





Sahar G. Elbager

Consultant & Assistant Professor of Haematology

 Cairo, Egypt

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Technical Skills

Haematology techniques
Molecular techniques
Flow cytometry
ELISA

Software Skills

Computational analysis
Homology Modeling
Molecular docking
Microsoft Office
Data analysis (SPSS)
Bibliographic database
(EndNote)

Research Interests

Stem cell biology
Genome Editing
Cancer biology

Professional Summary

Consultant & Assistant Professor of Haematology with outstanding experience in diagnostic haematology including morphology, cytochemistry, flow cytometry, Molecular Haematology as well as Research, and Teaching in haematology. Strong consulting professional with a PhD in Haematology with a growing interest in lymphoma, CLL and other lymphoid malignant disorders as well as myeloid disorders. Seeking an opportunity to grow and utilize the skill and knowledge gained through previous education and employment.

Education / Qualifications

Ph.D. in Medical Laboratory Sciences (Haematology). 2016- 2021
Graduated College. University of Medical Sciences and Technology Sudan

Research attachment in Molecular Hematology Apr- Nov 2019
Faculty of Medicine & Health Science Malaysia
University Putra Malaysia (UPM)

M.Sc. in Medical Laboratory Sciences (Haematology) 2011- 2013
Faculty of Medical Laboratory Sciences Sudan
University of Medical Sciences and Technology

B.Sc. in Medical Laboratory Sciences (Haematology) 1998-2003
Faculty of Medical Laboratory Sciences. Sudan
University of Medical Sciences and Technology

Fellowships / Grants/ Awards

IsDB-TWAS Postdoctoral Training Fellowship 2021
The World Academy of Sciences (TWAS) Italy

Flow cytometry course grant 2019
International Centre of Genetic Engineering and Biotechnology (ICGEB) Italy

Ph.D. research fellowship (sandwich). 2016
Organization for Women in Science for the Developing World (OWSD) Italy

Ph.D. research grant 2016
University of Medical Sciences and Technology Sudan

Haematology prize 2003
University of Medical Sciences and Technology Sudan

Immunology prize 2002
University of Medical Sciences and Technology Sudan

B.Sc Scholarship 2001
University of Medical Sciences and Technology Sudan

Work Experience

Medical Laboratory Consultant

Aug 2021- Mar 2023

Department of Haematology

Al Balal Medical Center- Sudan

Main activities:

- Conducting medical examinations for patients, interviewing them and their family members to determine their health status, and requesting specialized diagnostic tests to determine the nature of disorders or diseases.
- Diagnosis of various blood diseases (anemia, leukemia, lymphoma, other lymphoid malignant disorders, myeloid disorders and thrombosis) using specialized tests and diagnostic techniques.
- Select appropriate techniques for different types of haematological analysis.
- Making decisions on further haematological analysis.
- Conducting analyzes and medical laboratory tests in the blood bank.
- Interpreting and recording the results of analyzes and examinations, and providing specialized doctors with the necessary knowledge for treatment
- Maintain regulatory and safety standards across laboratory management.
- Recognize factors and problems faced by the department and take appropriate actions within established guidelines.

Medical Laboratory Specialist

Dec 2019- Aug 2021

Department of Haematology

Al Balal Medical Center- Sudan

Main activities:

- Received patients cordially, and collected pathology specimens (excellent in phlebotomy).
- Performed routine tests in all areas of the laboratory section especially in Haematology, Chemistry, Routine, and Serology sections following standard laboratory procedures.
- Cross-matching blood for use in transfusions.
- Investigating the biochemistry of blood clotting.
- Provide technical information about test results to physicians, family members, or researchers.
- Producing quantitative data in the form of reports and providing key information to medical staff about a patient's condition.
- Set up, clean, and maintain laboratory equipment.
- Maintaining accurate and detailed records.

Teaching Experience

Teaching and Supervision Experience

Assistant Professor of Haematology

Apr 2021- Present

Faculty of Medical Laboratory Sciences

University of Medical Sciences and Technology (UMST)-Sudan.

National University- Sudan.

Main activities:

- Delivering lectures, seminars, and practical sessions (Haematology, Blood banking, Molecular biology, and Bioinformatics) for M.Sc. students.

- Supervising B.Sc. students (12 students) and M.Sc. students (5 students) in their laboratory research to ensure proper understanding of research concepts and completion of their research projects.
- Act as external examiner for B.S. and M.Sc. students.

Haematology Lecturer

Sept 2014 - Mar 2021

Faculty of Medical Laboratory Sciences

University of Medical Sciences and Technology (UMST)-Sudan.

Main activities:

- Delivering lectures, coursework, seminars, and tutorials. (Haematology, molecular biology, genetics, cancer biology, immunology, and physiology) for B.Sc. students.
- Delivering practical sessions and tutorials for both B.Sc. and M.Sc. students.
- Support and mentor the in-service training of students in different classes.
- Supervised 20 undergraduate students and co-supervised 6 postgraduate students in their research projects.

Hematology Teaching Assistant

Mar 2013 –Aug 2014

Faculty of Medical Laboratory Sciences

University of Medical Sciences and Technology (UMST)-Sudan.

Main activities:

- Delivering a range of teaching and assessment activities, including practical sessions and tutorials for undergraduate students.
- Participate in the supervision of practical work, advising on skills and methods.
- Demonstrate use of laboratory equipment and enforce laboratory rules.
- Advised and supervised undergraduate B.Sc. students in their research projects. (more than 5 students)

Teaching Assistance

Jul 2003 – Aug 2004

Department of Pathology

Faculty of Medicine. National Ribat University- Sudan.

Main activities:

- Delivering haematology practical sessions and preparing examinations for the B.Sc. student in the faculties of Medicine and Dentistry.

Research Experience

Research Associate

Apr 2021- Present

Haematology Laboratory. Faculty of Medical Laboratory Sciences

University of Medical Sciences and Technology- Sudan

Main activities:

- Design, conducted, and guided the hematological and molecular biology hematological and molecular biology projects and experiments.
- Collaborated with staff and students across different departments to conduct interdisciplinary research.

- Taught colleagues to independently conduct basic molecular biology techniques and provides initial analysis.
- Created bioinformatics computational approaches required to address research objectives.
- Prepared all technical writing and 5 poster presentations at an international conference for 4 projects 61st and 62nd Annual Scientific Meeting of the British Society for Haematology (BSH), the 10th and 9th Annual Meeting of the Society of Hematologic Oncology (SOHO). Houston, Texas- USA

Postdoctoral Fellow

Apr - Aug 2022

Flow Cytometry and Molecular Laboratory Department of Pathology

South Egypt Cancer Institute- Egypt

Main activities:

- Implementing experiments under the supervision of principal investigators.
- Performing acute and chronic leukemia and lymphoma diagnosis in bone marrow aspirate, blood, and tissues using BD FACSCanto II Flow Cytometer.
- Carrying out cell cycle analysis and DNA measurement experiment using BD FACSCalibur Flow Cytometer.
- Performing molecular diagnostics assays and immunohistochemical staining for leukemia and lymphoma diagnosis

Research Fellow

Apr-Nov 2019

Hematology lab at the Department of Pathology

Faculty of Medicine & Health Science.

University Putra Malaysia (UPM). Malaysia

Project: JAK2V617F genotyping in Sudanese myeloproliferative neoplasms Patients.

Supervisors: Prof. Mei I Lai.

Main activities:

- Implemented experiments under the supervision of principal investigators.
- Performed my research as well as collaborated with other researchers in their projects.
- Presented research updates in laboratory meetings, contributed to experimental planning and provided feedback and questions for colleagues.

laboratory skills and techniques:

- Design primer and check its specificity.
- Optimized and Performed PCR (standard PCR, RT-PCR, qPCR).
- Performed intraplate gel electrophoresis.
- Flow cytometry knowledge (sample preparation, experimental design, data analysis, and interpretation).
- Genome editing knowledge (CRISPR-Cas9)

Ph.D. Fellow

Dec 2016- Mar 2021

Research lab at Graduated College.

University of Medical Sciences and Technology- Sudan

Project: Pathophysiology of thrombosis in myeloproliferative neoplasms: Relationship between JAK2V617F mutation, coagulation function, and pro-inflammatory IL-6.

Supervisors: Dr. Magdi A. Bayoumi and Dr. Amar A. Dowd.

Main activities:

- Investigated the association between JAK2V617F mutation, hypercoagulable state, and inflammatory conditions.
- Collaborated with other teams to conduct bioinformatics analysis and write manuscripts.
- Interpreted and analyzed quantitative and qualitative results.
- Expressed results and findings in the form of research papers and conferences.
- Write and maintain SOPs for DNA extraction, PCR, and other molecular laboratory techniques.
- Published and co-authored 9 papers in peer-reviewed journals.

Laboratory skills and techniques:

- Extracted and quantified nucleic acids.
- Performed ELISA assay to determine the level of IL6.
- Evaluated coagulation functions (PT, APTT, fibrinogen, and D-dimer).
- Performed routine haematology tests.
- Carried out immunohematological and serological assays.

Research Assistant

Mar 2013-Nov 2016

Haematology Laboratory. Faculty of Medical Laboratory Sciences.

University of Medical Sciences and Technology- Sudan

Main activities:

- Implemented experiments relevant to ongoing projects within the lab.
- Performed statistical for quantitative and qualitative results data research
- Collaborated with other members of the team to write and publish 4 scientific manuscripts in peer-reviewed journals.
- Attend and participate in 3 conferences concerning cancer control, Medical research, and publication

Laboratory skills and techniques:

- Performed routine haematology tests (CBC with WBCs differential and morphological evaluation of peripheral blood smear using light microscopy).
- FAB calcification of acute leukemia using Immuno-histochemical stain (MPO, Sudan black, PAS).
- Assessed the coagulation profile.
- Conducted High-Performance Liquid Chromatography (HPLC).

Heath project officer

Sep 2005 – Mar 2006

Global Heath Foundation and Deuesche Afrikanische Transfair Agency (DATA e.v). Sudan

Main activities:

- Official representative on behalf of the organization with funders (UNDP-UE-WFP-UNICEF).
- Prepared health projects to raise them to funders and follow up on the progress of projects.
- Coordinate a capacity-building program for medical assistants and health promoters as part of the largest and most comprehensive recovery programmer (RRP), which is managed by UNDP on behalf of the Government of Sudan.

Conferences Presentations/Participations

December 2022

6th International Conference of Society of Pathological Biochemistry and Hematology- Egypt. Participant

November 2022

Scientific Forum of (The Future Is In Our Hands) at the University of Jeddah- KSA in cooperation with the International Center for Genetic Engineering and Biotechnology (ICGEB). Participant

September 2022

10th Annual Meeting of the Society of Hematologic Oncology (SOHO). Houston, Texas- USA. Abstract: Expression of Notch Pathways Related Genes and their Association With Clinical Features and Immune System Modulation in Diffuse Large B-cell Lymphoma: A Study Based on TCGA Database. Poster.

May 2022

9th Translation Research E-Conference. Myeloproliferative Neoplasms. Participant.

April 2022

62nd Annual Scientific Meeting of the British Society for Haematology (BSH). UK
Abstract: Impact of CD38 Gene Polymorphism (rs1800561) on Hematological Parameters and Clinical Staging in Patients with Chronic Lymphocytic Leukemia. Poster.

April 2022

62nd Annual Scientific Meeting of the British Society for Haematology (BSH). UK
Abstract: Platelet's Indices as Diagnostic Markers for Immune Thrombocytopenia and Surrogate Predictors for Prednisolone's Response, Khartoum-Sudan. Poster.

September 2021

9th Annual meeting of the Society of Hematologic Oncology (SOHO). Houston, Texas- USA. Abstract: Identification of the Key Genes and Molecular Pathways in Essential Thrombocythemia Associated with JAK2V617F Mutation Using Bioinformatics Approach (Poster).

April 2021

61st Annual Scientific Meeting of the British Society for Haematology (BSH).UK
Abstract: Impact of JAK2V617F Mutation on Coagulation Function Tests and Inflammatory Markers in Sudanese Patients with Essential Thrombocythemia (Poster).

April 2018

3rd International Conference of Society of Pathological Biochemistry and Hematology- Egypt. Presentations: Clinical Manifestations of Philadelphia-negative Myeloproliferative Neoplasms in Sudan (Oral presentation).

December 2017

9th International Conference on Leukemia and Hematologic Oncology.UK

Demographics and Symptom burden of Philadelphia Negative Myeloproliferative Neoplasms in Sudan (Conference proceed)

October 2016

7th International Joint Conference of Sudanese Medical Association UK & Ireland (SMA)
Multidisciplinary Approach for control cancer- Participant.

December 2015

6th International Joint Conference of Sudanese Medical Association UK & Ireland (SMA)
Medical Ethics& Professionalism- Participant.

Courses/workshops/Training

- Nov. 2022 Hands-on course on structural bioinformatics for cancer drug development (Structure prediction using Homology Modeling, Molecular docking, Molecular Dynamics simulation). University of Jeddah- Kingdom of Saudi Arabia.
- Apr-Aug 2022 Flow Cytometry and Molecular biology Training. Department of Pathology, South Egypt Cancer Institute- Egypt
- Aug. 2019 Research and Publications (OWSD) regional workshop. Malaysia
- Aug. 2019 3D adherent cell culturing for bioprocessing. Biology Safety Institute. Malaysia
- Aug. 2019 Hands-on Flow Cytometry - Learning Doing!
European Molecular Biology Laboratory (EMBL) Heidelberg. Germany
- May 2019 Flow cytometry: from basic principles to advanced applications.
International Centre For Genetic Engineering And Biotechnology (ICGEB). Italy
- Nov. 2017 Molecular Biology technique course. Seven Vision for training and development. Sudan.
- Apr.2017 Bridging the gap between Research and Publications (OWSD) regional workshop. Sudan.
- Nov.2016 Molecular Biology technique course.
Department of Molecular Biology. National Center for Research. Sudan.
- Oct. 2016 Writing and critiquing scientific papers.
Sudan Education and Development Institute (SEDI). Sudan.
- Nov.2015 Basic Flow Cytometry course. Flow Cytometry Training Center.Sudan.
- Sep. 2015 Quality Management for Medical Laboratory. Seven Vision for training. Sudan.
- Jan. 20015 STA Compact MAX operator. Samasu Medical & Educational services. Sudan
- Nov.2014 Hematology Application in Molecular Biology. Advance for Professional Development.Sudan.
- Dec.2013 Writing, critiquing, and refereeing scientific papers. Sudanese Medical Association UK& Ireland (SMA). Sudan.

- Nov. 2013 Research Ethics for Health Professionals. Sudan Education and Development Institute. Sudan.
- Oct. 2013 Bioinformatics and NGS Technology. Kiwi Training Center. Sudan.
- Sept. 2013 Course on Endnote. Sudan Education and Development Institute. Sudan
- May 2012 Micro RNA Tools and Technologies and Expression in Cancer Cells and Bioinformatics for identifying (miRNA). Sudanese Centre for Training in Biotechnology (SCOT). Sudan

Online courses & certifications

- Apr. 2022 Master of Science in RT-qPCR. Bio-Rad Laboratories
- Mar. 2022 Interpreting Genomic Variation: Inherited Cancer Susceptibility. St George's, University of London. The UK.
- May 2021 Research Funding and Grant Writing. African Science Frontiers Initiatives (ASFI). Lagos, Nigeria
- Sep. 2020 Research Writing in the Sciences. International Network for the Availability of Scientific Publications (INASP). UK
- Oct. 2019 CRISPR Genome Editing Course. BioTecNika. India
- Nov. 2018 Inside Cancer: How Genes Influence Cancer Development. university. UK
- June 2018 Bacterial Genomes: From DNA to Protein Function using Bioinformatics. Wellcome Genome Campus Advanced Courses and Scientific Conferences. UK
- May 2018 Implementation Research (IR) with a focus on Infectious Diseases of Poverty (IDP). World Health Organization (WHO-TRD).
- Dec. 2017 Genomic Technologies in Clinical Diagnostics: Next Generation Sequencing. St George's, University of London. UK
- Dec. 2017 Using Personalized Medicine and Pharmacogenetics. University of East Anglia (UEA). UK
- Nov. 2017 AuthorAID Research Communication. International Network for the Availability of Scientific Publications (INASP). UK
- Nov. 2017 Writing in the Sciences, Stanford University. USA
- Oct. 2017 Genomic Technologies in Clinical Diagnostics: Molecular Techniques. St George's, University of London. UK
- June 2017 Genomic Data Science with Galaxy. Johns Hopkins University. USA
- May 2017 Bioinformatics Methods II, University of Toronto. USA
- Mar. 2017 Introduction to Genomic Technologies, Johns Hopkins University. USA
- Feb. 2017 Bioinformatics Methods I, University of Toronto. USA

Publications

1. **Sahar G. Elbager**, Ahmed Habbani, Eman H. Ibrahim, Hiba AO Fadl, Douaa Sayed. ABCL-411 Expression of Notch Pathways Related Genes and their Association with Clinical Features and Immune System Modulation in Diffuse Large B-cell Lymphoma: A Study Based on TCGA Database, Clinical Lymphoma Myeloma and Leukemia. 2022. 22 (S2): S377
2. Shantier, S.W., Mustafa, M.I., Abdelmoneim, A.H.. HibaA. Fadl, **Sahar G. Elbager** & Abdelrafe M. Makhawi. Novel multi epitope-based vaccine against monkeypox virus: vaccinomic approach. Scientific Report. 2022. 12:15983.
3. Mysara Baroud, Hiba, Fadul Hiba, Rayyan Ahmed, Ahmed Habbani, **Sahar Elbager**. Impact of CD38 Gene Polymorphism (rs1800561) on Hematological Parameters and Clinical Staging in Patients with Chronic Lymphocytic Leukemia. British Journal of Haematology. 2022.197 (S1): 198-199.
4. Rabea Saeed, Amar A. Dowd, **Sahar G. Elbager**. Platelet's Indices as Diagnostic Markers for Immune Thrombocytopenia and Surrogate Predictors for Prednisolone's Response., British Journal of Haematology. 2022.197 (S1): 184.
5. **Sahar G. Elbager**, Amar A. Dowd. Identification of the Key Genes and Molecular Pathways in Essential Thrombocythemia Associated with JAK2V617F Mutation Using Bioinformatics Approach. Clinical Lymphoma, Myeloma & Leukemia.2021.21(S1):358-359.
6. **Sahar G. Elbager**, Magdi A. Bayoumi, Impact of JAK2V617F Mutation on Coagulation Function Tests and Inflammatory Markers in Sudanese Patients with Essential Thrombocythemia. British Journal of Haematology 2021.193 (S1): 116-117.
7. Abdelrahman H. Abdelmoneim, Safinaz I. Khalil, Hiba Fadl, Ayesan Rewane, and **Sahar G. Elbager**. Exploring the Power and Promise of In Silico Clinical Trials with Application in COVID-19 Infection,” Sudan Journal of Medical Sciences, vol. 16, Issue no. 3, pages 355–370.
8. Hiba Awadelkareem Osman Fadl, Abdelrahman Hamza Abdelmoneim, **Sahar G. Elbager**. Novel Missense Single Nucleotide Polymorphisms of Human CD38 Gene Allied to Chronic Lymphocytic Leukemia: A Bioinformatics Approach. JUMJ, 2021 March 1; 8(1): 25 - 36.
9. **Sahar G. Elbager**, Magdi A. Bayoumi, Eusni Rahayu Mohd Tohit, Amar A. Dowd, Mei I Lai. Impact of JAK2V617F Mutational on Haematologic Features in Sudanese Patients with Essential Thrombocythemia and Thrombotic Risk Assessment. JBAAR. 2020;6 (4): 263 -273.
10. **Sahar G. Elbager**, Abdelrahman H. Abdelmoneim, Safinaz I. Khalil. High-Risk Functional nsSNP in SARS-CoV-2 (2019-nCoV) Main Peptidase as Potential Targets to Structure-Based Drug Design: A Computational Approach. IJVMB 2020;9 (2): 17-34.
11. Hager Elkobani, **Sahar G. Elbager**, Magdi A. Bayoumi.RBC Alloimmunization in Sudanese Multi-transfused Patients JBAAR 2020; 6 (1):.30 -37.
12. **Sahar G. Elbager**, Hadeel F. Gad Mahgoob, Amar A. Dowd, Magdi A. Bayoumi. Computational Analysis of Deleterious Single Nucleotide Polymorphisms (SNPs) in Human CALR Gene. American Journal of Bioinformatics Research 2018; 8(1): 1-11.

13. **Sahar Elbager**, Enaam Abdelgader, Samah Ali, Tahani Mursal, Nahid Yousif, Eltaher Osman, Amar Dowd, Magdi Bayoumi. Clinical Manifestations of Philadelphia-negative Myeloproliferative Neoplasms in Sudan. JBAAR 2018; 4 (2): 106-113.
14. Asia M. Elrashid, Mohamed Y. Basher, Ahmed M. Elmoselhy, **Sahar G. Elbager**, Safinaz I. Khalil. In Silico Analysis for DPYD Gene and the Effect of the Mutation on Dihydropyrimidine Dehydrogenase Enzyme. JAMPS 2018; 16 (3): 1- 10.
15. Safinaz Ibrahim Khalil , Toga A. Alaziz Awad Mahmoud , Walaa Salah Abdulla Mohammed , **Sahar G. Elbager** , Ahmed M. Elmoselhy , Mohamed A. I. Alfaki. In Silico Genetic Variation Analysis of Cytochrome P450 2C19 and Their Effect in Certain Drugs Metabolism. American Journal of Bioinformatics Research 2017; 7(2): 59-65.
16. **Sahar Elbager**, Samah Abd Alla, Tahani Mursal and Amar A. Dowd. Association of Activated Partial Thromboplastin Time and Fibrinogen Level in Patients with Polycythemia Vera. Journal of Cancer and Tumor International. JCTI 2016;4(4):1-7.
17. Tahani Mersal, **Sahar Elbager**, Tahani Abass Mohammed .Differential Diagnosis of Anemia in Patients with Rheumatoid Arthritis. Wjpmr 2016; 2(4): 01-04.
18. Suleiman M. El Sanousi, Kamal B. Said, **Sahar Elbager**, Asma Awad, Khalid Rodwan, Kamal H. Eltom. A flow chart for the identification of Staphylococcus species Journal of Veterinary Medicine and Animal Production.2015;6(2):93-97.2015.

Licenses

Consultant of haematology classified by The Sudanese National Council for Medical and Health- Sudan. 2021.

Memberships

- The Organization for Women in Science in Developing countries - Sudan National Chapter (OWSD-SNC). Sudan
- The Organization for Women in Science for the Developing World (OWSD).
- British Society of Haematology (BSH).
- The Society for Clinical Cell Analysis (ESCCA).
- The Society of Hematologic Oncology (SOHO)
- African Science Frontiers Initiatives (ASFI) Ambassador.