PROFESSOR MOHAMED AHMED IDRIS MOHAMED IBRAHIM

B.Sc. Honours, Ph.D.
Professor of Medical Parasitology

Consultant Professor (Feb 2021 - June 2023)
Professor (Jan 1997 - Jan 2021)
Department of Microbiology & Immunology
College of Medicine and Health Sciences (CMHS)
Sultan Qaboos University (SQU)
Muscat, Sultanate of Oman

1. PERSONAL DATA

Nationality		Sudanese
Place of Birth	:	Abu Hugar, Sudan
Languages	:	Arabic and English
Marital Status	:	Married, 3 children
Current Position	:	171 Avalon Cove Circle, NW, Rochester, MN,55901
	:	
Telephones		+1(507)316-3686 (Mobile) +1(507)269-4017 (Residence)
E-mail		moaidris52@gmail.com

2. EDUCATION

1964 - 1968	Sennar Secondary School, Sudan
1968 - 1973	Faculty of Science, University of Khartoum

3. QUALIFICATIONS

1968	Sudan School Certificate, *Grade I*
1972	B.Sc. General (Chemistry and Zoology) *with merit in Zoology*
1973	B.Sc. Honours (Zoology) *with University Prize for the Best student*

1979 PhD (Parasitology). *Originally I was registered for M Sc at the Graduate College, University of Khartoum, but after a three month's study visit to the Department of Medical Helminthology, London School of Hygiene and Tropical Medicine, University of London and the Commonwealth Institute of Parasitology, St. Albans, England, I was advised to change registration and proceed for PhD, on the basis of originality and relevance of study to Sudan.*

STUDY VISITS, TRAINING AND COLLABORATION

* Sept 1981 to Feb 1983 - Postdoctoral award from the International Atomic Energy Agency (IAEA) at the Allergy and Immunology Section, Department of Medicine, University of Pennsylvania, Philadelphia, USA.

* Aug 1981 - Award from the IAEA for a study visit to the Center D'Immunologue et de Biologie Parasitoire, Institut Pasteur, Lille, France

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* Department of Medical Helminthology, London School of Hygiene and Tropical Medicine

* Commonwealth Institute of Parasitology, St Albanas, England

* 1986 to 2012 collaborative researcher on parasitic infections with Prof. Andreas Ruppel, Institute of Tropical Hygiene, University of Hiedelberg, Germany.

* 1999 to 2022 collaborative researcher on the ecology of schistosomiasis mansoni transmitting snails with Dr. H Mone and Dr. G. Mouahid, Centre de Biologie et d'Ecologie Tropicale et Méditerranéenne, University of Perpignan, France.

- **EMPLOYMENT RECORD**

Feb 2021 to June2023 Consultant Professor Department of Microbiology and Immunology, CMHS, SQU

Sept 2013 to Jan 2021 Professor Department of Microbiology and Immunology, CMHS, SQU

Sept 2008 to Aug 2013 Head Department of Microbiology and Immunology, CMHS, SQU

Sept 2006 to Aug 2008 Assistant Dean for Postgraduate studies and Research, CMHS, SQU

June 2002 to Jan 2021	Professor of Parasitology, Department of Microbiology & Immunology, CMHS, SQU
Jan 1997 to May 2002	Associate Professor Department of Microbiology & Immunology, College of Medicine & Health Sciences (CMHS), SQU
Oct 1990 to Dec 1996	Associate Professor Department of Biology, College of Science, ,SQU
Aug 1987 to Sept 1990	Assistant Professor College of Science, Department of Biology, Sultan Qaboos University (SQU), Muscat, Oman
Jul 1988 to Aug 1992	Associate Professor College of Science, Department of Zoology, University of Khartoum (on Secondment to Sultan Qaboos University)
Dec 1979 to Jun 1988	Lecturer College of Science, Department of Zoology, University of Khartoum, Sudan
Aug 1973 to Nov 1979	Teaching Assistant College of Science, Department of Zoology, University of Khartoum, Sudan

5. 1. TEACHING EXPERIENCE WHILE AT KHARTOUM UNIVERSITY

- **In the University of Khartoum (1973-1987)**

	Course	Class	Department/Faculty
1.	PZ1 (Acoelomates)	1st year	Zoology, Science
2.	PZ2 (Coelomates)	1st year	Zoology, Science
3.	PZ3 (Comp. Anatomy Vert.)	1st year	Zoology, Science
4.	PZ4 (Outlines of Cell Biology)	1st year	Biology, Education
5.	PZ5 (Agricultural Zoology)	Hons. P1	Crop Protection, Agr
6.	H1Z14 (Parasitology)	B Sc (Gen.) & B Sc (Honours1)	Zoology, Science
	H1Z14 (Parasitology)	B Sc (Education.)	Biology, Education
7.	H1IZ27 (Parasitology)	B Sc (Honours II)	Zoology, Science
8.	Medical Helminthology	M Sc (Medical Entomology.)	Zoology, Science

B. Outside University of Khartoum (1978-1981)

1.	Zoology (Parasitology)	1st year	Ahfad Univ. College
2.	Protozoa, Acoelomates and Pseudocoelomates	1st year	Military College
3.	Fish Biology	2nd year	Fish Training Inst.

5. 2. COURSES TAUGHT AT SULTAN QABOOS UNIVERSITY

A. College of Science - Biology Department (1987-1996)

Organizer and principal lecturer of BIOL5402	Immunology
Organizer and principal lecturer of BIOL4042	Parasitology
Organizer and principal lecturer of BIOL3020	Invertebrates I
Participant lecturer in 5 BIOL321	Invertebrate Zoology
Participant lecturer in 5 BIOL441	Microbiology
Coordinator and lecturer of FSC	Biology Foundation Course
Lecturer of BIOL1000	Introductory Biology

B. College of Medicine - Microbiology & Immunology Department (1997-2023)

i. B.Sc. Medical laboratory Science

Coordinator	MICR 5010 Research Project
Coordinator and principal lecturer	MICR 5006 Parasitology
Participant lecturer	MICR 5005 Serology
Participant lecturer	MICR 4001 Microbiology

ii. B.Sc. Health Science

Coordinator and participant lecturer	MICR 2036 Microbiology
Participant lecturer	MICR 2031 Immunology

iii. M. D. Programme

Participant instructor Infectious diseases	Integrated lecture series

iv. Postgraduates

Participant instructor	Postgraduates in Pathology
Participant instructor	Postgraduates in Microbiology
Participant instructor	Diploma in Tropical Medicine

v. M. SC. Microbiology

Coordinator and principal lecturer	MICR 6003 Medical Parasitology

6. ADMINISTRATIVE EXPERIENCE

A. Department of Zoology, University of Khartoum (1983-1987)

19831985	Secretary, Zoology Departmental Board
19841985	Examination Secretary, Department of Zoology
19841985	Budget Secretary, Department of Zoology
19861987	Examination Secretary, Department of Zoology
1986-2016	Established a link with Institute of Tropical Hygiene, University of Heidelberg, Germany

B. Departmeent of Biology, Sultan Qaboos University (SQU) (1987-1996)

- Member, Biology Curricular Committee
- Member, Biology Appointments Committee
- Department representative in the University Animal House Committee
- Member, Biology Stores Committee
- Member, Electron Microscope Users Committee
- Member, student Research Projects /evaluation Panel
- Organizer, Biology Seminars 1988 to 1995

C. College of Science, SQU (1987-1996)

	- Assistant Academic Advisor for 1st year programmes
	- Represented College in the University Health & Safety Committee
	- Department representative in the Inter-college Course Committee
	- Department representative in the Foundation Science Steering Committee
	- Department representative in the College of Science Health & Safety Subcommittee
	- Member, External Relations Committee

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D.	**Microbiology and Immunology, College of Medicine, SQU (Jan 1997- June 2023)**
	- Coordinator, Departmental Postgraduate programs - Chairman, Departmental Academic Committee - Chairman Research Committee - Coordinator M.Sc. program in Medical Microbiology
	- Microbiology and Immunology Senior Staff Meeting
	- Microbiology and Immunology Coordinator for Med Lab Science B.Sc. program
	- B Sc Preclinical Examination Committee
	- Technician Training Sub-committee
	- Organizer, Microbiology and Immunology Journal Club

E. College of Medicine (from 1997)

- Member, Biomedical Sciences program sub-committee
- Chairman, Medical Library Committee
- Member, College Recruitment Committee
- Member, Medical Advisory Committee (MAC)
- Assistant Dean for Postgraduate studies and research
- Chairman, Medical Library Committee
- Chairman, Panel for Distinguished Teaching Award
- Chairman, Panel for Distinguished Researcher Award
- Member, Main Library Executive Committee
- Member, College Academic Promotion Committee
- Member, College Board
- Member, B.Sc. Health Science Program Committee
- Member, Board of Studies of Medical Laboratory Science program

F. SQU Committees

- Chairman, Academic Promotion Appeal Committee 2019/2020
- Chairman, Committee for Assessment of Major Equipment for Development of Applied Science and Technology Incubator 2014
- Member, Committee for Development of Applied Science and Technology Incubator 2014
- Chairman, Faculty Club Committee, 2011-2013
- Member, University Committee to Develop SQU Strategic Plan for Research 2008
- Member, University Academic Promotion Grievance Committee (2006, 2007, 2018)
- College representative, University Academic Policy Committee
- College representative, University By-laws Committee

7. HONOURS AND AWARDS

Khartoum University B. Sc. (General) *with Merit,1972*
Khartoum University B. Sc. (Honours) *with University Prize for the best student,1973*
Khartoum University PhD (Parasitology), 1979.

Aug 1981 - Award from the International Atomic Energy Agency (IAEA) for a study visit to the Center D'Immunologue et de Biologie Parasitoire, Institut Pasteur, Lille, France.

Sept 1981 to Feb 1983 - Postdoctoral award from IAEA at the Allergy and Immunology Section, Department of Medicine, University of Pennsylvania, Philadelphia, USA.

Jan 1985 - Award from Khartoum University and the Bulgarian Academy of Science to participate in ICRO/UNESCO Course on gene transfer in Higher Eukaryotes, Sofia, Bulgaria.

Jun 1985 - Award from Khartoum University and the Sudan National Council for Research for participation in the 7th International Congress on Protozoology, Nairobi, Kenya.

Jul/Aug 1986 - Partial support from Sudan National Council for Research for participation in the 3rd International training Course on the Identification of Helminth Parasites of Economic Importance, St. Albans, England.

Sep/Nov 1986 - Invited scientist by Deutscher Akademischer Austausch Dienst (DAAD) for collaborative research, University of Heidelberg, Germany.
Jun/Jul 1987 - Invited scientist, University of Heidelberg, Germany.

Mar/Apr 1988 - invited scientist, University of Heidelberg, Germany.

Jul/Aug 1989, 1990 & 1992 - invited scientist DAAD Award, University of Heidelberg, Germany.

Jul/Aug 1991 & 1993 - invited scientist, University of Heidelberg, Germany.

Jun/ Jul 1996 - invited scientist, University of Heidelberg, Germany.

Jul/Aug 1997 – invited scientist, University of Hiedelberg, Germany.

December 1998- invited scientist, University of Heidelberg, Germany.

Nov/ Dec 1999- invited scientist, DAAD Award, Universities of Hiedelberg, Giessen and Hohenhiem (Stuttgart), Germany.

June/July 2001- invited scientist, University of Perpignan, France

PROFESSIONAL ASSOCIATIONS

8.

Membership

American Society of Parasitologists
Helminthological Society of Washington
Sudanese Environmental Society
Founder member, Society of Sudanese Parasitologists
Editorial Board, SQU Journal of Science and Technology
Society for Vector Ecology
Advisory Board Sudan Medical Monitor (SMM)

9. SCHOLARLY ACTIVITIES INVOLVING SULTAN QABOOS UNIVERSITY

1988/90 - Collaborated with the Central Microbiology Laboratory, Department of Preventive Medicine, Ministry of Health. Initiated and conducted surveys of intestinal parasitic infections with follow up among primary school children in (i) Muscat (ii) Food handlers in Muscat (screened over 6000), and (iii) primary school children in Nizwa.

1989/90 - Cooperated with the Unit of Insects and Rodents Control, Department of Preventive Medicine, Ministry of Health and conducted a preliminary helminthological survey of parasites of zoonotic importance. The investigation included three species of rodents, namely: *Rattus rattus, R. norvegicus* and *Mus musculus*.

1990-Initiated a research link with Rumais Veterinary Investigations Laboratory to study parasites of veterinary importance in the Sultanate of Oman.

1992- Participated in appraisal training of Omani technicians at the Central Microbiology Laboratory, Department of Preventive Medicine, Ministry of Health.

Jan 1988 - Research visit to Sudan worked on serodiagnosis of schistosomiasis -
A joint research project with University of Heidelberg.

Mar/Apr 1988 - Invited scientist, Institute of Tropical Hygiene, University of Heidelberg, Germany.

Mar 1988 - Participated in the conference of the German Society of Parasitology, Neuchatel, Switzerland.
Jan 1989 - Research visit to Sudan for a WHO project "Serodiagnosis of schistosomiasis in the Sudan." With collaborators, Dr A Ruppel of University of Heidelberg, and Dr S M Sulaiman, Biharzia Research Unit, Sudan.

Jun 1989 - Research visit to Sudan for a WHO project.

Jul/Aug 1989 - Invited Scientist, Institute of Tropical Hygiene, University of Heidelberg, Germany.

Jan 1990 - Research visit to Sudan for a WHO project.

June1990- Consultation for Environmental Health, Ministry of Health, Sultanate of Oman.

Jul/Aug 1990 (i) invited scientists, Institute of Tropical Hygiene, University of Germany; (ii) worked on the identification of helminth parasites from rodents with Prof. B. Loos-Frank at the University of Hoenheim, Stuttgard, Germany.

Oct 1990 - Participated in meetings for leishmaniasis and rabies at Rumais Veterinary Investigations Laboratory, Ministry of Agriculture and Fisheries, Sultanate of Oman.

Nov. 1991 - Seminar on schistosomiasis "The vicious circle" with reference to Oman.

Jan/Apr 1991 - Participated in the meetings of Technical Committee for National Conservation Strategy (TCNCS), Ministry of Environment, Sultanate of Oman.

Jul/Aug 1991 - Invited scientist, University of Heidelberg, Germany.

Feb 1992 - Participated in Uro-Vision Symposium at Sur, organized by Sharqiya Health Services, Ministry of Health, Sultanate of Oman.

1990-1992 - Conducted studies on Khawrs in Dhofar with emphasis on snails and snail-transmitted diseases.

1989-1992 - Epidemiological and serological studies of schistosomiasis in Dhofar.

1990-1992 - Studies on seroprevalence of brucellosis, toxoplasmosis and rickettsial infections in 6 localities in Dhofar.

1991-1992 - Identified and substantiated a human hookworm infection problem in the green belt of Dhofar.

Sept 1992 - Invited by Ministry of Health and a group of WHO consultants to participate in a WHO consultancy on intestinal parasitic infections in the Sultanate.

Jan 1993 - Consultation for the Department of Surveillance and Disease Control Ministry of Health on "Food-borne trematode infections".

May 1993-1995 - Member of the "Task Force on intestinal parasitic infection control in Oman", Ministry of Health, Sultanate of Oman.

Jan 1995 - Gave a talk at the Department of Communicable Diseases, Ministry of Health on "Parasitic infections and disease with reference to Oman".

Jan 1996 - Workshop in "How to set biology practical exam." for secondary school teachers in the capital area, Ministry of Education.

Mar 1998- Research seminar "Schistosomiasis-with special reference to Oman'' *Forum for infection and Immunity*, College of Medicine, SQU.

Oct 1998- Participated in the "National Workshop on Leishmaniasis'' Institute of Health Science, Ministry of Health, Sultanate of Oman.

Oct 1998- Research seminar "Distribution and Prevalence of Intestinal Parasitic Infections in the Sultanate of Oman'' *Scraps and Research,* College of Medicine, SQU.

Sept/Oct 2002- Organizer "8th International Symposium on Schistosomiasis: Control of disease in areas with low transmission, 27th September 2nd October 2002".

December 2002. Member, Organizing Committee "3rd GCC Medical Education Conference, Muscat, Oman, 16th –18thDecember, 2002".

Feb/2009- Certificate Course in Health Professions, College of Medicine and Health Sciences, Sultan Qaboos University.

Feb/2009 - Workshop on Student Assessment, College of Medicine and Health Sciences, Sultan Qaboos University.

April/2009 – "Tick Identification" College of Agriculture and Marine Sciences, Sultan Qaboos University.

10. RESEARCH PROJECTS, GRANTS AND AWARDS

Recently, I'm a collaborator with scientists from Oman, France and America in two projects, with relevance to Oman, on schistosomiasis mansoni (one for three years and the second for five years).

2017-2022: "Genetic analysis of cercarial release in schistosomes". PIs: Anderson T.J., Institute of Health San Antonio, Texas, USA., Mone, H., Mouahid A.G., University of Perpignan, France. My role is coordinator and leader of the Omani team. Funded by the National Institute of Health, Grant # IR01A1133749-01. **Budget 127725 Euros**

2017-2020: "Genetics, epigenetics and transcriptomics of schistosomes chronobiology". PIs: Mone, H., Mouahid, A.G., University of Perpignan, France. Funded by the French National Agency for Research, Grant # ANR -17-CE12-0005-01, CHRONOGET. My role is coordinator and leader of the Omani team. **Budget 137700 Euros**

2014-2017: "The causation of autoimmune inflammatory arthritis and other autoimmune diseases by cellular stress - a genetic and biochemical study in Omani patients". PI: Al Balushi M, Hasson S, Said E, Koh C, Al-Shirawi A, **Idris MA**, Al Jabri A. Funded by The Research Council, Oman. **Budget R.O. 166,000**

2015-2016 Evaluation of the efficacy of *Phoenix dactylifera* L to neutralize local haemorrhage induced by clinically important snake species. (PI Sidgi S. Hasson, Lugainah Altobi, Ali A. Al-Jabri, Mohammed A. Idris. Funded by The Research Council, Oman. **Budget R.O. 5000**

2013-2015: "Ecology and evolution of interactions between human-adapted and rodent-adapted *Schistosoma mansoni* in Dhofar, Oman". PI: Mone H, Mouahid G**, Idris M A**, Allienne J, Boissier, J, Grunau C, Langard, J, Habbash, S, Kashoob, S, Al Yafae, S. Funded by the French Research Council (CNRS). My role is Coordinator and Leader of the Omani team. **Budget 61900 Euros**

2010: "HIV/AIDS in Oman: Awareness and attitudes of Omani pregnant women of HIV/AIDS". Funded by Sultan Qaboos University, **Grant O.R. 2500**. PI. Ali Al Jabri.

2006-2007: "Serological follow-up of schistosomiasis mansoni in Dhofar, Sultanate of Oman". Sultan Qaboos University, **Grant O.R. 8600.** PI: M.A. Idris.

2005-2008: "Molecular surveillance and genetic studies of endogenous and imported malaria in Oman". Funded by Sultan Qaboos University**, Grant O.R. 24500. PI:** Hamza Babiker.

2003: "Award" for MA Idris by WHO consisting of two Kato-Katz filter kits for the diagnosis and a box of 1000 Prazquantel tablets for treatment of schistosomiasis patients in Oman.

2002: "The antimicrobial effects of honey obtained from different parts of Oman. Funded by Sultan Qaboos University**, Grant O.R. 1000.** PI: Ali Al Jabri

2001-2003: "Epidemiology and prospects for control of schistosomiasis in Dhofar Governorate, Sultanate of Oman". Funded by Sultan Qaboos University, **Grant O.R. 11000.** PI: M.A. Idris.

2000: "Award" for MA Idris by WHO consisting of:

- Kato-Katz kits for diagnosis of intestinal schistosomiasis.
- Filters for diagnosis of urinary schistosomiasis.
- Bench Aids for routine diagnosis
- Training manual on diagnosis of intestinal parasites.

2001-2003: "Sustainable Networking for the control of schistosomiasis". Funded by German Academic Exchange Service (DAAD), **Budget D.M. 31800.** PI: A. Ruppel.

1996: "Award" for MA Idris by WHO for the diagnosis of Bancroftian Filariasis in Oman, consisting of:

- Diagnostic Kato-Katz Kits,
- Bench aids booklets
- Immuno-chromatic test kits

1995: "Award" for MA Idris the University of Heidelberg, Germany consisting of Diagnostic kits and small apparatus, **Grant D.M.5000.**

1993-1994: "Hookworms infections in Dhofar, Oman". Technical services agreement between Sultan Qaboos University and WHO, **Grant $10000.** PI: M. A. Idris

1989-1991: "Schistosomiasis in the Sudan". Funded by WHO, **Grant $27670.** PI: Dr. A. Ruppel.

1986: "Award" for MA Idris by University of Heidelberg, Germany, consisting of Electrophoresis and Western blotting apparatus and immuno-reagents.

1984-1985: "Vertebrate-pests control in the Sudan" Funded by University of Khartoum, **Grant 15000** Sudanese pounds, PI: MA Idris

A. Research interests

- Epidemiology and control of infectious diseases
- Development of diagnostic techniques

A. Postgraduate supervisor/co-supervisor

PhD

Co-supervisor- *Theileria lestoquardi* in Oman: genetic diversity; dynamics and identification of putative transmission-blocking antigen genes, Hoyam Awad Mahgoub Osman (Graduated March 2020).

Supervisor – Genetic diversity, drug resistance and transmission potential of imported *Plasmodium vivaxi* in an Arab Gulf country and areas of origin in East Africa and India, Mohamed Hassan Osman Abdelrahim (Graduated January 2019).

Supervisor - Dynamics of *Theileria* parasites in asymptomatic livestock in Oman. Ahmed Al Jssasi (Fall 2014, postponed Fall 2015), student withdrew after one year.

Co-supervisor - Population genetics structure of *Theileria annulata* and *T. lestoquardi* in Oman. Salama Salim Al-Hamidi (registered 2012), for two years.

Co-supervisor- Effect of season, parasite multiplicity and drug resistance on gametocytogensis among asymptomatic *Plasmodium falciparum* carriers. Amal Azhari Jadallah (Graduated February 2015)

Masters

Co-supervisor: Anti-snake venom efficacy of *Pithecellobium dulce* leaves, MSc (Medical Microbiology), Lujaina Nasser Hamdan Al Toobi. December 2017.

Co-supervisor: Distribution of Anti-malarial drugs resistance genes in Yemen, MSc (Medical Microbiology), Salama Al Hamidhi, December 2012.

Co-supervisor: Molecular detection and identification of *Theilaria* species in sheep in Oman, MSc (Medical Microbiology), Muna Al Rubkhi June 2011.

Co-supervisor: Population structure of *Plasmodium falciparum* and spread of chloroquine resistance in Saudi Arabia. MSc (Biochemistry & Molecular Biology), Zainab S. S. Al Hashmi, December 2010.

Co-supervisor: Genetic diversity and origin of SP (Sulfadoxine-Pyrimethamine) resistant *Plasmodium falciparum* in Saudi Arabia. MSc (Medical Microbiology), Hissa M A. Al-Farsi, October 2010.

Co-supervisor: Origin of pyrimethamine resistance among *Plasmodium falciparum* in eastern Sudan MSc (Biochemistry and Molecular Biology), Salama M.F. Al-Saiy. June 2007
Co-supervisor: Comparative performance of parasitological and immunoassay tests for the diagnosis of intestinal parasitic infections. MSc. (Medical Microbiology), Fatima A. S. Al-Shihi.April 2006.

Co-supervisor: Studies on *Onchocerca cervicalis* (Railliet & Henry, 1910) in Sudanese horses. MSc (Zoology), Elkheir Ibrahim Dafalla

Co-supervisor: Parasitological studies on bovine Onchocerciasis in Khartoum area. MSc (Zoology), Sadah Ibrahim Sabouni.

Supervisor: Parasitic survey (schistosomiasis & malaria) in Wad Ramli schoolchildren. MSc (Zoology), Gamil Salim Mubarik.

Co-supervisor: Humoral immunity to *schistosoma* in occupational hyper-exposed labourers in the Gezira and the influence of therapy on the humoral immune parameters. MSc (Zoology), Mohamed Ziada Satti.

Co-supervisor: Schistosomiasis: Comparative diagnostic methods in the assessment of urine and faecal egg count. MSc (Zoology), Asia Ali Salih.

B. Undergraduate supervision

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iii. Postgraduate examiner

Serological; cultural and molecular evidence of *Brucella* infection in goats in Al-Jabel Al-Akhdar, Sultanate of Oman. MSc, College of Agricultural and Marine Sciences, Sultan Qaboos University, Ms Al Ghalya Nasser Al-Toobi, Dec. 2016.

Association of Apolipoprotien E Gene polymorphism with Ischemic Stroke: A Case-Control study in Oman population. MSc, College of Medicine & Health Sciences, Sultan Qaboos University, Ali Husain Gharbal, Dec. 2016.

Genetic structure of *Plasmodium vivax* in Sudan based on global mitochondrial genome-analysis, MSc, Department of Biology, College of Science, Sultan Qaboos University. Ms. Esra Mukhtar Awad, June 2016

Epidemiology of human papilloma virus infection and genotyping distribution among Omani women attending Sultan Qaboos University Hospital and the Royal Hospital. College of Medicine, Sultan Qaboos University. MSc (Medical Microbiology), MSc Zainab Juma Al Lawati, February 2016.

Studies on Theileriosis in Indigenous Sheep in Al-Batinah and A'Dakheliya Regions of Oman. Animal and Veterinary Sciences, College of Agriculture, Sultan Qaboos University. MSc May 2011(External Accessor)

Study on some ecological aspects and parasites of bats in area around Khartoum and Dinder National Park. MSc (Zoology), Department of Zoology, College of Science, Khartoum Univeristy. Mohamed A. O. Rahoum.

Transmission of *Schistosoma haematobium* (Weinland) in North Gezira. M Sc (Zoology), Department of Zoology, College of Science, Khartoum University. El Siddig M Babiker.
The ecology of schistosomiasis transmission in Zanzibar. MSc (Zoology), Hafiz T Ahmed.

Prevalence of *Plasmodium falciparum* in sicklecell trait carriers. Department of Zoology, College of Science, Khartoum University. MSc (Zoology), Nafesia A El Mamoun.

11. RESEARCH PROJECTS AND PUBLICATION

Main discipline: Epidemiology and control of infectious diseases

I started my academic career as a parasite taxonomist. In my Ph.D., I have named six new species of helminthes and published a couple of articles in this discipline. After which my research activities mainly focused on the epidemiology and control of infectious diseases, with emphasis on schistosomiasis. Most of the articles published in renowned international journals. I also participated in numerous National and International Conferences with published abstracts, wrote technical reports and some more manuscripts submitted for publication.

I. Schistosomiasis (M.A. Idris in collaboration with A. Ruppel)

About 300 million peoples infected with schistosomes and more than 600 million individuals live in endemic areas. During my postdoctoral (1981-1983) at the Allergy and Immunology section, Department of Medicine, University of Pennsylvania, Philadelphia, USA, I learned modern immunological techniques such as cell culture, antibody assessment hybridization and cloning technology. I designed a project for the study of the idiotypic modulation of resistance to schistosomiasis, i. e. a basic project that seeks to uncover the essence of the immunological reactions that determine the effectiveness of an animal's immune response to this infection.

In 1986, while at Khartoum University, I established a research link with the Institute of Tropical Hygiene, University of Heidelberg, Germany and worked on human schistosomiasis. After joining SQU in 1987, I continued research collaboration with Professor A. Ruppel, University of Heidelberg and attracted a WHO research grant for our project "Immunology of human schistosomiasis". Our main objectives were to develop a simple, sensitive and specific serological test for schistosomiasis under field conditions. We proposed to test 31/32 kilodalton (KD) *Schistosoma mansoni* antigens that now defined as cathepsin B and haemoglobinase respectively for their suitability for field serodiagnosis. This research involved various parasitological and serological techniques vis., smears, concentration techniques, (flotation; sedimentation and Kato-Katz), antibody assessment, hybridoma and cloning technology, purification and transfer of protein to nitro-cellulose paper by electrophoresis, Enzyme-linked immunosorbant assay (ELISA), western blot and immunofluorescence.
I did most of the laboratory-based studies (before testing in the field) that involved demanding repetitive preparations and analyses, together with progressive methodological modifications in the light of experimental results. After defining the specificity and sensitivity of the 31/32 KD worm proteins, I performed with collaborators a cross-sectional study in a Sudanese village endemic for intestinal schistosomiasis. The immunological and parasitological diagnosis

compared and indicated that the sensitivity of these defined antigens to detect schistosomiasis infections compares favourably with parasitological examinations. It concluded that an immunological detection system based on schistosome cathepsin B and haemoglobinase as defined antigens is a valuable diagnostic tool in the diagnosis of intestinal and urinary schistosomiasis. Further, I demonstrated that schistosome worm proteins of 31/32 KD when adsorbed on nitro-cellulose papers and kept dry before immunoblot analysis were antigenicaly stable for at least 4 years including storage for about 17 months in tropical climates (The Sudan and Sultanate of Oman). These antigens reacted with schisto-infection sera in the absence of defined buffers and under simple conditions as illustrated in our proposed "humid chamber" advocating the use of these antigens for serodiagnosis of schistosomiasis in endemic areas where advanced and well-equipped laboratories are not available.
In collaboration with co-workers, a sandwich ELISA technique developed for the detection of circulating antigens in schistosomiasis. The technique appeared to be valuable in diagnosing infections by the three-major human schistosome species (*S. mansoni, S. haematobium* and *S. japonicum)* in addition to *S. intercalatum.* The work also proposed the use of indirect haemagglutination assay in the diagnosis of schistosomiasis especially if the antigen derived from the same schisto- species as that infecting the putative patient.

The 31/32 KD antigens were then cloned in a coordinated project of the special WHO programme "Production of recombinant *Schistosoma mansoni* antigens for immunodiagnosis" by the Centre for Molecular Biology, University of Heidelberg. These antigens also studied in comparison to *S. haematobium* (contributed by me) and to *S. japonicum* antigens (contributed by the Tongi Medical University of Wuhan, China).

As a documentation for a major scientific advancement, among the 16 major assays for the immunodiagnosis of schistosomiasis, we developed the most sensitive and specific method which is close to 100% (Idris M.A., & Ruppel, A. Journal of Helminthology, 1988, 62, 95-101- report of the WHO Informal Consultation in low transmission areas: control strategies and criteria for elimination, London 10-13 April 2000, WHO/CDS/CPE/SIP/2001.1, pp 44-46).

I studied the epidemiology of schistosomiasis in the Sultanate of Oman and demonstrated that the snail *Biomphalaria arabica* is ubiquitous in the south of the country. It was present in all but one of 16 investigated water bodies. This snail may act as an intermediate host for *S. mansoni* as laboratory-bred snails were susceptible to experimental infection. I reported the snail *Bulinus wrighti,* a potential intermediate host for *S. haematobium*, for the first time in Dhofar. The prevalence of antibodies against schistosomes in human sera was determined, using 31/32 KD schisto-worm proteins, in five localities in Dhofar and the autochthonous transmission of the disease was discussed.

During the year, 2001 we have been the first to detect naturally infected snails shedding *Schistosoma mansoni* cercariae and identified four active transmission sites for the first time in Dhofar. Recently, using the Kato-Katz technique we reported a prevalence rate of 7% (0.7-12.6%) for the first time among schoolchildren from four localities in the green mountains of Dhofar contradicting the recently published declaration that the Sultanate is free from schistosomiasis. *The speciation of the schistosome parasite determined by both biological and molecular approaches. Our studies of the cercarial shedding patterns showed two strains of the*

Dhofari S. mansoni populations. We showed, for the first time, the co-existence, in the same region, of a strictly nocturnal S. mansoni population together with a strictly diurnal population.

In the Sultanate of Oman, two populations of S. mansoni were isolated, one from humans and one from rodents. The Cytochrome C oxidase I sequences revealed that both populations belong to the same species, i.e, S. mansoni, and that the human population harbour three different haplotypes, and the rodent population only one haplotype, the same as one of the human ones. Phylogenetic analyses suggest a human origin for the Omani S. mansoni followed by a recent capture by the rodent host. In addition, the cercarial emissions of the human schistosome population were classically strictly diurnal while those of the rodent schistosome population were strictly nocturnal, with an emergence peak at the early night. The results show that a common haplotype may give rise to two different chronobiological behaviours suggesting the possibility of an ongoing sympatric speciation phenomenon, finding its origin in a mutation on behavioural genes.

Control measures adequate for this situation now developed, and we hope that our consortium will be of help. With this aim and in collaboration with the Ministry of Health, I organized in September 2002 an "International Symposium on Schistosomiasis Control" in Salalah, the capital city of Dhofar (participants were from 5 European, 3 African and 4 Asian countries). The aim was to make maximum advantage of the international expertise present to help the Ministry of Health in developing a strategy for the control and elimination of schistosomiasis from Dhofar.

I believe our studies on human schistosomiasis have achieved a major scientific success as evidenced by published works in various international journals, presentations at numerous conferences and financial support from number of international organizations.

II. Intestinal parasitic infections (Leading Scientist M.A. Idris)

Intestinal parasitic infections are widely distributed. They affect the health of the population through malabsorption, diarrhoea, stunted growth in children and impaired work capacity. I have initiated research for the Ministry of Health, Sultanate of Oman and conducted studies aimed at the control of intestinal parasitic infections in the Sultanate. At that, time there was no information concerning the prevalence or epidemiology of these infections and the information on drug efficacy and control approaches was scanty. I studied the intestinal parasitic infections among outpatients, food handlers and schoolchildren, their treatment and follow-up for clearance from infection. These studies provided information on the prevalence, species composition and distribution of intestinal parasitic infections in the Sultanate and on drug efficacy: baseline information necessary for effective, long-term control programmes.

III. Hookworms (Leading Scientist M.A. Idris)

About one fifth of the world's population, mostly in the tropics and subtropics infected with hookworms. These worms continue to be the major cause of iron deficiency anaemia and associated ill health. I have identified a human hookworm infection problem among the Jabali people in the green area of Dhofar, Sultanate of Oman. Using the simple smear methods, I reported 35% prevalence of hookworm infection and anticipated a prevalence of 70% in some localities if a more sensitive technique employed. The Ministry of Health was hesitant to accept the findings. I suggested a WHO consultancy. Three WHO experts invited and the Ministry of

Health invited me to join them. Using Kato-Katz technique, we reported a prevalence of 69.8% exactly as per my original anticipation.
My studies on parasitic infections in the Sultanate have initiated the formulation of a "Task Force for intestinal parasitic infection control in Oman" by the Ministry of Health. I was a member of this Task Force during 1993 to 1995. I submitted a research proposal on the epidemiology of intestinal parasitic infection in Dhofar with emphasis on hookworms. The proposal approved by the Sultan Qaboos University and Ministry of Health and received funding from WHO.

The prevalence, intensity and distribution of hookworm and other intestinal parasites were, studied. Local epidemiological factors favouring hookworm transmission in the mountain green belt of Dhofar were, investigated and hookworm associated anaemia was, assessed. I recovered adult hookworms, after treatment with pyrantel pamoate, from 28 patients in five localities in Dhofar. I studied these worms (n =148) and identified all of them as *Necator americanus* and not *Ancylostoma duodenale* as it was reported in the hospitals' records. To the best of my knowledge, this was the first record of *N. americanus* in the Arabian Peninsula. A questionnaire was, also designed to study the knowledge, attitude, and practice of the community in relation to hookworm infection and disease. Correct knowledge about transmission of the disease through faecal matter was, observed in about 90% of the people who also believe that peridomestic defecation is a bad practice.

A hookworm control programme was, recommended and a pilot project was, conducted in Wilayat Taqah, Dhofar. After four years of mass chemotherapy the prevalence of hookworms in Wilayat Taqah was reduced from 40% to 1% and from 6% to 0% among the rural and urban school children, respectively. Also in Wilayat Dhalqut the infection rate was brought down to 23% from over 60% in two years. The results of intervention were, followed up in collaboration with the Directorate of Public Health Affairs, Dhofar. It is, hoped to eliminate this infection in near future.

IV. Brucellosis (Leading Scientist M.A. Idris)

Brucellosis is a bacterial disease that affects human worldwide and causes significant losses among livestock. I conducted the first cross-sectional study of human brucellosis in the Sultanate. Using the macro- and microagglutination tests, I screened sera from six localities of the southern region of Dhofar. The frequency of serologically positive sera among the six localities ranged between 0 to 2%, and no difference was, observed between titres using *Brucella abortus* or *B. melitensis.* The study emphasised the value of continued awareness for the control of human and animal brucellosis, particularly in the region of Dhofar.

V. Toxoplasmosis (Leading Scientist M.A. Idris)

Human and animal toxoplasmosis is cosmopolitan. Infection of pregnant women causes abortion, stillbirth, mental retardation, and blindness in the newborn. Our studies demonstrated high seroprevalence rates of toxoplasmosis among the populations of several localities in Dhofar. The studies indicated that most infections in Dhofar are, acquired during childhood and that pregnant women of this area do not have a particularly elevated risk of acquiring this infection. In the north of Oman, the prevalence of *Toxoplasma* IgG antibodies was, studied among blood donors,

pregnant women, and children. The prevalence rates did not show significant difference among the three groups. A comparative sensitivity analysis between Direct agglutination, Enzyme-Linked immunosorbent assay, and the most modern Microparticle-Enzyme immunoassay, employed in the investigation, did not show significant difference.

VI. Leishmaniasis (in collaboration with E. Scrimgeour)

Leishmaniasis is a group of chronic diseases with irregular pyrexia caused by the flagellates of the genus *Leishmania* that are, transmitted by the bite of infected sandflies. It comprises visceral (Kala-Azar), cutaneous and muco-cutaneous forms. The disease is common in tropical and subtropical countries and caused by various species of *Leishmania.* Kla-Azar is, characterized by fever, weight loss, splenomegaly and anaemia.

To enhance the sensitivity of detecting leishmanial infection and improve our clinical services, I had participated and supervised the studies which culminated in the successful culture of the parasites causing visceral (Kala-Azar) and cutaneous leishmaniasis, for the first time in the Sultanate of Oman, that enabled our collaborators at the University of Cambridge, UK, to identify them as Leishmania infantum and L. tropica, respectively.

VII. Cystic hydatidosis (Leading Scientist M.A. Idris)

Cystic hydatidosis, caused by the metacestode of the dog tapeworm *Echinococcus granulosus* is a serious infection in man. It is an important parasite in domestic animals and common among the nomads. Using serological tests, we determined the prevalence of cystic echinococcosis in humans and camels from various regions in the Sultanate. Our results indicate that the disease is endemic, although with an apparently lower prevalence than in other comparable countries.

III. Rickettsial infections (Leading Scientist M.A. Idris)

Various species of *Rickettsia* infect man. They cause several forms of disease including the spotted fevers, which are transmitted by ticks. Using immunofluorescence test; it was shown that more than half of the tested sera from the south of the Sultanate had antibodies against *Rickettsia conorii.* Five tick species, all implicated in the transmission of rickettsiae, were collected from camels, cattle, and goats. The study suggested that rickettsial infections are common among the rural populations of Dhofar.

IX. Filariasis (in collaboration with E. Scrimgeour)

Bancrotian filariasis is a disease mainly caused by the parasitic worm *Wuchereria bancrofti.* Clinical manifestations include lymphoedema, and elephantiasis of the limbs, genital disease including hydrocoele, chylocoele and involving the scrotum and penis. Our studies indicated that filariasis is relevant to Oman. The important mosquito vector *Culex quinquefaciatus* is common and there are individuals with Bancroftian filariasis. It is, suspected that low transmission levels occur, and many cases are undiagnosed. To address this issue, we are conducting a filariasis surveillance study using immunochromatic test (ICT). The ICT card employs polyclonal and monoclonal antibodies specific for *W. bancrofti*.

X. Fascioliasis (in collaboration with M. Wuhrer, Giessen Univ., Germany)

Fascioliasis is a disease of veterinary and medical importance. It is, caused by the liver flukes *Fasciola hepatica* and *F. gigantica. Fasciola hepatica* has been, characterized by the frequent expression of cross-reactive glycoconjugates at the level of glycoproteins. Glycosphingolipids from *F. hepatica* and *F. gigantica* were isolated and their carbohydrate moieties were structurally analysed by methylation analysis, exoglycosidase treatment, on-target exoglycosidase cleavage and matrix-assisted laser desorption/ionisation time-of-flight mass spectrometry.

To the best of our knowledge, the study gave the first report on the expression of globo-series glycosphingolipids (CD77 leucocyte cluster of differentiation antigen) in non-mammalian species; By the use of an anti CD77 monoclonal antibody and the *Escherichia coli* Shiga toxin B1 subunit, globotriaosylceramide could be immunolocalised to the tegument of *F. hepatica* cryosections. The sharing of CD77 between the liver flukes and their mammalian hosts fits with the concept of molecular mimicry, shown by the blood fluke *Schistosoma mansoni*. Also sing different analytical techniques, it was shown that the acidic glycolipids of *Fasciola hepatica* contain two different phosphate-containing species designated as GL-I (an ether–bond variant of lysophosphatidylinositol) and GL-II (GlcNAc I-HPO3-6 Gal (1-1) ceramide). GL-II was, strongly recognized by both human and animal sera. Furthermore, inhibition-enzyme- linked immunosorbant assays revealed that the unusual antigenic determinant GlcNAc-phosphate might have a potential in the serodiagnosis of *Fasciola hepatica* infections.

XI. Malaria (in collaboration with Hamza Babiker)

The overall aim of this project is to assess the magnitude of imported malaria into Oman via travellers and expatriates from endemic areas; and examine the presence of malaria parasites in areas of limited risk in the country. The project has been carried out in collaboration with the Malaria Eradication Programme, Ministry of Health, Oman. The programme has made significant progress in controlling local malaria transmission; however, the incidence of imported malaria remains high.

The project has established polymerase chain reaction (PCR) based diagnostic techniques to detect and identify different human malaria parasites P. falciparum, P. vivax, P. ovale and P. malariae. In addition, methods to determine the likely response of the most infectious species (P. falciparum) to the commonly used anti-malarial drugs (chloroquine and Fansidar) have been established, the techniques detect gene mutation associated with resistance to chloroquine (pfcrt and pfmdr1) and Fansidar (dhfr and dhps).

We analyzed 324 blood samples collected in Al-Seeb Airport, Oman from expatriates and Omani nationals who have been to malaria endemic countries; most of them came from Zanzibar. Sixteen (4.9%) out of 324 individuals were found to harbour PCR detectable *P. falciprum* parasites. In addition, 6 (2%) were found to harbor the *P. vivax* malaria parasite. All the above infections were asymptomatic and were negative when examined by serology- based method. However, no *P. Ovale* or *P. malariae* detected among the above samples. In addition, 168 blood samples collected from expatriates who had not been outside Oman for some years. Six (3.6%) individuals found to harbour asymptomatic sub-microscopy *P. vivax* infection. No other malaria parasite species was detected.

XII. On-going Research

Studies on the epidemiology and control of schistosomiasis and hookworms in the Sultanate and on parasitic infections among immunocompromised individuals and strain characterization of *Echinococcus* are in progress.

Summary

My research was oriented towards the improvement of the health standard in rural and urban societies. My efforts to conduct innovative research has recognition by national and international agencies. The WHO experts-group to Oman have acknowledged and appreciated the role-played in the field of Medical Parasitology.

I raised two research grants and other technical assistance (twice) in the form of diagnostic kits and bench aids from WHO, and three more from the University of Heidelberg in the form of small equipment and diagnostic kits to conduct research in the Sultanate. I was invited four times by the German Academic Exchange Council (DAAD) to conduct collaborative research in Germany and the University of Heidelberg supported my collaboration several times. Currently, with partners from Germany, China and Egypt, we obtained a research grant from (DAAD); for "Sustainable Networking for the Control of Schistosomiasis". Also, with collaborators from Germany and France we received two research grants from SQU for studying the "Epidemiology and Prospects for Control of Schistosomiasis in Dhofar", principal investigator M. A. Idris.

In recognition of the role played in the field of biomedical research in Oman, the Environmental Health Section, the Department of Surveillance and Disease Control and the Department of Communicable Diseases Ministry of Health, Sultanate of Oman, asked my advice on various communicable parasitic diseases.
My studies employed classical and latest molecular techniques in the study of various aspects of the immunology and epidemiology of infectious diseases of relevance to the Sultanate. These studies are helpful to the Ministry of Health and are of interest to the international organizations like WHO and had contributed to the recognition of SQU among the scientific community.

I am thankful to the Director and Faculty members of the Institute of Tropical Hygiene, University of Heidelberg, Germany, who have extended an open invitation and access to their research facilities during my consistent summer annual visits. I would also like to thank Sultan Qaboos University for awarding me three Study leaves (two months each) upon invitation by the University of Heidelberg and for awarding me two research grants.

12. EDITORSHIPS

1. Member, Editorial Board, Sultan Qaboos University Journal for Scientific Research - *Science* and *Technology*.
2. Member, Editorial Board, On-line Journal *Internet Journal of Parasitic Diseases*, Published by Internet Scientific Company, Texas, USA.
3. Member, Editorial Board, Sudan Medical Monitor

13. REVIEWER

1. Acta Tropica
2. Annals of Saudi Medicine
3. Sudan Medical Monitor
4. Sultan Qaboos University Medical Journal
5. Parasites and Vectors
6. Oman Medical Journa

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15. Book Chapters:

Al-Jabri A.A, Elias S**.** Koh C, **Idris M.A.,** Al-Balushi MS, Hasson SS. (2012). The importance of autoantibodies in the etiology; pathogenesis and diagnosis of autoimmune diseases. 153-172, Nova Science Publishers, Inc, USA

Ruppel, A., Shi, Y.E. & **Idris M.A**. (1992). Pengedalian schistosomiasis. Chapter XX (Pp. 336353) in Higiene Dan Penyakit Ternak, editors, H.Fisher, H.S.H. Seifert A. Bittner, Yayasan Obor Indonesia, Jakarta (in Indonesian).

16. National and International Consultancies:

Invited Speaker "Overview Lectures in Parasitology" MOH, Directorate General of Health Services, Musandam Governorate, *23-24 December 2022.*

MOH Temporary Adviser (2013). Assessment of control activities of schistosomiasis man, masoni in Dhofar, Sultanate of Oman, 3rd to 7th November 2013.

WHO Temporary Adviser (2007). Inter-Country Meeting of Strategies to Eliminate Schistosomiasis in Low Endemic Countries of the Eastern Mediterranean Region (EMR), Muscat, Sultanate of Oman, November 2007.

17. Conferences and Published Abstracts:

Mouahid G., Chevalier F., Langand L., Lasica C., Idris M.A., Al Yafae S., McDew-White M., Anderson TJC., Moné H. Diurnal versus nocturnal cercarial shedding time in schistosomes: reciprocal genetic crosses and linkage mapping determine a major quantitative trait locus on chromosome1. Molecular Helminthology: An integrated approach, San Antonio, Texas, USA, 7-10 April 2019.

Mouahid G., Mintsa Nguema R., Al Mashikhi K.M., Al Yafae S.A., **Idris M.A.**, Mone H. Host-parasite life-histories of the diurnal versus nocturnal chronotypes of *Schistosoma mansoni*: adaptive significance. Molecular Helminthology: An integrated approach, San Antonio, Texas, USA, 7-10 April 2019.

Mouahid G., Chevalier F., Langand J., **Idris M.A.,** Al Yafae S., McDew-White M., Anderson T.J.C., Mone H. Genetic mapping of an adaptive parasite trait: a major locus on chromosome 1 determines cercarial shedding time in schistosomes. 14th International Meeting on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases (MEEGID XIV**)**, Sitges, Spain, 6-9 November 2018.

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Said E., Al-Abri M.A., Al-Saidi I., Al-Balushi M.S., Al-Busaid J.Z., Al-Reesi I., Koh C.Y., **Idris M.A.**, Al-Jabri A.A., Habbal O. Comparison of the effects of obstructive sleep apnea and sleep deprivation on the immune system. Cytokines 2018: 6th Annual Meeting of the International Cytokine and Interferon Society, Boston, USA, 27-30 October 2018.

Abdelraheem M.H., Bansal D, **Idris M.A.,** Mukhtar M.M., Getachew S., Mahdi Abdel Hamid M., Sultan A.A., Al-Jabri A.A., Babiker H.A. Diversity of imported *Plasmodium* vivax into Gulf Cooperation Countries and some countries of origin in East Africa. Multilateral Initiative on Malaria: 7th Pan-African Malaria Conference, Dakar, Senegal, 15-20 April 2018.

Mouahid G, F.D. Chevalier, Al Yafae S., **Idris M.A.**, Langand J., Menon v., McDew-White, M. Anderson, T.J.C., Moné H. Genetic mapping and population genetics of an adaptive parasite trait: larval release time in schistosomes. Congress of the American Society for Parasitology. San Antonio, Texas, USA, June 27-1st July 2017.

Chevalier F. D., Le Clec'h W., Mouahid G., Moné H., **Idris M.A.**, Al Yafae S., Langand J., Holroyd N., Tracey A., Berriman M., Anderson T.J.C. Improving the *Schistosoma mansoni* genome assembly using genetic crosses and linkage analysis, Congress of the American Society for Parasitology. San Antonio, Texas, USA, June 27-1st July 2017.

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Idris M.A. Leishmania and schistosomiasis diagnostic perspective. Parasitology Workshop, Medical Microbiology Training Program, Oman Medical Specialty Board, 4th Feb. 2016.

Al-Hamidhi S. Tageldin M.H., W. A., Johnson E. P., **Idris M.A.**, Alqamashoui B., Beja-Pereira A., Kinnaird J., ShielsB., Tait A., Babiker H. Population genetic analysis of *Theileria annulata* in Oman. Apicomplexa in Farm Animals 3rd International meeting, Edinburgh, June 2015.

Idris M.A. The Great Neglected Tropical Diseases with Special Reference to Sudan. Alumni Summer School 2014: Health Promotion for populations in the Periphery. Heidelberg, Germany, 14-19 September 2014.

Tageldin M.H., Al-Weheibi H.K.N., Al-Rubkhi M., Al-Hamidhi S., **Idris M.A.,** Tait A., Babiker H. *Theileria* parasites in Oman. Apicomplexan in farm animals, Kusadasi, Turkey, October 31- Novemebr 2, 2013.

Al-Hamidhi S., Mahdy M.A.K., Bin Dajem S.M., Al-Sheikh A.A.H., Al-Hashami Z., Al-Farsi H., Al-Mekhlafi A.M., **Idris M.A.,** Beja-Preira A., Babiker B. Genetic diversity of *Plasmodium falciparum* and distribution of drug resistance genes in the Arabian Peninsula.

Biology and Pathology of the malaria parasites. 9th BioMal Par/EVIMalaR conference, Heidelberg, Germany 13-15 May 2013.

Al-Hamidhi S., Mahdy M.A.K., Al-Hashami Z., Al-Farsi H., Al-Mekhlafi A.M., **Idris M.A.,** Beja-Pareira A., Babiker H. Genetic- diversity and distribution of drug resistance genotypes among *Plasmodium falciparum* in Yemen and Saudi Arabia. University day, College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, May 2013.

Idris M.A., Hélène Moné, Gabriel Mouahid, Mahmoud A. Shaban, Ali A. Al Jabri, Andreas Ruppel. Control of *Schistosoma mansoni* in Dhofar, Sultanate of Oman. The XI International Congress on Medical and Applied Malacology, Rio De Janeiro, Brazil, 24-29 October 2012.

Ruppel A., Deugoué V., Doenhoff M., Shaban M, **Idris M.A**. Serodiagnosis in Schistosomiasis. National Conference on the status and future directions of research on schistosomiasis control in Ethiopia, Gondar, Ethiopia, 23-25 March 2012.

Idris M.A., Mone, H., Mouahid G., & Ruppel, A., A. A. Al Jabri, Shaban, M.A. Jerome Boissier, Salim Al Yafae. Ecological studies on Transmission of *Schistosoma mansoni* in Dhofar,Sultanate of Oman. *Annual Conference of Postgraduate Studies and Research,* University of Khartoum, 17-20 February 2012.

Paricipant- The 8th International Scientific Conference for Medical Students in the GCC countries, Muscat, Sultanate of Oman, 28th Jan. – 1. Feb. 2012.

Participant - International Congress on Infectious and Tropical Diseases "6th GCC countries, Infection Control, Muscat, Oman, 6-8 December 2011

Invited lecturer of Schistosomiasis for Master International Health (MSc IH); Institute of Public Health, University of Heidelberg Germany; 9-16 October 2011.

Participant- Appraisal skills workshop, SQUH, October 2011

Idris M A, Deugoué N V, Doenhoff M, Shaban M, Ruppel A. (2010). Serological follow-up of praziquantel-treated children in a recent schistosomiasis mansoni focus in Dhofar Governorate, Sultanate of Oman. 12th International Congress of Parasitology, Melbourne, Australia, August 2010.

Attwood S.W., L. Liang, M. M.H. Mondal, **M. A. Idris**, H. S. Lokman, J. R.P. Rajapakse, F. Satrija, J. L. Diaz, S. E. Upatham. (2010). The phylogeography of *Indoplanorbis exustus* (gastropoda: planorbidae) in Asia. 12th International Congress of Parasitology, Melbourne, Australia, August 2010.

Hasson S. Al-Jabri A.A., **Idris MA.** (2010). Autoimmunity: When the good turns bad-II. University Day, COM & HS, SQU, May 2010.

Idris MA, Degoué NV, Doenhoff M, Shaban M, Mone H, Mouahid G, Ruppel A (2010). Epidemiological and Serological follow-up of schistosomiasis mansoni in Dhofar, Oman. University day, College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, May 2010.

Participated in the workshop "Construction of Integrated Questions" College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, May 2010.

Participated in the workshop "Curriculum Development and Assessment" College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, 22-23 April 2009.

Participated in the workshop "Tick Identification" College of Agriculture & Marine Sciences, Sultan Qaboos University, Muscat, Oman, 4-8 April 2009.

Participated in the workshop "Student Assessment" College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, 7-9 February 2009.

Participated in the workshop "Certificate Course in Health Professions Education" College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, 3-5 February 2009.

Hasson S. Al-Jabri A.A., **Idris MA.** (2009). Autoimmunity: When the good turns bad. University Day, COM & HS, SQU, May 2009.

Participated in 4th Scientific Conference for Medical Students in the GCC countries, Bahrain, Kingdom of Bahrain, January 2008.

Al-Shihi F. A., **Idris M. A.** (2006). Comparative performance of parasitological and enzyme immuno-assay tests in detection of intestinal Protozoa. 2nd International Congress on Infectious and Tropical Diseases, GCC conference on Infectious Diseases and Infection Control, Muscat, Sultanate of Oman, December 2006.

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Shaban, M. A., Al-Awaidy, A., Moné, H., Mouahid, G., Ruppel, A., **Idris M.A.** (2006). Transmission of *Schistosoma mansoni* among schoolchildren in the Dhofar Governorate, Oman: a low-endemicity area. 11th International Congress of Parasitology, Glasgow, August 2006.

Mouahid, G., **Idris M. A.,** Verneau, O., Tisseyre, P., Shaban, M.A.A., Al Yafae, S., Ruppel, A. Moné, H. (2006). Evidence of strictly nocturnal cercarial emission in *Schistosoma mansoni*. 11th International Congress of Parasitology, Glasgow, United Kingdom, August 2006.

May 2006 - Participated in the Workshop “The tools of research mapping in GCC and EMRO- countries”, organized by Directorate of Research and Studies, Ministry of Health,

Muscat, Oman, May 2006.

Shaban M.A., Moné, H., Mouahid,G, Ruppel, A, **Idris M. A.** (2006) Water and soil-transmitted helminthes in the Dhofar Governorate, Oman. Research day, College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman, May 2006.

April 2006 - Participated in the workshop "National Health Research Priorities", organized by Directorate of Research and Studies, Ministry of Health, Muscat, Oman, April 2006

Al-Khan, A., Al-Ruqeishi, F., Al-Bulushi, I., Al-Yahyaee, S., **Idris M.A.**, Simsek, M., Al-Zedjali, M., Al-Wahaibi, S., Babiker, H., (2006). Molecular surveillance of imported malaria in Oman. The 4th Scientific Conference for Medical Students in The GCC Countries, Muscat, Oman, January 2006.

December 2005- Participated in the International Conference "Advances in Laboratory Medicine", Muscat, Oman. December 2005

Shaban, M.A., Mone, H., Mouahid, G., Ruppel, A., **Idris M.A.** (2005). Current-status of schistosomiasis and soil-transmitted helminthes in Dhofar Governorate, Oman. International Symposium "Control of selected Parasitic Diseases". Heidelberg, Germany, October 2005.

Al-Zedjali, M.S., Al-Wahaibi, S.S., Babiker,H.A., **Idris M.A.** (2005). Malaria eradication in Oman: a success story. International Symposium "Control of selected Parasitic Diseases". Heidelberg, Germany, October 2005.

ldris M.A., Mone, H., Mouahid, G., Ruppel, A., Al Jabri, A. A., Shaban, M.A., Boissier, J., AlYafae, S. (2005). Ecological studies on transmission of *Schistosoma mansoni* in Dhofar, Sultanate of Oman. Seminar "Environmental Research at Sultan Qaboos University: an overview of some contributions", Muscat, Oman, January 2005.

Idris M. A., Al-Jabri, A.M. (2004). Kato-Katz and Gomori's trichrome stain as diagnostic techniques for parasitic infections in clinical laboratories. International symposium on schistosomiasis, Tonji Medical College, Huazhong University of Science and Technology, Wuhan, China, October 2004.

Barnwell, E., Emery, A.M., Al-Awaidy, S., Shaban, M., **Idris M.A.,** Montresor, A., Southgate, V.R. (2004). Schistosomiasis in the Sultanate of Oman. 10-11 K.E. Mott Symposium on Schistosomiasis and Distomatoses. Valencia, Spain, July 2004.

Khan S, **Idris M.A.** and Al-Jabri A.A. (2004). Awareness of malaria among undergraduate medical and non-medical students. Medical Students Society, Cultural activity Week, SQU College of Medicine and Health Sciences, February 2004.

Khan S, **Idris M.A.** and Al-Jabri A.A. (2004). Awareness of malaria among undergraduate medical and non-medical students. 2nd Scientific Conference for Medical Students in the GCC countries, UAE, January 2004.

Idris M. A., Song, W., Shaban, M., Doenhoff, M., Li.,Y, Ruppel, A. (2004). Comparative performance of antibody detection tests in a low transmission area of *Schistosomia mansoni.* International Conference on Trends in Microbiology, King Faisal University, Damam, Kingdom of Saudi Arabia, March 2004.

Idris M. A., Song, W., Shaban, M., Doenhoff, M., Li,Y, Ruppel, A. (2003). Serodiagnosis in a low-endemicity situation of schistosomiasis. International symposium on Research for sustainable control of schistosomiasis, Heidelberg, Germany, September 2003.

Participated in the International Meeting on "the role of health services in crisis prevention and conflict resolution", Heidelberg, Germany. September 2003-

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