



**Hana Osman**

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**RESEARCH EXPERIENCE**

**Postdoctoral Research Scientist**

**2017-2018**

**Section of Microbiology and Medical Genetics, Department of Medical Science,  
University of Ferrara, Ferrara, Italy**

- Post-doctoral scientist investigating the changes of circadian genes expression in WT mice and Mdx mice.
- Transcriptomic and proteomic analysis of urine stem cells as a disease model for muscular dystrophy.
- Publishing scientific papers in peer-reviewed journals.
- Performing regular seminars and research updates meetings to discuss the results that we obtain from different research projects.
- Tutoring master and undergraduate student in their research project.

**PhD Research**

**2014-2016**

**Department of Medical Science, University of Ferrara, Ferrara, Italy**

Isolation and characterization of urine-derived stem cells as a novel modeling tool to study hereditary neuromuscular diseases

- Setting up a protocol for the isolation of stem cells from urine specimens of healthy donors and DMD patients.
- Characterization of the isolated cells by surface markers.
- Myogenic transformation of the urine stem cells.
- Evaluation of antisense treatment in native USCs and myogenic USCs using antisense oligoribonucleotide (AON) for dystrophin exon skipping and validate the efficacy of USCs as in vitro model for drug screening.
- Evaluation of the dystrophin transcripts by microfluidic card Taqman based assay in both native and myogenic urine stem cells before and after treatment.
- Verifying the presence of dystrophin protein before and after treatment using Immunofluorescence analysis and Western blotting.

- Examining the presence of other muscular genes such as collagen VI gene in urine stem cells.
- Gaining expertise in a wide range of molecular, biochemical and cultural techniques.
- Awarded ESHG 2017 - Conference Fellowship for Non-European Countries.
- Awarded EFIS-EJI South Eastern European Immunology School (SEEIS2015) fellowship in Becici, Montenegro.
- Telethon Convention 9-11 March 2015

## **RELEVANT RESEARCH SKILLS**

- Participating in a research project by screening and sequencing POPDC1 gene that causes muscular dystrophy.
- Evaluating three different protocols (Chip high sensitivity microarray, Real-time PCR, and Nested PCR) used for the quantification of the skipping percentages of dystrophin gene on DMD immortalized myoblasts treated with antisense oligoribonucleotide, to assign the best protocol of skipping quantification.
- Participating in a project that study the regulation of T-cells by HLA-G in CMV infected heart transplanted patients by isolating peripheral blood mononuclear cells (PBMC) from peripheral blood and studying the expression of CD80 transcripts by Real time PCR and CD80 protein by ELISA technique.
- Performing different types of cell culture: myoblast from muscle biopsy and fibroblast from skin biopsy
- Comparing the gene expression between nuclear and cytoplasmic RNA.

## **Master Research**

**2011-2013**

### **M.Sc in Medical Laboratory Sciences in Microbiology, University of Khartoum, Khartoum, Sudan**

Evaluation of RT-PCR Assay for Rapid Detection of Crimean-Congo Hemorrhagic Fever (CCHF) Virus.

- Developing Conventional PCR Assay for direct detection of CCHFV from clinical specimens collected in Sudan.
- Optimizing a TaqMan-based Real time PCR for detection of CCHFV.
- Optimizing RT-loop-mediated isothermal amplification (LAMP) techniques for detection of CCHFV.

## **TEACHING EXPERIENCE**

**Teaching Assistant** **2010-2013**  
**Department of Medical Microbiology, Faculty of Medical Laboratory Sciences,**  
**University of Khartoum, Khartoum, Sudan**

- Delivering practical and tutorial sessions for courses in Medical Microbiology for undergraduate students.
- Working as administrative secretary in the Department of Medical Microbiology and being responsible for organizing the time table of lectures, practical, seminars, and ordering the reagents and consumables needed for the lab.

**Lecturer** **2013-2018**  
**Department of Medical Microbiology, Faculty of Medical Laboratory Sciences,**  
**University of Khartoum, Khartoum, Sudan**

- Responsible for teaching the course of Medical Microbiology and Immunology for undergraduate students and supervising their graduation research.

**Assistant Professor** **2018 to present**  
**Department of Medical Microbiology, Faculty of Medical Laboratory Sciences,**  
**University of Khartoum, Khartoum, Sudan**

- Responsible for teaching the course of Medical Microbiology and Immunology for undergraduate students and master students and supervising their graduation research.

**Head of the Basic Sciences Unit** **2018 to present**  
**Faculty of Medical Laboratory Sciences, University of Khartoum, Khartoum, Sudan**  
Responsible for the administrative work of the unit.

## **ADDITIONAL RELEVANT EXPERIENCE**

**Medical Technologist** **2009-2011**  
**ULTRA Clinical Laboratory, Khartoum, Sudan**

- Responsible for diagnostic services: microscopic, immunologic, biologic, bacteriologic, hematologic, and chemical tests.

**Medical Technologist** **2008- 2009**  
**Institute of Endemic Diseases Immunology and Molecular Biology Lab, University**  
**of Khartoum, Khartoum Sudan**

- Responsible for molecular diagnosis of pulmonary tuberculosis patients and serological diagnosis of visceral leishmaniasis.

## **EDUCATION**

**PhD in Molecular Medicine and Pharmacology** **2014-2017**  
**University of Ferrara, Ferrara, Italy**

**M.Sc in Medical Laboratory Sciences in Microbiology** **2011-2013**  
**University of Khartoum, Khartoum, Sudan**

**B.Sc (Honor) First Class** **2002-2007**  
**University of Khartoum, Faculty of Medical Laboratory Sciences. Department of Medical Microbiology, Khartoum, Sudan**

**Secondary certificate** **1999-2002**  
**Palestine Secondary School (Abu Dhabi, UAE.)**

## **AWARDS**

**Faculty Award for the second best academic performance third year (2004-2005)**

## **RELEVANT SKILLS & COURSES**

- Permanent Registration from Paramedical Council of Khartoum (2011).
- Training Course at Sudanese Training Centre for Biotechnology, Khartoum, Sudan (2013).
- Training Courses at Advanced Training and Performance Development Center, Khartoum, Sudan (2011) in:
  - \*System and Methods of University Teaching
  - \*Application of Instructional Technology in University Teaching
  - \*Evaluation and Measurement.
- Training Courses at Advanced Training and Performance Development Center in Basics of Scientific Research, Khartoum, Sudan (2012).
- Languages: Arabic, English and Italian.
- Microsoft Office Word, Excel, PowerPoint, Internet and Bioediting programmes.
- Team spirit and good communication skills gained through my voluntary experience as medical technologist participating with Medical Organizations to work in rural area (Al Fao and Al Db) Sudan.

## PUBLICATIONS

- Hiller M, Falzarano MS, Garcia-Jimenez I, Sardone V, Verheul RC, Popplewell L, Anthony K, Ruiz-Del-Yerro E, **Osman H**, Goeman JJ, Mamchaoui K, Dickson G, Ferlini A, Muntoni F, Aartsma-Rus A, Arechavala-Gomez V, Datson NA, Spitali P. A multicenter comparison of quantification methods for antisense oligonucleotide-induced DMD exon 51 skipping in Duchenne muscular dystrophy cell cultures. *PloS one*, 2018, 13(10), e0204485.
- Falzarano Maria Sofia, D'Amario Domenico, Siracusano Andrea, Massetti Massimo, Amodeo Antonio, La Neve Federica, Maroni Camilla Reina, Mercuri Eugenio, **Osman Hana**, Scotton Chiara, Armaroli Annarita, Rossi Rachele, Selvatici Rita, Crea Filippo, and Ferlini Alessandra. Duchenne Muscular Dystrophy Myogenic Cells from Urine Derived Stem Cells Recapitulate the Dystrophin Genotype and Phenotype. *Human Gene Therapy*. October 2016, 27(10): 772-783.
- Scotton C, Bovolenta M, Schwartz E, Falzarano MS, Martoni E, Passarelli C, Armaroli A, Osman H, Rodolico C, Messina S, Pegoraro E, D'Amico A, Bertini E, Gualandi F, Neri M, Selvatici R, Boffi P, Maioli MA, Lochmüller H, Straub V, Bushby K, Castrignanò T, Pesole G, Sabatelli P, Merlini L, Braghetta P, Bonaldo P, Bernardi P, Foley R, Cirak S, Zaharieva I, Muntoni F, Capitanio D, Gelfi C, Kotelnikova E, Yuryev A, Lebowitz M, Zhang X, Hodge BA, Esser KA, Ferlini A. Deep RNA profiling identified CLOCK and molecular clock genes as pathophysiological signatures in collagen VI myopathy. *J Cell Sci*. 2016 Apr 15;129(8):1671-84
- Gherardi S, Bovolenta M, Passarelli C, Falzarano MS, Pigini P, Scotton C, Neri M, Armaroli A, **Osman H**, Selvatici R, Gualandi F, Recchia A, Mora M, Bernasconi P, Maggi L, Morandi L, Ferlini A, Perini G. Transcriptional and epigenetic analyses of the DMD locus reveal novel cis-acting DNA elements that govern muscle dystrophin expression. *Biochim Biophys Acta*. 2017 Nov;1860(11):1138-1147.
- **Osman HA**, Eltom KH, Musa NO, Bilal NM, Elbashir MI, Aradaib IE. Development and evaluation of loop-mediated isothermal amplification assay for detection of Crimean Congo hemorrhagic fever virus in Sudan. *J Virol Methods*. 2013 Jun; 190(1-2):4-10.

## CONFERENCE PAPERS

- **Osman HA**, Bilal NE, Nichol ST and Aradaib IE. Application of Molecular Based Techniques for Rapid Detection and Characterization of Crimean Congo Hemorrhagic Fever Virus (CCHFV) Strains Recovered During Disease Outbreaks

in Sudan, Oral Presentation. Emerging infectious disease conference. Istanbul, Turkey. June 18-21.2012

- **Osman HA.** Evaluation of RT-PCR assay for rapid detection of Crimean Congo hemorrhagic fever virus (CCHFV), Oral Presentation. The 1st International Medical Laboratory Conference in Sudan. Khartoum, Sudan. December 6-8.2013
- **HanaOsman**, Rachele Rossi, Maria Sofia Falzarano, Chiara Scotton, Annarita Armaroli, Rita Selvatici , Francesca Gualandi , and Alessandra Ferlini. Custom Micro-Fluidic Exome Array to detect transcript mutations in undiagnosed patients with Col6 myopathies, Poster presentation. European Human Genetics Conference .Copenhagen, Denmark. May 27-30. 2017
- Armaroli A, Scotton C, **Osman H**, Falzarano MS, Rossi R, Capogrosso R.F, Cozzoli A, Camerino G.M, Schwartz E, De Luca A, Ferlini A. Circadian rhythm genes in Duchenne muscular dystrophy , Poster presentation. European Human Genetics Conference. Copenhagen, Denmark. May 27-30. 2017
- Maria Sofia Falzarano, Samuele Gherardi, Matteo Bovolenta, Chiara Passarelli, Daniela Erriquez, Chiara Scotton, Annarita Armaroli, Rachele Rossi, **HanaOsman**, Marina Mora, Pia Bernasconi, Lorenzo Maggi, Lucia Morandi, Giovanni Perini & Alessandra Ferlini. Chromatin configuration, RNA and protein studies identified novel DNA elements that influence the dystrophin transcription dynamics, Poster presentation. European Human Genetics Conference. Copenhagen, Denmark. May 27-30. 2017
- Scotton C, **Osman H**, Armaroli A, Falzarano MS , Capogrosso R.F, Cozzoli A, Camerino G.M, Schwartz E, De Luca A, Ferlini A. RNA profiling discloses a link between circadian genes and muscle damage in Duchenne Muscular Dystrophy, Poster presentation. 5th International Congress of Myology. Lyon, France. March 14-18.2016.
- Falzarano M , Perrone D , Armaroli A, **Osman H**, Passarelli C , Morgan J , Mari L , Marchesi E, Ferlini A. Novel antisense oligonucleotides backbone for exon skipping DMD therapy: chemistry and functional studies, Poster presentation. WMS 2015, 20th International Annual Congress of the World Muscle Society. Brighton,UK. September 30 - October 04. 2015.

- Chiara Scotton, Annarita Armaroli, **Hana Osman**, Maria Sofia Falzarano, Annamaria De Luca, Alessandra Ferlini. RNA profiling discloses a link between circadian genes and muscle damage in Duchenne Muscular Dystrophy, Oral presentation . WMS 2015, 20th International Annual Congress of the World Muscle Society. Brighton,UK. September 30 - October 04. 2015.