HUGO J (2009) 3:3–4
DOI 10.1007/s11568-010-9139-9

COMMENTARY

The Human Genome Organisation (HUGO)

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Published online: 10 April 2010

The Human Genome Organisation (HUGO) was conceived in 1988 at the first meeting on genome mapping and sequencing at Cold Spring Harbor. Its original purpose was to promote international collaborative efforts to study the human genome and to address the myriad issues raised by knowledge of the genome including ethical and societal questions and issues around nomenclature. From a 42 scientists of 17 countries membership association, HUGO has increased its membership base to over 1,200 members from 69 countries.

In 2008, HUGO past its 20th anniversary and decided on a change in its direction. With the original goal of sequencing the human genome accomplished, HUGO decided to focus on two outstanding issues: First,—HUGO will explore the medical implications of genomic knowledge (i.e., to seek the biological and medical meaning of genomic information—genomic medicine); and second, to enhance the genomic capabilities and to help fulfil the genomic aspirations of the emerging scientific countries of the world. The excitement and interest in genomic sciences in Asia, Latin America, the Middle East, and Africa are palpable and the hope is that these technologies will help in national development and health.

So it is in these two areas in which HUGO will focus on over the ensuing years: the expansion of genomic medicine and greater engagement with the emerging scientific countries:

Genomic medicine

We are at an inflection point of discovery in human genetics. The confluence of knowledge of the human genome sequence, the breath-taking advances in genomic technologies, comparable increases in computational capabilities, and a maturing knowledge base in systems biology are all making genome-based medicine a reality. The challenges are to creative study design to uncover genetic complexity, to understand how to make clinical decisions based on this complex genetic information, and to safely and ethically use the complete genetic information about any individual or groups of individuals in public health policy. Modularly deployed and cost effective, high throughput sequencing/genotyping approaches can be readily established, and informatics capabilities are accessible and expandable. The technologies can easily be directed to other non-medical applications such as in agricultural development, in animal-live stock management, and in environmental remediation. So, genomic approaches are effective ways to achieve competitiveness and impact in biology and medicine over a short period of time. Many of these issues will be explored in HUGO's HGM2010 conference in Montpellier, France, May 17–21, 2010.

All this is new scientific, medical, and social territory. Whereas the developed nations led these discussions for the last 40 years, the emerging economies are now asking how they can integrate this high technology into the fabric of medical care and of human sustainability. As we bring in the rest of the world into the discussion, HUGO can be an important broker of ideas and strategies. Our global reach of scientific connectivity can be exploited to help humanity.

Science and genomics in the emerging and developing countries:

In the last 20 years, we all have observed a dramatic change in the global economic and scientific landscape.

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The emerging economies in India, China, Southeast Asia, South Africa, South America, Eastern Europe and the Middle East have risen in economic impact and are putting these resources into nurturing scientific talent and in building biomedical research infrastructures. Many governments have the desire to exploit genomic technologies for public health benefits, for capacity building in biomedical investigations, in environmental remediation, and in agricultural advancement.

These emerging and newly developed nations cover over 3 billion of our 6 billion human inhabitants on this earth and the new talent that can be harnessed to solve medical and environmental problems is immense. Equally important is that these countries have strong national memories of the struggles of being poor developing nations. These experiences, if codified, can be used to help our brethren in developing countries with little scientific resources.

The HUGO can be an important platform for these emerging countries to be engaged in global science and scientific policy. Often considered the UN of genomic sciences, we are often viewed as an unbiased convener of experts around troublesome issues—as we have in the past in nomenclature and in bioethics. We can be the trusted third party in global negotiations, and the wellspring of expert opinion beholding to no single region or government. As a reflection of this organisational refocusing, the HUGO office was moved from London to Singapore, a country that was founded in 1965 and a recent player in genetics and genomics.

To extend our connectivity and impact, we have initiated *The HUGO Journal*, engaged in social networking in the web (HUGO Matters), embarked on HUGO sponsored international projects (Pan Asian SNP Initiative), and expanded our conference schedule (http://www.hugo-international.org/). Going forward, we are excited about our new strategy and invite all genomic scientists to join us in making an impact.