

Expression Profiling of Epigenetics and Chromatin Remodeling Factors in Human Heart Failure

Salma A. Mahmoud

Institute of Health Sciences, The University of Health Sciences (Sağlık Bilimleri Üniversitesi), İstanbul, Turkey

Cardiovascular diseases remain a leading cause of mortality worldwide. It is associated with multiple genetic and environmental factors that can only explain a small part of its variability. Epigenetic has emerged as one of the most promising areas that will address some of the gaps in our current knowledge in the development of many cardiovascular diseases. Epigenetic mechanisms include DNA methylation, chromatin alterations, histone modification, and microRNA. In this project, we are establishing a new epigenetic paradigm in regulating heart failure. We examined epigenetic changes in several histone modifications and chromatin remodeling factors in human failing hearts using specific expression arrays for epigenetic factors utilizing microarrays, ChIP-seq and ATAC-seq technologies. Afterwards, we elucidated the potential mechanism(s) by which these factors govern the process of gene expression and consequently the induction of cardiac hypertrophy cascade that leads to heart failure development. These findings will reveal novel epigenetic targets that will be involved in the regulation of heart failure. On the longer term, these findings will provide new insights into the molecular mechanism of the interplay between genetic and epigenetic factors, and may offer new approaches that can lead to innovative therapeutic tools.

Keywords—Chromatin, Epigenetic, Heart failure

Biography

Salma Mahmoud is the PI of Chromatin Dynamics and Epigenetic Research Program (CDERP) at Institute of Health Sciences in The University of HEALTH SCIENCES, İSTANBUL, TURKEY. SHE HAS COMPLETED HER PHD FROM THE WELLCOME TRUST CENTRE FOR GENE REGULATION AND EXPRESSION, UNDER THE SUPERVISION OF PROF. TOM OWEN-HUGHES IN THE UNIVERSITY OF DUNDEE, SCOTLAND-UNITED KINGDOM. HER PHD WORK CONCENTRATED ON STUDYING MECHANISMS OF EPIGENETIC REGULATION THROUGH CHROMATIN REMODELLING AND ALTERATIONS UTILIZING VARIOUS MOLECULAR BIOLOGY AND BIOCHEMICAL ASSAYS. SHE DID SEVERAL POSTDOCS AT KING FAISAL SPECIALIST HOSPITAL (SAUDI ARABIA) AND BAYLOR COLLEGE OF MEDICINE (USA). SHE HAS PUBLISHED more than 17 papers in reputed journals in the area of chromatin remodelling mechanism and diseases with more than 600 citation index.

mahmoodsalma@hotmail.com

Received: February 18, 2022; **Accepted:** February 21, 2022; **Published:** May 10, 2022