Editorial

Several biological, environmental, and social factors have contributed to the wide-spread nature of genetic disorders within the Arab World. The huge numbers of genetic disorders, specially the almost epidemic proportions of diseases such as hemoglobin disorders, diabetes, hypertension, and Down syndrome in this region have put an enormous burden on local health care systems. It was in this background that the vision of the Centre for Arab Genomic Studies (CAGS) was born. Pioneered by Sheikh Hamdan Bin Rashid Al Maktoum, the Deputy Ruler of Dubai, the Centre was established in June 2003 with the mission of improving human health by characterizing and preventing genetic disorders in Arab countries based on the recent advances in human genetics. The scientific structure of CAGS includes both an Executive Board comprising of local scientists from within the United Arab Emirates, which makes up the governing body and the legal trustee of the centre as well as an Arab Council comprising of regional scientists from 12 Arab countries.

One of the first major projects launched by CAGS was its Catalogue of Transmission Genetics in Arabs (CTGA) Database, a continuously updated, open-access compendium of bibliographic material and observations on human gene variants and inherited or heritable genetic diseases in Arabs (*www.cags.org.ae*). The project was initiated with a comprehensive survey of genetic disorders reported within the Arab population of UAE, which brought together information on the presence of nearly 240 genetic disorders within this population. Since then, CAGS has started collaborations with its Arab Council members to systematically initiate similar projects in each individual Arab country. To date, such projects have been completed in two additional countries, the Kingdom of Bahrain and the Sultanate of Oman, and work is underway elsewhere. Combined data for the UAE, Bahrain and Oman indicate the presence of more than 450 genetic disorders. These include disorders that are common in the three populations as well as a large number of country-specific genetic disorders, indicating a remarkable genetic heterogeneity in this region.

As the database covers country after country in what is the largest scientific effort to define genetic disorders in Arab people, a clearer picture of the pattern of genetic disorders and effective strategies to prevent them, is emerging. Currently, the database hosts entries for nearly 900 genetic disorders and 350 related genes. In fact, when the CTGA project reaches the full capacity aimed at, it will certainly represent the foremost attempt to define the scale of genetic disorders described in the Arab World and define future directions of research in this important realm of science. The database has been commended by several leading scientists. Additionally, several worldwide organizations use the database as a reliable scientific reference, including the World Health Organization, the Human Genome Organization, the National Institutes of Health, the Human Variome Project, and Orphanet.

Time and again, CAGS publishes educational material, relevant to the needs of the community. Apart from its series of books on “Genetic Disorders in the Arab World”, CAGS also published a series of well-received, handy leaflets on inherited blood disorders common in the region. Meant for the public, these leaflets contain basic information on the disorders, their causes, and their management, along with some information on the epidemiology of the disease in the Arab World. CAGS has

also come out with a handy User's Guide on the CTGA Database which simplifies the database for the end-user.

CAGS undertakes cutting-edge research on genetic disorders in the Arab World. This is most clearly exemplified by the Centre's project related to the identification of a rare skeletal abnormality in an extended consanguineous family in the UAE early in 2005 *[Naveed et al., Am J Hum Genet. 2007; 80(1):105-11 and Naveed et al., Am J Med Genet A. 2006; 140(13):1440-6]*. The genetic depiction for this disorder performed by CAGS scientists in association with international collaborators is expected to bring fresh insights to our understanding of the human genome and pave the way for many similar projects in light of the presence of many non-characterized inherited disorders in Arab populations.

Another very important contribution of the Centre towards the management of genetic disorders is the Pan Arab Human Genetics Conference (PAHGC), a biennial event organized by CAGS that provides a common platform to bring together regional and international geneticists to share their knowledge and to discuss common issues. Several national and international organizations, including Dubai Health Authority, the Dubai Islamic Affairs and Charitable Activities Department, National Institutes of Health, UNESCO, the Human Variome Project, and Human Genome Organisation have supported CAGS in the last two editions of the conference. The conference itself has grown enormously in terms of delegate representation, organization, as well as scientific content.

In the near future, CAGS shall witness an expansion of all its activities according to the requirements of its working objectives. These include continuing the coverage of the CTGA database of other countries in the region, expanding its research activities directed at understanding the molecular basis of genetic disorders in the Arab populations, exploring the launch of the Arab Human Variome Project, and organizing the Pan Arab Human Genetics Conference on a regular basis. Within the next year, the Centre hopes to move into a new, larger premise. Undoubtedly, this will provide us with a much better opportunity to expand the activities of the Centre.

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