



The Institute of Endemic Diseases University of Khartoum, Sudan





For a better Community Services 2009-2010

Institute Address:

Institute of Endemic Diseases, University of Khartoum.

Medical Sciences Campus

Qasser Street, P.O. Box 102

Khartoum, Sudan; Post Code 11111

Tel. +249 83 (793262) (793265) (793267) Fax +249 83 (779712)

Web site: www.iend.org

Vision:

The Institute of Endemic Diseases endeavors to be one of the leading research and training institutes on endemic diseases worldwide.

Mission:

The Institute of Endemic Diseases was established in 1993 as a research and training center for endemic diseases. It acts as a platform for biomedical and clinical research in the University of Khartoum. Community service is an ever growing objective, especially for impoverished and remote communities.

Objectives:

- Undertakes research on endemic diseases in the Sudan.
- Trains physicians, scientists and health workers in the Field of endemic diseases.
- Renders medical and health services to the community.
- Offers post graduate degrees in immunology, molecular biology, molecular medicine and Human nutrition.

Staff:

I: Academic Staff

Professor A. M. Elhassan

Emeritus Professor of Pathology

E.mail. ahmedelhassan85@gmail.com

Professor Eltahir Awad Gasim Khalil

Professor of Pathology

E.mail. eltahirk@iend.org, eltahirgasim@yahoo.ca

Professor Moawia Mohamed Mukhtar

Professor of infectious diseases

E.mail: mmukhtar@iend.org

Professor. Muntaser Elyeb Ibrahim

Professor of Genetics

E.mail. mibrahim@@iend.org

Dr. Ibrahim Mohmaed Elhassan

Associate professor of Parasitology

E.mail. Ibrahimelhassan@iend.org

Dr. Hiba Salah-Eldin Mohamed

Associate Professor of Molecular Biology

E.mail. hibasalah@iend.org

Dr. Faiza Mohamed .Osman.

Assistant Professor of Nutrition.

E.mail. faizaosman@iend.org

Dr. Ahmed Mudawi Musa.

Assistant Professor of Immunology

E.mail. amusa@iend.org; Musaam2003@yahoo.co.uk

Dr. Sahar Mubarak Bakheit.

Assistnat professor of Molecular Biology

E.mail. saharbakheit@iend.org

Dr Muzamil Mahdi Abdelhameed

Assistant Professor of Molecular Parasitology

E.mail. Mahdi@iend.org

Dr. Abd Alla Sayed Mohamed

Teaching Assistant. Department of Parasitology

II. Technical Staff (Khartoum):

Ms Nahid Eid

Ms Badria Mohamed Said

Ms Abdah ElFatih ElEmam

Mr Ahmed Fath Elrahman Idris

Mr Mohamed A/Rahim Sayed

Ms Shereen Ahmed

III. Field Stations Staff:

Mr Mohame Abd Elrahman Sha'a Eldin (Kassab Centre, Gedarif State)

Mr Khalifa Mohamed Guma'a (Kassab Centre, Gedarif State)

Mr Tahir Fadul (Kassab Centre, Gedarif State)

Mr Mohamed Elamin (Kassab Centre, Gedarif State)

Mr Ata Abd Alla Eltahir (Professor Elhassan Centre, Dooka, Gedarif State)

Adminstration:

Director:

Professor Eltahir Awad Gasim Khalil; MBBS; LRCP; MRCS; FRCPATH Feb 2006-to date.

Previous Directors:

Professor Ahmed Mohamed Elhassan; DKSM, PhD, FRCP, RCPATH (1993-2002).

Professor Moawia Mohamed Mukhtar; BVS; PhD. (2002-2005).

Registrar:

Dr. Asadig Nasser Asadig omer

Secretaries:

Ms. Gadha Ahmed Elhaj

Maha MA Khalifa

Rania Elsir Khalil

Administrative Officer:

Nancy Abd Elrahman

Departments:

Department of Immunology and Clinical Pathology:

Head of the Department

Dr. Ahmed Mudawi Musa

Members

Professor A. M. El Hassan

Professor El Tahir Awad Gasim Khalil

Mr Mohamed A/Rahim Sayed

Professor EE Zijlstra (Visiting Professor)

Professor Farouk Modabber (Visiting Professor)

Department of Molecular Biology:

Head of the Department

Dr. Hiba Salah Eldin Mohamed

Members

Professor Muntaser Eltyeb Ibrahim

Professor Moawia M. Mukhtar

Dr. Muzamil M. Abdel hamid

Dr. Sahar Mubarak Bakhite

Ms Nahid Eid

Ms Abdah Elfatih El Emam

Ms Shereen Ahmed

Department of Parasitology and Medical Entomology:**Head of the Department**

Dr. Ibrahim Elhassan (On sabbatical leave, Saudi Arabia)

Members

Dr. Abd Alla Sayed Mohamed.

Ms Badria Mohamed Said

Department of Epidemiology and Nutrition**Head of the Department**

Dr Faiza M. Osman

Members

Prof. Ahmed M. El Hassan

Mr. Ahmed Fath Elrahman Idris

Collaborating Staff:

Dr. Mona Elfaki Eltahir Efaki

Dr. Abu Zaid Abd Alla Abu Zaid

Dr. Brima Mousa

Dr. Ayman Hussein
Dr. Waleed Elamin
Mr Eltahir Fadul Khameese
Ms. Fadwa Mirgani Ali
Ms. Hadia AbdelMgeed

Research Groups:

1- The Leishmaniasis Research Group/Sudan (LRG/Sudan)

Chairperson: Professor Ahmed Mohamed El Hassan.

2. Malaria Research Group

Chairperson: Dr. Ibrahim Mohamed El Hassan.

3. Measles Research Group

Chairperson: Dr. Salah Ahmed Ibrahim.

4. Mycetoma Research Group

Chairperson: Professor Ahmed H. Fahal.

5. Nutrition & Infection Research Group

Chairperson: Dr. Faiza M. Osman.

6. Schistosomiasis Research Group

Chairperson: Professor Moawia M. Mukhtar.

7. Population Genetics Research Group

Chairperson: Professor MuntaserMuntaser E. Ibrahim.

8. Tuberculosis Research Group

Chairperson: Professor Eltahir Awad Gasim Khalil.

Post-Graduate Degrees

MSc. Qualifying courses in Clinical pathology, Immunology, molecular biology, epidemiology and Parasitology

Master Degrees (By Research)

Immunology

Molecular Biology

PhD. Degrees (By research)

Immunology

Molecular Biology

MD degrees:

Immunology

Molecular Biology

Degrees by Courses:

Diploma/Master Degree in Molecular Medicine

Aim:

This degree in Molecular Medicine sets out to provide applicants with a thorough understanding of:

- The human genome at a molecular level.
- The integration of molecular and cellular biology in relation to human diseases.
- The molecular basis of human genetic disease.
- The molecular interactions between microbiological pathogens and the human host.
- The technology currently employed in molecular genetics and cell biology.
- The interaction between such technology and current clinical practice.
- The molecular basis of common human malignancies.

- The utilisation of knowledge on the molecular basis of human disease in planning and design of novel therapies, using pharmacological agents or gene therapy.
- The ethical and legal aspects of molecular medicine as it impinge on clinical practice.
- A working appreciation of molecular and cellular biology at the practical level and development of the ability to perform independent research.
- The ability to apply bioinformatic and computational techniques in medical and biological research, and information retrieval

Sponsors (past and current):

Local Sponsors

- University of Khartoum.
- Ministry of Higher Education and Scientific Research, Sudan.
- Sudan Medical Specialization Board, Khartoum.
- Kenana Sugar Company, Sudan.
- Hajjar Trust, Khartoum, Sudan.

International Sponsors

- DNDi/Geneva, Switzerland.
- European Community.
- The Wellcome Trust
- World Health Organization/ TDR
- EDCTP.
- DANIDA.
- ICGEB.
- International Voluntary Women Group, Sudan.
- International Atomic Energy.
- TWAS
- Gates Foundation

Collaborations:

Local Collaborating Centres

- Tropical Diseases Hospital, Omdurman, Federal Ministry of Health, Sudan.
- Faculty of Medicine. University of Khartoum
- Faculty of Mathematical sciences. University of Khartoum
- Tropical Medicine Research Institute, National Center For. Research, Khartoum, Sudan.
- Department of Genetics and Molecular Parasitology; National Health Laboratory, Sudan.
- Soba University Hospital; Khartoum, Sudan.
- Central laboratory –Ministry of Science and Technology
- The Electron Microscopy Unit, Faculty of Science, University of Khartoum.
- The Mycetoma Unit, Soba Teaching Hospital, University of Khartoum.
- Malaria Leishmania Administration, Federal Ministry of Health.
- Veterinary Research Center, Ministry of Animal Resources.
- Leprosy Control Program, Federal Ministry of Health.
- Department of Zoology. Faculty of Science. University of Khartoum.
- Faculty of Laboratory Sciences; University of Khartoum.
- Ahfad University for Women, Omdurman.
- Research Administration Unit, Federal Ministry of Health.
Ministry of Health, Gedarif State.
- School of Mathematics, University of Khartoum.
- Commission for refugees ministry of exterior affairs
- Faculty of Dentistry, University of Khartoum, Sudan.
- Commission for humaterian Aids, Khartoum, Sudan.
- Kassalla State Ministry of Health.
- Faculty of Medicine, Kassalla University.
- National Tuberculosis Control Program

Collaboration with Scientists Abroad

1. Professor E. E. Zijlstra, Faculty of Medicine, University of Malawi, Malawi.
2. Professor P. A. Kager, Department of Infectious Diseases, Tropical Medicine and AIDS, Academic Medical Centre, University of Amsterdam, Netherlands.*
3. Dr. Linda Oskam, Royal Tropical Institute, Amsterdam, The Netherlands.*
4. Dr. S. G. Reed, Infectious Disease Research Institute, Seattle, WA, USA.
5. Dr. Marita Troye-Blomberg. The Wenner-Gren Institute , Department of immunology, Stockholm University, Sweden.
6. Klavs Berzins. The Wenner-Gren Institute , Department of immunology, Stockholm University, Sweden.
7. Dr. Thor Theander, Dr. A. Kharazmi. Centre for Medical Parasitology, University of Copenhagen.
8. Dr. Douglas Barker, Department of Pathology, University of Cambridge.*
9. Professor L. L. Cavalli-Sforza, Department of Genetics, Medical School, Stanford University.
10. Dr. Hannah Akuffo, Microbiology and Tumorbiology Centre, Karolinska Institute, Sweden.*
11. Professor Thomas Unnasch, University of Alabama, USA.
12. Prof. Henry A. Verbrugh, University of Rotterdam, Netherlands.
13. Professor Jennifer Blackwell, Cambridge University, UK.
14. Professor Domininc Kwiatkowski, University of Oxford, UK.
15. Professor A. D. M. E. Osterhaus, Erasmus University, Rotterdam, Netherlands.*
16. Professor Trefer Jenkins, Johansberg, South Africa.
17. Professor Himla Sodyal , Johansberg South Africa
18. Dr. Mark Seielstad, Harvard Universtiy, USA.
19. Dr. Jeremy C. Mottram, Glasgow, UK.
20. Professor Franseco Baralle. International Center of Genetic Engineering and Biotechnology (ICGEB) Trieste Italy.
21. Professor R. Ward, Keele University, U.K.
22. Dr. Bela Veress, Department of Pathology, Malmo General Hospital, Malmo, Sweden.
23. Dr. Farroukh Modabber, Tehran, Iran; DNDi/Geneva, Switzerland.
24. Dr. Ikram Guzani, Pasteur Institute, Tunissia*.

25. Professor Ib Bygbjerg / institute of public health Copenhagen university
26. Dr. Rosbella Onyango college of public health Moi university Kenya
27. Professor Sara Tishkoff, University of Maryland USA
28. Professor Endashaw Bekele, University of Addis Ababa
29. Professor Jacques Louis, Pasteur Institute Paris
30. Professor Pascal Launois, WHO Immunology Research and Training Center, Lausanne, Swizerland
31. Profesor Nancy Seravia, Cali, Columbia
32. Professor P. Styft, Prince Leopold Tropical medicine research institue, Belgium
33. Dr. Greet Dieltiens, Prince Leopold Tropical Medicine research institue, Belgium
34. Professor Simon Croft, London School of Hygiene & Tropical Medicine, London, UK.
35. Dr Vanessa Yardley, London School of Hygiene & Tropical Medicine,

Research Projects (Past and Current)

1. Safety, Immunogenicity and efficacy of Autoclaved leishmania major vaccine (ALM) in an endemic area of L. donovani infection in eastern Sudan. TDR (Professor Eltahir .A.G. Khalil & Professor Ahmed M. Elhassan)
2. Safety and immunogenicity of ALUM/ALM vaccine in Healthy Sudanese volunteers (Professor Eltahir .A.G. Khalil & Professor Ahmed M. Elhassan).
3. Immunochemotherapy for patients with persistent post kala-azar dermal leishmaniasis (PKDL) using Alum-precipitated ALM+BC vaccine and sodium stibogluconate: a hospital-based approach. (Professor Eltahir A.G. Khalil & Professor Ahmed M. Elhassan)
4. Immunochemotherapy for patients with persistent post kala-azar dermal leishmaniasis (PKDL) using LeishF2 vaccine and sodium stibogluconate: a hospital-based approach.(Professor Eltahir A.G. Khalil)

5. Immune profile and clinical presentations of patients with tuberculous lymphadenitis in the Sudan. (Professor Eltahir A.G. Khalil)
6. Latent *M.tuberculosis* infections: prevalence & Risk Factors in Central & Eastern Sudan. (Professor Eltahir A.G. Khalil)
7. Anaemia of chronic malaria: the role of depressed erythropoietin response. (Professor Eltahir A.G. Khalil)
8. Congenital Malaria: a neonatal prospectus. (Professor Eltahir A.G. Khalil)
9. Sickle cell anaemia: a card/registry system for the control of HbS in nomadic tribes in western Sudan. (Professor Eltahir A.G. Khalil, Mr AA Nimir)
10. Sickle haemoglobin screening: Cellulose acetate versus ID technique. (Professor Eltahir A.G. Khalil, Mr AA Nimir)
11. AID to displaced people in Sudan: magnitude and efficiency. (Professor Eltahir A.G. Khalil, Dr Wigdan Ismail)
12. The origin of Hb.S gene haplotypes in the Myssieria tribe of Western Sudan: a moleculo-biological study, towards developing a community-based card/registry scheme for the control of sickle cell disease. Professor EAG Khalil, (**Sponsor:** Institute of Endemic Diseases, University of Khartoum).
13. The febrile child: towards developing a clinical algorithm to improve patients' management. Collaborative study with the Central Police Hospital (Professor EAG Khalil, Dr Fawzi A Mahgoub)
14. Molecular epidemiology of multi-drug resistant *P.falciparum* in Sudan: a GIS approach. Professor EAG Khalil (**Sponsor:** Institute of Endemic Diseases, University of Khartoum).
15. Cytogenetic aberrations in cord blood of Sudanese neonates: Safety of Cord stem

Cells. Professor EAG Khalil (Waiting for funding).

16. Diabetes mellitus: Prevalence of specific mutant genes (D76N, C18R and R197H) in Sudanese patients with type II diabetes. Cellular and humoral immune response profiles in Sudanese patients with type II diabetes: matoux test in vitro responses to PPD and MSP-1₁₉. Sero-prevalence of GAD and IA2 auto-antibodies among Sudanese patients with Diabetes mellitus type I. Professor EAG Khalil **(IEND/Private funding)**.
17. Prevalence of inhibitors. Characterization of molecular defects in haemophilic Sudanese patients. BCR-ABL protein, a diagnostic marker in patients with CML: a proteomic approach. Professor EAG Khalil, Dr FAM Salih **(National Health Laboratory/Private funding)**.
18. HLA Aleelic Patterns and haplotypes of major Sudanese tribes: a study of ethnology. Professor EAG Khalil, Dr MEE Eltahir **(Sponsor:** Institute of Endemic Diseases, University of Khartoum).
19. Pregnancy-associated malaria: Prevalence, maternal & neonatal immune responses. Determining residual malaria-specific memory following neonatal malaria. Pregnancy-associated and neonatal malaria, changing malaria vaccination policy. Professor EAG Khalil; Dr SA Omer **(Private funding)**.
20. The role of amodiaquine/Artesunate Vs Chlorquine home management in reducing malaria burden in a cluster of villages along the White Nile. **(Sponsor:** White Nile State/IEND).
21. The role of Multiplicity of *P.falciparum* infection in the development of protective immunity against malaria. Professor EAG Khalil, SA Omer (TEMRI/IEND)
22. Malaria morbidity and mortality in an area of stable transmission in eastern Sudan: possible role of Hb AS, Hb F levels and G-6-P-D deficiency. **(Sponsor:** Institute of

Endemic Diseases, University of Khartoum). Professor EAG Khalil, AM Musa

23. LEAP 0104 project entitled “A multicentre comparative trial of efficacy and safety of Sodium Stibogluconate (SSG) versus Paromomycin (PM) versus Combination of SSG and PM as first line treatment for visceral leishmaniasis in Ethiopia, Kenya and Sudan”. July 2004 to date. (Dr. Ahmed Mudawi Musa, Professor Eltahir AG Khalil).
24. Single High dose Ambisome for primary Sudanese visceral Leishmaniasis. (Professor Eltahir.A.G. Khalil, Dr Brima Younis Musa & Dr Ahmed Mudawi Musa)
25. Miltefosine/SSG/Ambisome combination regimens for primary Sudanese visceral leishmaniasis. (Dr Ahmed Mudawi Musa, Professor Eltahir .A.G. Khalil)
26. Epidemiological, clinical and therapeutic studies on leishmaniasis in the Sudan. (Prof. Ahmed M. Elhassan).
27. Evaluation of molecular biological and serological methods in the diagnosis of leishmaniasis under field conditions. (Prof. Ahmed M. Elhassan).
28. Immunopathology of leishmaniasis. (Prof. Ahmed M. Elhassan).
29. Vaccines against leishmaniasis. (Prof. Ahmed M. Elhassan).
30. Epidemiology and immunopathology of mycetoma in the Sudan. (Prof. Ahmed M. Elhassan).
31. Epidemiology of leprosy in the southern part of Gedaref State, Sudan. (Prof. Ahmed M. Elhassan).
32. Epidemiology of malaria in two villages on the Rahad River, Gedarif State, Sudan. ((Prof. Ahmed M. Elhassan).
33. Cancer and infectious agents (Prof. Ahmed M. Elhassan).

34. Research grants: Grants received from TDR, EC, Wellcome Trust, DANIDA and most recently from The Academy of Sciences for the Third World (TWAS) to work on nasopharyngeal cancer ((Prof. Ahmed M. Elhassan).
35. GIS and epidemiology of Malaria in Sudan. Ongoing. (Dr. Ibrahim Elhassan).
36. Clinical and immunological characterization of Tropical splenomegaly syndrome in Sudan. Ongoing. (Dr. Ibrahim Elhassan).
37. Humoral and cellular immune responses to Malaria vaccine candidates. Ongoing. (Dr. Ibrahim Elhassan).
38. Impact of malaria-Helminthes co-infection on clinical and immunological immune responses to malaria. Ongoing. (Dr. Ibrahim Elhassan).
39. African immunoassay to malaria vaccine candidates project. 2007-2009. (Co-Investigator – Dr. Ibrahim Mohamed Elhassan).
40. Epidemiological study of malaria in areas of seasonal malaria transmission in Ethiopia and Sudan. Supported by WHO/TDR/ MIM. 2004-2008. (Dr. Ibrahim Mohamed Elhassan).
41. Genetic Diversity and Susceptibility to Malaria. (Co-Investigator, member of immunology cluster) supported by EU. 2004-2007. (Dr. Ibrahim Mohamed Elhassan).
42. Natural History of PKDL and it is role in transmission. Supported by TDR/WHO 1999-2004. (Dr. Ibrahim Mohamed Elhassan & Dr Ahmed Modawi Musa).
43. The role of antigenic variation in maintenance of asymptomatic malaria infections throughout the Sudanese dry season 1998-2001. Supported by TDR/WHO. (Dr. Ibrahim Mohamed Elhassan).
44. The role of strain specific immunity in the development of strain specific immunity

Supported by. Tropical Medicine Award, The Wellcome Trust Fellowship, UK 1998-2001

45. Genetic Epidemiology in Sudan (International Centre For Genetic Engineering And Biotechnology).1997-2000 (Prof. Muntaser Ibrahim)
46. 12. Kala-Zar In The Sudan, The Role of Host and Parasite Genetics In Determining Disease Outcome (The Wellcome Trust, Collaborative Research Grant (Principal Applicant) 1999-2002. (Prof. Muntaser Ibrahim).
47. Genetic Susceptibility to Visceral Leishmaniasis: Comparative Studies in India, Sudan and Brazil (Prof. Muntaser Ibrahim-Co-Applicant). 2007- Ongoing
48. Detection of Drug Resistant Malaria and Tuberculosis Supported By IAEA (RAF/6/025) Regional Project (Prof. Muntaser Ibrahim).
49. The Epidemiological Components of Cutaneous Leishmaniasis Outbreaks in Tuti Island. A Field and Simulation Approach (World Health Organization EMRO). 2002-2003. (Prof. Muntaser Ibrahim).
50. Genetic Diversity and Susceptibility to Malaria. Part of the Biomalpar Consortium Funded by the European Union. (Prof. Muntaser Ibrahim). 2004-ongoing
51. Genetic of Cancer (Colorectal, Breast, Cervical). Ongoing –(Prof. Muntaser Ibrahim)
52. Genetics of Asthma – 2008-on going –Prof. Muntaser Ibrahim. Funded by Ministry of Higher Education.
53. Y chromosome and mitochondrial genetics markers and their role in shaping the current ethno-geographical picture of Sudan. Ongoing (Prof. Ibrahim).
54. Genetics of Migraine. 2007-ongoing (Prof. Muntaser Ibrahim)
55. Epidemiological study of cutaneous leishmaniasis in Tuti Island-Khartoum looking

- for the prevalence of the disease in human and Sand flies)-1996-1998. (Dr. Hiba Salah-Eldin Mohamed)
56. Molecular diagnosis of Leishmaniasis -1995-1998 (Dr. Hiba Salah-Eldin Mohamed)
 57. Genetic susceptibility to visceral leishmaniasis –Candidate gene approach-1998-2002. supported by the Wellcome Trust (Dr. Hiba Salah-Eldin Mohamed)
 58. Functional and Genetic analysis of NRAMP1 gene using Real time PCR, reporter assay and sequencing-2007-Ongoing. Supported by The Wellcome Trust. (Dr. Hiba Salah-Eldin Mohamed)
 59. Looking for possible reservoir host for visceral leishmaniasis by investigating natural infection and experimental infection in dogs -2005-2008- (Dr. Hiba Salah-Eldin Mohamed –Co-applicant).
 60. Immunogenetics of cutaneous leishmaniasis in newly inhabited area in Khartoum - 2007-2009. (Dr. Hiba Salah-Eldin Mohamed – Co-applicant).
 61. Screening of known cytokine, nitric oxide and complement receptor one genes polymorphisms in Sudanese from malaria endemic areas. 2007-Ongoing. (Dr.Hiba Salah-Eldin Mohamed) Supported by Biomalpar and University of Khartoum.
 62. Functional genomics of visceral leishmaniasis -2007-Ongoing.. Supported by Royal society-Pfizer award. (Dr. Hiba Salah-Eldin Mohamed)
 63. Plasmodium falciparum var genes expression and their impact on Malaria manifestations- 2010- 2012. Supported by Ministry of Higher Education Grant. (Dr. Hiba Salah-Eldin Mohamed)
 64. Genetics Susceptibility to Diabetes Type 2 – 2010. (Dr. Hiba Salah-Eldin Mohamed) Waiting for Fund.
 65. Identificaiton of possible reservoir hosts of Leishmania

donovani in kala-azar endemic region in eastern Sudan. 1992-1993 World Health Grant # 920144. (PI -Professor Maowia M. Mukhtar).

66. Epidemiology of Malaria and rapid epidemiological mapping (REMO) of *Onchocerca volvulus* infection in Sudan. 1995-1996 World Health Grant # 950011. (PI -Professor Maowia M. Mukhtar).
67. Investigation of Multiple antibiotic resistances among bacterial Pathogens. University of Khartoum Research Grant. (PI -Professor Maowia M. Mukhtar).
68. Pathogenesis of different clinical presentation of Onchodermatitis in natural and ivermectin treated Sudanese. World Health Organization Grant # 940452; 1995-1995. (Co- PI -Professor Maowia M. Mukhtar).
69. Atlas GIS grant to map *Onchocerca volvulus* infection in Sudan. World Health Organization. 1995-1996 (Co- PI -Professor Maowia M. Mukhtar).
70. Immunology and histamine release in Onchocerciasis patients pre and post ivermectin treatment. World Health Organization grant number 960636. (Co- PI -Professor Maowia M. Mukhtar).
71. Cellular immune response of camel peripheral blood lymphocytes to *Trypanosoma evansi*, Rinderpest, Hydatid and *Brucella* antigens Jan 1997 to June 1998. International Foundation of Science grant number B/2584-1 (PI -Professor Maowia M. Mukhtar).
72. Study of the host and parasite factors associated with Post Kala-azar Dermal Leishmaniasis (PKDL). (PI -Professor Maowia M. Mukhtar). 1998 to 1999. WHO/TDR/EMRO grant number 98/109.
73. Parasite determinants associated with Post Kala Azar dermal Leishmaniasis in Sudan. (PI -Professor Maowia M. Mukhtar). WHO/TDR grant number 990559. 1999 – 2000.

74. Molecular clustering and drug resistance of Mycobacterium TB of different regions of Sudan. (PI -Professor Maowia M. Mukhtar). WHO/ TDR grant No. A0810. 2000 to 2002.
75. Efficacy of measles mass vaccination in urban and periurban sites in Khartoum, Sudan. (PI -Professor Maowia M. Mukhtar). WHO grant No. YP/181. 2001 to 2003.
76. The burden of pulmonary tuberculosis in eastern Sudan. (Senior fellowship EDCTP (Professor Maowia M. Mukhtar). 2005.
77. Proteomics of the urine of Kala-Azar patients. (PI -Professor Maowia M. Mukhtar). ICGEB grant 2005- 2006.
78. Biomarkers of Mycobacterium TB infection. (PI -Professor Maowia M. Mukhtar). TDR/ FIND grant. 2006 – 2007.
79. Correlates of protective immunity to Leishmania infection (Co- PI Prof. Maowia M. Mukhtar) 2005 – 2006. UBS grant
80. DNA heterogeneity of Onchocerca volvulus isolates from different Onchocerciasis Endemic regions of Sudan. Supported by TDR\ WHO. (PI Prof. Maowia M. Mukhtar)
81. Immunity in Bovine Schistosomiasis. Supported by a grant from The EEC.(PI Prof. Maowia M. Mukhtar
82. Proteomics of the urine of Kala-Azar patients. Supported by the International Center Genetic Engineering and Biotechnology. (PI Prof. Maowia M. Mukhtar)
83. Biomarkers of the urine and sputum of Mycobacterium TB patients. Supported by TDR (PI Prof. Maowia M. Mukhtar)
84. Diagnosis of Visceral Leishmaniasis: a multicenter study of global network for diagnosis of Visceral Leishmaniasis. Supported by WHO/ TDR. (PI Prof. Maowia M. Mukhtar)

85. Improvement of diagnosis of pulmonary tuberculosis .Supported by EDCTP. (PI Prof. Maowia M. Mukhtar)
86. Surveys on situation analysis in refugee camps and internally displaced people, (eastern Sudan, Dar elsalam Camp (IDP from southern Sudan). (Prof. ElTahir AG Khalil)
87. Rapid assessment of leishmaniasis situation in western Sudan among nomadic tribes using GIS, TDR-funded project (2004, PI Dr. A. H. Shareif)
88. Immune profile and clinical presentations of patients with tuberculous lymphadenitis in the Sudan.
89. The mechanisms of drug unresponsiveness in patients with visceral leishmaniasis pharmacokinetics and parasite factors, LEAP0104 (DNDi sponsorship). (Dr. Ahmed Mudawi Musa).
90. Molecular diagnosis of leishmaniasis using PCR. (1999-2000). (Dr. Muzamil Mahdi Abdel Hamid)
91. Parasite Genetic factors determining the outcome of to visceral leishmaniasis – genetics variations using minisatellite DNA markers (1999-2002). MSc research. (Dr. Muzamil Mahdi Abdel Hamid)
92. Exploratory research to improve the technology of transfection of malaria parasite using *Plasmodium knowlesi* parasite model, PhD research 2004-2005. (Dr. Muzamil Mahdi Abdel Hamid).
93. Identification of new malaria vaccine candidates emerging from proteomic and genomic analysis, PhD research, 2006-2007. (Dr. Muzamil Mahdi Abdel Hamid).
94. Assessment of vaccine characteristics of Apical Membrane Antigen 1 (AMA) using animal models, PhD research, 2007-2009. (Dr. Muzamil Mahdi Abdel Hamid).

95. African immunoassay (AIA). AMANET network for evaluation of malaria candidates. 2007-2009. (Dr. Sahar Mubarak Bakhiet co-investigator).
96. Monitoring of anti Leishmania antibody responses for early diagnosis and prognosis of visceral Leishmaniasis. 2008-2009. Supported by Ministry of Higher Education. (Dr. Sahar Mubarak Bakhiet).
97. Molecular characterization and taxonomy of Sudanese Leishmania parasite using different molecular and genetic markers. Ongoing. (Dr. Sahar Mubarak Bakhiet).
98. Immune response to Leishmania parasite in different clinical forms of Leishmaniasis. Ongoing (Dr. Sahar Mubarak Bakhiet).
99. Biomarkers of Tuberculosis and its application in the diagnosis of the disease. Ongoing (Dr. Sahar Mubarak Bakhiet).
100. Monitoring of anti Leishmania antibody responses for early diagnosis and prognosis of Visceral Leishmaniasis (Dr.Sahar M Bakhiet)
101. Oral pathology Professor Ahmed M. Elhassan and Dr Imad EL Emairi. ongoing

Grants Awarded to Academic Staff

1. WHO/TDR grant. The genetic diversity of Leishmania parasites from Sudan based on DNA and protein polymorphism. 1995-1997. (Prof. Muntaser Eltyeb Ibrahim).
2. Wellcome Visiting Research Fellow, University of Cambridge, 1997-1998 Department of Pathology, studying the Genetics of the parasite *Leishmania donovani*. (Prof. Muntaser Eltyeb Ibrahim).

3. WHO grant. Leishmanin skin testing serology and the polymerase chain reaction in the establishment of man as possible reservoir for Leishmania infection (1997-1998. (Prof. Muntaser Eltyeb Ibrahim).
4. Third World Academy of Science grant. Characterization of a possible signal transduction pathway for the action of the antileishmanial drug Pentostam (Prof. Muntaser Eltyeb Ibrahim).
5. International Centre for Genetic Engineering and Biotechnology grant. Genetic epidemiology in Sudan.1997-2000. (Prof. Muntaser Eltyeb Ibrahim).
6. The Wellcome Trust, Collaborative Research Grant. Kala-zar in the Sudan, The role of Host and parasite genetics in determining Disease outcome. 1999-2002. (Prof. Muntaser Eltyeb Ibrahim).
7. The Wellcome Trust grant. Genetic Susceptibility to Visceral Leishmaniasis: Comparative studies in India, Sudan and Brazil (Co-investigator. Prof. Muntaser Eltyeb Ibrahim)
8. IAEA (RAF/6/025) regional project. Detection of drug resistant malaria and tuberculosis. (Prof Muntaser Eltyeb Ibrahim).
9. WHO/EMRO. The epidemiological components of cutaneous leishmaniasis outbreaks in Tuti Island, a field and simulation approach. 2002-2003. (Prof Muntaser Eltyeb Ibrahim, Prof. Ahmed E. Elhassan).
10. Part of the BioMalPar consortium funded by the European Union. Genetic diversity and susceptibility to malaria. 2004-ongoing.. (Prof Muntaser Eltyeb Ibrahim, Dr. Ibrahim Elhassan).
11. TDR/WHO Project ID 950628. Autoclaved Leishmania Major Vaccine in Prevention of Kala-Azar in Sudan. (Prof. EAG Khalil., Prof. Ahmed M. ElHassan).

12. TDR/WHO Project ID 980971. ALUM/Autoclaved Leishmania Major Vaccine In Healthy Sudanese Volunteers In Khartoum. (Prof. EAG Khalil, Prof. Ahmed M. Elhassan).
13. TDR/WHO ID A30468. Safety, Immunogenicity & Possible Potential Curative Effect of ALUM/ALM+BCG Vaccine Plus SSG in the Patients With Persistent Post Kala-Azar Dermal Leishmaniasis. (PI. Professor EAG Khalil, Prof. Ahmed M. Elhassan).
14. DNDi-LEAP 0104 Project: A Multicentre Randomized Controlled Clinical trial of A Combination of Sodium Stibogluconate (SSG) Plus Paromomycin (PM) as A First Line Treatment of Visceral Leishmaniasis Vs SSG Alone Vs PM Alone In Ethiopia, Kenya And Sudan. (Ahmed Mudawi Musa, Prof. EAG Khalil, Prof. Ahmed M. Elhassan).
15. WHO/TDR grant. Efficacy of Alum/Alm+Bcg Combined With Sodium Stibogluconate (Ssg) Compared With Ssg Alone In The Treatment Of Post Kala Azar Dermal Leishmaniasis. (PI. Professor EAG Khalil, Prof. Ahmed M. Elhassan).
16. IDRI/Seattle, USA; WHO/TDR grant. A Phase 1, Randomized, Double-Blind, Adjuvant- and Placebo-Controlled Study to Evaluate The Safety, Tolerability, and Immunogenicity of the Leish-F2 + Mpl-Se Vaccine (Recombinant Three-Antigen Leishmania Polyprotein Leish-F2 With Adjuvant Mpl-Se) in Combination With Sodium Stibogluconate In The Treatment of Patients With Post Kala-Azar Dermal Leishmaniasis. (PI. Professor EAG. Khalil).
17. The mechanisms of drug unresponsiveness in patients with visceral leishmaniasis. Local sponsorship. (Prof. E AG Khalil).
18. Tuberculous lymphadenitis, clinical, cytologica, microbiological and drug response aspects: towards developing a clinical algorithm to improve patients' management. Local sponsorship (Prof. EAG Khalil).

19. Anaemia of Visceral leishmaniasis: Possible role of blunt erythropoietin response. IEND funding. (Prof EAG Khalil).
20. Malaria morbidity and mortality in an area of stable transmission in eastern Sudan: possible role of Hb AS, Hb F levels and G-6-P-D deficiency. IEND funding (Prof EAG Khalil).
21. The febrile child: towards developing a clinical algorithm to improve patients' management. Collaborative study with the Central Police Hospital. IEND funding (Prof. EAG Khalil/Dr. Fawzi A. Mahgoub).
22. *P.faciparum* infections and anti-malaria drug resistance: a national-wide approach with GIS ((IEND; Prof.EAG Khalil/M.O. Elhassan).
23. WHO ID 920144 grant. To identify possible reservoir hosts of *Leishmania donovani* in kala-azar endemic region in eastern Sudan. 1992-1993. (Prof. Maowia Mohamed Mukhtar).
24. WHO grant ID 950011. To study the Epidemiology of Malaria and to rapid epidemiological mapping (REMO of *Onchocerca volvulus* infection in Sudan. 1995-1996 (Prof. Maowia Mohamed Mukhtar).
25. University of Khartoum Research Grant. Investigation of Multiple antibiotic resistances among bacterial Pathogens. (Prof. Maowia Mohamed Mukhtar).
26. WHO grant ID 940452. To study the pathogenesis of deferent clinical presentation of Onchodermatitis in natural and ivermectin treated Sudanese . 1995-1995. (Co-Investigator- Prof. Maowia Mohamed Mukhtar).
27. WHO grant. Atlas GIS grant to map *Onchocerca volvulus* infection in Sudan. 1995-1996. (Prof. Maowia Mohamed Mukhtar).

28. WHO grant ID 960636. To study the immunology and histamine release in Onchocerciasis patients pre and post ivermectin treatment. (Prof. Maowia Mohamed Mukhtar).
29. International Foundation of Science grant ID B/2584- 1. To study the cellular immune response of camel peripheral blood Lymphocytes to Trypanosoma evansi , Rinderpest , Hydata and Brucella antigens Jan 1997 to June 1998. (Prof. Maowia Mohamed Mukhtar).
30. WHO/TDR/EMRO grant ID 98/109. To study the host and parasite factors associated with Post Kala-azar Dermal Leishmaniasis (PKDL). 1998 to 1999. (Prof. Maowia Mohamed Mukhtar).
31. WHO/TDR grant ID 990559. To study the parasite determinants associated with Post Kala Azar dermal Leishmaniasis in Sudan. 1999 – 2000. (Prof. Maowia Mohamed Mukhtar).
32. WHO TDR grant ID A0810. Molecular clustering and drug resistance of Mycobacterium TB of different regions of Sudan. 2000 to 2002. (Maowia Mohamed Mukhtar).
33. WHO grant ID YP/181. Efficacy of measles mass vaccination in urban and periurban sites in Khartoum, Sudan 2001 to 2003. (Prof. Maowia Mohamed Mukhtar).
34. Senior fellowship EDCTP. To study the burden of pulmonary tuberculosis in eastern Sudan 2005.. (PI- Prof. Maowia Mohamed Mukhtar).
35. ICGEB grant. Proteomics of the urine of Kala-Azar patients 2005- 2006. (Prof. Maowia Mohamed Mukhtar).
36. TDR/ FIND grant. Biomarkers of Mycobacterium TB infection 2006 – 2007 (Prof. Maowia Mohamed Mukhtar).

37. UBS grant. Correlates of protective immunity to Leishmania infection 2005 – 2006.. (Co-investigator. Prof. Maowia Mohamed Mukhtar).
38. WHO/ TDR/ FIND. Biomarkers of pulmonary tuberculosis Sudanese patients. 2006 – 2008. (Prof. Maowia Mohamed Mukhtar).
39. WHO/ TDR grant . Diagnosis network of Visceral Leishmaniasis. Ongoing. (Prof. Maowia Mohamed Mukhtar).
40. WHO/ TDR training fellowship for 8 months- Cambridge University- UK (1999). (Dr. Hiba Salah-Eldin Mohamed).
41. The Wellcome Trust, Collaborative Research Grant. Kala-zar in the Sudan, The role of Host and parasite genetics in determining Disease outcome. 1999-2002 (Research assistant. Dr. Hiba Salah-Eldin Mohamed)
42. Wellcome Trust Research Development Award (2004-2007). Genetics and Functional analysis of SLC11A1 (formerly NRAMP1) polymorphisms in susceptibility to visceral leishmaniasis in the Sudan. In collaboration with Prof. Blackwell University of Cambridge. UK. (Co-Investigator- Dr. Hiba Salah-Eldin Mohamed)
43. University of Khartoum Research fund for one years (2007) (Genetics and immunological factors determining the severity of *P. falciparum* infection. (Dr. Hiba Salah-Eldin Mohamed)
44. WHO capacity strengthening program grant for faculty of Science (2005). “Investigation of possible reservoir host in Eastern Sudan (Co-investigator. Dr. Hiba Salah-Eldin Mohamed)
45. Royal Society Pfizer Award (2007). Recognition of my work on the genetic basis of susceptibility to visceral leishmaniasis in the Sudan. the research entitled “Functional Genomic of Visceral leishmaniasis and PKDL in the Sudan”. (Dr. Hiba Salah-Eldin Mohamed).

46. Ministry of Higher Education Research Grant. Plasmodium falciparum Var gene expression and genetic diversity and their impact on malaria manifestation. 2010-2012. (Dr. Hiba Salah-Eldin Mohamed, Prof. Muntaser E. Ibrahim).
47. PhD Followship from the European malaria vaccine initiative (EMVI) and Biomedical Primate Centre (BPRC), Rijswijk, The Netherlands. 2004-2008. (Dr. Muzamil Mahdi Abdel Hamid).
48. MSc fellowship DAAD, Germany and University of Khartoum, Sudan. 2000-2002. (Dr. Muzamil Mahdi Abdel Hamid).
49. *DAAD scholarship programs for Master and PhD Scholarships* 2002-2006. (Dr. Sahar Mubarak Bakhiet).
50. *Training grant .WHO/TDR 2005*. (Dr. Sahar Mubarak Bakhiet).
51. Ministry of Higher Education Research grant. 2008. (Dr. Sahar Mubarak Bakhiet).
52. LEAP 0104 grant. A multicentre comparative trial of efficacy and safety of Sodium Stibogluconate (SSG) versus Paromomycin (PM) versus Combination of SSG and PM as first line treatment for visceral leishmaniasis in Ethiopia, Kenya and Sudan”. July 2004 to date. (PI- Dr. Ahmed Mudawi Musa, Prof. EK Khalil, Prof. Ahmed M. Elhassan).
53. AMANET grant. African immunoassay to malaria vaccine candidates project. 2007-2009. (Prof. Moawia M. Mukhtar, Dr. Ibrahim Mohamed Elhassan, Dr. Sahar M. Bakhiet).
54. WHO/TDR /MIM. Epidemiological study of malaria in areas of seasonal malaria transmission in Ethiopia and Sudan. 2004-2008. (Dr. Ibrahim Mohamed Elhassan).

55. Ministry of Higher Education Research Grant 2004-2005. (Dr. Ibrahim Mohamed Elhassan).
56. TDR/WHO grant. Natural History of PKDL and its role in transmission. 1999-2004. (Dr. Ibrahim Mohamed Elhassan).
57. TDR/WHO grant. The role of antigenic variation in maintenance of asymptomatic malaria infections throughout the Sudanese dry season 1998-2001. (Dr. Ibrahim Mohamed Elhassan).
58. Tropical Medicine Award and the Wellcome Trust Fellowship, UK. The role of strain specific immunity in the development of strain specific immunity. 1998-2001. (Dr. Ibrahim Mohamed Elhassan).
59. Ph.D. DANIDA Fellowship, Denmark. 1991-1995. (Dr. Ibrahim Mohamed Elhassan).

Activities of the Institute During the Last Ten Years:

Workshops and Scientific Meetings:

- Molecular Biology techniques in Research and Diagnosis of Infectious Diseases (1996) Course. Institute of Endemic Diseases, University of Khartoum
- Application of Atlas Geographical Information system (Atlas GIS) in Health and Mapping of diseases. Organized by TDR/WHO, 1996, Kampala, Uganda
- The use of Atlas GIS in mapping of *Onchocerca volvulus* in Sudan Organized By TDR/WHO, 3 - 6 September 1996, Ouagadougou, Burkina Fasso

- Analysis of *Onchocerca volvulus* Rapid Epidemiological Mapping (REMO) data Using Atlas GIS. Organized By TDR/WHO, 14- 17 September 1997, Ouagadougou, Burkina Fasso.
- Introduction to Immunology and Molecular Biology (1997-1999). Institute of Endemic Diseases, University of Khartoum.
- World Health Organisation meeting 22nd September 1997; Wood Hole, USA.
- Malaria research in Denmark meeting 1st-2nd December 1998, Copenhagen, Denmark.
- The 2nd African malaria vaccine testing network meeting, 22nd –25th February 1998 Accra Ghana.
- Institute of Endemic Diseases first Scientific Meeting. 1998- Khartoum -Sudan.
- Environmental health, nutritional status and diseases of refugees in the Sudan, Institute of Endemic Diseases, Commission of Refugees, Ministry of Interior Affairs, Sponsor: Friedrich Ebert Stiftung Foundation (1998).
- International Congress of Pediatrics, Amsterdam, The Netherlands. 1998
- The first meeting on the genetics of the populations of the Sudan (1998).
- Malaria in Africa: Challenges for cooperation 6th –9th January 1997, Dakar, Senegal.
- Surviving in Science workshop, for Wellcome Trust International Fellows, 16th -18th July 1998, London, and U.K.
- Malaria Gordon Conference, Somerville College, 26th July –1st August 1998, Oxford, U.K.

- The 10th Malaria meeting of the British Society for Parasitology, 21st-23rd September 1998, Edinburgh, Scotland.
- First Scientific Meeting, Institute of Endemic Diseases (Feb. 1999).
- MIM African Conference 14-19 March 1999. Durban, South Africa.
- Introduction to Immunology and Molecular Biology (1999). Institute of Endemic Diseases, University of Khartoum
- Genotyping and Linkage Analysis Course (1999). Human Genome Resource Centre. Hinxton. Cambridge. UK
- Training at Cambridge Institute for Medical Research. (1999-2002). University of Cambridge. Funded by WHO/TDR and Wellcome Trust.
- Introduction to Bioinformatics (2000). Cambridge University. UK
- Introduction to Biostatistics and SPSS, Cambridge University, UK (2000)
- Bioinformatics course. Institute of Endemic Diseases (2000).
- Preventive Health in Displaced Camps, Institute of Endemic Diseases and Copenhagen University (2000).
- Research priority setting in El Gadarief and Kassala, Institute of endemic diseases and federal and state ministry of health (2000).
- Diarrhea in refugees' camp / institute of Endemic Diseases and commission for refugees (2000).
- National workshop for research priority setting and national conference of health research in the Sudan. 2000.

- Training for three months at Department of Pathology, University of Cambridge. UK. 2000
- The 3rd Leishmaniasis Vaccine Product Development Team (PDT) Meeting. TDR/WHO. Isfahan, Iran, 2-5 July 2000.
- Oxford 2000 “New Challenges in Tropical Medicine & Parasitology.” Oxford, UK- 18-22 September 2000.
- International conference on population studies Cairo; Egypt (2000).
- Workshop on designing and developing clinical trials (for leishmaniasis vaccines development). TDR/WHO. Ouro Preto, Brazil, 17-20 April 2000.
- The Fifth Conference of the Syrian Clinical Laboratory Association. Damascus, Syrian Arab republic. 15th-17th September 2001.
- Product Development Team, Vaccines for Leishmaniasis: Geneva, Switzerland, 5th December 2001.
- Diabetes in Sudan Situation analysis / Institute of Endemic Diseases and national diabetic control programme (2001).
- External Examiners: Moi University Institute of Public Health and Faculty of public Health Department of Nutrition / undergraduate and post graduate students (2001-2004).
- Stop T.B Initiative. In collaboration with National TB control Programme, Ahfad University for Women, Sudan Chest Association, University of Bahr El Gazal and University of Khartoum (2001).

- Cytogenetics and Molecular cytogenetic of Cance workshopr, Khartoum; Sudan (July, 2001).
- Ethics in medical research workshop. Medical Sciensces Campus, University of Khartoum (August, 2001).
- The Fifth Conference of the Syrian Clinical Laboratory Association. Damascus, Syrian Arab republic.15th-17th September 2001.
- Product Development Team, Vaccines for Leishmaniasis: Geneva, Switzerland, 5th December 2001.
- World Leish 11, Greece 2001.
- Final meeting: Leishmania Major sequencing project, University of Trieste. Dept. of Biology, Trieste, Italy. September 2001.
- Immuno-epidemiological studies in Sudan, Presented at University of Stockholm, Sweden. June 2001.
- Global Forum for health research meeting / Forum 5 The 10/90 gap in health research ; assessing the progress .Geneva, Switzerland. 2001.
- Joint TDR/IDRI Leishmania Vaccine Clinical Trial Meeting: Geneva, Switzerland, 6th-7th December 2001.
- Joint TDR/IDRI Leishmania Vaccine Clinical Trial Meeting: Geneva, Switzerland, 6th-7th December 2001.
- Leishmaniasis Vaccine Product Development Team Meeting, Geneva, Switzerland, 24th – 25th October 2002.

- Nutrition in emergency situations/refugees health course institute of public health / Copenhagen University 2001-2002
- The 6th International Meeting on Molecular Epidemiology and Evolutionary Genetics in Infectious Diseases, Pasteur Institute, Paris, France. (2002).
- International Conference on Protozoan Diseases. Chicago, USA. 2002.
- Africa Malaria Research Leaders Management Training workshop, Arusha Tanzania, October 6-12 2002.
- MIM Meeting Arusha, Tanzania 2002.
- Workshop on Health research Ethics and good Clinical practice, 22-26 July 2002, University of Pretoria, South Africa.
- Populations of the Sudan, a genetic perspective in retrospect. 2nd meeting on the Genetics of the Population of the Sudan and East Africa. Institute of Endemic Diseases. University of Khartoum. Sudan. (2002).
- Leishmaniasis Vaccine Product Development Team Meeting, Geneva, Switzerland, 24th – 25th October 2002.
- Leishmaniasis Vaccine Product Development Team Meeting: Future Plans for Vaccine Development in Sudan. Khartoum, Sudan, 21st – 22nd February 2003.
- Workshop on Developing a National Policy on Leishmaniasis Control in the Sudan. (Federal Ministry of Health, Sudan; WHO; MSF-Holland) Khartoum, Sudan, 23rd – 24th February 2003.
- Conference on Endemic & Infectious Diseases in the Sudan: Ministry of Science and Technology, National Centre for Research; Tropical Medicine Research Institute;

Institute of Endemic Diseases, U. of Khartoum & TDR/WHO. Khartoum, Sudan, 5-8 May 2003.

- Workshop on Ethics in Health Research in Africa, Khartoum, Sudan 11-16 January 2003.
- Leishmaniasis Vaccine Product Development Team Meeting: Future Plans For Vaccine Development in Sudan. Khartoum, Sudan, 21st – 22nd February 2003.
- Workshop on Developing a National Policy on Leishmaniasis Control in the Sudan. (Federal Ministry of Health, Sudan; WHO; MSF-Holland) Khartoum, Sudan, 23rd – 24th February 2003.
- Conference on Endemic & Infectious Diseases in the Sudan: Ministry of Science and Technology, National Centre for Research; Tropical Medicine Research Institute; Institute of Endemic Diseases, U. of Khartoum & TDR/WHO. Khartoum, Sudan, 5-8 May 2003.
- Workshop in Ethics on Health Research in Africa, Khartoum, Sudan (11-16 January 2003).
- WHO/TDR advance course in Immunology and biotechnology for infectious diseases, (2003, 2006). Lausanne- Switzerland, Annecy- France.
- Nutrition courses, Faculty of Public and Environmental Health, Khartoum University
On going.
- Workshop in Ethics on Health Research in Africa, Khartoum, Sudan 11-16 January 2003.
- The genetics of Ethnicity and Disease, Medical Genetics in the developing World, Course at the ICGEB Trieste Italy 2003.

- African Health Sciences Congress(AHSC), 29-30 Sept. 2003, Addis Ababa, Ethiopia.
- Regional Scientific meeting of malaria vaccine Researchers, Maputo, Mozambique 10-11 November 2003.
- Molecular Diagnostics and therapeutics a viable case for Africa 1st World Biotechnology Forum 2-5 March Concepcion Chile 2004.
- Good Clinical Practice Course WHO/TDR/DNDi Khartoum 26th-27th September, 2004.
- Health Genes and Culture from an African population perspective, 2nd Annual Africa Genome Conference. Cairo, March 2004.
- The 2nd Lebanese Congress of Clinical Biology. 30th September 2nd October 2004. Beyriuth, Lebanon.
- XXIVth International Congress of the World Federation of Haemophilia. Bangkok, Thailand, 17th 21st October 2004.
- GCP introductory Course. DNDi/TDR/WHO. Khartoum, Sudan 26th – 27th September 2004.
- Application of Integrated management of child hood illness strategy in refugee camps in Sudan Institute of Endemic Diseases / commission for refugees United nation Higher commission for refugee UNHCR , Girba, Gedarif State, Sudan (2004).
- Audiometry & ECG practical Training Course for Researchers of the LEAP group in Collaboration with DNDi, Geneva, Switzerland, November 2004, Khartoum, Sudan.
- Post graduate course on Immunology for post graduate students, the Lieden University, The Netherlands, 2004

- GCP introductory Course. DNDi/TDR/WHO. Khartoum, Sudan 26th – 27th September 2004.
- The 2nd Lenaseese Congress of Clinical Biology. 30th September 2nd October 2004. Beyriuth, Lebanon.
- The 3rd LEAP (Leishmaniasis East Africa Platform)/DNDi Geneva meeting “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.” Addis Ababa, Ethiopia 12-13.05.2004.
- GCP training course for the investigators of DNDi Geneva in preparation for “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.” Khartoum, Sudan 26-27.09.2004.
- The 4th LEAP (Leishmaniasis East Africa Platform)/DNDi Geneva meeting “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.” KEMRI, Kenya, 8-9.10.2004.
- Regional Training Course on Bioinformatics Applied to Tropical Diseases in Africa .South African National Bioinformatics Institute University of the Western Cape. 2004
- Regional Training Course on Bioinformatics Applied to Tropical Diseases in Africa. South African National Bioinformatics Institute University of the Western Cape. Cape town, South Africa 2004
- Audiometry training course for the investigators of DNDi/Geneva in preparation for “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG

versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.”
Khartoum, Sudan, November 2004.

- The 5th LEAP (Leishmaniasis East Africa Platform)/DNDi Geneva meeting “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.” Khartoum, Sudan 11-12.03.2005.
- Immunological Techniques from the field to bench, AHRI, Addis Ababa, Ethiopia, October 12-21, 2005.
- 4th MIM Pan-African Malaria conference- Cameroon 2005.
- BioMalrPar Heidelberg 2-4 March 2005.
- The Global forum for Bioethics meeting, 17th-19th March 2005 Blantyre, Malawi.
- Immunological Techniques from the field to bench, AHRI, Addis Ababa, Ethiopia, October 12-21, 2005.
- First Annual BiomalPar Conference on the Biology of the malaria, March 2-4 2005 Heidelberg (Germany).
- Brazilian Society of Protozoology, Coxambu 7-10 Nov 2005.
- Advanced Regional Training Program in Bioinformatics, Muscat, Oman, 10-14 December 2005
- Winter school of bioinformatics and statistical genetics (2005-On going).
- Health system and Health research in conflict areas, Institute of Endemic Diseases, University of Khartoum and Department of International Health, University of Copenhagen (Khartoum 28-30th July 2005).

- Training course at Institute for Staff Skills Development -University of Khartoum (2006, 2009).
- the 2nd Annual BiomalPar Conference on the Biology of the malaria, March 2-4 2006 Heidelberg (Germany)
- The 4th Annual African Society Conference of Human Genetics, Addis Ababa Ethiopia, 3-5 June 2006.
- Chloroquine-resistant *P.falciparum* malaria in Sudan: examining the evidence, three years after stopping chlorquine. July 2006. In collaboration with Faculty of Medicine, University of Khartoum & the Sudanese Society of Clinical Biology.
- Multiple Polio vaccinations: Benefits & harms. In association with Sudanese Association of Clinical Biologists, Sudanese Association of Paediatricians. September 2006. Khartoum, Sudan.
- The first Scientific Conference of the Sudanese Society of Clinical Biology, in association with the Sudanese Association of Clinical Biology. November 2006.
- The 2nd DNDi consultative meeting on the pharmacokinetics of paromycin, paromycin/SSG combination in Sudanese patients with visceral leishmaniasis analysis as part of the multicenter randomised clinical trial to test Paromomycin versus SSG versus a combination of SSG and Paromomycin for treatment of visceral leishmaniasis, 8-9.06.2006, KEMRI, Nairobi, Kenya.
- The 11th Conference of Pan Arab Association of Clinical Biology, Damascus, April/May; Syria 2006.
- XXVIIth Interantional Congress of of haemophilia. May 2006.

- The 6th LEAP (Leishmaniasis East Africa Platform)/DNDi Geneva meeting “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.” Addis Ababa, Ethiopia 11-12.02.2006.
- African Society of Human Genetics Meeting –Addis Ababa, Ethiopia- 2006.
- International Congress of Parasitology , Glasgow. United Kingdom. 2006
- Workshop on Chloroquine-resistant *P. falciparum* malaria in Sudan, July 2006. University of Khartoum.
- The first scientific meeting of the Sudanese society of Clinical Biology Khartoum,24-27th November 2006.
- Third Annual BiomalPar Conference on the Biology of the malaria, April 10-12 2007 Heidelberg (Germany).
- Molecular diagnosis of infectious diseases (leishmaniasis, Malaria, Tuberculosis), Khartoum 8-11 July 2007.
- Immunology of poverty related diseases in Africa, Addis Ababa. Ethiopia. 09-11 September 2007
- Gordon Malaria conference .Oxford. United Kingdom 2007.
- African Society of Human Genetics Meeting. Cairo-Egypt.2007.
- The 7th LEAP (Leishmaniasis East Africa Platform)/DNDi Geneva meeting “Multicentre, randomized clinical trial on the efficacy of Paromomycin versus SSG versus SSG/Paromomycin combination for the treatment of visceral leishmaniasis.” Kampala, Uganda 15-16.03.2007.

- The Annual Meeting of the Tunisian Association of Clinical Biology, Tunisia, Tunisia May 2007.
- Functional Genomic of Malaria Parasites (Biotec, Thailand)
- March -2007. WHO/TDR and BioMalPar
- Malaria research capability strengthening in Africa and informal consultation on malaria research Capacity needs, WHO Regional office for Africa(AFRO), Brazzaville, 26-30 March 2007
- Best Practices in Ethical Review. 24-26 July 2007. *Organized by* HAT Platform, Good Clinical Practice Alliance – Europe and Tropical Medicine Institute, NCR, Khartoum-Sudan -Khartoum –Sudan
- The 2nd Scientific Conference of the Sudanese Society of Clinical Biology, in association with the Sudanese Association of Clinical Biology. November 2007.
- Molecular medicine and Genomics in Africa: ICGEB/IEND, Khartoum, Sudan. 19-24 January 2008.
- The winter course of life science on Immunology .Al-Neelain University –Sudan.5-10 January 2008.
- Leishmaniasis East African Platform (LEAP)/DNDi-Geneva: consultative meeting, Khartoum, Sudan 18-20 February 2008
- Sudanese- Ethiopian MIM Project: Example of South-South collaboration. MIM/TDR *meeting 10-11 March 2008. Addis Ababa, Ethiopia.*
- Immunology of Health and Diseases.. Monkey Valley Resort. Cape Town. South Africa. 9-14 March 2008.

- National training course on the use of stable isotopne techniques in nutrition: International Atomic Energy Agency/IEND. Khartoum, Sudan 7-10 April 2008.
- XIIth conference of Syrian Clinical Laboratory Association; Damascus May 2008.
- XXVIIIth Interantional Congress of the World Federation of Haemophilia. Istanbul, Turkey, May 2008.
- Afro-Immunoassay project-2 workshop-Standardization of Immunoassay and introductory statistics. Noguchi Memorial Institute for Medical Research Accra, Ghana July-2008
- “Neglected Tropical Diseases: Hidden Successes, Emerging Opportunities” International Conference in the framework of a European Foundations Initiative Bamako, Mali Rodolphe Mérieux Laboratory 25-27 September 2008.
- World Economic Forum, Annual Meeting of the New Champions 25-28 September 2008. Tianjin- China.
- Dr. Hiba Mohamed –The Royal Society- London-3rd of November 2008
- TWAS XIX General Meeting. Invited as TWAS Young Affiliate, 8-13 November 2008, Mexico City, Mexico
- Training at Department of Parasitology, Biomedical Primate Research Centre (Part of my PhD), Leiden University, The Netherlands (2004-2008).Funded by EMVI/ European Union and Biomedical primate research centre, The Netherlands
- On line Course on Analysis of epidemiological data using R software and Epicalc, Epidemiology Unit, prince of Songkla University, Thailand 2008.
- Immunity to malaria (Cluster 4_ BiomalPar Project) 8-10 December 2008 st.Odile France

- Scientific and research collaborative meeting between the Institute of Endemic Diseases and Medical research institute Kilifi Kenya 31/6- 1/7 2008
- Search consortium meeting 25/07/2008 Nairobi Kenya.
- The 3rd initiative to strengthen health research capacity in Africa 6-8 August 2008. Nairobi, Kenya.
- Worldleish 4 Congress on Leishmaniasis. Lucknow. India 3-7 February 2009.
- Third conference of the Society of Clinical biology 2009 Sudan.
- Proposal writing and research management. EDCTP. Uganda .March 2009.
- GCLP in VL laboratories (organized by WHO) 18-21 August 2009.
- Malaria mapping seminar, In collaboration with Gezira university and The Wellcome Trust centre at Kenyan medical research institute /Oxford University, Held at university of Khartoum on 17 March 2009
- Update on malaria in Africa, convergent ethical issue in HIV, Tb, Malaria vaccine trials in Africa work shop, university of Kwazulu natal South Africa 10-11 February 2009.
- Malaria epidemiology and control in Africa, Institute`for virology and immunology, University of Würburg, Germany 20 May 2009
- African Society of Human Genetics Meeting, Yaounde Cameroon, March 2009
- Leishmaniiasis: Collaborative Research opportunities in North Africa and the Middle East 21-25 June 2009

- World Economic Forum, Annual Meeting of the New Champions 2009. Dalian-China.
- TDR/RSG Proposal development workshop for potential Research Strengthening Group Grantees 21-24 september 2009 , Abuja , Nigeria.
- The Fifth forum of European and development countries clinical trial program for malaria, Tb, and HIV. Arusha , Tanzania 12-14 October 2009
- BioMalPar meeting, Heidelberg 2009.
- MIM meeting, Nairobi 2009
- Sudanese Academy of Young Scientist 1st meeting. Institute of Endemic Diseases and Nile college , Khartoum, February 2009
- Workhop on Proposal writing and research management. (EDCTP).Uganda. Entebbe March 2009.
- Good Clinical Laboratory Practice (GCLP) in VL laboratories (organized by WHO/TDR) .18-21 August 2009. Khartoum-Sudan.
- Worldleish 4 Congress on Leishmaniasis. Lucknow. India 3-7 February 2009.
- Young scientist 1st meeting. Institute of Endemic Diseases and Nile college , Khartoum, February 2009
- Third conference of the Society of Clinical biology 2009 Sudan.
- Proposal writing and research management. EDCTP. Uganda .March 2009.
- GCLP in VL laboratories (organized by WHO) 18-21 August 2009.

- Workshop on Proposal writing and research management. (EDCTP). Uganda .Entebbe March 2009.
- Good Clinical Laboratory Practice (GCLP) in VL laboratories (organized by WHO/TDR) .18-21 August 2009. Khartoum-Sudan.
- Malaria mapping seminar, In collaboration with Gezira university and The Wellcome Trust centre at Kenyan medical research institute /Oxford University, Held at university of Khartoum on 17 March 2009
- Update on malaria in Africa, convergent ethical issue in HIV, Tb, Malaria vaccine trials in Africa work shop, university of Kwazulu natal South Africa 10-11 February 2009.
- Malaria epidemiology and control in Africa, Institute`for virology and immunology, University of Würburg, Germany 20 May 2009
- African Society of Human Genetics Meeting, Yaounde Cameroon, March 2009
- The Fifth forum of European and development countries clinical trial program for malaria, Tb, and HIV. Arusha , Tanzania 12-14 October 2009
- BioMalPar meeting, Heidelberg 2009.
- MIM meeting, Nairobi 2009
- Malaria Day at el Nailain University, 25th April 2010
- Ongoing initiative for collaborate with the University of Gezeera and the Blue Nile Institute for communicable diseases. 2010
- Agreement to collaboration with the Department of Tropical Medicine of the Medical Mission Hospital at the University of Wurzburg, Germeny and the Institute of

Endemic Diseases of the University of Khartoum. 2010

- Coordination and participation in a course on The Right of Women to Health organized by Women Initiative Group May 7- 12-2010. The course was part of a project sponsored by the EU (Professor ElHassan).
- Professor Elhassan is running courses on Tropical Diseases at the University of Science and Technology and Medco Centre -2010- present
- lecture delivered by Professor Elhassan on complications of renal transplants at the Nephrology Conference at Alazhary University in April 2010
- Professor Elhassan was a guest at the Faculty of Medicine and Medical lab Technology where he inaugurated a one day exhibition by the students and gave a pathology lecture and another on music and medicine. February 2010
- Several articles on Music of the Abbasid period in the local press by Professor Elhassan.
- The 1st Scientific conference of the Post Graduate Collaage University of Khartoum 2010. “Problems of research in Sudan and the University of Khartoum.” Professor AM Elhassan.
- The 12th Scientific meeting of the Jordanian Society of Clinical Biology, Amman Jordan. June 2010.

Students:

Masters degrees (By research): Current:

- Abeer Idris Mohamed Taha. Latent mycobacterial infection among healthcare workers in Greater Medani. Supervisor Professor Eltahir.A.G. Khalil.

- Ahmed Adlan. Plasmodium falciparum Erythrocyte Binding Antigen (EBA-175) genotypes distribution in Sudanese malaria patients and its relation to phenotypes. Supervisor Dr. Hiba Salah Eldin Co-supervisor Dr.Nasereldin Elhadi.
- Ahmed Elnazeer. Genetic factors determining severity of Plasmodium falciparum infection. Supervisor Dr. Hiba Salah Eldin Co-supervisor Dr.Ibrahim .M. Elhassan.
- Eiman Hussien Abudamir. Immunology of breast feeding against diarrheal infection. Supervisor Dr. Faiza M. Osman.
- Hiba Kailanni. Comparison between conventional, molecular and immunological diagnostics of pulmonary TB. Supervisor Prof. Moawia M. Mukhtar.
- Hiba Osman. Comparative diagnostics of pulmonary TB. Supervisor Prof Moawia M. Mukhtar.
- Mohammed Osman. MD. Supervisor Prof. Ahmed M. Elhassan, Dr. Ibrahim M. Elhassan.
- Noon Fatah-Rhman .Burkitt lymphoma: clinical pattern, epidemiology and detection of EBV, c.myc translocation in tumor among Sudanese patients. Supervisor Prof. Ahmed M. Elhassan.
- Nuha Mohamed Elhassan. Autosomal and mitochondrial genomes the possible cross talk mechanism. Supervisor Prof. Muntaser Eltayeb Ibrahim
- Omima Abd Aziz Osman. Drug resistance for mycobacterium TB. Supervisor Prof. ELtahir A.G.Khalil.
- Soha Aydrous. Immune responses to malaria vaccine candidates (MSP3/GLURP). Supervisor Dr. Ibrahim M. Elhassan, Co-supervisor Prof. Muntaser Eltayeb.
- Tamador El Zebear. P53 genes polymorphisms in breast cancer patients. Supervisor Prof. Muntaser Eltayeb.
- Tasneem Moawia. Validation of asexual blood stage antigens as putative malaria vaccine candidate molecules using standardized assays. Supervisors Prof Moawia Mukhtar, Dr. Ibrahim M. Elhassan.
- Tayseer Mahiadein Abdalla Alawad. Supervisor Prof. Altahir.A.G. Khalil.
- Waleed Hussain Omer Amer. Molecular epidemiology of anti-malarial drug resistance genes in Sennar region. Supervisor Prof. Muntaser Eltayeb.
- Wiesal Eltayeb Mohammed Elkheir. Hepatotoxic effect of Visceral Leishmaniasis: apoptosis detection using cytochrome C. Supervisor Prof. Eltahir .A.G. Khalil.

- Wigdan Salih Ali Azrag .Genetic diversity of malaria parasite in eastern Sudan. Supervisor Prof. Muntaser Eltayeb-Co supervisor Dr. Ibrahim M.ElHassan.
- Asim Osman Abdoun. Comparative diagnostics of visceral leishmaniasis. Supervisor. Prof. Moawia M. Mukhtar.
- Samah Mahieldin. Human Toll like receptor 2 gene polymorphism susceptibility to TB infection. Supervisor. Prof Eltahir Awad Gasim Khalil.
- Mohammed Ali ELnoor. Analysis of 1324 Autosomal DNA markers in six Sudanese populations. Supervisor Prof. Muntaser Eltayeb.
- Huasm Abdramn Mohamed. Monitoring of anti leishmania antibody responses for early diagnosis and prognosis Sudanese visceral leishmaniasis. Supervisor Prof Moawia M. Mukhtar.
- Ahmed Giebriel. Supervisor Dr. Ahmed Mudawi.
- Salma Mohamed Badri. In vivo antiplasmodial effect to *Azadiracta indica* (neem) using *cellebar Purkinje* cell murine cerebral malaria). Supervisor Prof Eltahir.A.G. Khalil.

PhD students (By Research): Current:

- Ameera Adam.The pathology of nasopharyngeal cancer in Sudan and its association with the Epstein Barr virus. Supervisor Prof A M EL Hassan
- Mona Elfaki ElTahir Elfaki. Immunogenetic risk of post kala-azar dermal leishmaniasis. Supervisor Prof. Eltahir.A.G. Khalil.
- Awatif Ahmed Elnour. Latent Tb in Sudan: a community-based study. Supervisor Prof. Eltahir A.G. Khalil.
- Eman Hussain Khalifa. Nasopharyngeal carcinoma associated Epstein Barr virus in Sudan Histological, serological, and Immunohistochemical study. Supervisor Prof A M EL Hassan
- Ayman Awad. Immunomodulation of different clinical forms of leishmaniasis. Supervisor Prof Moawia M. Mukhtar.

- Habab Merghani Yassin: Immune evasion and recrudescence in *P. falciparum*: PfEMP-1 paradigm. Supervisor Prof. Eltahir Awad Gasim Khalil.
- Huda Abdalla Eltahir. Genetic characterization of cervical cancer among Sudanese patients. Supervisor Prof. Muntaser Eltayeb Ibrahim. Co-Supervisor Prof. Ahamed M. Elhassan.
- Manal Gamal Abdu. Virulence markers of *leishmania donovani*. Supervisor Professor Moawia M. Mukhtar. Co-supervisor Dr. Hiba Salah-Eldin Mohamed.
- Mohamed Osman Elhassan: Multidrug resistant *P. falciparum*: a nation-wide survey. Supervisor Prof. Eltahir Awad Gasim Khalil.
- Mohammed Ahmed Mohamed Salih. Function Genomics of visceral leishmaniasis and Post kala-azar dermal leishmaniasis in Sudan. Supervisor Dr. Hiba Salah-Eldin. Co-supervisor Prof. Muntaser Eltayeb.
- Sara Hamad Hasab-Elgaw. Drug resistance in Leishmaniasis. Supervisor Prof. Eltahir .A.G. Khalil.
- Amany Shakak. Latent Mycobacterial infections: Immune profiles and diagnostic dilemmas. Supervisor Prof. Eltahir .A.G. Khalil.
- Abd Elrahman Elnour Ibrahim. Immune profiles of Sudanese patients with insulin dependant diabetes mellitus; effects of disease duration & treatment. Supervisor Prof. Eltahir .A.G. Khalil.
- Amel Osman Khider. Genetic susceptibility of Asthma in chromosomes in Sudanese population. Supervisor Prof. Muntaser Eltayeb Ibrahim.
- Mohammed Ahmed Suliman. Expression profile of tumour related Genes in squamous cell carcinoma among Sudanese patients. Supervisor Prof. Muntaser Eltayeb Ibrahim.
- Ghada Hassan Hig Ali. Methylation studies in colorectal cancer patients. Supervisor. Prof. Emad Fadalmula and Prof. Muntaser Ibrahim
- Sarra Mohammed Hussien. Migraine profile in Sudan. Supervisors Dr. Salah M. Ali majzoub and Prof. Muntaser Ibrahim.
- Ameera Adam Mohammed Adam. Supervisor Prof. Muntaser Eltayeb.
- Sara Mohammed Ali. *Plasmodium falciparum* Var gene expression and genetic diversity and their impact on malaria manifestation. Supervisor Dr. Hiba Salah Mohamed.
- Amir Tageldin Ibrahim . Genetic susceptibility to Type 2 Diabetes . Supervisor Dr. Hiba salah-Eldin Mohamed

- Arif Farah El rahman. Supervisor Prof. Maowia M. Mukhtar.
- Adeel Nasor. Thyroid Cancer: Genetic Risk Factors in Sudanese patients. Supervisor Professor Eltahir Awad Gasim Khalil.
- Kawther Abdel galeel. TLR2 and 4: possible roles for susceptibility to latent Mycobacterial infections. Supervisor Professor Eltahir Awad Gasim Khalil.
- Mahdi Hussein. Detection of phosphotyrosines as diagnostic marker for gene aberration (PCR-ABL) Philadelphia CML: Proteomic approach. Supervisor Prof. Eltahir.A.G. Khalil.
- Samia Osman. Latent Mycobacterial infections in Eastern Sudan: prevalence and possible genetic roles for susceptibility. Supervisor: Professor Eltahir Awad Gasim Khalil.
- Amani Ahmed Mohammed Alamin. Studies on protein profile in a panel of Sudanese breast cancer patients. Supervisor Prof. Muntaser Eltayeb

Degrees awarded with full or partial supervision (2002-2010):

MSc degrees by Reserach:

- Areej kamil Abdelazziz, Safety and Immune modulatory effects of escalating doses of Alum-precipitated autoclaved Leishmania major (ALM) vaccine plus BCG in healthy Sudanese volunteers. Supervisor Professor Eltahir Awad Gasim Khalil
- BaderAldin AlAmin: A study on 4 selected sudanese populations based on 6 polymorphic microsatellite markers. Supervisor Professor Muntaser E Ibrahim
- Abdelgadir Haj Elagib. Possible predisposing factors for the development of thrombotic cerebrovascular accidents (CVAs) in Sudanese patients<50 years. Supervisor Professor Eltahir Awad Gasim Kalil.

- Muzamil Mahdi Abdel Hamid, Genetic variations within *Leishmania donovani* parasites revealed by minisatellite DNA markers and RFLP analysis. Supervisor Professor Muntaser E. Ibrahim.
- Adel Naser Morsi. Supervisor Professor Eltahir.A.G. Khalil.
- Ahmed Abdel Hafiz Nimir. Sick cell Anaemia in an immigrant tribe from eastern Sudan: comparison between the ID particle gel Diffusion and membrane electrophoresis. Supervisor Professor Eltahir Awad Gasim Khalil.
- Ahmed Dafalla. Supervisor Professor Moawia M. Mukhtar.
- Amel Farouk Aldawi. HLA frequency of HLA-DRB1 and HLA-DQB1 alleles in mycetoma patients. Supervisor Professor Moawia Mukhtar.
- Amel Saeed, Evaluation of *Leishmania* antigens for the diagnosis of visceral Leishmaniasis. Supervisor Professor Moawia Mukhtar.
- Abdelbadeih A M Elhassan. The genetic diversity of two ethnically different populations in eastern Sudan based on four SNPs in the 5q31-33 region. Supervisor Professor Muntaser E Ibrahim.
- Awatif Ahmed Elnour, Tuberculous lymphadenitis: surrogate markers of disease & healing. Supervisor Professor Eltahir Awad Gasim Khalil.
- Ayman awad. Characterization of *Leishmania* antigens in urine of VL Patients Supervisor Prof Moawia Mukhtar.
- Dalal Kamal Eldin Diab, Characterization of malaria related anaemia in eastern Sudan. Supervisor Dr Ibrahim Elhassan.
- Dina Tag El Sir, Supervisor Prof Moawia M. Mukhtar.
- Elfatih Saif Eldin AbdelRahman Jafari. Tuberculous Lymphadenitis: molecular characterization of the causative agent in Sudanese patients. Supervisor Professor Eltahir Awad Gasim Khalil.
- Fatima Eltigani. Future effects of imported S haplotypes on the epidemiology of *Plasmodium falciparum* infection in eastern Sudan: possible scenario. Supervisor Professor Eltahir Awad Gasim Khalil.
- Gihan Mossalami Supervisor Prof Moawia M. Mukhtar.
- Hala Taha Mohamed. Supervisor Prof. Muntasir Eltayeb Ibrahim.
- Hani Ishaq. Supervisor Prof. Muntasir Eltayeb Ibrahim.

- Hind M Abushama. Inter and intra population diversity of *Anopheles arabiensis* in Khartoum state as revealed by polymorphic molecular markers. Supervisor Professor Muntaser E Ibrahim.
- Ibrahim Ahmed Ali. Haemovigilance: post-transfusion malaria as an example. Supervisor Professor Eltahir Awad Gasim Khalil.
- Israa Omer Elrayah. Analysis of cellular immunity of mycetoma patients. Supervisor Professor Moawia Mukhtar.
- Kawther A/Galil Mohamed. Neonatal malaria: Probable immunomodulation. Supervisor Professor Eltahir Awad Gasim Khalil.
- Limya Elhag Yousif Ahmed. Immuno-epidemiological studies of malaria in Rahad River area eastern, Sudan. Supervisor Dr Ibrahim Elhassan.
- Magzoub Abbas Magzoub. Monitoring of CD4 and CD T- lymphocytes in Sudanese HIV/AIDS patients MSc. Supervisor Professor Moawia Mukhtar.
- Maha Mohammed Osman Mohammed. Genetics of lactase persistence in Sudanese population. Supervisor Professor Muntaser Eltayeb Ibrahim, Co supervisor Dr. Sara Tishkoff.
- Mai A Masri: Mutational analysis of brca2 and p53 genes in a panel of Sudanese breast cancer patients. Supervisor Professor Muntaser E Ibrahim.
- Manal Gamal Eldin Abdu. Characterization of Pentostam resistant *Leishmania donovani* isolates from eastern Sudan. Supervisor Professor Moawia Mukhtar.
- Manal Satti. Immunoglobulin genes re-arrangement in Sudanese patients with leukaemias: a lineage marker. Supervisor Professor Eltahir Awad Gasim Khalil.
- Misk El Yemen El Mekki. Sensitivity and specificity of RAL2, Calreticulin and PDI recombinant antigens of *Onchocerca volvulus*. Supervisor Professor Moawia Mukhtar.
- Mohamed Osman Elhassan. Trachoma in a cluster of villages of internally displaced population (IDP) in eastern of Sudan: comparison between clinical & serological diagnoses. Supervisor Professor Eltahir Awad Gasim Khalil.
- Mohamed Salih Mohamed Ahmed. The Role of IFN γ and IFN γ R1 gene polymorphisms in susceptibility to PKDL. Supervisor Dr. Hiba Salah Eldin, Co supervisor Prof. Muntaser Eltayeb Ibrahim.

- Mohaned Osman Abdalla. Sero-prevalence of anti-merozoite surface protein-1(19) (MSP1₁₉) antibodies in an area of unstable malaria transmission: examining a candidate vaccines for malaria Supervisor Professor Eltahir Awad Gasim Khalil.
- Mona Abdel Rahman El Agib. Monitoring of Leishmania donovani specific antibodies in Kala-Azar and Post Kala-Azar dermal Leishmaniasis patients in Sudan. Supervisor Professor Moawia Mukhtar.
- Mukhlid Imam Ali, Characterization of dermal leishmaniasis. Supervisor Professor Moawia Mukhtar.
- Muna Mohamed Atta Elmanan. Genetic diversity in development of Immunity to malaria. Supervisor Dr Ibrahim El hassan.
- Mushal Allam Mohamed Al-Haj Ali. Hyperreactive malarial splenomegaly (HMS) in Malaria Endemic Area in Eastern, Sudan. Supervisor Dr Ibrahim Elhassan.
- Nagat Ibrahim, De novo multi-drugs resistance of Mycobacterium tuberculosis Supervisor Professor Eltahir Awad Gasim Khalil.
- Nahid Ahmed Hassan Gornas. Mutational analysis of the conserved portion of p53 Tumor suppressor gene among Sudanese oral and esophageal cancer patients. Supervisor Professor Muntaser E Ibrahim.
- Nahla Babiker Ayed. Surrogate markers of immunity to human visceral leishmaniasis. Supervisor Professor Eltahir Awad Gasim Khalil.
- Nahla M Ali Osman: Molecular features of the Leishmania donovani cell cycle. Supervisor Professor Muntaser E. Ibrahim.
- Nevien Abdel Wahab Hassan. Association of abnormal hemoglobins with clinical malaria. Supervisor Professor Muntaser E. Ibrahim.
- Nuha Abdalla Ahmad EL Nigomi. Micro albuminuria & Urinary retinol binding protein as marker of renal injury in VL patients. Supervisor Professor Eltahir Awad Gasim Khalil.
- Nuha Mohamed Yousif Ismail, Humoral immune responses to the Glucose-regulated Protein 78-a novel Leishmania donovani antigen. Supervisor Dr Ibrahim Elhassan.
- Omenia El Fatah. Mutation analysis of microsatellites & macroarray in Sudanese colorectal cancer Supervisor Professor. Muntasir Eltayeb Ibrahim.
- Rania S Giha. A possible role for Global Methylation in cancer pathogenesis among Sudanese breast cancer patients. Supervisor Professor Muntaser E Ibrahim.
- Rassha Wageallah. Supervisor Professor Moawia M. Mukhtar.

- Rihab Abdel Gadir Hashim, Parasite diversity and antibody response to *Plasmodium falciparum* in patients with cerebral Malaria Supervisor Professor Moawia Mukhtar.
- Rihab Bereir. Allele frequency and Genotype distribution in disease related genes among selected populations in the Sudan. Supervisor Professor Muntaser E Ibrahim.
- Rose Ajake, MD, University of Khartoum, Role of Tumor necrosis factor Alpha in severe malaria among children admitted to Khartoum children's Emergency Hospital. Supervisor Dr. Ibrahim Elhassan.
- Salma Mohamed Khidir, Th1/Th2 immune response switch: the case of post kala-azar dermal leishmaniasis. Supervisor Professor Eltahir Awad Gasim Khalil.
- Samah Mahjoub Hassan. Molecular characterization of Sudanese *Acacia senegal* var *Senegal*. Supervisor Professor Moawia Mukhtar Co supervisor Dr. Esam E. Warag.
- Sara Basher Taha Mohammed. Immune recognition to malaria vaccine candidates RESA and CSP in malaria endemic area in Sudan. Supervisor Professor Dr Ibrahim Elhassan.
- Sara Hamad Hasab Elgawi. In vitro induction/augmentation of unresponsiveness to sodium stibogluconate in *Leishmania donovani* isolates. Supervisor Professor Eltahir Awad Gasim Khalil.
- Sara Mohamed Ali. Molecular detection of chromosomal translocation in Sudanese children. Supervisor Professor Munaser Ibrahim.
- Shadin Abed Elgaffar AbedIRahim. Exposure to *Plasmodium falciparum* parasites outside the malaria season in an area characterized by seasonal & unstable malaria transmission in eastern Sudan Supervisor Dr. Ibrahim Elhassan.
- Shima Faroug. IL10 gene polymorphisms and development of PKDL. Supervisor Dr. Hiba Salah Eldin. Co supervisor Prof. Muntasir Eltayeb Ibrahim.
- Tageldin A M Nour. Genetic characterization of Sheep Pox virus. Supervisor Professor Muntaser E Ibrahim.
- Tayseer Abdelhady Mohammed Yousif. Immunological characterization of hyperactive splenomegaly Syndrome (HMS) in Sudan. Supervisor Dr Ibrahim Elhassan.
- Mohmmmed salih EL nour Mohmmmed. Supervisor Professor Eltahir Awad Gasim Khalil Abdalla Abd El Moati. Supervisor Prof. Muntaser Eltayeb.

- Badria Mohammed Said (NOS2 polymorphisms among selected ethnic group in Eastern Sudan. Supervisor Dr. Hiba Salah-Eldin .Co-Supervisor Dr. Ibrahim M. ElHassan.
- Marwa Ismaiel Saeed Ahmed. Prevalence of CCR5 polymorphisms in HIV patients. Supervisor Prof. Muntaser Eltayeb Mawada Taj El Sir. Frequency of glutathios-transferase null genotype among Sudanese leukemia patients. Supervisor Prof. Muntaser Eltayeb
- Mervat El-Shaikh Sulaiman .The distribution of IL-4 and IL-4R polymorphisms in two ethnic groups in malaria endemic areas in eastern Sudan Supervisor Dr. Hiba Salah Eldin Co-supervisor Prof. Muntaser Eltayeb Ibrahim.
- Mervat Mohammed El Kazi. A comparative study of malaria transmission during the dry and wet seasons in endemic area in eastern Sudan. Supervisor Dr. Ibrahim M. Elhassan.
- Habab Elsir. Comparative diagnostic of HIV using ELISA and sputum test. Supervisor Prof Moawia M. Mukhtar.
- Mohamed Osman Hussein. Cellular immunity of visceral leishmaniasis patients. Prof. Moawia M. Mukhtar.
- Mohammed Mohieldien Abbas Alfaki .The impact of helminth co- infection in the clinical and immunological outcome of Plasmodium falciparum Malaria. Supervisor Dr. Ibrahim M. Elhassan Co-Supervisor Prof. Muntaser Eltayeb.
- Mohammed Salih El-Nour Mohammed. Cytogenetic Aberration in Sudanese Neonates .Supervisor Prof. Altahir.A.G. Khalil.
- Mona Zamrawe. Supervisor Prof. Muntaser Eltayeb.
- Nazik Awad. Protein profile of leishmania axenic form. Supervisor Prof Moawia M. Mukhtar.
- Mujtaba El-Smany Ahmed .Mononuclear cell immunophenotyping of C.B. Supervisor Prof. Eltahir.A.G. Khalil.
- Nahid Eid. Population substructure and malaria candidate SNPs within different epidemiological settings in Sudan. Supervisor Prof. Muntaser Eltayeb Ibrahim.
- Reem Khalil Mohammed Taha .The role of IgE antibodies in protection against P.F. Supervisor Dr. Ibrahim M. Elhassan. Co-Supervisor Prof. Muntaser Eltayeb.
- Sara Elsir Mohammed Elhassan. Characterization of leishmania antigens in urine of visceral leishmaniasis patients. Supervisor Prof Moawia M. Mukhtar.

- Sara Nour El Dayem. Polyclonal anti-leishmanial antibodies: is it a necessity to human hosts? Supervisor Prof. Eltahir.A.G. Khalil.
- Ommniyah ELfatih Yousif . Micosatellite Instability and loss of heterozygosity in Sudanese Colorectal Cancer. Supervisor Prof. Muntaser Eltayeb.
- Zienab Ali Almahdi .Estimation of malaria transmission in central Sudan using ELISA. Supervisor Dr. Ibrahim M. Elhassan. Co-supervisor Prof A. Nugud
- Addebadea Ahmed. The genetic Diversity of two ethnically different populations in eastern sudan based on four single nucleotide polymorphisms in chromosome 5 Q 31-33. Supevisor Prof. Muntaser ELtayeb.
- Niven Abdel wahab salih Supevisor Prof. Muntaser ELtayeb Tite. Fregueny of hemoglotion S,C and their assoaatoin with malaria episode in tow population in Eastern sudan.
- Hani Ishag. Supevisor Prof. Muntaser ELtayeb Tite. Immuno - Evasion and recrudescences of .P Falciparum.
- Nahla Ahmed A/Rahman. Prevalence of mutant insulin promoter. Supervisor Prof. Eltahir.A.G. Khalil.
- Somaya Mohammed ElHassan . Supervisor Prof Maowia M. Mukhtar.
- Reem Badreldin Suilman. Supervisor Professor Ahmed Mohamed ElHassan.
- Nada Mamoon. Supervisor Professor Maowia Mohamed Mukhtar.
- Habab Musa Abdalla saad. Human conception disorders: an immunological disorder. Supervisor Prof. Eltahir A.G. Khalil
- Salma Mahoud Badri. Professor Eltahir Awad Gasim Khalil

Awarded PhD Degrees by Reserach:

- Eman Hussain Khalifa. Nasopharyngeal carcinoma associated Epstein Barr virus in Sudan Histological, serological, and Immunohistochemical study. PhD in Immunology. Professor Ahmed M. Elhassan
- Abdel Gadir Abugarara Ali (Lybian). Seroprevalence of Echinococcus granulosus infections in humans in Southern Libya. Professor Eltahir Awad Gasim Khalil.
- Abbas Mohamed Ahmed. Local and systemic immune response to combined sheep pox and anthrax vaccine. Professor Moawia Mukhtar.

- Abdallah Hassan Sharief. Rapid epidemiological assessment of L.donovani infection in eastern Sudan: Rapid assessment of L.donovani infection in Eastern Sudan: a GIS approach. Professor Eltahir Awad Gasim Khalil.
- Ahmed Mudawi Musa. Natural History of Sudanese PKDL Immuno- chemotherapy. Professor A.M. ELhassan/Professor Eltahir Awad Gasim Khalil.
- Ali M. El Eraggi. Molecular Clustering and drug resistance of Mycobacterium TB in Sudan. Professor Moawia Mukhtar.
- Anas Elmahbashi (Yemen). Supervisor Prof Moawia M. Mukhtar.
- Gamila Ibrahim Ahmed Gad Alla. Humoral immune response to P. falciparum antigens in population living in seasonal and unstable malaria transmission area (Eastern Sudan). Professor Musatafa Idris/Dr Ibrahim M. Elhassan.
- Hiba salah Mohamed. Genetic susceptibility to Kala-azar in Sudan. Prof. Muntaser E Ibrahim and JM Blackwell.
- Layla Ismail. Population genetics of Camelus dromedaries in Sudan. Professor Moawia Mukhtar.
- Manal Fadul. Genome Wide Search for Visceral Leishmaniasis Susceptibility in Sudanese Population. Prof A.M. Elhassan, and JM Blackwell.
- Misk Elyemen Abd Elatti. Supervisor Prof Moawia M. Mukhtar.
- Mohamed Haroun Ali. Analysis of the cellular and humoral immunity to Rinderpest virus. Supervisor Professor Moawia Mukhtar.
- Nahla Osman Mohamed Ali. Supervisor Muntaser E Ibrahim and J Mottram.
- Nawal Tagilser. Supervisor Prof. Muntaser Eltayeb Ibrahim, Co-supervisor Dr. Nageeb suliman.
- Nazar M Abdalla. Immunological and molecular studies on leishmaniasis in the Nuba Mountains. Supervisor Prof Muntaser E Ibrahim and M ELMagzoub.
- Sahar Mubarak Bakheit. Supervisor Prof Moawia M. Mukhtar .
- Samia Ali Omer. Pregnancy-associated malaria: prevalence and immunological studies. Professor Eltahir Awad Gasim Khalil.
- Victor L. Kuajock, Immunology and molecular biology of Mycobacterium (Nocardia) infection in cattle. Supervisor Professor Moawia Mukhtar.
- Waleed M Elamin. Supervisor Prof Moawia M. Mukhtar.

- Wigdan Ismail Evaluation of Humanitarian Aid to Internally Displaced Populations in Sudan: taking health care as an example PhD. Supervisor Professor Eltahir Awad Gasim Khalil.
- Mansour Mohamed Mansour. Humoral immune responses to malaria vaccine candidate Glutamate-Rich Protein (Ro, RI, RII) in inhabitants of Gezira state, Sudan. Supervisor Dr. Ibrahim M. Elhassan. Sudan University of Science & Technology.
- Mariam Khalid. Immunity in Sudanese diabetic patients with type II: the effect of age and disease duration. Supervisor Professor Eltahir Awad Gasim Khalil.
- Meshashe Balkew, Study on the bionomics and insecticide resistance of anopheline mosquitoes in Gorgora, northern Ethiopia. Supervisor Dr Ibrahim M. Elhassan) University of Addis Ababa.
- Arwa Abbas. The role of viruses (HPV and EBV) in the etiology of cancer esophagus in Sudan. MD. Supervisor Prof. Ahmed M. Elhassan
- Hisham Youssif Hassan. Genetic patterns of Y chromosome and DNA variation with implications to the peopling of the Sudan. Supervisor Prof. Muntaser E. Ibrahim.
- Muzamil Mahdi Abdel Hamid. Development of the Plasmodium Knowlesi rhesus macaque model using the leading malaria vaccine candidate the Apical membrane antigen 1. Supervisors Prof Alan W Thomas, Dr Ibrahim Elhassan and Dr. Bart W. Faber.
- Mai Abdul Rahman Mohammed Masri. Etiology of breast cancer among breast cancer Sudanese patients. Supervisor Prof. Muntaser Eltayeb Ibrahim. Co-Supervisor Dr. Sumaia Abu Kashawa.
- Fatima Abbas Khalid. Molecular epidemiology of TB in eastern Sudan. Supervisor Prof. Moawia M. Mukhtar Iman Hussain Khalifa Ali. Nasopharyngeal carcinoma associated Epstein Barr virus in Sudan: histological serological and Immunohistochemistry studies. Supervisor Prof Eltahir.A.G. Khalil.
- Fathia Adam. Supervisor Prof. Eltahir.A.G. Khalil.
- Abbas Mohammed Ahmed. Supervisor Prof. Moawia M. Mukhtar .
- Dina M. Hassan . Supervisor Prof. Muntaser ElTayeb.
- Malik Hassan Ibrahim, Common Rh haplotypes among major Sudanese populations. Supervisor Prof Eltahir Awad Gasim Khalil.

- Nawal Tagelsir Mohamed The role of human and parasite population diversity in the development and spread of resistance towards anti-malarial drugs. Supervisor Dr. Najeeb S Saeed and Dr. Muntaser E. Ibrahim.
- Abdelgadir Hag Elagib: a molecular Study of rare Coagulation disorders. Supervisor Professor Eltahir Awad Gasim Khalil.
- Abier Elzein Genetic role of host in susceptibility to Malaria. Supervisor Dr. Muntaser Ibrahim.
- Ali Alamin Naser. Molecular characterization of *P. falciparum* in a highly malaria endemic area in Central Sudan. Supervisor Ibrahim M. Elhassan, Sudan University of Sciences & Technology.

Master /Diploma Degree of Molecular Medicine by Courses:

Awarded Diplomas 2006-2007

- 1- Salma Barakat Mohamed Modawi
- 2- Aurelio Manyang Kwat Ngot
- 3- Omer Mustafa Mohammed El Faki
- 4- Omer El Faroug Ahmed Mohammed
- 5- Intisar Siddig Mohammed Higazy
- 6- Rehab Mustafa Hassan Badi
- 7- Rehab Salah Eldin Mahmoud

Awarded Diploma 2008-2009

- 1- Azhari Fadul Eltoun
- 2- Mohammed Farah Hassan Adm

Awarded Master Degree 2006-2008

- 1- Afrah Elmalih Almobark Ahmed
- 2- Ashraf Mohammed Higazi Hassan
- 3- Ayman Abdullah Hussein Mohammed
- 4- Bakhieta Attalla Ibrahim Attalla
- 5-Elias Fomunyam Onyoh
- 6-Enaam Hussein Mohammed Ahmed Ali
- 7- Enas Mustaf Ibrahim Malik
- 8- Hafi Anwer Mohamed Ahmed Saad

- 9- Hagir Mohamed Ahmed Elsheikh
- 10- Hassan Zackaria Ali Ishag
- 11- Hiba Yassin Yousif Mohammed Salih
- 12- Kenneth Llado Lino Sube
- 13- Liena Elbaghir Omer ElSayed
- 14- MagdEldin Abdelhafiz Abdelhabib Elgizouli
- 15- Mayada Mustaf Ahmed El Fadol
- 16- Mansour Mohamed Omer
- 17- Nazar Gafar Abdul Rhaman
- 18- Salma Mahmoud Yousif Mohamed
- 19- Sami Ahmed Mohammed Ali
- 20- Sulafa Bannaga Elsheikh Hajo

Current Master students 2008-2010

1. Asmaa Hassan Saad
2. Ashraf Osman Alawad
3. Ahmed Farouk Ahmed
4. Azza El- Shafie Khidir
5. Bashir Al-Sidig Yousef
6. Dalia Ahmed
7. Ilham Abdallah Elbushra
8. Mohammed Abdulkader
9. Mohanad Alhafiz Abdella
10. Musab Mohammed Ali
11. Nadia Hassan Mohamed
12. Omar Abdumuneim
13. Randa Ali Nimeri
14. Safia Ghaneim Elsheikh
15. Sarrah Elnour Khalifa
16. Sara Ibrahim
17. Sara Mohammad Abuelgasim
18. Sheeren Alsaïd Ismael
19. Safaa Othman Hassan
20. Tasnim Omer Elsammani
21. Walaa Abdullah Ome

Research Facilities

Bazoura, Kassab, Professor Elhassan Centre (Dooka) and Um Elkheir Field Stations:

The Institute has two well established & fully equipped research and primary health care facilities in remote areas of the Eastern Province (600 Km southeast of Khartoum). The Leishmania Research group/Sudan (LRG/Sudan) has been working for the last 14 years. The facilities were built by the community in Bazoura, Kassab and Dooka towns and surrounding villages with generous contribution from DNDi/Geneva. There is close collaboration with the State Ministry of Health, Gedarif State, Primary Health Care Program, and Federal Ministry of Health. The centres are run as service to the community, a field research station for the Institute and a training facility for graduate and undergraduate students.

Research equipments

I. Cell and tissue cultures:

1. Lamina Flow Hood (4)
2. Refrigerated centrifuge (2)
3. Microcentrifuge (8)
4. CO₂ incubator (5)
5. Cooled incubator (4)
6. Electric -pipette (6)
7. Micro-pipette (30)
8. Inverted microscopes (3)
9. Liquid Nitrogen storage containers. (4)
10. Freezers and Refrigerators. (16)

II. Protein Electrophoresis:

1. SDS Page mini-gels. (5)
2. Protein blotting for mini-gel. (2)
3. Light trans-illuminator. (4)

III. Enzyme Linked Immuno-Sorbent Assay (ELISA):

1. ELISA reader and ELISA plates washer. (4)
2. Autoclaves. (5)

IV. Polymerase Chain Reaction (PCR):

1. PCR machines. (12)
2. DNA agarose submarine gel apparatus. (6)
3. Ultra violet light electrophoresis transilluminator. (3)
4. Biophotometer. (1)
5. Hybridiser. (1)
6. Syn-Gene gel documentation device. (4)
- 7- Real time PCR machine (1)
- 8- Nanodrop (1)
- 9- Phosphoimager (1)

V. DNA sequencing:

1. DNA manual sequencing apparatus. (1)
2. Automated squencer (1)

V1. Internet access facilities:

The Insitute through grant from WHO has established a full 24 hours access to the internet, which is provided free for the staff and students of the Institute.

Visiting Staff:

- Professor EE Zijlstra, Faculty of Medicine, University of Malawi, McIntyre. Malawi.
- Professor J. Blackwell And Dr. Chris Peacock. Cambridge University, UK
Collaborating on Immunogenetics of Leishmaniasis,. Counte part: Pr. Muntaser E. Ibrahim and Dr. Hiba Salah-Eldin Mohamed

- Professor Ib Bygbjerg Public Health Institute of Endemic Diseases University of Copenhagen, Visit May 2000, Collaboration on displacement health studies. Counter part: Professor A. M. Elhassan.
- Professor Mohamed haj Hassan and Dr. Rik de Swart .Third World Academy, Trieste, Italy.
- Dr. Faroukh Modabber, Tehran, Iran; DNDi? Geneva.
- Professor Peter G. Smith London School of Hygiene & Tropical Medicine. London, U.K.
- Professor Abdel Quum Babikir, London, U.K.
- Professor Thor Theader; University of Copenhagen, Denmark. Dr. Douglass Barker, Cambridge University UK, Visit in Febraury 2000, Collaboration on Leishmania Research.

Plans for Next Five Years:

- Development of more specialized laboratories for Genetic transfection, mutation induction and nucleic acid analysis including automated sequencing.
- Creation of a Bioinformatic Unit.
- Strengthening the Biostatistic Unit in the Department of Epidemiology and Clinical Studies.
- Increase the number of trained staff by 100%
- Extend the available facilities.
- Establishment of a vaccinology Clinical Trials Units.
- Advanced immunology, Malaria and Leishmania immunology.
- Regular: Ethics in Health research, GCP courses.

Current difficulties:

- The availability of the physical space needed for the extension of the facilities. Building of the another floor is needed to accommodate the planned extension.
- The diminished National support for the Institute services and programmes to remote communities.

Publications:

2010

1. Osman E-AI, Hamad K, Fadl Elmula IM, Ibrahim ME (2010) Frequencies of BCR-ABL fusion transcripts among Sudanese Chronic Myeloid Leukaemia patients. *Genetics and Molecular Biology* (Accepted).
2. Eid NA, Hussein AA, Elzein AM, Mohamed HS, Rockett KA, Kwiatkowski DP, Ibrahim ME. (2010). Candidate malaria susceptibility/protective SNPs in hospital and population-based studies: the effect of sub-structuring. *Malaria Journal*. 8;9(1):119.
3. Salih NA, Hussain AA, Almugtaba IA, Elzein AM, Elhassan IM, Khalil EA, Ishag HB, Mohammed HS, Kwiatkowski D, Ibrahim ME. (2010) Loss of balancing selection in the betaS globin locus. *BMC Med Genet*. 3;11:21.
4. *Leishmania donovani*: Genetic diversity of isolates from Sudan characterized by PCR-based RAPD. (2010). Hamad SH, Khalil EA, Musa AM, Ibrahim ME, Younis BM, Elfaki ME, El-Hassan AM; The leishmaniasis Research Group, Sudan.. *Exp Parasitol*. 125(4):389-393.
5. Chiaroni J, King RJ, Myres NM, Henn BM, Ducourneau A, Mitchell MJ, Boetsch G, Sheikha I, Lin AA, Nik-Ahd M, Ahmad J, Lattanzi F, Herrera RJ, Ibrahim ME, Brody A, Semino O, Kivisild T, Underhill PA. (2010). The emergence of Y-chromosome haplogroup J1e among Arabic-speaking populations. *Eur J Hum Genet*. 18(3):348-53.
6. Musa AM, Noazin S, Khalil EA, Modabber F. (2010). Immunological stimulation for the treatment of leishmaniasis: a modality worthy of serious consideration. *Trans R Soc Trop Med Hyg*. 104(1):1-2.

2009:

7. Saeed MYM., Ahmed A H, Elhassan N B, Elhassan AM. 2009. Concomitant tuberculosis and hydatid cyst in a solitary pulmonary nodule of left lower lobe. *BMJ Case Reports* doi:10.1136/bcr.04.2009.1738.
8. Farouk S., Ibrahim ME, Salih MA, Blackwell JM, Miller Nancy, Khalil EAG, ElHassan AM, Musa AM and Mohamed HS. (2009). Interleukin-10 gene

- polymorphisms and development of post Kala-azar dermal leishmaniasis (PKDL) in a selected Sudanese population. *Public Health Genomics*. [Epub ahead of print]
9. Hassan DA, Marques C, Santos-Gomes GM, do Rosario VE, Mohamed HS, Elhussein AM, Ibrahim ME, Abdulhadi NH. (2009). Differential expression of cytokine genes among sickle-cell-trait (HbAS) and normal (HbAA) children infected with *Plasmodium falciparum*. *Ann Trop Med Parasitol*. 103(4):283-95
 10. Sato H, Takano A, Kawabata H, Une Y, Watanabe H, Mukhtar MM. (2009). Trypanosoma CF. varani in an imported Ballpython (Python reginus) from Ghana. *J Parasitol*. 12:1.
 11. Cazeneuve C, Sãn C, Ibrahim SA, Mukhtar MM, Kheir MM, Leguern E, Brice A, Salih MA. (2009). A new complex homozygous large rearrangement of the PINK1 gene in a Sudanese family with early onset Parkinson's disease. *Neurogenetics*.
 12. Abbas K, Musatafa MA, Abass S, Kheir MM, Mukhtar M, Elamin EM, Elhassan AM. (2009). Mucosal leishmaniasis in a Sudanese patient. *Am J Trop Med Hyg*. 80(6):935-8.
 13. Mihaylova V, Salih MA, Mukhtar MM, Abuzeid HA, El-Sadig SM, von der Hagen M, Huebner A, Nürnberg G, Abicht A, Müller JS, Lochmüller H, Guergueltcheva V. (2009). Refinement of the clinical phenotype in Musk-related congenital myasthenic syndrome. *Neurology*. 1;73(22):1926-8
 14. Anheim M, Monga B, Fleury M, Charles P, Barbot C, Salih M, Delaunoy JP, Fritsch M, Arning L, Synofzik M, Schöls L, Sequeiros J, Goizet C, Marelli C, Le Ber I, Koht J, Gazulla J, De Blecker J, Mukhtar M, Drouot N, Ali-Pacha L, Benhassine T, Chbicheb M, M'Zahem A, Hamri A, Chabrol B, Pouget J, Murphy R, Watanabe M, Coutinho P, Tazir M, Durr A, Brice A, Tranchant C, Koenig M. Brain. Ataxia with oculomotor apraxia type 2: clinical, biological and genotype/phenotype correlation study of a cohort of 90 patients. (2009) 132(Pt 10):2688-98.
 15. Blackwell J. M, Fakiola M, Ibrahim M. E., Jamieson S.E., Jeronimo S. B., Miller E. N., Mishra A., Mohamed H. S., Peacock C. S., Raju M., Sundar S. & Wilson M. E. (2009). Genetics and Visceral Leishmaniasis: of Mice and Man. *Parasite Immunology*. 31: 254-266.
 16. Jallow M, Teo YY, Small KS, et.al, Ibrahim M, ...Kwiatkowski DP. (2009). Wellcome Trust Case Control Consortium; Malaria Genomic Epidemiology Network. Genome-wide and fine-resolution association analysis of malaria in West Africa. *Nat Genet*.

17. Tishkoff SA, Reed FA, Friedlaender FR, Ehret C, Ranciaro A, Froment A, Hirbo JB, Awomoyi AA, Bodo JM, Doumbo O, Ibrahim M, Juma AT, Kotze MJ, Lema G, Moore JH, Mortensen H, Nyambo TB, Omar SA, Powell K, Pretorius GS, Smith MW, Thera MA, Wambebe C, Weber JL, Williams SM. *Science*. 2009. The genetic structure and history of Africans and African Americans May 22;324(5930):1035-44.
18. Nimir AA, Khalil EA, Musa AM, Yassin HM, El-Hassan AM. (2009). Evaluation of the particle gel diffusion technique for the detection of haemoglobin S in Sudanese patients. *Ann Clin Biochem*; 46:114-6. Epub
19. Mudawi MME, Sania, Shadad AI, Eltayeb IB, Khalil EAG, AM Musa and Muddathir AK. (2009). The Pharmacodynamic Interactions of Sodium Stibogluconate (SSG) and Paromomycin (PM) on Various Isolated Tissues Preparations, *Research Journal of Pharmacology* ; 3 (2): 26-30.
20. Sassan Noazin, Ali Khamesipour, Lawrence H. Moulton, Marcel Tanner, Kiumarss Nasser, Farrokh Modabber, Iraj Sharifi, E.A.G. Khalil, Ivan Dario Velez Bernal, Carlos M.F. Antunes, Peter G. Smith. (2009). Efficacy of killed whole-parasite vaccines in the prevention of leishmaniasis—A meta-analysis. *Vaccine* 27: 4747–4753.
21. Ahmad M Musa, Sassan Noazin; Eltahir A G Khalil, Farrokh Modabber. (2009). Immunological Stimulation for Treatment of Leishmaniasis: A modality worthy of serious consideration. (2009). *Transactions of the Royal Society of Tropical Medicine & Hygiene*. In Press. Available on line since 26 August
22. Mugtaba EA Abdalsalam and Eltaher AG Khalil. (2009). Immunophenotypic patterns of cord blood mononuclear cells in a cohort of Sudanese neonates: subtle markers of health and disease. *Cytometry Part B: Clinical Cytometry*, Volume 76B, Issue 6 (p 394)
23. Saeed MYM, Ahmed AH., Elhassan NB, Elhassan AM. (2009). Concomitant tuberculosis and hydatid cyst in a solitary pulmonary nodule of left lower lobe. *BMJ Case Reports* doi:10.1136/bcr.04.2009.1738

2008:

24. Markos Abebe, Abraham Aseffa., Diana Boraschi, Francesca Chiodi, John Chisi , Gianfranco Del Prete, T. Mark Doherty, Elhassan IM, Howard Engers ,Ben Gyan, Ali Harandi , Thomas Kariuki, Fred Kironde , Bourema Kouriba , Tamas Laskay Donata

- Medaglini , Ole Olesen, Carla Palma, Robert Sauerwein, Elopy Sibanda ,Ulrich Steinhoff, Aldo Tagliabue,Andreas Thiel,Mahnaz Vahedi,Marita Troye-Blomberg (2008) Immunity to Co-Infections in Poverty-related and Neglected Infectious Diseases: Global Priorities for European Union Research Activities Concept paper *Public Library of Science PLoS v 2 issue 6 1-4*
25. Hassan HY, Underhill PA, Cavalli-Sforza LL, Ibrahim ME. (2008) .Y-chromosome variation among Sudanese: restricted gene flow, concordance with language, geography, and history. *Am J Phys Anthropol.* 137(3):316-23.
 26. Tagelsir N , Salim E, Younis SY, Elimiari G, A/Elgaffar A. A,`Elayeb M A & Elhasan IM (2008) clinico-epidemiological study of falciparum malaria in a cluster of villages in the eastern bank of the River Nile in Northern Sudan, *Sudanese Journal of Public Health:*, Vol.3 (1) 11-16
 27. Teka H, Petros B, Yamuah, Tesfays G. Elhassan IM, Muchohi S, Kokwaro G, Aseffa A, and Engers H. (2008) chloroquine resistant Plasmodium Vivax malaria in Debre Zeit, Ethiopia *Malaria Journal.*7:220 1-8
 28. Hassan DA, A. P. Arez , Mohamed HS, Elhusein AM, Ibrahim ME , and Abdulhadi N.H. (2008). Reduced sequestration of *P. falciparum* infected erythrocytes among sickle cell trait malaria patients: An *in vivo* evidence among a West African tribe in Sudan.. *Annals of Tropical Medicine and Parasitology.* 102(8):743-8
 29. Ibrahim ME, Mahdi MA, Bereir RE, Giha RS, Wasunna C.(2008) Evolutionary conservation of RNA editing in the genus Leishmania. *Infect Genet Evol.* 8(3):378-80
Sirugo G, Hennig BJ, Adeyemo AA, Matimba A, Newport MJ, Ibrahim ME, Ryckman KK, Tacconelli A, Mariani-Costantini R, Novelli G, Soodyall H, Rotimi CN, Ramesar RS, Tishkoff SA, Williams SM. (2008). Genetic studies of African populations: an overview on disease susceptibility and response to vaccines and therapeutics. *Hum Genet.*123(6):557-98.
 30. Fathelrahman N., El-Hassan L., Mohamed HS and El-Hassan AM. (2008). Burkitt`s lymphoma with Particular reference to the disease in Sudan. *Khartoum Medical Journal* 1, (3): 99-102.
 31. Allam MM, Alkadarou TA, Ahmed BG, Elkhair IS, Alansary EH, Ibrahim ME, Elhassan AM, Elhassan IM. Hyper-reactive Malarial Splenomegaly (HMS) in malaria endemic area in Eastern Sudan. *Acta Trop.* 2008 Feb;105(2):196-9

32. Koenig S, Mehlich AM, Ackermann D, Hamid ME, Saeed NS, Mukhtar M, El Hassan M. *Front Biosci.* 2008 Jan 1;13:842-55
Homologous housekeeping proteins in *Nocardia*--the NoDaMS proteomic database.
33. Elamin E.M., I.Guizani; S.Guerbouj; M. Gramicia El Hassan A. M.; T. Di Muccio; M.A.Taha ; and Mukhtar M. M.. Identification of *Leishmania donovani* as a cause of cutaneous Leishmaniasis in Sudan. *Trans.Roy. Soc. Trop.Med. Hyg.* 2008: 102:54-57
34. Abraham Aseffa; Sayda El-Safi; Asrat Hailu; Jane Mbui; Maowia Mukhtar; Suman Rijal; Shyam Sundar; Monique Wasunna; Joris Menten; Philippe Desjeux; Rosanna W. Peeling. Diagnostic tests for kala-azar at primary care level: a multi-centre study of the freeze-dried DAT, rK39 strip test and KAtex in East-Africa and the Indian subcontinent Marleen Boelaert; *Trans.Roy.Soc.Trop.Med. Hyg.* 2008: 102: 61 – 65
35. Maowia M. Mukhtar., E.M. Elamin; Sahar M. Bakhiet; and Musa M. Kheir. 2008. Accepted EMRO First report on *Leishmania major*/HIV coinfection in a Sudanese patient.
36. Musa AM; Khalil EAG; Mahgoub FA; Hassab Elgawi SH; Modabber F; Elkadaru AMY; Aboud MH; Noazin S; Ghalib HW. & El-Hassan AM. (2008).
Immunochemotherapy of persistent post kala-azar dermal leishmaniasis: a novel approach of treatment. *Transactions of Royal Society of Tropical Medicine & Hygiene*; 102(1):58-63.
37. Khalil EAG; Musa AM; Elgawi SH; Meshasha A; I Gamar Eldawla; MO Elhassan; KA Eljaleel; Younis BM; Elfaki MEE. & El-Hassan AM. (2008). Revival of a leishmaniasis focus in White Nile state, Sudan. *Annals of Tropical Medicine & Parasitology.* 102(1):79:80.
38. Elagib AH; Ahmed AE; Hussein A; Musa AM; Khalil EAG & El-hassan AM. (2008). Possible predisposing factors for thrombotic cerebrovascular accidents in Sudanese patients. *Saudi Medical Journal*; vol 29(20): 447-448.
39. Ismail WMA; Khalil EAG; Bygbjerg Ib C; Osman FM; Musa AM & El-Hassan AM. Coverage and efficacy of BCG vaccination in displaced populations: a measure of effectiveness of an Expanded Program of Immunization. *Khartoum Medical Journal* (in-press).

40. Malaria Genomic Epidemiology Network. A global network for investigating the genomic epidemiology of malaria.. *Nature*. 2008 Dec 11;456(7223):732-7.
41. Hassan MM; Elamin EM and Mukhtar Isolation and identification of *Leishmania donovani* from *Phlebotomus orientalis*, in an area of eastern Sudan with endemic visceral leishmaniasis. *MM. Ann Trop Med Parasitol*. 2008 Sep;102(6):553-5
42. Ali AM, Salih D, Bakheit M, El Hussein AR, Hassan SM, Mukhtar MM, Ahmed JS, Seitzer U Comparison of the molecular structure of the TaSP gene of *Theileria annulata* from Sudanese isolates.. 2008. *Ann N Y Acad Sci*. 2008 Dec;1149:218-20.
43. Malaria Genomic Epidemiology Network. A global network for investigating the genomic epidemiology of malaria.. *Nature*. 2008 Dec 11;456(7223):732-7.

2007

44. Bereir RE, Hassan HY, Salih NA, Underhill PA, Cavalli-Sforza LL, Hussain AA, Kwiatkowski D, Ibrahim ME (2007) Co-introgression of Y-chromosome haplogroups and the sickle cell gene across Africa's Sahel. *Eur J Hum Genet*. 2007 Nov;15(11):1183-5.
45. Mahdi SI, Elhassan AM, Ahmed ME Crohn's disease masquerading carcinoma of the esophagus.(2007) *Saudi Med J*. 28(8):1287-8.
46. Sarah A. Tishkoff, Floyed A.Reed, Alessia Ranciaro, Benjamin F. Voight, Courtney C.Babbit, Jesse S. Silverman, Kweli Powell, Holly Mortensen, Jibril. B. Hirbo, Maha Osman, Muntaser Ibrahim, Sabah A. Omar, Jilur Ghori, Suzannah Bumpstead, Jonathan K. Pritchard, Gregory A. Wary, Panos Delouckas(2007) Convergent adaptation in humans: the genetic basis of lactase persistence in Africa. *Nature Genetics*,39(1):31-40.
47. Ali M.E.eragi; Mohamed E. Hamid; Nageeb S. Saeed; Alla H. Ahmed; Keunhwa Lee; Yoon-Hoh Kook and Maowia M. Mukhtar.2007.Comparative assays of rpoB gene for identification of *Mycobacterium tuberculosis* isolated from patients in Sudan. *IJTuberc.Lung Dis*. 11(6): 1 – 5.
48. Carmignac V, Salih MA, Quijano-Roy S, Marchand S, Al Rayess MM, Mukhtar MM, Urtizberea JA, Labeit S, Guicheney P, Leturcq F, Gautel M, Fardeau M, Campbell KP, Richard I, Estournet B, Ferreiro A. (2007). C-terminal titin deletions cause a novel early-onset myopathy with fatal cardiomyopathy. *Ann Neurol*. 19;61(4):340-351.

49. El Mubarak HS; Yuksel S; van Amerongen G; Hulder PG; Mukhtar MM, Osterhaus AD and de Swart R. (2007). Infection of cynomolgus macaques (*Macaca fascicularis*) and rhesus macaques (*macaca mulatta*) with different wild type measles viruses. *J. Gen. Virol. (Pt7)*: 2028-34.
50. Haroun, M; Mukhtar MM; Hajer IE; Kheir SAM; Ali BE and Barrett T. Detection of viral Ribonucleic acid in tissues, ocular and nasal secretions of calves vaccinated with Rinderpest Bovine old Kabete Strain. *International Journal of Molecular Medicine and Advance Sciences* . 2007 3(3): 131 – 137.
51. Abbas M. Ahmed; M.M. Mukhtar; A.M. Elhussien; T. A.M. Nour; and M.A. Fadul. Immune response of Sheep vaccinated with combined Anthrax and Capripox vaccine. *Research Journal of Animal Sciences* . 2007; 1(1): 49-52
52. Abbas. M. Ahmed; A.M. Zakia; M.M. Mukhtar and A.M. Elhussien. Histopathological changes in skin and lymph nodes of sheep following vaccination with Anthrax, Capripox and combined Anthrax and capripox vaccines. *Journal of animal and veterinary advances* 2007; 6(3):332- 327.
53. Abbas M. Ahmed; M.M. Mukhtar; A.M. Elhussien; T. A.M. Nour; and M.A. Fadul. Immune response of sheep vaccinated with Capripox. . *Veterinary research* 2007. 1(1):12- 16.
54. Abbas M. Ahmed; M.M. Mukhtar; A.M. Elhussien; T. A.M. Nour; and M.A. Fadul. Combined anthrax and sheep pox vaccine: production and immunization trial in Sudan. *Journal of animals and veterinary advances*. 2007; 6(4); 517-521.
55. Salih MA, Ibrahim ME, Blackwell JM, Miller EN, Khalil EA, ElHassan AM, Musa AM, Mohamed HS. (2007). IFNG and IFNGR1 gene polymorphisms and susceptibility to post-kala-azar dermal leishmaniasis in Sudan. *Genes Immun.* 8 (1):75-8.
56. Miller EN, Fadl M, Mohamed HS, Elzein A, Jamieson SE, Cordell HJ, Peacock CS, Fakiola M, Raju M, Khalil EA, Elhassan A, Musa AM, Ibrahim ME, Blackwell JM. (2007). Y chromosome lineage- and village-specific genes on Chromosomes 1p22 and 6q27 control visceral leishmaniasis in Sudan. *PLoS Genet* 3(5):.
57. Ghada Sulaiman; EAG Khalil; IA El-Hag; KE Elsidig; M EMO Elsafi; ASA Aljafari; AA Elnour; AM Hussein; IM Elkhidir & AM El-Hassan (2007). Circulating Mycobacterium tuberculosis in patients with tuberculous lymphadenitis: a possible route of spread. *East African Medical Journal*; 84(1):3-7.

58. Kaballo BG, Khogali MS, Khalifa EH, Khalil EA, El-Hassan AM, Abu Aisha H. (2007). Patterns of Acute Renal Failure in a referral centre in Sudan: Excluding intensive care and major surgery patients. *Saudi J Kidney Dis Transpl*; 18(2):220-5.
59. Yousif NM ; Musa AM ; El-Hassan AM; Khalil EAG & Elhassan IM. (2007). Anti-Glucose-Regulated Protein 78 (GRP78) antibody response in Alum/ALM plus BCG vaccine, visceral leishmaniasis and Post Kala-azar Dermal Leishmaniasis patients. *Sudan Journal of Medical Sciences (Sudan JMS)*; 2(3):175-178.
60. Sharief AH, Khalil EA, Omer SA, Abdalla HS. (2007). Innovative serum-free medium for in vitro cultivation of promastigote forms of *Leishmania* species. *Parasitol Int.* 2007 Oct 14 [Epub ahead of print].
61. Bayele, H.K., Peyssonnaud, C., Giatromanolaki, A., Arrais-Silva W.A., Mohamed, H.S Collins, H., Giorgio, S., Koukourakis, M., Johnson, R S, , Blackwell, J.M., Nizet, V. and Srail, S.K.S.(2007). HIF-1 regulates heritable variation and allele expression phenotypes of the macrophage immune response gene SLC11A1 from a Z-DNA-forming Microsatellite. *Blood.* 110, (8): 3039- 3048
62. Balkw M, Elhassan I M, M Ibrahim, Y Gebere-Michael and H Engers (2007) Very high DDT resistance of *Anopheles pahaensis theobald* (Dipter: Culicidae) from Gorgora, Northern Ethiopia, *Parasite* 13, 327-329
63. Sara A Abelaal, Abed ELHamid D. Nugud , Omer Mahgoub., Ahmed M Elhassan , and Elhassan IM (2007) The role of water coolers in the breeding of *Anopheles* mosquitoes in Khartoum, *Sudan. Sudanese J. of Public Health* vol. 1 (4) 307-308
64. Ronet C. , Bakhiet S., Pavlin C. , Akira S., Launois P. (2007). S188 *Leishmania major* induces secretion of inflammatory cytokines and chemokines by keratinocytes via a TLR2 pathway . *International Journal of Antimicrobial Agents*, Volume 29, Issue null, Pages S38-S38

2006:

65. Anne-Louise Leutenegger; Mustafa A. Salih; Pablo Ibanez; Maowia M. Mukhtar; et al Juvenile-onset Parkinsonism as a result of the first mutation in the adenosine triphosphate orientation domain of PINK1.. 2006.. *Arch. Neurol.* 2006; 63:1257-1261.

66. Awadia M. Ali; Mohammed A. Bakhite; Maowia M. Mukhtar. Shawgi M. Hassan; Jabbar S. Ahmed and Ulrike Seizer. Epidemiology of *Theileria annulata* Infection of Dairy Cattle in the Sudan Using Molecular Techniques. 2006.. *Ann. N.Y. Acad. Sci.* 1081: 471–472 (2006)
67. Khalil EAG; Ahmed AE; Musa AM. & Muna H. Hussein. (2006). Antimony-induced cerebellar ataxia. *Saudi Medical Journal*; 27:90-92.
68. Tag Elsir N, Mohammed Salim EA., Elimiari G, Adam AA, Ahmed ME & Elhasan IM (2006.) Epidemiological study of infection falciparum malaria in a cluster of villages in the eastern bank of the river Nile in Northern Sudan. *Acta Tropica*, 97.
69. Ismail A, Khalil EAG, Musa AM, El Hassan IM, Ibrahim ME, Theander TG & El Hassan AM. (2006). The pathogenesis of post kala-azar dermal leishmaniasis from the field to the molecule: does ultraviolet light (UVB) radiation play a role? *Med Hypotheses*. 66(5):993-9.
70. Abd Alla Hassan Sharief; E. A.G. Khalil; Thor Theander; Arsalan Kharazmi; Samia Ali Omer & Muntaser E. Ibrahim. (2006). *Leishmania donovani*: an in vitro study of antimony-resistant amphotericin B-sensitive isolates. *Experimental Parasitology*; 114:247-252.
71. EAG Khalil; AM Musa; F Modabber; AM El-Hassan. (2006). Safety & immunogenicity of a candidate vaccine for visceral leishmaniasis (Alum-precipitated autoclaved *L.major* +BCG) in children: an extended Phase II study. *Annals of Tropical Paediatrics* (December 2006).

2005:

72. Alla AH, Mahadi SI, Elhassan AM & Ahmed ME (2005). A large giant cell tumor of the sacrum. Advantage of an abdomino-sacral approach. *Saudi Med J.* 26(1):133-5.
73. Elamin EM, Guerbouj S, Musa AM, Guizani I, Khalil EAG, Mukhtar MM, Elkadaro AM, Mohamed HS, Ibrahim ME, Abdel Hamid MM, El Azhari M & El Hassan AM. (2005). Uncommon clinical presentations of cutaneous leishmaniasis in Sudan. *Trans R Soc Trop Med Hyg.* 99(11):803-8.
74. Hailu A, Musa AM, Royce C & Wasunna M. (2005). Visceral leishmaniasis: new health tools are needed. *PLoS Med.* 2(7):e211.
75. Khalil EA, Ahmed AE, Musa AM, Hussein MH. Khalil EA, Ayed NB, Ibrahim ME, Mukhtar MM, Zijlstra EE, Elhassan IM, Smith PG, Kienny PM, Ghalib HW, Zicker F,

- Modabber F & Elhassan AM. (2005). Dichotomy of protective cellular immune responses to human visceral leishmaniasis. *Clin Exp Immunol.* 140(2):349-53.
76. Mahdi M, Elamin EM, Melville SE, Musa AM, Blackwell JM, Mukhtar MM, Elhassan AM & Ibrahim ME. (2005). Sudanese mucosal leishmaniasis: isolation of a parasite within the *Leishmania donovani* complex that differs genotypically from *L. donovani* causing classical visceral leishmaniasis. *Infect Genet Evol.* 5(1):29-33.
77. Musa AM, Khalil EA, Mahgoub FA, Hamad S, Elkadaru AM & El Hassan AM. (2005). Efficacy of liposomal amphotericin B (AmBisome) in the treatment of persistent post-kala-azar dermal leishmaniasis (PKDL). *Ann Trop Med Parasitol.* 99(6):563-9.

2004:

78. Musa AM, Khalil EAG, Ismail A, Elhassan IM, Fesharki H, Khamesipour A, Modabber F, Zijlstra EE & El-Hassan AM (2004). Safety, immunogenicity and possible efficacy of Immunochemotherapy of persistent post kala-azar dermal leishmaniasis (PKDL) Sudan *J Dermatology* 2005;Vol 3 (2).
79. Aljafari AS, Khalil EA, Elsiddig KE, El Hag IA, Ibrahim ME, Elsafi ME, Hussein AM, Elkhidir IM, Sulaiman GS & Elhassan AM. (2004). Diagnosis of Tuberculous lymphadenitis by FNAC, microbiological methods and PCR: a comparative study. *Cytopathology.*15(1):44-8.
80. Eman H. Khalifa, Babikir G. Kabbalo, Salma M. Suleiman, Eltahir A.G.Khalil, Ahmed M.El-Hassan. (2004). Pattern of glomerulonephritis in Sudan: histopathological and immunofluorescence study. *Saudi J of Kidney Disease and Transplantation;* 15 (2):176-179.
81. Blackwell JM., Mohamed HS & Ibrahim ME (2004). Genetics and visceral leishmaniasis in the Sudan: seeking a link. *Trends in Parasitology.* 20(6): 268-74.
82. El Mubarak HS, Ibrahim SA, Vos HW, Mukhtar MM, Mustafa OA, Wild TF, Osterhaus AD & de Swart RL. (2004). Measles virus protein-specific IgM, IgA, and IgG subclass responses during the acute and convalescent phase of infection. *J Med Virol.* 72(2):290-8.
83. Mohamed HS, Ibrahim ME Miller EN, White JK, Cordell HJ, Howson JM, Peacock CS, Khalil EAG, El Hassan AM & Blackwell JM (2004). SLC11A1 (formally NRAMP) and susceptibility to Visceral leishmaniasis in the Sudan *European Journal*

- of Human Genetics. 12,66-74. Sudan: seeking a link. Trends in Parasitology. 20(6):268-74
84. Shigidi MM, Hashim RA, Idris MN, Mukhtar MM & Sokrab TE (2004). Parasite diversity in adult patients with cerebral malaria: a hospital-based, case-control study. Am J Trop Med Hyg. 71(6):754-7.
 85. Tageldien A, Nour M, Ibrahim ME & Elhoussein AM (2004) Evidence for Virus Population Heterogeneity in the Sheep and Goat Pox Vaccine Strain 0240. Journal of Animal and Veterinary Advances 3 (6): 366-370. 2003:
 88. Abdo MG, Elamin WM, Khalil EAG & Mukhtar MM (2003). Antimony-resistant *Leishmania donovani* in eastern Sudan: incidence and in vitro correlation. East Mediterr Health J. 9(4):837-43.
 89. Ali NO, Ibrahim ME, Aradaib IE, Grant KM & Mottram JC (2003). An investigation of crk protein kinases of leishmania and the assessment of their potential as drug targets. Cell Mol Biol Lett. 2A): 571-572
 90. Bereir Re, Mohamed HS, Seielstad M, El Hassan AM, Khalid EA, Peacock CS, Blackwell JM & Ibrahim ME (2003). Allele frequency and genotype distribution of polymorphisms with in disease-related genes is influenced by ethnic population sub-structuring in Sudan. Genetica. 119(1):57-63.
 91. Blackwell JM, Searle S, Mohamed HS & White JK (2003). Divalent cation transport and susceptibility to infectious and autoimmune disease: Continuation of the *Ity/Lsh/Bcg/Nramp1/Slc11a1* gene story. Immunology Letters. 22;85(2):197-203
 92. Elsiddig KE, Khalil EAG, Elhag IA, Elsafi ME, Suleima GM, Elkhidir IM, Hussein AM & El-Hassan AM (2003). Granulomatous mammary disease: ten years' experience with fine needle aspiration cytology. Int J Tuberc Lung Dis. 7(4):365-9.
 93. Kamil AA, Khalil EA, Musa AM, Modabber F, Mukhtar MM, Ibrahim ME, Zijlstra EE, Sacks D, Smith PG, Zicker F & El-Hassan AM (2003). Alum-precipitated autoclaved *Leishmania major* plus bacille Calmette-Guerrin, a candidate vaccine for visceral leishmaniasis: safety, skin-delayed type hypersensitivity response and dose finding in healthy volunteers. Trans R Soc Trop Med Hyg. 97(3):365-8.
 94. Mohamed HS, Ibrahim ME, Miller NE, Peacock CS, Khalil EAG, Cordell HJ, Howson JM, El Hassan AM, Bereir RE & Blackwell JM (2003). Genetic susceptibility to visceral leishmaniasis in the Sudan: Linkage and association with IL4

and IFNGR1. *Genes and Immunity*. 4,351-355.

95. Mulugeta E, El-Bakri N, Karlsson E, Elhassan A & Adem A.(2003). Loss of muscarinic M4 receptors in spinal cord of arthritic rats: implications for a role of M4 receptors in pain response. *Brain Res*. 2003; 29;982(2):284-7.
96. Zijlstra EE, Musa AM, Khalil EAG, El-Hassan IM & Elhassan AM (2003). Post-kala-azar dermal leishmaniasis. *Lancet Infect Dis*. 3(2):87-98. Review

2002:

97. Ali MM, Mukhtar MM, Baraka OZ, Homeida MM, Kheir MM & Mackenzie CD. (2002). Immunocompetence may be important in the effectiveness of Mectizan (ivermectin) in the treatment of human onchocerciasis. *Acta Trop*. 84(1):49-53.
98. Elhassan LA, Khalil EAG & Elhassan AM. (2002). Socio-cultural aspects of leprosy among the Masalit and Hawsa tribes in the Sudan. *Lepr Rev*. 73(1):20-8.
99. El Mubarak HS, van de Bildt MW, Mustafa OA, Vos HW, Mukhtar MM, Ibrahim SA, Andeweg AC, El Hassan AM, Osterhaus AD & de Swart RL (2002). Genetic characterization of wild-type measles viruses circulating in suburban Khartoum, 1997-2000. *J Gen Virol*. 83(Pt 6):1437-43.
100. Haroun MI, Hajer IE, Mukhtar MM & Ali BE (2002). Detection of antibodies against Peste des petitis ruminants virus in sera of cattle, camel, sheep and goats in Sudan. *Vet.Res. Communications*. 26: 1-5.
101. Ibrahim SA, Mustafa OM, Mukhtar MM, Saleh EA, El Mubarak HS, Abdallah A, El-Hassan AM, Osterhaus AD, Groen J, De Swart RL & Zijlstra EE (2002). Measles in suburban Khartoum: an epidemiological and clinical study. *Trop Med Int Health*. 2002 May;7(5):442-9.
102. Khalil EAG, Zijlstra EE, Kager PA & El Hassan AM (2002). Epidemiology and clinical manifestations of *Leishmania donovani* infection in two villages in an endemic area in eastern Sudan. *Trop Med Int Health*. 7(1):35-44.
103. Masri MA, Abdel Seed NM, Fahal AH, Romano M3 , Baralle F, El Hassan AM & Ibrahim ME (2002). Minor Role for BRCA2 (exon11) and p53(Exon 5-9) among Sudanese breast cancer patients. *Breast Cancer Research and Breast Cancer Res Treat* 71(2):145-7
104. Musa AM, Khalil EA, Raheem MA, Zijlstra EE, Ibrahim ME, Elhassan IM, Mukhtar MM & El Hassan AM. (200). The natural history of Sudanese post-kala-azar dermal

leishmaniasis: clinical, immunological and prognostic features. *Ann Trop Med Parasitol.* 2002; 96(8):765-72.

105. Staalsoe T, Hamad AA, Hviid L, Elhassan IM, Arnot DE & Theander TG. (2002). In vivo switching between variant surface antigens in human *Plasmodium falciparum* infection. *J Infect Dis.* 2002 Sep 1;186(5):719-22. Epub 2002 Aug 5.

2001

106. Ali AS & Mukhtar MM. (2001). Measurement of cell mediated immunity to infectious bursal disease virus and fowl pox virus. *Sudan J. Vet. Sci. Animal. Husbandry.* 40 (1-2) 8-12.

107. Mukhtar MM (2001). Visceral Leishmaniasis Molecular Epidemiology: Parasite and host immune factors associated with Post Kalazar Dermal Leishmaniasis (PKDL) in Sudan. WHO/TDR/EMRO Publications.

108. Blackwell JM, Goswami T, Evans CA, Sibthorpe D, Papo N, White JK, Searle S, Miller EN, Peacock CS, Mohamed HS & Ibrahim M (2001). SLC11A1 (formerly NRAMP1) and disease resistance. *Cell Microbiol.* 3(12): 773-84.

109. Cavanagh DR, Dobano C, Elhassan IM, Marsh K, Elhassan A, Hviid L, Khalil EA, Theander TG, Arnot DE & McBride JS (2001). Differential patterns of human immunoglobulin G subclass responses to distinct regions of a single protein, the merozoite surface protein 1 of *Plasmodium falciparum*. *Infect Immun.* 69(2):1207-11.

110. de Swart RL, El Mubarak HS, Vos HW, Mustafa OM, Abdallah A, Groen J, Mukhtar MM, Zijlstra EE, El Hassan AM, Wild TF, Ibrahim SA & Osterhaus AD. (2001). Prevention of measles in Sudan: a prospective study on vaccination, diagnosis and epidemiology. *Vaccine.* 21;19(17-19):2254-7.

111. El Hassan AM & Khalil EA. (2001). Post-kala-azar dermal leishmaniasis: does it play a role in the transmission of *Leishmania donovani* in the Sudan? *Trop Med Int Health.* 6(9):743-4.

112. El-Eragi AM, Mukhtar MM & Babiker SH. (2001). Specific antibodies of *Pasteurella multocida* in newborn calves of vaccinated dams. *Trop Anim Health Prod.* 33(4):275-83.

113. El-Hassan AM & Zijlstra EE. (2001) Leishmaniasis in Sudan. Cutaneous leishmaniasis. *Trans R Soc Trop Med Hyg.* 2001 Apr;95 Suppl 1:S1-17.

114. El-Hassan AM & Zijlstra EE. (2001). Leishmaniasis in Sudan. Mucosal leishmaniasis. *Trans R Soc Trop Med Hyg.* 95 Suppl 1:S19-26.

- 115.Higazi TB, Katholi CR, Mahmoud BM, Baraka OZ, Mukhtar MM, Qubati YA & Unnasch TR. (2001). *Onchocerca volvulus*: genetic diversity of parasite isolates from Sudan. *Exp Parasitol*. 97(1):24-34.
- 116.Satti IN, Osman HY, Daifalla NS, Younis SA, Khalil EAG, Zijlstra EE, El Hassan AM & Ghalib HW. (2001). Immunogenicity and safety of autoclaved *Leishmania major* plus BCG vaccine in healthy Sudanese volunteers *Vaccine*. 19(15-16):2100-6.
- 117.Suliman IA, Elhassan AM, Adem A, El-Bakri NK & Lindgren JU. (2001). Changes in tissue levels of growth hormone, insulin-like growth factor-I, and somatostatin in the femurs of hind-limb immobilized rats. *Acta Orthop Scand*. 72(2):186-91.
- 118.Zijlstra EE & El-Hassan AM. (2001). Leishmaniasis in Sudan. *Visceral leishmaniasis*. *Trans R Soc Trop Med Hyg*. 95 Suppl 1:S27-58.
- 119.Zijlstra EE, Nur Y, Desjeux P, Khalil EAG, El-Hassan AM & Groen J. (2001). Diagnosing visceral leishmaniasis with the recombinant K39 strip test: experience from the Sudan. *Trop Med Int Health*. 6(2):108-13.

2000:

- 120.Isamil MH, Mukhtar MM & Hager IE (2000). Pathogenesis of RBOK vaccine and Rinderpest virus Saudi 1/81 virulent strain in susceptible Angus breed calves. *Sudan J. Vet. Res*. 16:21-26.
- 121.Hamad AA, El Hassan IM, Ahmed GI, El Khalifa AA, Abdelrahim SA, Theander TG & Arnot D. (2000). Chronic *P. falciparum* infections in an area of low intensity malaria transmission in the Sudan. *Parasitology* 120: 447-456.
- 122.El Mubarak HS, Van De Bildt MW, Mustafa OA, Vos HW, Mukhtar MM, Groen J, El Hassan AM, Niesters HG, Ibrahim SA, Zijlstra EE, Wild TF, Osterhaus AD & De Swart RL. (2000). Serological and virological characterization of clinically diagnosed cases of measles in suburban Khartoum. *J Clin Microbiol*. 38(3):987-91.
- 123.El Sayed BB, Arnot DE, Mukhtar MM, Baraka OZ, Dafalla AA, Elnaiem DE & Nugud AH. (2000). A study of the urban malaria transmission problem in Khartoum. *Acta Trop*. 25; 75(2):163-71.
- 124.Gasim S, Elhassan AM, Kharazmi A, Khalil EA, Ismail A & Theander TG. (2000). The development of post-kala-azar dermal leishmaniasis (PKDL) is associated with acquisition of *Leishmania* reactivity by peripheral blood mononuclear cells (PBMC). *Clin Exp Immunol*. 119(3):523-9.

125. Gasim S, Theander TG & ElHassan AM. (2000). High levels of C-reactive protein in the peripheral blood during visceral leishmaniasis predict subsequent development of post kala-azar dermal leishmaniasis. *Acta Trop.* 75(1):35-8.
126. Higazi TB, Boakye DA, Wilson MD, Mahmoud BM, Baraka OZ, Mukhtar MM & Unnasch TR. (2000). Cytotaxonomic and molecular analysis of *Simulium* (Edwardsellum) *damnosum sensu lato* (Diptera: Simuliidae) from Abu Hamed, Sudan. *J Med Entomol.* 37(4):547-53.
127. Khalil EAG, El Hassan AM, Zijlstra EE, Mukhtar MM, Ghalib HW, Musa B, Ibrahim ME, Kamil AA, Elsheikh M, Babiker A & Modabber F. Autoclaved *Leishmania major* vaccine for prevention of visceral leishmaniasis: a 79 randomized, double-blind, BCG-controlled trial in Sudan. *Lancet.* 2000 Nov 4;356(9241):1565-9.
128. Khalil EAG, Elhassan AM, Zijlstra EE, Osman OF, Eljack IA, Ibrahim ME, Mukhtar MM, Ghalib HW & Modabbers F. (2000). Safety and immunogenicity of an autoclaved *Leishmania major* vaccine. *East Afr Med J.* 77(9):468-70.
129. Khalil EAG, Elsiddig, KE, Elsaifi MEMO, El-Hag, Elkhidir IM, Suleiman G, Hussein AM, Ibrahim ME. & Elhassan A.M (2000). Supra-sternal tuberculous abscess: a report of three cases; *Medicine and Hygiene* 94:1-3
130. Kheir MM, Baraka OZ, el-Tom IA, Mukhtar MM & Homieda MM. (2000). Effects of single-dose praziquantel on morbidity and mortality resulting from intestinal schistosomiasis. *East Mediterr Health J.* 6(5-6):926-31.
131. Kheir MM, Baraka OZ, el-Tom IA, Mukhtar MM & Homieda MM. (2000). Effects of single-dose praziquantel on morbidity and mortality resulting from intestinal schistosomiasis. *East Mediterr Health J.* 6(5-6):926-31.
132. Mukhtar MM, Sharief AH, el Saffi SH, Harith AE, Higazzi TB, Adam AM & Abdalla HS. Detection of antibodies to *Leishmania donovani* in animals in a kala-azar endemic region in eastern Sudan: a preliminary report. *Trans R Soc Trop Med Hyg.* 2000 Jan-Feb;94(1):33-6.
133. Suliman IA, Adem A, El-Bakri N, Elhassan AM & Lindgren JU. (2000). Intracerebroventricular met-enkephalin administration modulates adjuvant arthritis. *Brain Res.* 2000 Oct 6;879(1-2):23-8.
134. Timoney JF, Mukhtar MM, Underhill PA, Shen P, Lin A, Passarino G, Yang WH, Kauffman E, Bonne-Tamir B, Bertranpetit J, Francalacci P, Ibrahim M, Jenkins T, Kidd JR, Mehdi SQ, Seielstad MT, Wells RS, Piazza A, Davis RW, Feldman MW, Cavalli-Sforza LL & Oefner PJ. (2000). Y chromosome sequence variation and the

history of human populations. *Nature Genet.* 26:358-361

135. Zijlstra EE, Khalil EAG, Kager PA & El-Hassan AM. (2000). Post-kala-azar dermal leishmaniasis in the Sudan: clinical presentation and differential diagnosis. *Br J Dermatol.* 143(1):136-43.

1999:

136. Ahmed AO, Mukhtar MM, Kools-Sijmons M, Fahal AH, de Hoog S, van den Ende BG, Zijlstra EE, Verbrugh H, Abugroun ES, Elhassan AM & van Belkum A. (1999). Development of a species-specific PCR-restriction fragment length polymorphism analysis procedure for identification of *Madurella mycetomatis*. *J Clin Microbiol.* 37(10):3175-8.
137. Ibrahim ME, Lambson B, Yousif AO, Deifalla NS, Alnaiem DA, Ismail A, Yousif H, Ghalib HW, Khalil EAG, Kadaro A, Barker DC & El Hassan AM. (1999). Kala-azar in a high transmission focus: an ethnic and geographic dimension. *Am J Trop Med Hyg.* 61(6):941-4.
138. Fonjungo PN, Elhassan IM, Cavanagh DR, Theander TG, Hviid L, Roper C, Arnot DE & McBride JS. (1999). A longitudinal study of human antibody responses to *Plasmodium falciparum* rhoptry-associated protein 1 in a region of seasonal and unstable malaria transmission. *Infect Immun.* 67(6):2975-85.
139. Gaafar A, Veress B, Permin H, Kharazmi A, Theander T.G & El-Hassan AM. (1999). Characterization of the local and systemic Immune responses in patients with cutaneous leishmaniasis due to *Leishmania major*. *Clin. Immunol.* ; 91(3): 314-20.
140. Giha HA, Staalsoe T, Dodoo D, Elhassan IM, Roper C, Satti GM, Arnot DE, Hviid L & Theander TG. (1999). Overlapping antigenic repertoires of variant antigens expressed on the surface of erythrocytes infected by *Plasmodium falciparum*. *Parasitology.* 119 (Pt 1):7-17.
141. Giha HA, Staalsoe T, Dodoo D, Elhassan IM, Roper C, Satti GM, Arnot DE, Theander TG & Hviid L. (1999). Nine-year longitudinal study of antibodies to variant antigens on the surface of *Plasmodium falciparum*-infected erythrocytes. *Infect Immun.* 67(8):4092-8.
142. Ibrahim ME, Lambson B, Osman A, Daifalla N, Yousif H, Al Naeem DA, Khalil EAG, Kadaro A, Ghalib HW, Barker DC & El Hassan AM (1999) Kala-azar in transmission foci: An ethnic and geographical dimension.. *A m J Trop Med Hyg,*

61,941-944.

143. Khalil EAG, Elhassan L, Ismail A, Zijlstra EE & Elhassan AM. (1999). Leprosy in an endemic focus in the Sudan. *East African Medical Journal*; 76(11): 35-38.
144. Kharazmi A, Kemp K, Ismail A, Gasim S, Gaafar A, Kurtzhals JA, EL Hassan AM, Theander TG & Kemp M. (1999). T-cell Responses in human leishmaniasis. *Immunol. Lett.*; 65(1-2): 105-8.
145. Seielstad M, Bekele E, Ibrahim M, Toure A & Traore M. (1999). Y chromosome microsatellite diversity and a recent African origin modern human, *Genome Research*, 9,558-67

1998:

146. Cavanagh DR, Elhassan IM, Roper C, Robinson VJ, Giha H, Holder AA, Hviid L, Theander TG, Arnot DE & McBride JS. (1998). A longitudinal study of type-specific antibody responses to *Plasmodium falciparum* merozoite surface protein-1 in an area of unstable malaria in Sudan. *J Immunol.* 1; 161(1): 347-59.
147. El Hassan AM, Khalil EAG, El Sheikh EA, Zijlstra EE, Osman A & Ibrahim ME. (1998). Post kala-azar ocular leishmaniasis. *Trans R Soc Trop Med Hyg*, 92:177-179.
148. Fahal AH, El Hassan AM, Abdelalla AO & Sheik HE. (1998). Cystic mycetoma: an unusual clinical presentation of *Madurella mycetomatis* infection. *Trans R Soc Trop Med Hyg*, 92:66-67.
149. Gasim S, El Hassan AM, Khalil EAG, Ismail A, Kadaru AM, Kharazmi A & Theander TG. (1998). High levels of plasma IL-10 and expression of IL-10 by keratinocytes during visceral leishmaniasis predict subsequent development of post kala azar dermal leishmaniasis. *Ann. Exp. Immunol.* 111:64-69.
150. Giha HA, Theander TG, Staalso T, Roper C, Elhassan IM, Babiker H, Satti GM, Arnot DE & Hviid L. (1998). Seasonal variation in agglutination of *Plasmodium falciparum*-infected erythrocytes. *Am J Trop Med Hyg.* 58(4):399-405.
151. Khalil EAG, El Hassan AM, Zijlstra EE, Hashim FA, Ibrahim ME, Ghalib HW & Ali MS. (1998). Treatment of visceral leishmaniasis with sodium stibogluconate in Sudan: management of those who do not respond. *Ann Trop Med Parasitol.* 92(2):151-8.
152. Khalil EAG, Hasim FA, Ghalib HW, Zijlstra EE, El Hag IA, Satti M, Mustafa MD, Kordofani A, El-Safi S, Hag Ali M, Siddig A & El Hassan AM. (1998). A comparative study of Liposomal Amphotericin B (AmBisome) and sodium

- stibogluconate in the treatment of kala-azar in Sudan. *East African Med J*, 75(8): 37-45.
153. Mukhtar MM, Khier MM, Baraka OZ & Homeida MM. (1998). The burden of *Onchocerca volvulus* in Sudan. *Ann Trop Med Parasitol*. 92 Suppl 1:S129-31.
154. Oskam L, Pralong F, Zijlstra EE, Kroon CCM, Dedet JP, Kager PA, Schonian G, Ghalib HW & El Hassan AM Meredith SEO. (1998). Biochemical and molecular characterization of leishmania parasites isolated from an endemic focus in eastern Sudan. 92: 120-122.
155. Osman OF, Oskam L, Kroon NC, Schoone GJ, Khalil EAG, El-Hassan AM, Zijlstra EE & Kager PA. (1998). Use of PCR for diagnosis of post-kala-azar dermal leishmaniasis. *J Clin Microbiol*. 36(6): 1621-4.
156. Roper C, Richardson W, Elhassan IM, Giha H, Hviid L, Satti GM, Theander TG, & Arnot DE. (1998). Seasonal changes in the *Plasmodium falciparum* population in individuals and their relationship to clinical malaria: a longitudinal study in a Sudanese village. *Parasitology*. 116 (Pt 6): 501-10.
157. Saeed AM, Khalil EAG, Hashim FA, Elhassan AM, Fandrey J & Jelkmann W. (1998). Serum erythropoietin concentration in anaemia of visceral leishmaniasis (kala-azar) before and during antimonial therapy. *Br J Haematol*, 100(4): 720-4.
158. Staalso T, Khalil EA, Elhassan IM, Zijlstra EE, Elhassan AM, Giha HA, Theander TG & Jakobsen PH. (1998). Antibody reactivity to conserved linear epitopes of *Plasmodium falciparum* erythrocyte membrane Protein 1 (PfEMP1). *Immunology letters*, 60:121- 126.
159. Yagi, HI, Fahal AH, Gadir AEA & El Hassan AM. (1998). Mycetoma of the Mastoid bone. *Trans R Soc Trop Med Hyg*, 92:68.
160. Zijlstra EE, Daifalla NS, Kager PA, Khalil EA, El-Hassan AM, Reed SG & Ghalib HW. (1998). rK39 enzyme-linked immunosorbent assay for diagnosis of *Leishmania donovani* infection. *Clin Diagn Lab Immunol*. (5):717-20.

1997:

161. Andresen K, Gasim S, Elhassan AM, Khalil EA, Barker DC, Theander TG & Kharazmi A. (1997). Diagnosis of visceral leishmaniasis by the polymerase chain reaction using blood, bone marrow and lymph node samples from patients from the Sudan.

- Trop Med Int Health. 2(5):440-4.
162. Aradaib IE, Mohamed FH, Kmukhtar M, Ghalib HW & Osburn BI. (1997). Serodiagnosis and topotyping of Sudanese and United States of Epizootic hemorrhagic disease virus using polymerase chain reaction. *Comp. Immunol. Microbiol. Infect. Dis.* 211-218.
163. El Hassan AM & El Hassan LA. (1997). Recent advances in visceral leishmaniasis. *Alpa Adna Microbiology Journal.* 6(102): 23-33.
164. Fahal AH, El Hag IA, Gadir AFA, El Lider A, Lider AR, ElHassan AM, Barka OZ, Gumaa SA & Mahoub ES. (1997). The blood supply in mycetoma. *J. Med. & Vet. Mycology,* 35: 101-6.
165. Fahal AH, Sheikh HE, ElLidir MA, Homeida MA, El Arabi YE & Mahgoub ES. (1997). Ultrasonic imagin in mycetoma. *British Journal of Surgery. Br. J. Surg .* 84(80): 1120-1122.
166. Ibrahim ME, Suliman A, Hashim FA, Khalil EAG, Evans DA , Kharazmi A & ELHassan AM. (1997). Oro-nasal leishmaniasis couosed by a parasite of an unused lisoenzyme profile. *American Journal of Tropical Medicine and Hygiene:*56:96-98.
167. Ismail A, Kharazmi A, Permin H & El Hassan AM. (1997). Detection and characterization of Leishmania in tissues of patients with post- kala-azar dermal leishmaniasis using a specific monoclonal antibody. *Trans. Roy. Soc. Trop. Med. Hyg.* 91(3): 283.
168. Osman OF, Kager PA, Zijlstra EE, El Hassan AM & Oskam L. (1997). Use of PCR on lymph node samples as test of cure of visceral leishmaniasis. *Ann. Trop. Med. parasitol.* 92:845-850.
169. Osman OF, Oskam L, Zijlstra EE, Kroon NMC, Schoon GJ, Khalil EAG, El Hassan AM & Kager PA. (1997). Evaluation of the polymerase chain reaction in the diagnosis of visceral leishmaniasis *Antimicrobial Agents and Chemother. J. Clin. Microbiol.* 32(10): 2454-7.
170. Zijlstra EE, Osman OF, Hofland HWC, Oskam L, Ghalib HW, El Hassan AM, Kager PA & Meredith SEO. (1997). The application of the direct agglutination test in the diagnosis of kala-zar under field conditions in the Sudan: a comparison between aqueos and free-dried antigens. *Trans. Roy. Soc. Trop. Med. Hyg.* 91: 671-673.

1996:

171. Andersen K, Ibrahim ME, Theander TG, Elhassan AM & Kharzmi A. (1996).

- Diversity among *Leishmania* isolates from the Sudan, isoenzyme heterogeneity of *L. donovani* versus heterogeneity of *L. major*. *Trans. Roy. Soc. Trop. Med. Hyg.* 90: 204-205.
172. Andresen K, Ibrahim ME, Theander TG & Kharazmi A (1996). Random amplified polymorphic DNA for the differentiation of *Leishmania donovani* isolates from Sudan. *Trans R Soc Trop Med Hyg*, 90,204-205.
173. Andresen K, Gaafar A, El-Hassan AM, Ismail A, Dafalla M, Theander TG & Kharazmi A. (1996). Evaluation of the polymerase chains reaction in the diagnosis of cutaneous leishmaniasis due to *leishmania major* a comparison with direct microscopy of smears and sections from lesions. *Trans-R-Soc-Trop-Med-Hyg.* 90(2): 133-5.
174. Bashier AH, Abdin I, Elhassan M, Sanhoury M & Ahmed ME. (1996). Solitary thyroid nodule in Khartoum. *East Afr Med J.* 73(10):694-6.
175. El Hag IA, Fahal AH & Khalil EAG. (1996). Fine Needle Aspiration cytology of Mycetoma. *Acta Cytologica.* 40(3): 461-464.
176. El Hassan A M, El Kadaru A Y, Khalil EAG & El Hassan M. M. (1996). The pathology of cutaneous leishmaniasis in the Sudan, a comparison with that in other geographical areas. *Ann. Trop. Med. Parasol.* 90 (5): 485.
177. El Hassan AM, Hashim FA & Khalil EAG. (1996). Neurologic manifestations of visceral leishmaniasis (Kala-azar). A review and presentation of new findings. *Lab. Medica*; 13:8-14.
178. Fahal AH, Ateig ME, Sulaiman SH, El Razig SA & Maghgoub ES. (1996). Lack of associations between ABO blood groups and Rh factor and tendency to develop mycetoma. *East African Medical Journal*, 11: 769 (letter).
179. Fahal, A. H., Sadig, M. & Razig, S. A. (1996). Blood types in mycetoma. *East Afr Med J.* 73 (11):771.
180. Fahal AH, Sharfi AR, Sheikh HE & El Hassan AM. (1996). Mycetoma: Uncommon Complication. *Trans. Roy. Soc. Trop. Med. Hyg.* 89: 550.
181. Fahal AH, Sharfi AR, Sheik HE, El-Hassan AM & Mahgoub ES. (1996). Internal fistula formation: an unusual complication of mycetoma. *Trans-R-Soc-Trop-Med-Hyg.* 90(5): 550-2.
182. Fahal AH, Sheikh HE & El Hassan AM. (1996). Pathological fracture in mycetoma. *Trans. Roy. Soc. Trop. Med Hyg.* 90; 90:675.
183. Fahal AH, Yagi HI & El Hassan AM. (1996). Mycetoma induced palatal deficiency and pharyngeal plexus dysfunction. *Trans. Roy. Soc. Trop. Med. Hyg.* 90:676.

184. Gaafar A, Ismail A, el Kadaro AY, Hashim E, Khalil EA & el Hassan AM. (1996). Necrotizing and suppurative lymphadenitis in *Leishmania* major infections. *Trop Med Int Health*. (2):243-50.
185. Ibrahim ME (1996) The changing face of leishmaniasis in Sudan: a molecular biology perspective. (Abstract) *Trans R Soc Trop Med Hyg*, 90.
186. Jensen AT, Gaafar A, Ismail A, Christensen CB, Kemp M, El Hassan AM, Kharazmi A & Theander TG. (1996). Serodiagnosis of cutaneous leishmaniasis assessment of enzyme-linked immunosorbent assay using a peptide sequence for gene B protein. *Am. J. Trop. Med. Hyg.* 55: 490-495.
187. Khalil EAG, Zijlstra EE, El hassan AM & Davidson RN. (1996). Failure of a combination of two antifungal drugs, terbinafine plus itraconazole, in Sudanese post Kala-azar dermal leishmaniasis. *Trans. R. Soc. Trop. Med. Hyg.* 90: 187-188.
188. Mohamed ARO, Fahal & Venge, V. (1996). Immunoglobulin and inflammatory markers profile in mycetoma. *East African Medical Journal*. 73(4): 212.
189. Obeid, A.I., Bagadi, H.O. & Mukhtar, M. (1996). Mastitis in *Camelus* 85romedaries and the somatic cell content of camels' milk. *Res. Vet. Sci.* 61(1): 55-58.
190. Mohammed ME, Aradaib IE, Mukhtar MM, Ghalib HW, Riemann HP, Oyejide A & Osburn BI. (1996). Application of molecular biological techniques for detection of epizootic hemorrhagic disease virus (EHDV-318) recovered from a sentinel calf in central Sudan. *Vet Microbiol.* 52(3-4):201-8.
191. Obied AI, Bagadi HO & Mukhtar MM. (1999). Mastitis in *Camelus* 85romedaries and the somatic cell content of camels' milk. *Res Vet Sci.* 61(1):55-8.
192. Roper C, Elhassan IM, Hviid L, Giha H, Richardson W, Babiker H, Satti GM, Theander TG & Arnot DE. (1996). Detection of very low level *Plasmodium falciparum* infections using the nested polymerase chain reaction and a reassessment of the epidemiology of unstable malaria in Sudan. *Am J Trop Med Hyg.* 54(4):325-31.
193. Yagi H, El Bahari S, Mohamed HA, Sid Ahmed E, Mustafa B, Mahmoud M, Saad M B, Sulaiman SM & El Hassan AM. (1996). The Marrara syndrome: a hypersensitivity reaction of the upper respiratory tract and buccopharyngeal mucosa to nymphs of *Linguata serrata*. *Acta Tropica*, 62: 127.

1995:

194. Ahmed AI, Gadir AFA, Hashim FA, El kadaro AY, Zijlstra EE & El Hassan AM.

- (1995). Clinical features and pathology of post-kala-azar dermal leishmaniasis (PKDL) in the Sudan. *Sud. Med. J.*, 33: 7-12.
195. El Hassan AM, Meredith SEO, Yagi HI, Khalil EAG, Ghalib HW, Abbas K, Zijlstra EE, Kroon CCM, Schoon GJ & Ismail A. (1995). Sudan mucosal leishmaniasis: Epidemiology, clinical features, diagnosis, immune response and treatment. *Trans. Roy. Soc. Trop Med Hyg.* 89: 647-652.
196. El Hassan AM, Zijlstra EE, Ismail A & Ghalib HW. (1995). Recent observations on the epidemiology of kala-azar in the eastern and central states of the Sudan. *Trop Geogr. Med.* 47: 151.
197. El Hassan AM, El Toum IA & Batoul MA Elasha. (1995). The marrara syndrome: isolation of *Linguatula serrata* from a patient and viscera of goats. *Trans. Roy. Soc. Trop. Med. Hyg.* 85:309.
198. El Hassan, A.M., Zijlstra, E.E., Khalil, E.A.G., Ghalib, H.W. & Ismail, A. (1995). The spectrum of *Leishmania donovani* infection in Salala village, Gedaref State A longitudinal study. *Sud. Med. J.*, 33:63-66.
199. El Hassan AM, Gaafar A & Theander TG. (1995). Antigen-presenting cells in human cutaneous leishmaniasis due to *Leishmania major*. *Clin Exp Immunol.* 99(3):445-53
200. El Hassan AM, Lindgren JU, Hultenby K, Bergstrom J, Adem A. el-Hassan AM, Meredith SE, Yagi HI, Khalil EAG, Ghalib HW, Abbas K, Zijlstra EE, Kroon CC, Schoone GJ & Ismail A. Sudanese mucosal leishmaniasis: epidemiology, clinical features, diagnosis, immune responses and treatment. *Trans R Soc Trop Med Hyg.* 1995 Nov-Dec;89(6):647-52.
201. El Hassan IM, Hviid L, Jakobsen PH, Giha H, Satti GM, Arnot DE, Jensen JB & Theander TG. High proportion of subclinical *Plasmodium falciparum* infections in an area of seasonal and unstable malaria in Sudan. *Am J Trop Med Hyg.* 53(1):78-83.
202. Fahal AH, El Razig SA, Sulaiman SH, Ibrahim SZ & Tigani AE. (1995). Gastrointestinal tract cancer in association with hepatitis and HIV infection. *East African Medical Journal*, 72 (7): 424.
203. Fahal AH, El Toum EA, Gumaa SA. Mahgoub E S & El Hassan AM. (1995). Host tissue reaction to *Madurella mycetomatis*: New classification. *J. Med. Vet. Mycol.* 33:103-106.
204. Fahal AH, Omer, S.M., El Razig, S.A., Mahdi, E.M.A. & Mahgoub, E. S. (1995). Thyroid Function in mycetoma patients. *East. Afr. Med. J.* 72 (7): 6-48.
205. Fahal AH, Sulaiman SH, Aziz KAA, Gumaa SA & Mahgoub ES. (1995). Dual

- infection with mycetoma and tuberculosis, *East. Afr. Med. J.*, 72: 62- 63.
206. Gaafar A, El Kadarow AY, Theander TG, Permin H, Ismael A, Kharazmi A & El Hassan AM. (1995). The pathology of cutaneous leishmaniasis due to *Leishmania major* in the Sudan. A comparison of two histological methods of classification of the lesion. *Am. J. Trop. Med. Hyg.* 52: 438- 442.
207. Gaafar A, Ismail A, Kadarow AY, Hashim F, Khalil EAG & El Hassan AM. (1995). Necrotizing and suppurative lymphadenitis in *Leishmania major* infection. *J. Trop Med Internal Health.* 1(2): 243-250.
208. Gaafar A, Moller T, Kharazmi A, Theander TG & Kemp M. (1995). T-cell subsets in leishmaniasis. *Sud. Med. J.*, 33: 45-54.
209. Ghalib HW, Whittle JA, Kubin M, Hashim FA, El Hassan AM, Grabstein KH, Trinchier G & Reed SG. (1995). IL-12 enhances Th1 type responses in human *Leishmania donovani* infections. *J. Immunol.* 154: 4623-4629.
210. Hashim FA, Khalil EAG, Ismail A & El Hassan AM. (1995). Apparently successful treatment of two cases of post kala-azar dermal leishmaniasis with liposomal amphotericin B. *Trans R Soc Trop Med Hyg.* 89(4):440.
211. Hashim FA, Ahmed AE, El Hassan AM, El Mubarak MH, Ibrahim ME, Yagi H & Ali MS. (1995). Neurological changes in visceral leishmaniasis. *Am. J. Trop. Med. Hyg.* 52:149-154.
212. Ibrahim, ME, Evans DA, Theander TG, El Hassan AM & Kharazmi A. (1995). Diversity among *Leishmania* isolates from the Sudan: isoenzyme homogeneity of *L. donovani* versus heterogeneity of *L. major*. *Trans. Roy. Soc. Trop. Med. Hyg.* 89:366-369.
213. Mohamed NK, Hammad ME & Mukhtar MM. (1995). Chemotactic and phagocytic response of sheep polymorphonuclear neutrophils to *Staphylococcus aureus* subsp. *On airobius*. *Egyptian J. of Vet. Med.*, 3: 31.
214. Van der Poll, T, Zijlstra EE & Mevissen M. (1995) Interleukin-6 during active visceral leishmaniasis and after treatment. *Clin Immunol. Immunopath.* 77(1): 111-114.
215. Zijlstra EE, El Hassan AM & Ismail A. (1995). Endemic Kala-azar in eastern Sudan Post-Kala-azar dermal leishmaniasis. *Am. Trop. Med. Hyg.* 52: 299.
216. Zijlstra EE, El Hassan AM, Ghalib HW & Ismail A. (1995). Endemic Kala-azar in eastern Sudan: A longitudinal study on the incidence of clinical and sub-clinical

- disease and post-Kala-azar dermal leishmaniasis *Am Trop Med Hyg*, 52: 299.
217. Zijlstra EE, Van der Poll T & Mevissen M. (1995). Soluble tumour necrosis factor receptors as markers for disease activity in visceral leishmaniasis *Journal of Infectious Diseases* 171: 498-501.

1994:

218. Agabani HM, Hag IA, Satti & El Hassan AM. (1994). Fluorescence Microscopy using a light microscope fitted with an interface filter for the diagnosis of Malaria. *Trans. Roy. Trop. Med Hyg.* 88:61.
219. Bashir M, Bickle O, Boushara H, Cook L, Fuhui S, He D, Huggis M, Lin J, Malik K., Moloney A, Mukhtar M, Ye P, Xu S, Taylor M & Shi Y. (1994). Evaluation of defined vaccine against *S. bovis* and *S. japonicum* in bovines. *Trop. Geogr. Med.*, 46:255-58.
220. El Hag IA, Hashim FA, El Toum IA, Homeida M, ElKhalifa M & El Hassan AM. (1994). Liver morphology and function in visceral leishmaniasis (kala-zar). *J. Clin. pathol.*, 47:547.
221. El Hassan AM, Gaafar A & Theander TG. (1994). Antigen presenting cells in human cutaneous leishmaniasis due to *leishmania major*. *Clin. Exp. Immunol.*, 52: 445-453.
222. El Hassan AM, Yagi HI, Zijlstra EE & El Kadrow AY. (1994). Leishmaniasis of the nose caused by different species of *Leishmania* in the Sudan. Distinguishing features of the different clinical forms. *Trop. Med*, 64: 33.
223. El Hassan, AM, Fahl AH, El Hag IA & Khalil EAG. (1994). The pathology of mycetoma: Light microscopy and ultra-structural features. *Sud. Med. J.*, 23-45.
224. Fahl AH & Suliman SH. (1994). Clinical presentation of mycetoma. *Sud. Med. J.*, 32:98-104.
225. Fahl AH, El Toum EA, Gumaa SA, Mahgoub ES & El Hassan AM. (1994). A preliminary study on the ultra-structure of *Actionmadura pelletieri* and its host tissue reaction. *J. Med. & Vet. Mycology.* 32:343-384.
226. Fahl AH, Suliman SH, Gadir AFA, El Hag IA, El Ami, FI, Gumaa SA & Mahgoub ES. (1994). Abdominal wall mycetoma: Unusual presentation. *Trans. Roy. Soc. Trop. Med. Hyg.* 88:78.
227. Gaafar A, Kharazmi A, Ismail A, Kemp M, Hey A, Christensen CBV, Dafaalla M, El Kadaro AY, El Hassan AM & Theander T. (1994). Dichotomy of the T-cell response to *Leishmania* antigens in patients suffering from cutaneous leishmaniasis. Absence or

scarcity of Th I activity is associated with server infections. *Clin. Exp. Immunol.*, 100:239.

228. Gaffar A, Fadl, A, El kdarow AI, El Hassan MM, Kemp M, Ismael AIA, Morgos AA & El Hassan AM. (1994). Sporotrichoid cutaneous leishmaniasis due to leishmania major of different zymodemes in the Sudan and Saudi Arabia: A comparative study. *Trans. Roy. Soc. Trop. Med. Hyg.*, 88: 552.
229. Hashim FA & El Hassan AM. (1994). Tinea versicolor infection in patients with visceral leishmaniasis. *Int. J. Dermatol.* 33(4): 258-9.
230. Hashim FA, Ali MS, Satti M, El Hassan AM, Ghalib HW, El Safi S & El Hag I. (1994). An outbreak of acute kala-azar in a nomadic tribe in western Sudan: features of the disease in a previously non-immune population. *Trans. Roy. Soc. Trop. Med. Hyg.*, 88: 431.
231. Ibrahim ME, Hag Ali M, El Hassan AM, Theander TG & Kharazmi A. (1994). Leishmania resistant to Sodium stibogluconate drug-associated macrophage-dependent killing. *Parasitol. Res.*, 80: 569.
232. Ibrahim ME, Smyth AJ, Ali MH, Barker DC & Kharazmi A. (1994). The polymerase chain reaction can reveal the occurrence of naturally mixed infections with leishmania parasites. *Acta Tropica*, 327-332.
233. Jakobsen PH, Morris-Jones S, Ronn A, Hviid L, Theander TG, Elhassan IM, Bygbjerg IC & Greenwood BM. (1994). Increased plasma concentrations of sICAM-1, sVCAM-1 and sELAM-1 in patients with Plasmodium falciparum or P. vivax malaria and association with disease severity. *Immunology.* 83(4):665-9.
234. Kemp, M., Hey, A. S., Christensen, C. B. V., Kurtzhal, J. A. L., Gaafar, A., Mustafa, M. D., Kordofani, A. A.Y., Ismail, A. Kharazmi, A. & Theander, T. G. (1994). Dichotomy of the human T-cell response to leishmania antigen. I. Th I-like response to leishmania major promastigotes in individuals who have recovered from cutaneous leishmaniasis. *Clin. Exp. Immunol.* 96: 410.
235. Seielsted MT, Harbet JM, Lin AA, Underhill P, Ibrahim ME, Vollarth & Cavalli-Sforza LL. (1994). Constructing the Y-chromosomal haplotypes using new polymorphic A to G transition. *Human Molecular Genetics*, 3 (12): 2159-2161.
236. Hashim FA & Elhassan AM. Tinea versicolor and visceral leishmaniasis. *Int J Dermatol.* 1994 Apr;33(4):258-9.

1993:

- 237.El Hassan AM, Hassan FA, Abdallah M, Zijlstra EE & Ghalib HW (1993). Distinguishing post-kala-azar dermal leishmaniasis from leprosy: in the Sudan. *Lepr. Rev.*, 64:53.
- 238.El Hassan AM, Hasssan FA, Sidding AM, Ghalib HW & Zijlstra EE (1993). Kalazar in western Upper Nile in the southern Sudan and its spread to a nomadic tribe from the North. *Trans. Roy. Soc. Trop. Med Hyg.*, 87:395.
- 239.El Hassan AM, Zijlstra EE, Meredith SEO & Ismail A (1993). Identification of *Leishmania donovani* using a Polymerase Chain Reaction in patient and animal material obtained from an area of endemic Kalazar in Sudan. *Acta. Trop.* 55:87.
- 240.Elhassan IM, Satti GH, Ali AE, Fadul I, Elkhalifa AA, Abedelrahim AM, Ming C & Theander TG (1993). The efficacy of artemether in the treatment of *Plasmodium falciparum* malaria in Sudan. *Trans R Soc Trop Med Hyg.* 87(6):685-6.
- 241.Fahal AH, EL Hag IAM & Hashim FA (1993). *Leishmania cholecystitis* and colitis in a patient with visceral leishmaniasis. *Trans. Roy. Soc. Trop. Med. Hyg.* 89:184.
- 242.Ghalib HW, Piuvezam MR, Skeily YAA, Sidding M, Hashim FA, El Hashim AM, Russo DM & Reed SG (1993). Interleukin 10 production correlates with pathaology in human leishmania donovani infections. *J. Clin Invest*, 92: 324.
- 243.Hviid L, Elhassan IM, Dodoo D, Jensen JB, Bygbjerg IC, Satti GM, Theander TG. Hviid L, Theander TG, Elhassan IM & Jensen JB (1993). Increased plasma levels of soluble ICAM-1 and ELAM-1 (E-selectin) during acute *Plasmodium falciparum* malaria. *Immunol Lett.* 36(1):51-8.
- 244.Kadaru AY, Ghalib HW, Ali MS, El Toum IA, Ismail A, Gaafar A, Kemp M, Kordofani AAY, Reed SG, El Hassan AM, Kharazmi A, Hag Ali M & Mustafa MD (1993). Prevalence of cutaneous leishmaniasis a long the Nile River North of Khartoum (Sudan) in the aftermath of an epidemic in 1985. *Am. J. Trop. Med. Hyg.* 48 (1):44.
- 245.Meredith SEO, Zijlstra EE, Schoon GJ, Kroon CCM, van Eys GJJM, Scheaffer KU, El Hassan AM & Lawyer PG (1993). Development of the polymerase Chain Reaction for the detection and identification of leishmania parasites, and the application of the PCR for detection of parasites in clinical material. *Arch. Pasteur Tunis*, 70(3-4):419.
- 246.Zijlsra EE, Sidding AM, El Hassan AM, Hofland HW, El Toum IA, Satti M & Ghalib HW (1993). The treatment of Kala-zar with sodium stibogluconate in the Sudan: a randomized trial of three dosage regimens. *Trans. Roy. Soc. Trop. Med.*

Hyg., 87: 307.

247. Zijlstra EE & El Hassan AM (1993). Leishmanin and tuberculin sensitivity in leishmaniasis in the Sudan, with special reference to Kala-azar. *Trans. Roy. Soc. Trop. Med. Hyg.* 87:425.

248. Zijlstra EE, Ali MS, El Toum I, Satti M, Ghalib HW & Kager PA (1993). Spleen puncture for the diagnosis of visceral Leishmaniasis: A reply. *Correspondence. Trans. Roy. Trop. Med Hyg.*, 87:607.

1992:

249. Elhassan AM, Ali MS, Zijlstra E, Eltoum IA, Ghalib HW & Ahmed HM (1992). Post-kala-azar dermal leishmaniasis in the Sudan: peripheral neural involvement. *Int J Dermatol.* 31(6):400-3.

Books:

M E Ibrahim and AM Elhassan "Sudan" Pocket Guide to Cultural Health Assessment, third edition Edited By Carolyn E. D'Avanzo, RN, DNSc. Elsevier.

Translations: M E Ibrahim: *The Great Human Dispaoras, The history of human genetic diversity and evolution*, By LL.Cavalli-Sforza (to Arabic)

El Hassan, A.M. & Modabber, F. *Pathology of visceral leishmaniasis in man and experimental animals in: visceral leishmaniasis.* H.G. Gilles (editor) 1999.

EL Hassan, A.M. *The impact of endemic diseases on health and development*, Khartoum University Press, 1995.

EL Hassan AM, M E Ibrahim. *Cultural health assessment.* Pp 724-731 Mosby, St. Louis, USA, C E Erickson and E M Cessler (editors) 2003.



**Institute Of Endemic Diseases
University Of Khartoum**



*Professor Elhassan Centre for Tropical Diseases,
Dooka, Gedarif State, Sudan*