\beta$ -adrenergic induced cardiac dilatation and pump dysfunction which if targeted therapeutically are unlikely to reduce cardiac contractility.
36	A.Prof	G	Norton	Mechanisms of the progression from compensated cardiac hypertrophy to cardiac failure in pressure overload and other cardiac hypertrophic states.	There is substantial debate as to the mechanisms responsible for the transition from compensated cardiac hypertrophy to heart failure. This is of critical importance in South Africa where we have noted a high prevalence of left ventricular hypertrophy (see project 2 above)
37	Dr	A	Madiehe	Determining the effects of leptin-reducing agents for treatment of obesity.	The study evaluates mechanisms of reducing leptin as way of preventing or treating obesity.
38	Prof	ML	Channa	The Effect of Oral Supplementation of Micronutrients and Antioxidants in Hypertension and the Metabolic Syndrome	
39	Prof	ML	Channa	Metabolic Profiling in Hypertension and the Metabolic Syndrome using NMR Spectroscopy	
40	Mrs	Z	Holland	Carotid intima-media thickness – a surrogate marker for coronary artery disease in the South African black population?	
41	Prof	F.	Raal	Lipidystrophy in patients receiving HAART for HIV infection	
42	Prof	F.	Raal	Atherosclerosis as an inflammatory disease.	
43	Prof	F.	Raal	Endothelial progenitor cells in subjects with homozygous and heterozygous FH	
44	Dr	J	Louw	The effects on rat beta-cell mass and function, glucose uptake and insulin degradation, of high fat diets of varying fatty acid composition	To ascertain, in the adult rat, the effects of change from a prudent diet to varying fatty acid composition diets, on factors related to the maintenance of normoglycemia. In this study rats are treated with 4 diets (each containing a different fatty acid content) for 1, 2, 4 or 8 months. At each of these time periods the animals are subjected to glucose uptake and tolerance tests, after which organs, tissues and serum samples are collected to determine the influence of the fatty acid content on various hormonal components, as well as gene expression relevant to the maintenance of normoglycemia.
45	Dr	H	Strijdom	Pathophysiology of the ischaemic myocardium: Role of nitric oxide in ischaemic preconditioning	NO has been shown to act as trigger of IP, but the contribution of the cardiac microvascular endothelial cells (CMEC's) to NO production is still unknown. We aim to investigate the possibility of paracrine communication between cardiomyocytes and CMEC's in co-cultures to determine whether there is spillover diffusion of NO and its effects.

No	Title	Name	Surname	Project title	Brief Summary
46	Prof	JA	Moolman	Pathophysiology of the ischaemic myocardium: Pharmacological pre-conditioning with $\alpha$ -adrenergic agonist ( $\alpha$ -PC)	Short-term $\alpha$ -adrenergic receptor stimulation with isoproterenol elicits cardioprotection similar to IP. The mechanism of $\alpha$ -PC is being investigated, specifically involvement of adenosine, the adenosine receptor type, reactive oxygen species, NO, PKB/Akt and ERK.
47	Dr	E	Marais	Pathophysiology of the ischaemic myocardium: Role of Epac (exchange protein directly activated by cAMP) in cardioprotection	Many cAMP functions previously attributed to PKA, are in fact dependent on a novel cAMP receptor protein, Epac, which binds cAMP with high affinity. We hypothesize that cAMP generation during IP acts as a two-edged sword: activation of Epac is cardioprotective, while activation of PKA and its downstream substrate, CREB, is harmful to the ischaemic heart.
48	Me	S	Hattingh	Pathophysiology of the ischaemic myocardium: Intracellular signalling pathways involved in mitochondrial KATP channel-induced cardioprotection.	The significance of the MAPKinases, p38 MAPK, ERK and JNK, as well as PKB/Akt in cardioprotection is investigated in models of ischaemic and diazoxide-induced preconditioning. Proteomics will be used to identify new protein formation.
49	Me	E	Marais	Pathophysiology of the ischaemic myocardium: Investigation into the role of CREB as downstream effector of p38 MAPK in IP.	CREB activation, induced by Ca <sup>2+</sup> -independent phospholipase A2, is one of the triggers of IP. However, since it is downstream of p38MAPK, it may act as a downstream effector in IP. This possibility is investigated using appropriate agonist and antagonists.
50	Prof	A	Lochner	Pathophysiology of the ischaemic myocardium: Cardioprotective actions of melatonin	It has been suggested that increased susceptibility to ischaemia-reperfusion damage in hearts of diet-induced obesity animals with type 2 diabetes is due to increased ROS formation during reperfusion. Melatonin, the chief secretory product of the pineal gland, protects the heart against ischaemia-reperfusion injury via its free radical scavenging and anti-oxidant properties. In view of these properties of melatonin, we hypothesize that melatonin administration will attenuate fatty acid-induced ROS production and development of cardiac insulin resistance.
51	Prof	A	Lochner	Pathophysiology of the ischaemic myocardium: Phosphatases in preconditioning and post-conditioning.	We hypothesize that the balance between the activation of mitogen-activated protein kinases and induction of phosphatases plays a major role in determining the fate of cardiomyocytes exposed to ischaemic stress. We also propose that the dual-specific phosphatase, MAPK phosphatase 1 (MAPK1) is of particular significance in this regard. Manipulation of phosphatases is done by use of pharmacological agents
52	Dr	S	Lecour	The role of the immune system in cardioprotection.	When the heart attack actually takes place the coronary arteries are suddenly blocked as a result of rupture of the cholesterol plaque in the coronary artery wall. If left untreated, a large area of cell death (necrosis or myocardial infarction) develops. Our aim is to limit the amount of cell death occurring by invoking a variety of molecular manipulations designed to protect the heart from oxygen lack by activating the inherent immune system..
53	Mrs	J	McCarthy	Submitted with Professor Opie	
54	Dr	MF	Essop	Obesity, diabetes and heart disease in the Western Cape.	Our work concentrates on the evolution from obesity to diabetes to coronary heart disease in a mouse-model of obesity-diabetes. We also work on the metabolic syndrome, a condition caused by excess abdominal fat. We study the way that the heart uses glucose to protect itself from excess circulation blood fatty acids.
55	Prof	F.	Raal	Lipid accumulation in circulating monocytes.	
56	Prof	F.	Raal	Establishment of an in vitro assay for foam cell formation using isolated human peripheral blood monocytes	

No	Title	Name	Surname	Project title	Brief Summary
57	Dr	M	Cerf	The effect of a high fat diet on various transcription factors expressed in the rat pancreas	Neonate and weanling rats are maintained on a high fat diet and key beta-cell transcription factors (required for pancreatic development, islet cell differentiation and beta-cell maintenance) are studied. The relative expression profiles of the key transcription factor, Pdx-1, as well as Pax 4, which is required for beta-cell differentiation, has been determined using quantitative PCR and immunohistochemical image analysis.
58	Dr	M	Cerf	High fat diet induced programming of the glucose sensing genes	The glucose sensing genes, the glucose transporter GLUT-2 and the glycolytic enzyme glucokinase, are studied in the neonates and weanling pancreas after high fat feeding. Relative quantitative PCR analysis and immunohistochemical analysis has revealed that the expression profiles of both glucose sensing genes are altered in most of the offspring.
59	Dr	M	Cerf	The effect of a high fat diet on the fatty acid profile of the fetus	High fat induced fetal programming is studied in the near term fetus, focusing of plasma and liver free fatty acids and the lipid profile. Fetuses are maintained, via maternal nutrition, on a high fat diet and at day 20 of gestation, specific free fatty acids are profiled in the liver and plasma.
60	Dr	M	Cerf	The effect of a high fat diet on the fatty acid profile of the pregnant dam	The free fatty acid and lipid profiles are studied in pregnant dams maintained on a high fat diet. Pregnant dams are maintained on a high fat diet for the specified periods of gestation. The concentrations of specific free fatty acids throughout pregnancy are determined. Liver and placental free fatty acid concentrations are also profiled before term.
61	Dr	CJF	Muller	The use of primary cell cultures to evaluate the therapeutic potential of indigenous plant extracts.	Satellite cells, cultured from skeletal muscle strips and primary liver cell cultures of experimental insulin resistant and T2D rat models, will be used to assess the glucose transport potential of these cells stimulated with various concentrations of insulin, metformin and indigenous plant extracts. As controls the effect of insulin will be inhibited by the addition a PI3-kinase inhibitor (wortmanin).
62	Dr	CJF	Muller	Beta-cell neogenesis from pancreatic ductal stem cells	The formation of new islets from adult pancreatic ducts has been shown to be possible in vitro by using extracellular matrix supports and various growth factors during cell culture. However the effect of anti-diabetic indigenous plant extracts on the differentiation, proliferation and apoptosis of these ductular stem cells as a long-term therapy for peripheral insulin resistance and T2D still needs to be assessed.
63	Dr	J	Louw	Pre-hyperglycaemic effects of a high fat diet in a Vervet monkey model.	Confidential
64	Dr	J	Louw	The anti-hyperglycaemic potential of medicinal plants of South Africa.	Confidential
65	Prof	V	Corfield	The molecular genetic causes of familial heart block type I and II (PFHBI and II)	Search for the PFHBI and II-causative mutations by identifying and screening novel candidate genes
66	Prof	AD	Marais	Prevalence of the R145C mutation in apolipoprotein E and its role in dysbetalipoproteinaemia	
67	Prof	AD	Marais	Genotypes of FH and dysbetalipoproteinaemia	
68	Prof	AD	Marais	Friedl Crafts reaction for determination of PUFA in plasma	
69	Prof	AD	Marais	Antioxidant properties of wine	
70	Dr	B.	Mayosi	Mapping genes that influence cardiac hypertrophy in families	

No	Title	Name	Surname	Project title	Brief Summary
71	Dr	J	Louw	The effects of a high fat diet in utero and postnatally on the adult rat.	
72	Dr	J	Louw	The effects of a maternal high fat diet in utero on the offspring.	
73	Dr	A	Madiehe	The effects of a HF diet on matrix remodeling in insulin-sensitive tissue	
74	Dr	A	Madiehe	The effects of dieting (a switch from HF to LF diet) on matrix remodeling	
75	Prof	G.	Norton	Impact and mechanisms of the effect of pre-existing left ventricular hypertrophy on myocardial infarction-induced adverse chamber remodelling.	
76	Dr	G.	Candy	In vitro investigation of arginine and homocysteine metabolism in endothelial cell cultures	
77	Dr	A	Madiehe	The molecular effects of lipotoxicity-induced $\beta$ -cell death induced by a HF diet	
78	Dr	A	Madiehe	The involvement of matrix remodeling in the reduction of pancreatic $\beta$ -cell mass during the progression to diabetes	
79	Dr	A	Madiehe	Modulation of obesity by the recombinant protein	
80	Ms	E.	Marais	Investigating the respective roles of exchange protein directly activated by cAMP (Epac), the enzyme protein kinase A (PKA) and cAMP response element binding protein (CREB) ischaemic preconditioning mediated cardioprotection	
81	Prof	G.	Maritz	The effect of maternal nicotine exposure on fetal and neonatal lung Cytochrome P450: A long-term study to investigate possible increased sensitivity of lung tissue of the offspring to selected carcinogenic substances.	
82	Prof	J.	Moodley	The role of angiogenic, anti-angiogenic and vasoactive factors in pre-eclamptic African women	
83	Dr	A.	Schutte	The changing relationship between insulin/C-peptide and blood pressure with increasing age.	

No	Title	Name	Surname	Project title	Brief Summary
84	Dr	J.	Strijdom	An investigation of the relative contribution of coronary endothelial cells to cardioprotection against simulated ischaemia: The role of nitric oxide synthase (NOS), nitric oxide and reactive oxygen species	
85	Dr	P.	Berman	A pilot study to investigate the impact of a 4bp insertion found at high frequency in South African populations on the production of an insulin isoform with very high translational efficiency	
86	Prof	N.	Crowther	Cytokines associated with insulin resistance in critically ill patients	
87	Prof	N.	Crowther	(Rs) Using siRNA (gene silencing) of the $\alpha 2$ AMPK gene to determine if metformin acts via AMPK to prevent adipogenic transformation	
88	Dr	E.	du Toit	Identifying molecular targets involved in insulin-mediated cardiac protection in a model of Low Flow Ischemia.	

No	Title	Name	Surname	Project title	Brief Summary
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## CATEGORIES : COMBINATION ACROSS CATEGORIES

1	Prof.	K	Sliwa	The Heart of Soweto Study	A collaborative project that examines the emergence of heart disease in Soweto and other African communities in epidemiological transition. January 2006 a prospective registry of more than 9,000 men and women from Soweto presenting to the Baragwanath Hospital with heart disease has been initiated. So far we collected information on 4500 patients. A collaborative project between University of the Witwatersrand, Republic of South Africa & The University of Queensland, Australia
2			De Decher	22q deletion syndrome in SA	
3			Lawrenson	Rheumatic fever surveillance	
4	Dr	T	Kolbe-Alexander	A South African Corporate Health Intervention Programme	<p>Although physical activity has been associated with reduced burden of non-communicable disease, most South Africans are inactive, highlighting the need for intervention programmes.</p> <p>We will conduct formative research to characterise environmental, inter- and intra-personal factors which may influence the development of a workplace-based physical activity intervention. The intervention includes the development of a corporate physical activity 'environmental audit'. Based on the results of the audit, we will develop, multi-faceted theory-based, best-practice interventions, and evaluate implementation. These interventions will aim to increase habitual physical activity and health status. Educational components will address physical activity and health-related knowledge, attitudes and beliefs. Corporate-based leaders will be trained facilitating the intervention's sustainability.</p>
5	Dr	B.	Mayosi	The A.S.A.P. Programme for the Prevention of Rheumatic Heart Disease	
6	A.Prof	G	Norton	Prevalence and Determinants of Cardiovascular Risk Factors in an Urban Developing Community of African Descent: The African Project on Genes in Hypertension.	The African Project on Genes in Hypertension is a study partly designed to assess the prevalence and determinants (including genetic determinants) of cardiovascular risk factors in an urban developing community of African ancestry in South Africa (Soweto). General study design: In this study 500 nuclear families are being randomly recruited from Soweto. Cross-sectional and prospective (at baseline, 5 and 10 years) analyses are being conducted. 200 families comprising over 600 individuals have been studied to-date. The intention is to eventually recruit approximately 750 parents and 750 siblings (siblings over the age of 16 years). Cardiovascular risk factors assessed: Conventional office and home blood pressures and 24-hour ambulatory blood pressures, HbA1c, lipid profiles, and arterial stiffness including pulse wave velocity and central augmentation index.
7	A.Prof	G	Norton	Prevalence and Determinants of Cardiovascular Risk Factors in an Urban Developing Community of African Descent: The African Project on Genes in Hypertension.	The African Project on Genes in Hypertension is also designed to assess the prevalence and determinants of left ventricular hypertrophy and dysfunction in an urban developing community of African ancestry in South Africa (Soweto). General study design: In this study 500 nuclear families are being randomly recruited from Soweto. Cross-sectional and prospective (at baseline, 5 and 10 years) analyses are being conducted. 200 families comprising over 600 individuals have been studied to-date. The intention is to eventually recruit approximately 750 parents and 750 siblings (over the age of 16 years). Novel and conventional cardiovascular risk factors assessed: see project 1: Measurements of the left ventricle: Echocardiographic and electrocardiographic left ventricular mass; and echocardiographic left ventricular systolic and diastolic function.

No	Title	Name	Surname	Project title	Brief Summary
8	A.Prof	G	Norton	Prevalence and Determinants of Cardiovascular Risk Factors in an Urban Developing Community of African Descent: The African Project on Genes in Hypertension.	The African Project on Genes in Hypertension is also designed to assess the prevalence and determinants of microalbuminuria in an urban developing community of African ancestry in South Africa (Soweto). General study design: In this study 500 nuclear families are being randomly recruited from Soweto. Cross-sectional and prospective (at baseline, 5 and 10 years) analyses are being conducted. 200 families comprising over 600 individuals have been studied to-date. The intention is to eventually recruit approximately 750 parents and 750 siblings (over the age of 16 years). Novel and conventional cardiovascular risk factors assessed: see project 1: Primary measurements: 24-hour urine specimens assessed for microalbumin and creatinine concentrations.
9	Prof	W	Derman	Skeletal muscle activity before and after angioplasty in peripheral vascular disease	The focus of this study is to investigate the how the brain regulates exercise performance before and after blood flow is restored to the affected limb. It is not clear what happens to muscle activity once blood flow is restored to the affected limb (diseased limb) and the effect thereof on the unaffected limb (healthy limb). Results from one case study showed an alteration in muscle activity, where once blood flow was restored to the diseased limb, muscle activity returned to similar muscle activity levels found in the healthy limb. In addition, we found the patient had very low blood lactate concentration levels at exhaustion. Furthermore, an improvement in physiological variables such as heart rate, blood lactate concentrations, RPE scores and pain scores and exercise performance resulted once blood flow was restored. With more subject numbers we hope to strengthen these findings.
10	Dr.	A	Becker	Acute Coronary Syndrome in HIV positive and HIV negative patients	This projects forms part of the Heart of Soweto Study, a collaborative project that will examine the emergence of heart disease in Soweto and other African communities in epidemiological transition (see above). This project investigates if the increasing incidence of HIV, compounded by the recent introduction of anti-retroviral therapy is associated with a parallel increase in acute myocardial infarction due to thromboembolic events?
11	Prof.	K.	Sliwa	Hypertension Research Project	Dr. Harroon Abbasi and Elena Libhaber are investigating the impact on left ventricular hypertrophy and remodelling in black African patients with mild, moderate and severe hypertension. This is a collaborative project with Prof. Gavin Norton and Prof. Angela Woodiwiss, University of the Witwatersrand.
12	Dr	L	Micklesfield	Bone Mineral density and proposed models of metabolic insult	The purpose of this project is to investigate the link between nutrition, exercise and bone in female athletes, and how this link is associated with the "stress" mechanisms in the body, in part located in the central nervous system, and cortisol metabolism. Our aim is to investigate the relationship between energy availability, that is high levels of activity and inadequate nutrition, and bone mineral density, in a case-control study of women with and without risk factors for the Female Athlete Triad.  The metabolic profile of the female athlete provides an opportunity to investigate the role of the HPA axis in the determination of bone mineral density and bone turnover. The main focus of the project is on how the metabolic milieu of the female athlete may influence bone formation, and how energy availability may impact on bone turnover.
13	Dr	J	Goedecke	Genotype and phenotype interactions in lean and obese South African women.	To investigate whether polymorphisms within genes shown to be associated with obesity and insulin resistance (for example, those involved in glucocorticoid metabolism and inflammation) and the metabolic syndrome in black and white South African women. In addition, the interaction between the genetic, dietary, environmental and socio-cultural factors will be investigated.
14	Dr	J	Goedecke	The determinants of healthy obesity in Black South African women.	To characterise phenotypic differences in 'healthy' and 'at-risk' lean and obese black South African women, with special reference to the determinants of body fat distribution.

No	Title	Name	Surname	Project title	Brief Summary
15	Dr	J	Goedecke	Adipose tissue distribution and metabolism explain the obesity-related comorbidities in South African women	The objectives of the study are to investigate differences between lean and obese black and white South African women, with specific reference to: i) the magnitude of the visceral and deep and superficial subcutaneous adipose tissue depots; ii) the degree of insulin sensitivity in relation to insulin resistance; iv) The expression of 11 $\beta$ HSD-1, glucocorticoid receptor isoforms, PPAR $\alpha$ , angiotensinogen, leptin, TNF $\alpha$ , adiponectin and resistin in visceral adipose tissue vs. deep vs. superficial subcutaneous abdominal adipose tissue vs. gluteal adipose tissue;
16	Prof.	K	Sliwa	Peripartum Cardiomyopathy-An autoimmune disease	A large and since many years ongoing project investigating the pathogenesis, etiology, epidemiology and management of a condition common in African women. This research has resulted in numerous publication in Circulation, Journal of American College of Cardiology and The Lancet ( August 2006). Some aspect of the research is part of a collaborative project between University of the Witwatersrand, Republic of South Africa & The University of Hannover, Germany, Emory University, Atlanta, USA. A publication of that joined project is currently in press in 'Cell'.
17	Dr.	K	Tibazarwa	Peripartum Cardiomyopathy-A familial disease	Since 1996 our team has been investigating the pathogenesis, etiology, epidemiology and management of a condition common in African women- Peripartum Cardiomyopathy. It is not known if this disease has a genetic basis. This project forms a collaborative project between University of the Witwatersrand, Republic of South Africa & The University of Cape Town, Republic of South Africa
18	A.Prof	G	Norton	Genetic modifiers of progressive heart failure in idiopathic dilated cardiomyopathy (IDC).	We do not know the causes of IDC in subjects of African descent and we do not understand why some patients benefit from therapy whilst others do not. This study is designed to determine whether functional variants within genes that influence neurohumoral activation in chronic heart failure determine the progression of the disease.
19	A.Prof	G	Norton	Genetic modifiers of therapeutic responses to antihypertensive agents in hypertensives of African descent.	BP responses to antihypertensive agents differ between ethnic groups. For example the response to angiotensin-converting enzyme inhibitors (ACE-I) when used as monotherapy in subjects of African descent is reduced in comparison to other ethnic groups. Moreover, the response to diuretic agents may be enhanced. The mechanisms of variable responses to antihypertensive therapy may be through genetic effects
20	A.Prof	G	Norton	Genetic modifiers of ambulatory blood pressure and target organ damage in hypertensives of African descent.	There is considerable controversy as to whether candidate genes determine the development of hypertension. However, few studies have assessed whether type I or II genetic effects (modifier gene effects) make a contribution to either BP or target organ damage
21	Prof	V	Corfield	The Molecular Causes of Long QT syndrome in South Africa	1. Identifying the spectrum of Long QT-causing mutations in South African patients (mutation screening of known and novel mutations in primary HCM-causative genes). Genotype/phenotype correlations in LQT-affected families. Preclinical identification of mutation carriers in affected families, patient management and counselling. 2. Identification of the genetic modifiers of clinical expression in LQTpatients with primary gene mutations.
22	Prof	H	Moolman-Smook	The molecular basis of Hypertrophic cardiomyopathy and Dilated cardiomyopathy in South Africa	1. Identifying the spectrum of hypertrophic cardiomyopathy (HCM)-causing mutations in South African patients (mutation screening of known and novel mutations in primary HCM-causative genes). Genotype/phenotype correlations in HCM-affected families. Preclinical identification of mutation carriers in affected families, patient management and counselling. 2. Identification of the genetic modifiers of hypertrophy development in HCM patients with primary gene mutations. 3. Evaluating the effects of mutations in the primary genes by protein interaction studies (in yeast and mammalian cells).

No	Title	Name	Surname	Project title	Brief Summary
23	Prof	W	Derman	Exercise rehabilitation in patients recovering from chronic cardiac disease, diabetes and metabolic syndrome: efficacy of a disease reversal and lifestyle optimization programme	Various sub-studies will take place in this this group of patients who embark on comprehensive disease reversal programmes. These programmes include elements of exercise rehabilitation, healthy eating and stress modification programmes. End-points will include effects of interventions on blood flow & vasodilatory capacity, functional capacity, indices of heart-rate variability and autonomic balance, and various anthropometric, biochemical and psychological variables.

## CATEGORIES : UNCLEAR

1		EM	Meintjes	Quantitative Processing of Cardiac MR Images – developing highly automated algorithms for quantitative processing of cardiac MRI images.	
2		AK	Jonassen	A Translational effort to Identify Targets Regulated by Insulin Therapy and Development of Novel Magnetic Resonance Imaging (MRI) Protocols and Sequences for Studying Lethal Reperfusion Injury after Acute Myocardial Infarction	
3		T	Puoane	Promoting healthy Lifestyles	
4		R	Stern	Non-communicable disease (NCD) risk factor intervention study in economically disadvantaged south african urban township	
5		M	Chopra	Burdens of Disease Study	