

New advances in Genetic Technologies are changing the lives of millions of people around the world in important ways. These advances have also raised difficult ethical and legal questions for policy makers in many countries. Therefore, there is a great interest and need by experts in both governmental and non-governmental institutions to have a deeper understanding of the issues involved for establishing the necessary societal rules to regulate the use of genetic technologies in the fields of Medicine, Veterinary Science and Agriculture. To address these issues and provide a forum for a scientific discussion at a national level, the Avicenna Research Institute is planning to hold a conference in November 2010, entitled 'Genetics: Law, Ethics and Psychology'. The conference will particularly focus on the use of new genetic technologies and its impacts on the society from the legal and ethical point of view. In view of the fact that better understanding of the genetic basis of human behavior and physiology is imperative to comprehend the more complex topics of the conference, the genetics of human behavior will also be discussed in the convention.

The conference will aim to address the specific areas of concern in the use of genetic technologies in human health as follows:

- Assisted Reproduction Techniques (e.g. in-vitro fertilization)- ART are used to help fertility problems. Ethical issues are around the creation, selection, and disposal of embryos. These technologies can also require the use of sperm, eggs, or wombs from other women who are unrelated to the real parents and are not expected to play a role in raising the child.
- Pre-implantation Genetic Diagnosis – In this technique an embryo at 6-10 cell stage can be tested and selected for or against a specific sex, disease and physical condition. Although, this method can be used for treatment purposes, however the ethical issues are around the use of this technology by parents to select a specific baby based on personal desires.
- Cloning and Stem cells - Cloning is an essential tool of modern biology which has led to important drugs and new therapies. Cloning also has helped the understanding of genetic basis of human development and disease. Cloning has a potential to be used in producing a lifetime supply of therapeutic stem cells that are genetically matched to a patient. The ethical issues around cloning concern the production and destruction of a two-to-four-day-old embryo to make a line of embryonic stem cells. Another, concern is assuring that women donating eggs for research give proper informed consent. Some fear that a cloned embryo could be implanted into a woman resulting in a baby; a cloned human being.
- Animal and Plant Cloning – Cloning animals and plants for specific purposes are becoming possible with new genetic technologies. Specific recombinant proteins to be used as therapeutic drugs are being produced in some animals and specific plants with certain characteristics are now possible to be made and some are currently available in the market for human use. The ethical issues around the animal and plant cloning are the consequence of releasing such new species in the environment and its impact on the society and human health.
- Biobank – Biospecimens are being stored in public and private repositories and contain genetic material to identify gene variations associated with human diseases and lead to diagnostic tests and targeted treatments for specific diseases. Ethical issues are around the methods used in obtaining informed consent, protect privacy and disclose of research results, ownership of biospecimens as intellectual property and the ethical use of the biospecimens.
- New frontiers in genetics research–There have been many new genetic technologies developed and there are plans to be applied in human health.
- The research areas such as Human Behavior, Epigenetics, Nutrigenomics are some of the topics that are planned to be addressed in the forum.

I look forward to your active participation in the conference and receive articles examining the issues related to ethical and legal aspects of Medical Biotechnology.

*Ali M. Ardekani*

*Editor-in-Chief*