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Research Interests

Cancer Genomics

Rare genetic disorders

Interactive genomics web apps

Academic Qualifications

Postdoctoral Fellow (Human Genetics)   **Feb 2019**

University of Cape Town, South Africa

PhD (Molecular Biology)   **May 2019**

University of Khartoum, Khartoum, Sudan

M. Sc Molecular Medicine   **Jul 2012**

University of Khartoum, Khartoum, Sudan

Bachelor of Medicine and Surgery   **Apr 2005**

University of Khartoum, Khartoum, Sudan

Licensure

Sudan Medical Council Registration Number: 21533. Division: Full

Current position

Postdoctoral Fellow   **Feb 2019-present**

Department of Human genetics university of Cape Town

Duties: Conducting high-quality research including analysis of next-generation sequencing data

Current Projects

Familial cancers (Lynch syndrome),

African Genetics Variation Database

The Sudanese Genetic Variation Portal

Recent Work and Research Experience

Head of the bioinformatics and NGS data analysis team   **Mar 2015-May 2018**

Institute of Endemic Diseases, University of Khartoum

Duties: Include analysis of Exome Data for rare genetics disorders including familial cancers as well as teaching and instructing Bioinformatics workshops

Lecturer   **Apr 2017 – Jan 2019**

Faculty of dentistry, university of Khartoum

Department of basic medical sciences

Duties: Teaching molecular genetics to undergraduate students

Visiting Researcher   **Apr 2016 - -Jul 2016**

Cambridge University, UK

Duties: Joined the OpenCGA team, and developed R and Python clients to the OpenCB web services

Researcher (Short term Fellowship)   **Mar-April 2013**

International Center of Genetic Engineering and Biotechnology Trieste, Italy

Duties: Include conducting plasmid DNA extraction, cell culture, transfection, and using

immunofluorescence   techniques to study the role of Epstein Bar Virus in Breast cancer

Teaching Assistant   **Sep 2008 –Aug 2012**

Department of Microbiology, Faculty of Medicine, International University of Africa, Khartoum, Sudan.

Duties: include Preparing and Instructing Medical microbiology lab

Medical Officer   **Jun 2007 – Jun 2008**

Ministry of Health Khartoum, Sudan.

Duties: include participating in inpatient and outpatient clinic activities, attending clinical rounds, tutorials,

and various clinical and training activities.

House Officer   **Dec 2005-May 2007**

Duties: include participating in inpatient and outpatient clinic activities, attending clinical rounds, tutorials,

and various clinical and training activities

Publications:

- "**EBV Associated Breast Cancer Whole Methylome Analysis Reveals Viral and Developmental Enriched Pathways**" **Mohammad O. E. Abdallah**, Ubai K. Algizouli, Maram A. Suliman, Rawya A. Abdulrahman, Mahmoud Koko, Ghimja Fessahaye, Jamal H. Shakir, Ahmed H. Fahal, Ahmed M. Elhassan, Muntaser E. Ibrahim and Hiba S. Mohamed **https://doi.org/10.3389/fonc.2018.00316**

- "**Age, absolute CD4 count, and CD4 percentage in relation to HPV infection and the stage of cervical disease in HIV-1-positive women**". Ramadhani Chambuso Raj Ramesar, Evelyn Kaambo , Alltalents T

Murahwa , **Mohammed O E Abdallah** , Michelle De Sousa , Lynette Denny , Anna-Lise Williamson
Clive M Gray

- **"Challenges imposed by minor reference alleles on the identification and reporting of clinical variants from exome data"** Mahmoud Koko **Mohammed O. E. Abdallah1**, Mutaz Amin and Muntaser Ibrahim **BMC Genomics (2018) 19:46 DOI 10.1186/s12864-018-4433-3**

- **"Exome sequencing of a colorectal cancer family reveals shared mutation pattern and predisposition circuitry along tumor pathways**"
Suleiman Suleiman H, Koko Mahmoud E, Nasir Wafaa H, Elfateh Ommnyiah, Elgizouli Ubai K, **Abdallah Mohammed O E**, Alfarouk Khalid O, Hussain Ayman, Faisal Shima, Ibrahim Fathelrahman M A, Romano Maurizio, Sultan Ali, Banks Lawrence, Newport Melanie, Baralle Francesco, Elhassan Ahmed M, Mohamed Hiba S, Ibrahim Muntaser E. *Frontiers in Genetics*. 6, **2015**. DOI. 10.3389/fgene.2015.00288.

- "**Autosomal recessive Leber Congenital Amaurosis type 4 resulting from AIPL1 truncating variant c.487C>T: support of pathogenicity**" **Mohammed O. E. Abdallah**, Mahmoud E. Koko1, Shima Faisal, Melanie J. Newport , Muntaser E. Ibrahim https://www.biorxiv.org/content/10.1101/290650

- "**CellbaseR, a scalable R package for retrieving biological data and performing variant annotation**" **Mohammed OE Abdallah**, Francisco J. Lopez and Ignacio Medina (in preparation)

- **"Whole Exome Analysis of Adult Diffuse Glioma Patients Reveals Patterns of Somatic Mutations "**
 (In preparation)

- "**Genome-wide association study of Schizophrenia in the South African Xhosa population: A focus on CNVs**" (in preparation)

- **"Whole Exome Sequencing identifies novel biallelic KIZ variants in a family with retinitis pigmentosa'** (in preparation)

- **"Lost in translation: the pitfalls of Ensembl Gene annotations between human genome assemblies and their impact on diagnostics"** (in preparation)

Select Open Source Software Contributions

OpencgaR R Client for Open Computational Genomics Analysis platform for big data processing and analysis in genomics https://github.com/opencb/opencga
CellbaseR A Bioconductor R package for querying the CellBase websevices.
https://www.bioconductor.org/packages/release/bioc/html/cellbaseR.html
- **The Sudanese Geneteic Variation Portal**, A Shiny App to explore Sudanse Genetic Variation Data
https://github.com/melsiddieg/SGP
- **Mycetoma Data Explorer**, A shiny App to explore Mycetoma historical data in Sudan
https://melsiddieg.shinyapps.io/mycetoma_app/
- **PanelAppR** an R clinet for querying the PanelApp websevices
https://github.com/melsiddieg/panelAppR
- Map of Mycetoma distribution in Sudan
 https://github.com/melsiddieg/Mycetoma_Map

Additional Courses and Training:
- **edX Honor Code Certificate for Explore Statistics with R (July 2015)**
- **edX Verified Certificate for Case study: DNA methylation data analysis (June 2015)**
- **edX Verified Certificate for Case Study: Variant Discovery and Genotyping (June** 2016)

- **edX Honor Code Certificate for Introduction to Bioconductor ((May 2015)**
- **edX Honor Code Certificate for Statistics and R for the Life Sciences (May 2015)**
- **edX Honor Code Certificate for Data Analysis for Genomics (July 2014)**
- **Khartoum winter School of Bioinformatics and Statistical Genetics,**
  Khartoum, Sudan **(January 2013)**
- **Parallel computing in Biomedical Research**
  Khartoum, Sudan **(December 2012)**
- **Moodle Training Workshop**
  Institute Of endemic Diseases Khartoum Sudan **(November 2012)**
- **International Workshop on Molecular immunology And Drug Discovery**
  Khartoum, Sudan **(July 2010)**

Invited talks, Workshops, and Community Work

- **The Sudanese Genetic Variation Portal,** enabling personalized medicine in understudied populations
  G2MC conference 27th -30th November 2018 **Cape Town, South Africa**
- **The impact of open source data and NGS revolution on population genetics**
  "Health, Society, Biology and the History of East Africans" Regional Meeting in Sudan
  February 27-March 2 2017
- **Introduction to Bioinformatics (lecture series)**
  Biomedical Informatics Society, Faculty of Medicine, university of Khartoum
  July 2016-present
- **Introduction to R and Bioconductor**
  Center for Bioinformatics and Systems Biology (CBSB)
  Faculty of Science, University of Khartoum
  January. 10th - 13th 2016
- **Introduction to R and NGS**
  Khartoum Winter School of Bioinformatics and Statistical Genetics
  2014-2017

Academic and Computer Skills

- Native fluency in Arabic and advanced fluency in English
- Advanced Computer Skills in Both Windows and Linux Platforms
- Advanced Experience in Bash and Python scripting
- Advanced Experience in R statistical Language (R developer)
- Advanced Experience with scientific Python (jupyter-lab, numpy, pandas, scikitlearn,etc)
- strong experience in interactive web-based analytical dashboards in both R, (Shiny) and Python (Dash)
- Strong Experience in HPC
- Strong experience with Spark and Big Data analytics
- Strong experience with SQL and open-source database systems
- Strong experience in graph databases (Neo4J)
- Strong experience with container technology and reproducible research (docker,git,markdown)
- Strong Experience with Cloud Computing, Azure, and VPS (Digital Ocean)
- Strong experience with Bioinformatics tools (NCBI, Ensemble, UCSC, Galaxy, etc. Gemini, GnomAD)
- Advanced Skills in Microsoft Office Software (Word, Excel, and Power Point)

Awards Received

Research Development Fund **August 2015**

Wellcome Trust Brighton and Sussex Centre for Global Health Research

Arturo Falaschi ICGEB Short-term Fellowship **March-April 2013**

ICGEB, Italy

Miscellanies

International English Language Testing System (**IELTS**) score: 8.0

References

Available upon request