



Cairo University



Faculty of Medicine

Kasr Al-Ainy New Vision for a New Era

Research Strategic Plan
2011-2015

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I. Executive Summary:

Kasr Al-Ainy Medical School is one of the oldest medical schools in the world and a leader for medical education in Africa, Middle East, and Arab Region.

There are now significant opportunities to re-establish the leadership role of the faculty at the continent and regional level, in addition to going ahead to be an internationally recognized and accredited medical school.

The mission of postgraduate education is to develop an outstanding and honorable postgraduate doctor capable of applying national and international standards of scientific research and patient care, using evidence based medicine competently in practice following medical ethics and conducting cost effectiveness and efficacious research according to the needs of the Egyptian community and ready for continuous professional development (CPD).

The research strategic plan is for the next five years and will be divided into two parts. The first part contains the general directions and aims while the second part will represent the specific directions for each specialty and department.

This strategic plan has two cornerstones, the first is the community based research and the second is the academic scientific research especially in areas of stem cell research and molecular biology. By the end of this plan, our research should be applicable to our practice to improve the care provided to the patients and ensure safe practice based upon evidence based medicine.

To conclude the Kasr Al-Ainy Medical School is aiming by this plan to:-

- **Improve the care provided to the Egyptian population**
- **Establish interdisciplinary research**
- **Define and identify research groups and communicate them with counterparts at other universities**
- **Follow the research plan of the university**

II. Introduction:

Our History:

Kasr Al-Ainy Faculty of medicine is one of the oldest faculties in Cairo University and in the world. It is one of the largest and most prestigious medical schools in Africa, Middle East and the Arab Region. Together with the faculty hospitals, it is considered the largest medical institution in the Middle East and probably one of the largest in the world.

Our college was established in 1827, and named after Al-Ainy Pacha, whose palace was originally the school's main building and it was an assembling of the Paris Medical School. Until the year of 1848, it graduated 800 doctors. In 1927, King Foud laid the foundation of Kasr Alainy Hospital. At the present time we have 36 departments, 42 specialized units, 5200 beds over 9 hospitals which serve approximately 2million patients a year, 3347 staff members, 9687 undergraduate and 8856 postgraduate students.

The faculty awards a Bachelor degree of Science in Medicine and Surgery, moreover, 93 postgraduate degrees between master and doctorate degrees in different specialties of medicine and surgery.

In 2009, new bylaws for postgraduate education have been developed adopting the European Credit Transfer System (ECTS)

How do we foresee the Future?

There is no doubt that our first and decisive goal is to provide better health service at the national, regional and ultimately international levels.

This is the age of international biomedicine as almost half of all papers listed in the Science Citation Index (SCI) between 1989 and 2002 came from this field, compared to 15 % in 1999 from physics and 13% from chemistry. Biomedical research is the research undertaken to gain knowledge and understanding of basic biological processes and causes of diseases and having direct or indirect medical benefits. It encompasses basic biology, clinical medicine, and biochemistry. It also includes animal health and social sciences allied to medicine.

Research is a complex process. Generation of knowledge is only one part of the research process; for knowledge to be useful, it should be shared with other researchers and communicated, in a suitable format, to the different users/stakeholders. Thus information and communication are two very important aspects of research.

Research should have an important role in the policy process, providing the evidence for identifying issues and prioritizing them, laying out the options for addressing policy problems, and feeding back the appropriateness of those decisions.

According to the Global Forum for Health Research, less than 10% of global research funds by both the public and private sectors are directed to 90% of the world's health problems. This imbalance in health research funding is known as "the 10/90 gap".

Egypt has a wealth of research capacity. A study conducted in Egypt showed that nearly all (96.7%) of the research is published. Most (89.2%) of the results are published in local journals, 7.3% in international and 3.55 in regional journals.

The most publishing institutions in the Eastern Mediterranean Region in years 2000, 2005, 2007 with more than 500 publications were: Tehran university (1321), Cairo University (717), Shaheed Beheshti Medical University (578), Shiraz University of medical Sciences (566), Kuwait University (518), and AUB (501).

Two thirds of publications indexed in IMEMR (Index Medicus for the Eastern Mediterranean Region) originated from Cairo University (31.5%) and Tehran University of Medical Sciences (33%). In Pubmed, the highest percentage of publications were from Tehran University (32.3%).

There are currently efforts at the Faculty to organize the research in the area of stem cell therapy. A new department is under construction, where all stem cell trials are to be conducted. A collaboration with the University of Cologne, (Germany) and the Institute of cellular Biology and Pathology, Bucharest (Rumania) is established sponsored by the European Commission. The proposal is called **RAMSES: Reinforcement of the Adult stem cell research area through Mobility and Scientific networking between Egypt, Romania and a German consortium for Strengthening the international scientific competency.**

As leaders in the medical field, and to achieve our goals , we have to be committed to excellence in our medical education, research and clinical practice. Therefore, we have to face existing and anticipate future challenges, in order to provide and support our staff as well as the graduates with the tools needed to provide the best medical care for the population.

Furthermore, we should be able to build up their knowledge according to the best evidence (evidence based medicine), hence, a high quality research is a must, to apply and disseminate the principles of good and safe practice, consequently, improving the health problems in the Egyptian population.

From our point of view, we have to build up our research strategic plan that is characterized by being:

Flexible: Able to either remove the obstacles or search for alternatives to reach the goal without wasting the effort, time and money, whether the needs are financial, scientific or academic.

Adaptable: Able to learn from other experiences and adopting the positive changes in all branches of the medical field and avoiding the negatives.

Collaborative: We will promote interdisciplinary research, courses and workshops. Support the communication and cooperation among all the departments of our organization and the other organizations as well.

Creative: We will use all the financial, personnel and community resources together in new ways to be able to achieve our goals.

Excellent: The quality will be our most important priority; hence, we will search for the most promising students and staff as well as provide them with the best resources to maintain our success.

III. Strategic Plan Methodology:

Major Objectives:



The diagram illustrates three main areas of research.

→ Our major objectives in each of these areas are:

Community Based Research: To have a clear view about the epidemiology of HCV, Cancer, Diabetes, and Hypertension in the Egyptian population.

Clinical Research Projects: To have multidisciplinary research at the national and international levels that is novel in its concept and or approach.

Experimental Research: To have high quality research in the field of stem cell and molecular biology especially that which can be applied in Egypt and concerns about the previous three diseases.

Our Vision:

Kasr Al-Ainy Faculty of Medicine will be distinguished as the finest medical school in the Middle East and will be among the preeminent in the world, leading in innovation and stressing excellence in education, research, and clinical practice; as well as providing the highest quality medical care for the community.

Values:

These principles are integral part of our plan and fundamental to our vision and mission:

Community Focus: we will focus mainly on the Egyptian population especially to establish a rapid improvement of health care.

High Self Esteem and Compassion: we expect from our staff and graduates to provide up to date medical care for all patients based on medical evidence and high quality patient support and counseling.

Honesty and Responsibility: we expect from our staff, graduates and students to engage in open discussions for self assessment and criticism with a blame free concept, which should have a positive feedback on our faculty and hospitals.

The Faculty: Preparing the students for the full range of clinical disciplines in medicine, which will promote an inter-professional approach to research, furthermore, will instill, integrity and responsibility and protect academic freedom.

Cooperation and Affiliation: Our faculty as a governmental organization will encourage the partnership with the other governmental and nongovernmental organizations and associations at both the national and international levels to enhance our knowledge, research output and improve our performance.

Objectives:

- Enhancing multidisciplinary research at the national and international levels.
- Spreading the knowledge and importance of medical research.
- Early involvement of our students in research projects with the leaders of the field.
- Teaching our students both the under and postgraduates the research methodology and how to conduct proper research project.

- Increasing our research output with emphasis on new fields of medical sciences such as the molecular biology and medial nanotechnology.
- Balancing research between the academic and clinical science and increasing our community-based research.
- Discover new research collaborations and remove the existing barriers.
- Development of research facilities and infrastructure needed to support effective cooperation between different departments to implement our research on our practice.
- Enhancing our research through increasing the interactive and open funding practice.
- Creating and enhancing a field of cooperation between the undergraduates, graduates, and postgraduates students that promotes interaction between all members
- Developing a faculty research network website and a core facility for interdisciplinary projects.

- Enabling research enthusiasts to share in our research projects as needed and facilitate procedures enabling them to conduct their own researches without being a postgraduate student.

S W O T Analysis:-**➤ Strengths:**

- ✓ Highly selected motivated and dedicated students
- ✓ Reputation index no 1 of the school at the national and regional levels.
- ✓ Positive academic environment represented in the form of highly dedicated faculty, supportive skillful knowledgeable staff members at a high level of skills and knowledge.
- ✓ Many of our alumni are working in prestigious medical schools or hospitals abroad and they are ready to support with their experiences to establishing collaborative projects.
- ✓ Wide range of postgraduates study programs.
- ✓ Our university as well as our faculty supports good research.
- ✓ Good infrastructure to start with and upgrade.
- ✓ The university established a program to support the faculty staff and update their knowledge and skills.

➤ **Weaknesses:**

- ✓ Decreased number of staff participating in the research at the national and international levels.
- ✓ Poor international research involvement.
- ✓ Increased educational load on the staff due to increased number of students.
- ✓ Brain drainage due to Immigration of the staff (internal or external).
- ✓ Little formal development for the future leaders.
- ✓ Inadequate funding for research.
- ✓ Limited scholarships and without good financial support.
- ✓ Unsatisfactory communication between the different departments, as well as, between the staff themselves and between their students.
- ✓ Interference of the political views with that of the science.
- ✓ Unsatisfactory free access zones for the internet and big medical journals as well as online courses and workshops.

- ✓ Inadequate student database to have a complete profile for the students.
- ✓ No follow up system for our alumni.
- ✓ Lack of self assessment and auditing systems and credit system program for education is not yet enforced.

➤ **Opportunities:**

- ✓ Presence of new projects to improve the management and organizational systems at both the national and international levels.
- ✓ The government is giving special attention to improve the research to cope with the international levels.
- ✓ The general environment in the university is supporting for good knowledge and transparent attitudes.
- ✓ Presence of well established national standards to assess the quality (NAQAAE)
- ✓ The university now supplies more funds than before to research programs

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- ✓ The university is motivating the staff to increase their involvement in the research projects at the international levels.
 - ✓ The university established multiple communication channels with the big organizations both the governmental and the private ones to establish multicenter research projects.
 - ✓ Many stakeholders have put their trust in our faculty.
 - ✓ New opportunities to increase the amount of community based research.
 - ✓ A collaboration with the University of Cologne, (Germany) and the Institute of cellular Biology and Pathology, Bucharest (Rumania) is established through project sponsored by the European Commission. The proposal is called RAMSES: Reinforcement of the Adult stem cell research area through Mobility and Scientific networking between Egypt, Romania and a German consortium for Strengthening the international scientific competency.
- **Threats:**
- ✓ Unsatisfactory linkage between the postgraduate studies and the needs of the community.

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- ✓ Poor economic condition of the country.
 - ✓ Exhausting lifestyles for doctors in Egypt.
 - ✓ The present attitudes and visions are to some extent linked with the present leaders and the possibility to be changed is high if they changed.
 - ✓ Fixed and old laws that prevent important changes to take place.
 - ✓ The private universities tend to attract as much as they can of the high quality staff.
 - ✓ Putting the standards and the quality assessment by the ministry of education make it difficult for some departments to progress.
 - ✓ The involvement of the social organization in funding the research projects is minimal.
 - ✓ Some of our infrastructures are too old and are not suitable for modern research projects in the area of stem cells and molecular biology.

- ✓ Low priority of research mission that obstruct collaborative graduate education.
- ✓ Competing and conflicting interests of the different groups pose additional threats.

List Of Goals:**Our Goals in the next five years will be as follow:**

- Motivate our staff to pursue excellence of research.
- Early involvement of our students in the research projects.
- Stress on the importance of research in the medical field and how it affects our practice and views.
- Increase our output of research specially our peer reviewed indexed published research and sharing in major international research projects.
- Concentrate on the community based research to help in evaluation and improvement in the community problems.
- Have a research in new areas of medical science specially stem cell and molecular biology.
- Establish an auditing system

- Develop our own guidelines
- Establish different scholarship programs with the big faculties of medicine in Europe, USA and Canada.

Identifying the Objectives:

We will conduct 80 % of our research in the following areas and the rest 20 % will be in areas of special interest of each department.

➤ **Community Based Research:**

- ✓ Epidemiology of Hepatitis, cancer, Hypertension, Diabetes, Obesity.
- ✓ Providing outlines for prevention programs as well as early detection and diagnosis of these diseases.

➤ **Clinical Research:-**

- ✓ Research in Cancer:
 - ★ Screening and early detection researches.
 - ★ Prediction and diagnosis of cancer.
 - ★ Management techniques and different treatment modalities.

- ★ Rehabilitation and reconstructive surgery
- ✓ Research in Hypertension and Diabetes:
 - ★ Research involving the diagnostic modalities and how to improve its sensitivity and specificity?
 - ★ Research for improvement of the drug formulation and development of new drugs?
 - ★ Research for drug sensitivity and specificity?
- **Basic Research:**
 - ★ Is there any genetic predisposition in the Egyptian population for any of these diseases?
 - ★ Stem Cell research

Research Objective	Projects Area	Responsible Departments	Output	Budget
<p>➤ Community Based Research (All the Epidemiologic studies will be in cooperation with other external organizations in order to map all the Egyptian population)</p>				
<p>[1] Hepatitis</p>				
<ul style="list-style-type: none"> • Epidemiology of Hepatitis Prevalence , incidence and predisposing factors • Early Diagnosis Studies Based on biochemical Markers • National Program for Surveillance of Hepatitis B or C positive medical personnel. • Project to assess the knowledge about hepatitis in between the medical staff. • Program for detection of risk factors for infection between the medical personnel and planes for control. • Program for detection of Unsafe medical practice including dentists that predispose to infection and plans for prevention. • National program for surveillance of preschool children for Hepatitis A, B, C. • Project to assess the effectiveness of multimedia health education on prevention of Hepatitis. • National program for surveillance of hepatitis and HIV positive blood bags. • Projects to determine the long term outcome in liver transplant patients after early cessation of Hepatitis IgG. • Projects to study the interaction between the cigarette smoking and HBV and HCV infection on the risk of liver cancer. • Projects to study the effects of HBV or HCV infection on breast feeding. • National program to detect the sero-positive individuals who do not know that they are infected. • Projects to study the side effects of pharmacological drugs used in treatment of hepatitis. • Development of national program for reporting system for all cases of HBV and HCV. 		Public Health Medicine Tropical Clinical Pathology		

Research Objective	Projects Area	Responsible Departments	Output	Budget
➤ Community Based Research (continued) (All the Epidemiologic studies will be in cooperation with other external organizations in order to map all the Egyptian population)				
[2] Cancer				
▪ Breast Cancer				
Epidemiology	<ul style="list-style-type: none"> Prevalence, Incidence, risk Factors 	Public Health Surgery		
Early Diagnosis programs	<ul style="list-style-type: none"> Studies on Radiological Findings Studies on Biopsy & cytology material 	Surgery Radiology Pathology		
▪ Bladder Cancer				
Epidemiology	<ul style="list-style-type: none"> Assessment of prevalence, Incidence and Risk Factors 	Public Health Surgery Urology		
Early Diagnosis Programs	<ul style="list-style-type: none"> Studies on based on Radiological Findings Studies on Biopsy & cytology material Studies on Markers 	Surgery Urology Radiology Pathology Clinical Pathology		
▪ Cancer Prostate				
Epidemiology	<ul style="list-style-type: none"> Prevalence, Incidence and predisposing Factors 	Public Health Surgery Urology		
Early Diagnosis Programs	<ul style="list-style-type: none"> Studies on Radiological Basis Studies on the biopsies Studies on Markers 	Surgery Urology Radiology Pathology Clinical Pathology		

Research Objective	Projects Area	Responsible Departments	Output	Budget
Community Based Researches (continued)				
▪ Hepatocellular Carcinoma				
Epidemiology	<ul style="list-style-type: none"> Program to determine Prevalence, incidence and predisposing Factors 	Public Health Tropical Surgery		
Early Diagnosis Programs	<ul style="list-style-type: none"> Radiological studies Tissue studies Biochemical and immunological studies Studies on Biopsy & cytology material 	Tropical Surgery Radiology Pathology Clinical Pathology Histology		
▪ Colorectal Carcinoma				
Epidemiology	<ul style="list-style-type: none"> Program to determine Prevalence, incidence and predisposing factors 	Public Health Surgery Tropical		
Early Diagnosis Programs	<ul style="list-style-type: none"> Studies based on Radiological Screening Studies based on Marker Screening Studies on biopsies 	Surgery Tropical Radiology Clinical Pathology Pathology		
▪ Endometrial Carcinoma				
Epidemiology	<ul style="list-style-type: none"> Program to detect the prevalence, Incidence and risk Factors in our population 	Public Health Obstetrics and Gynaecology		
Early Diagnosis	<ul style="list-style-type: none"> Studies Based on Radiological Findings Studies Based on biopsies or cytology 	Obstetrics and Gynaecology Radiology pathology		
▪ Cervical Carcinoma				
Epidemiology	<ul style="list-style-type: none"> Program to detect the prevalence, Incidence and risk Factors in our population 	Public Health Obstetrics and Gynaecology		
Early Screening Program	<ul style="list-style-type: none"> Studies based on detection of human papilloma Virus Studies based on biopsies& PAP smears 	Obstetrics and Gynaecology Microbiology Pathology		

Research Objective	Projects Area	Responsible Departments	Output	Budget
Community Based Research (Continued)				
▪ Cancer Ovary				
Epidemiology	<ul style="list-style-type: none"> Study the prevalence, incidence and predisposing factors as well as assigning high risk groups in the Egyptian population 	Public Health Obstetrics and Gynaecology		
Early Diagnosis	<ul style="list-style-type: none"> Studies based on Radiological Screening Studies Based on Biochemical Screening Studies based on Biopsy material 	Obstetrics and gynaecology Radiology Clinical Pathology Pathology		
▪ Hematological Malignancies				
Epidemiology	<ul style="list-style-type: none"> Prevalence, incidence and risk factors in pediatrics Prevalence, incidence and risk factors in adults 	Public Health Pediatrics Internal Medicine Medical Oncology		
Screening Program	<ul style="list-style-type: none"> Peripheral blood Studies Studies based on Biopsy material Serologic & tissue markers 	Histology Pediatrics Internal Medicine Medical Oncology Clinical pathology Pathology		
▪ Brain Tumors, Tumors of the Nervous System and Vascular Malformations				
Epidemiology	<ul style="list-style-type: none"> Prevalence, incidence and risk factors of Brain Tumors Prevalence, incidence and risk factors in Vascular Malformations of the Brain Prevalence, incidence of congenital CNS malformation in the neonates. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Community Based Research (continued)				
[3] Diabetes				
Epidemiology	<ul style="list-style-type: none"> Type one and two prevalence, incidence and risk factors Gestational diabetes epidemiology 	Public Health Internal Medicine Pediatrics Obstetrics and gynaecology		
Epidemiology of Diabetic Complication	<ul style="list-style-type: none"> Assessment the prevalence, incidence and risk factors for this group 	Public Health Surgery Internal Medicine Pediatrics		
Screening Program	<ul style="list-style-type: none"> Biochemical Testing for general population Screening for gestational diabetes 	Clinical Pathology Internal Medicine Pediatrics Obstetrics and gynaecology		
[4] Hypertension				
Epidemiology	<ul style="list-style-type: none"> Prevalence, Incidence and risk factors Prevalence of hypertensive disorders in pregnancy 	Public Health Internal Medicine Obstetrics and gynaecology		
Screening Program	<ul style="list-style-type: none"> Detection of high risk group 	Public Health Internal Medicine Obstetrics and gyanecology		

Research Objective	Projects Area	Responsible Departments	Out put	Budget
Community Based Research (continued)				
[5] Heart Diseases				
Epidemiology of Rheumatic Heart Disease	<ul style="list-style-type: none"> Prevalence, incidence and risk factors 	Public Health Cardiology Internal Medicine Pediatrics		
Early Detection program	<ul style="list-style-type: none"> Clinical Studies Biochemical studies 	Cardiology Internal Medicine Pediatrics Clinical pathology		
[6] Parasitic Diseases				
Epidemiology	<ul style="list-style-type: none"> Project on emerging parasitic infestation in Egypt. Projects on prevalence, risk factors and prevention of Trichomonas Vaginalis Projects on HCV superseded by schistosomiasis The current situation of Bilharziasis in Egypt. National program for screening of the preschool and school children for intestinal parasites infestation. Epidemiology of Amebiasis Epidemiology of Malaria. 			

➤ **Clinical Researches****[1] Hepatitis****Vaccination Projects**

- Project on Vaccination Efficacy
- Project on efficiency of timing of vaccination
- Project for vaccination side effects
- Project for production of vaccines
- Project for studying the effect of different of vaccine doses
- Project for comparing the effect and side effects of different vaccine types.
- Efficacy of vaccination in preventing mother to child transmission.
- Surveillance of vaccination status of at risk people.
- Surveillance of vaccination status of school children
- Surveillance of vaccination status between the medical personnel
- Project to study the relationship of HBSa fusions delivered by DNA vaccination and HPV oncoproteins.
- Projects on vaccines compositions and type of stabilizers and adjuvant used.
- Projects on physio-chemical and biological activity of the hepatitis IgG used in treatment.
- Projects on the efficacy of the booster dose of hepatitis vaccination.
- Projects on composition of human antibodies to HBSag by specificity-determining residues (SDR).
- Projects for evaluation of Poly (caprolatone) based microspheres for HBSag delivery.
- Projects to prevent HBV transmission during delivery.

Research Objective	Projects Area	Responsible Departments	Output	Budget
Clinical Research (Continued)				
Treatment and Pharmacological Projects	<ul style="list-style-type: none"> • Projects on combined treatment as Peginterferon and Ribavirin therapy in HCV. • Projects to study the Immunity changes in HCV infected patients after down regulation with Pegylated interferon and ribavirin. • Projects to study the efficacy of different pharmacological drugs in management of hepatitis. • Projects to study the effectiveness of combined drug therapy in management of hepatitis. • Projects on different markers in monitoring of treatment. • Project on improvement the drugs used in treatment of HCV and HBV as well as developing new drugs. • Projects for production of synergistic interferon-gamma. • Projects for further assessment of synergistic interferon-gamma efficacy and effectiveness. • Project to establish management guideline for HCV and HBV in pediatrics. • Projects to study the drugs that manage exacerbation of chronic HBV. • Projects to test the efficacy of drugs in treatment of HCV genotype 3. • Projects on anatomical segmental and sub-segmental resection of the liver 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Clinical Research (Continued)				
Diagnosis and Evaluation Projects	<ul style="list-style-type: none"> • Projects to study the accuracy of different assay kits in qualitative assessment of HBV and HCV. • Projects to assess the Hepatitis induced fibrosis using transient elastography. • Projects to study the biomarkers for liver cirrhosis using the proteomic approach. • Projects on optical diagnosis of HBV and HCV. • Projects to assess the role of liver biopsy in diagnosis and management of Inactive HBV carriers. • Projects for Liver assessment using the Acoustic Radiation Force Impulse (ARFI). • Projects to assess different techniques of liver biopsy. • Projects to assess the different serum biomarkers of liver fibrosis. • Projects to assess the US versus biological markers in evaluation of the degree of liver fibrosis. • Projects on Real –Time Tissue Elastography (RTE) and Transient Elastography in liver assessment. • Projects on different biomarkers as platelet ratio index and imaging techniques to assess the liver. • Project on MR Elastography as a non-invasive staging of fibrosis. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Clinical Research (Continued)				
Hepatitis associated Medical Disorders	<ul style="list-style-type: none"> • Prevalence of hepatocellular carcinoma in hepatitis patients. • Project to study the change in the myeloid dendritic cells in patients of chronic HCV. • Projects to study the role of chemotherapy in prevention of hepatitis related hepatocellular carcinoma. • Epidemiology, Surveillance and prevention of Hepatitis in haemodialysis patients • Projects to detect Hepatitis reactivation in patients receiving cytotoxic drugs. • Projects to prevent hepatocellular carcinoma patients of chronic hepatitis B or C. • Projects to improve the outcome of management of chronic hepatitis related hepatocellular carcinoma. • Projects to study the effect of HBV or HCV infection on B-cell Lymphoma patients. • Projects to study prevention of HBV or HCV reactivation in patients of B-cell lymphoma receiving chemotherapy. • Projects to study the effect of combined treatment with erythropoietin and ribavirin in chronic hepatitis C patients infected with HIV. • Projects on Hepatitis associated aplastic anemia. • Projects to study for HCV in producing thrombocytopenia. • Projects to study the HBV related polyarteritis nodosa. • 			
Basic Science Projects	<ul style="list-style-type: none"> • Projects to study the histology of the liver of patients receiving medical treatment. • Projects to test the histological activity grades of the patients with HCV. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Clinical Research (Continued)				
[2] Cancer				
Diagnosis of Cancer Breast	<ul style="list-style-type: none"> • Radiology Based Studies • Biochemical Based Studies • Cell &Tissue Studies 	Surgery Radiology Clinical Pathology Pathology	150 Research Project	
Management of Cancer Breast	<ul style="list-style-type: none"> • Studies Concerning management modalities, surgical, Chemotherapy and Radiotherapy • Studies on pharmacology of drugs Used • Studies on prognosis • Studies on tissue's response to treatment • Studies on biochemical changes due to management. • Studies on Reconstructive Surgery 	Surgery Radiotherapy Chemotherapy Pharmacology Pathology Clinical Pathology	100 research project	
Diagnosis of colorectal cancer	<ul style="list-style-type: none"> • Studies on precancerous lesions • Studies on biochemical markers • Cell &Tissue studies • Studies on radiological findings 	Surgery Tropical Pathology Clinical pathology Histology Radiology	150 research project	

Research Objective	Projects Area	Responsible Departments	Out put	Budget
Clinical Research (Continued)				
Management of colorectal cancer	<ul style="list-style-type: none"> • Studies on different treatment modalities and plans • Studies on Survival rates • Studies on Drugs used • Studies on biochemical and tissue changes in response to treatment 	Surgery Radiotherapy Chemotherapy Pharmacology Pathology Clinical Pathology Pathology	50 research projects	
Diagnosis of Bladder Cancer and cancer prostate	<ul style="list-style-type: none"> • Studies on precancerous lesions • Studies on different diagnostic testes • Studies on biochemical markers • Studies on radiological bases • Cell &Tissue studies 	Surgery Urology Radiology Chemotherapy Radiotherapy Clinical pathology Pathology	75 research projects	
Management of Bladder Cancer and cancer prostate	<ul style="list-style-type: none"> • Studies concerning different treatment modalities • Studies on treatment outcomes • Studies on drugs used • Studies on survival rates 	Surgery Urology Radiotherapy Chemotherapy Pathology Clinical Pathology	40	

Research Objective	Projects Area	Responsible Departments	Out put	Budget
Clinical Research (Continued)				
Diagnosis of Hepatocellular Carcinoma	<ul style="list-style-type: none"> • Studies on Precancerous Lesions • Studies on biochemical Markers • Radiology based studies • Cell & Tissue studies 	Surgery Tropical Radiotherapy Chemotherapy Pathology Clinical Pathology	75	
Management of Hepatocellular Carcinoma	<ul style="list-style-type: none"> • Studies on treatment modalities • Studies on biochemical Markers • Studies on the radiological findings • Cell & Tissue Studies 	Surgery Tropical Radiotherapy Chemotherapy Pathology Clinical Pathology Histology	50	
Diagnosis of Gynecological Cancers	<ul style="list-style-type: none"> • Studies on biochemical Markers • Studies on radiological basis • Cell & Tissue studies 	Obstetrics and Gynaecology Pathology Radiology Clinical Pathology	50	

Research Objective	Projects Area	Responsible Departments	Out put	Budget
Clinical Research (Continued)				
Management of Gynaecological Malignancies	<ul style="list-style-type: none"> • Studies on different treatment modalities • Studies on survival rates and outcomes • Studies on biochemical changes • Cell & Tissue studies 	Obstetrics and gynaecology Pathology Clinical pathology Radiology	30	
Brain Tumors and Vascular malformations of the Brain	<ul style="list-style-type: none"> • Studies on different Diagnostic methods • Studies on the outcome • Studies comparing different surgical techniques. 			
[3] Hypertension				
Management Modalities	<ul style="list-style-type: none"> • Studies on Drugs Used • Studies on complications • Studies on management of hypertensive disorders in pregnancy 	Internal Medicine Pharmacology Obstetrics and gynaecology	10	
[4] Diabetes				
Management of Diabetes	<ul style="list-style-type: none"> • Studies on Drugs Used • Studies on mangment of complications • Studies on Biochemical Changes • Studies on radiological findings • Studies on Gestational DM 	Internal Medicine Pharmacology Radiology Clinical Pathology Obs&Gy	20	

Research Objective	Projects Area	Responsible Departments	Out put	Budget
Clinical Research (Continued)				
[5] Cardiac Oncology				
Cardiac complications in cancer patients	<ul style="list-style-type: none"> Screening studies for early detection of cardiac complications in cancer treated patients 	Cardiovascular Medicine	3	
[6] Parasitic Diseases				
Diagnosis and Treatment	<ul style="list-style-type: none"> Projects on different diagnostic techniques Projects on sensitivity and specificity of different biochemical kits. Projects on efficacy of the pharmacological drugs used in treatment. Projects on the adverse effects of different treatments. Projects on combined treatment regimens. 			
Parasitic infestation and other diseases	<ul style="list-style-type: none"> Projects on Trichomonal infection and cancer cervix. Projects on Bilharzial infection and cancer. Projects on concomitant diseases with the different parasitic infestations. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
➤ Experimental Researches				
Molecular Biology, Genetics and Stem Cell Projects in Hepatitis	<ul style="list-style-type: none"> • Molecular genesis of drug resistant HBV. • Molecular genesis of the vaccine escape HBV mutants. • Molecular epidemiology and genetic diversity of HBV and HCV. • Projects to study the mitochondrial changes in hepatitis patients and their role in the liver disease. • Projects to study the cytokine genetic polymorphism associated with HBV vaccination in infants. • Projects on autologous hematopoietic stem cell transplantation in end stage liver. • Projects to study the HCV mini-genome and its characteristics. • Projects on genetic engineering for inhibition of viral replication. • Projects on molecular modulation of hepatitis induced fibrosis. • Projects on the RNA structure in the genome terminal sequences of HCV. • Projects to study blocking HCV using recombinant envelope protein II ectodomain. • Projects to study the interaction between HCV and 5' and 3' UTR RNA • Projects to study the TAT peptides effects in inhibition of HCV RNA replication. • Projects to study the liver protection mediated by STAT3 after partial hepatectomy. • Projects to study the markers of hepatic progenitor cells as E4-PHA-reactive oligosaccharides. • Projects to study autologous mesenchymal stem cell transplantation in liver cirrhosis. • Projects to study the characteristics of HBV with genotype C. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Molecular biology and Genetics	<ul style="list-style-type: none"> • Genetic predisposition of the Egyptian population to cancer: <ul style="list-style-type: none"> - Cancer Breast - Cancer Bladder and prostate - Colorectal Cancer - Hepatocellular Carcinoma - Endometrial Carcinoma - Ovarian Carcinoma 	Microbiology Histology Surgey Tropical Urology Pathology		
	<ul style="list-style-type: none"> • Genetic predisposition of the Egyptian population to the following diseases: <ul style="list-style-type: none"> - Enzymopathies affecting adult population in adolescent patients diagnosed as 21 and 11 hydroxylase deficiencies and their molecular relations to Polycystic ovary disease. - Low response rate of Egyptian patients with hepatitis C to interferon therapy e.g polymorphism of the hemochromatosis gene and iron overload, LDL-receptor polymorphism in our populations - Assessing the different genes involved in the etiology of familial Mediterranean Fever. - The role of different inflammatory biomarkers (in particular the level of exhaled nitric oxide – high sensitivity C reactive protein-hsCRP level – clara cell 16 protein) in the diagnosis and follow up of asthmatic children and their correlation to disease severity, progression and pulmonary function. 	Microbiology Internal Medicine Rheumatology Pediaticrics Obstetrics and gynaecology Pathology		

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Molecular Biology and Genetics (Continued)	<p>Genetic Predisposition of the Egyptian population to the following diseases (continued):</p> <ul style="list-style-type: none"> - Genetic polymorphisms associated with the increased risk of developing asthma and other allergic disorders and their impact on disease expression and progression. - Genetic mutations in Egyptian cystic fibrosis patients - Genetic predisposition of Egyptians to latent onset type 2DM. - Gene identification for osteoporosis in postmenopausal women 			
Stem Cell Research	<p><u>General Research:</u></p> <ul style="list-style-type: none"> - Research on gene expression changes that take place on conversion of embryonic stem cell to pluripotent stem cell - Studies on embryonic transcription factors - Studies on embryonic stem cells lineage production. - Single cell gene expression analysis in early embryos. - Studies on stem cell chemokines and their applications. - Studies on the immunosuppressive role of the mesenchymal stem cells. - The role of signalling proteins in the maintenance of human embryonic stem cell pluripotency and viability. - Cellular differentiation hierarchies in normal and culture-adapted human embryonic stem cells. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Researches (Contiued)	<p><u>General Researches (Continued):</u></p> <ul style="list-style-type: none"> - Development of human cloned blastocysts following somatic cell nuclear transfer (SCNT). - Preserving the genetic integrity of human embryonic stem cells. - Studies on the differentiation of the pluripotent embryonic stem Cells.Studies on protein interactions on human embryonic stem cells - Studies to isolate the mesenchymal cells progenitors form the umbilical cord. - Studies on adipose derived stem cells. - Molecular basis of pluripotency. - Spontaneous differentiation of germ cells from human embryonic stem cells in vitro. - Studies on epigenetically regulated trophoblast stem cell compartment in the human placenta. - Generation of Induced Pluripotent Stem Cells from Human Cord Blood Using OCT4 and SOX2. - Phosphorylation Dynamics during Early Differentiation of Human Embryonic Stem Cells.Control of Stem Cell Fate by Physical Interactions with the Extracellular Matrix. - Gene Targeting of a Disease-Related Gene in Human Induced Pluripotent Stem and Embryonic Stem Cells. - Molecules that Promote or Enhance Reprogramming of Somatic Cells to Induced Pluripotent Stem Cells. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Research (Continued)	<p><u>General Research (Continued):</u></p> <ul style="list-style-type: none"> - Generation of Human Induced Pluripotent Stem Cells by Direct Delivery of Reprogramming Proteins. - Chemical biology in control pluripotency of stem cells. - Studies on pluripotent stem cells derived from the human amniotic fluid. - Studies on Embryonic Stem Cell Lines Derived from Human Blastocysts. <p><u>Stem Cell and Neurology:</u></p> <ul style="list-style-type: none"> - Epigenetic Regulation of Neural Stem Cell Proliferation and Differentiation. - Studies on human neuronal stem cells and their regulation - Studies on the different levels of molecular control of neuronal lineage of embryonic stem cells. - Role stem cell in treatment of parkinsonism and the role cell replacement therapy - Studies on Cell therapy in spinal cord injuries - Studies on the development of the neural tube and the genes involved in patterning, differentiation, cycling and migration of neurons. - Pluripotent stem cells in neurodegenerative and neurodevelopmental diseases. - Human neural crest cells display molecular and phenotypic hallmarks of stem cells - Studies on the biochemical effects on the neural stem cells and their differentiation. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Research (Continued)	<p><u>Stem Cell and Neurology:</u></p> <ul style="list-style-type: none"> - The developmental genetics of auditory hair cells. - Studies on the Biomarkers of glial cell proliferation and differentiation in culture. - Studies on the development of human nervous tissue upon differentiation of embryonic stem cells. - Studies on differentiation on the Adult Bone Marrow Stromal Cells into Neural Cells. - Studies on Isolation and Cloning of Multipotential Stem Cells from the Embryonic Human CNS. - Studies on the Mesencephalic Neural Stem (Progenitor) Cells to differentiate into Dopaminergic Neurons. - Studies on Stem cell therapy for motor neuron diseases. - Project for stem cell therapy for cerebral palsy. - Project for stem cell therapy of multiple sclerosis. - Studies on Stem cell treatment of Amyotrophic Lateral Sclerosis. - Studies on Stem cell treatment of Autism. - Project Stem cell treatment of Stroke. - Studies on stem cell therapy of Alzheimer's disease. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Research (Continued)	<p><u>Stem Cell and Haematology:</u></p> <ul style="list-style-type: none"> - Studies on the human placenta as a major source of human haemtopoeitic stem cells. - Signaling pathways in self-renewing hematopoietic and leukemic stem cells. - Studies on leukemic stem cells. - Studies on stem cell therapy of leukemia. - Studies on the characteristics of stem cells of different tissues as bone and blood vessels. - Studies on signaling pathway for Hematopoietic Recovery. - Studies on regeneration and engrafting of Sinusoidal Endothelial Cells. <p><u>Stem Cell and Cardiovascular system :</u></p> <ul style="list-style-type: none"> - Stem cell based therapy in myocardial infarction - Epigenetic studies on stem cells to develop cardiac pacemaker cells - Studies on stem cell therapy of heart failure. - Studies on Cardiovascular Regeneration by stem cells progenitors. - Studies on Stem Cell therapy of Coronary Heart Diseases. - Studies on the behavior of Stem Cell Derived Cardiac Differentiation. - Stem cell treatment of Cardiovascular diseases - Stem Cell Treatment of Critical Limb Ischemia. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Research (Continued)	<p><u>Stem Cell and Cancer:</u></p> <ul style="list-style-type: none"> - Studies on Stem Cell Role in Screening for Malignancy. - Studies on regulation of cancer stem cells. - Studies on potential biomarkers for cancer diagnosis, prognosis and targets for stem cell therapy. - Studies on the effects of antitumor drugs by studies on Cancer Stem Cells. - Role of stem cell in management of cancer Prognostic significance of circulating tumour cells . - Studies on the role of Stem Cells in the management of Advanced Metastatic Breast Cancer. - Gene expression and transcription factors in Breast Cancer. - Genetic studies on Gut Epithelial Stem Cell and their relation the gastrointestinal cancers. - Studies on the molecular markers of the Mesenchymal Stem Cells in Williams Tumors. - Studies on role of stem cells in colorectal carcinoma - Studies on Gene expression in gynaecological tumors. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Research (Continued)	<p><u>Stem Cell and Skin regeneration:</u></p> <ul style="list-style-type: none"> - Role of Adipose Derived Stem Cells in Wound Healing. - Studies on stem cells to prevent premature aging of skin - Studies on Mesenchymal Stem Cells in Healing of Tissues and Prevention of Inflammation - Studies on Vascular Stem Cell Markers and their regeneration <p><u>Stem Cell and Reproductive Endocrinology:</u></p> <ul style="list-style-type: none"> - Studies on the role of Stem Cells in treatment of male infertility. - Studies on the Embryonic Stem Cells and their role in female infertility. - Stem cell research in erectile dysfunctions. - Studies on development of Germ Cell line from Molecular Control of adult bone marrow-purified very small embryonic-like stem cells. - Stem Cell and Ophthalmology: - Studies on stem cell and treatment of corneal disease - Role of stem cells in retinal transplant - Stem cell treatment of Macular Degeneration. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Stem Cell Researches (Continued)	<p><u>Stem Cell and Internal Medicine:</u></p> <ul style="list-style-type: none"> - Studies on the Pancreatic development of Human Islets from Pluripotent Stem Cells. - Studies on the use of mesenchymal stem Cells in prevention of diabetic complications - Role of bone marrow stem cells in treatment of diabetes - Role of stem cells in repairing the damaged renal tubules - Advance of researches on thyroid tissues autotransplantation and embryonic stem cell transplantation in therapy of hypothyroidism. - Mesenchymal stem cell therapy for diabetes through paracrine mechanisms. - Studies on stem cell therapy in osteoarthritis - Studies on the role of Chondrogenic Progenitor Cells in Osteoarthritis - Studies in stem cell therapy for osteoporosis - Stem Cell Treatment of Chronic Obstructive Pulmonary Disease (COPD). 			
Electron Microscopy Projects	<ul style="list-style-type: none"> - Projects on Micro vascular anatomy of the eye. - Projects on vascular architecture of the brain - Projects on histological and ultra structure evaluation of healing in tissue injuries. - Projects on affection of human bone by heat application. - Projects on morphology and immunochemistry of traumatic and non traumatic bone necrosis. 			

Research Objective	Projects Area	Responsible Departments	Output	Budget
Experimental Research (Continued)				
Electron Microscopy Projects (Continued)	<ul style="list-style-type: none"> - Projects on studying the intracortical canal system. - Projects on studying the axial synapsis in the brain. - Projects on studying different areas of the brain. - Projects on studying the peripheral nervous system. - Projects on studying the microcirculation and ultrastructure of the organs. 			
Parasitic Diseases	<ul style="list-style-type: none"> - Projects on developing Vaccines for parasitic infection. - Projects on studying the life cycle of common parasitic infestations in Egypt. - Projects on ultrastructure and characteristics of the common parasites in Egyptian population. 			

IV. Monitoring and Evaluation:

The plan will be regularly checked and assessed on yearly basis to modify it according to the new situations, there will be internal assessment team in each department and the strategic plan of all the departments will be monitored by the Academic Center of the Faculty and the assessment directions will be as follow:

- **Research Level:**

How many research projects started in the specified fields?

How many multidisciplinary research projects?

Percentage of staff involved in research projects?

How many projects are our students involved in and what was their role?

Are the research projects running according to the scheduled time?

What are the primary results?

Number of peer reviewed indexed publication