



MAGDI YACOUB
GLOBAL HEART
FOUNDATION

1,000 Egyptian Genomes (E-Hvol)

Through the Aswan Heart Centre, the Magdi Yacoub Global Heart Foundation is **supporting pioneering research in ethnicity defined by genomics**, or the study of an organism's complete set of DNA, in Egypt. This is a monumental step forward in the field of cardiology focused on diverse populations.

Past efforts to focus on the Egyptian populations' genomic data have garnered nonspecific, scattered results with unrelated individuals, which lead to misleading results; however, our launch of the 1,000 Egyptian Genomes or Egyptian Healthy Volunteers Study (E-HVols) in 2016 was an important step towards collecting valuable data from healthy Egyptians in order to get clear, measurable results about heart conditions in the Egyptian population. Researchers at the Aswan Heart Centre explored whole exome and genome sequencing in 1,000 healthy Egyptian individuals in order to create a resource on human genetic variation in Egyptians, **a study which was the first of its kind**.

The objectives of the program include:

- Studying genes in Inherited cardiac conditions from a healthy population, to discover links between diseases and family connections;
- Comprehensive clinical phenotyping—studying physical, observable characteristics like height and eye color;
- Understanding how patients who have inherited cardiovascular disease differ when compared with other members of their families;
- Creating a resource on human genetic variation in Egyptians;
- Incorporating findings and data with results from other populations; and
- Extensive analysis ensuring the future relevance and usability of the 1,000 Egyptian Genomes project data.

To date, we have recruited 500 individuals to be clinically phenotyped. Our first phase of research focused on Inherited Cardiac Conditions, where genetic variation was studied in over 170 genes using Next Generation Sequencing. **Preliminary results have already been presented at a Keystone Symposium in the U.S.**

Looking ahead, we want to define the influence of genetics on specific cardiac phenotypes in the general population. How? By using advanced imaging processing, state-of-the-art technology and the use of new machines, and biomedical tools. Researchers will also publish the interim



results of the 1,000 Egyptian Genomes study, and initiate Whole Exome and Whole Genome studies.

This work is changing the landscape of cardiac research, and, by focusing on the Egyptian population, the Magdi Yacoub Global Heart Foundation is filling in gaps in biological history to create a complete historical and current tapestry of global health which reflects the diversity of the world's population.