

Life Sciences Comes to National Library

By Sharmini Chellapandi, Librarian, Invent and Sara Pek,
Senior Reference Librarian, Lee Kong Chian Reference Library

Life sciences is generally defined as all sciences that have to do with living “organisms” like plants, animals and humans. Quite simply put, it is the science of life. However, it touches not so much the spiritual or intellectual exposition of life but the physiological and somewhat ecological rendering, in terms of how different species come into being, evolve and interact with other groups as well as with the environment. More specifically, life sciences encompasses many disciplines such as biomedical engineering, bioinformatics and biocomputing, cell biology, biotechnology, genetics and genomics and nanotechnology. As with any breakthrough research and development, ethical and societal implications become an issue as well.

Life sciences reached the breakfast table in a big way with Dolly the sheep, the first mammal to be cloned from an adult cell. It was a scientific sensation that either heralded a brave new world of possibilities and one of the greatest medical breakthroughs since the discovery of antibiotics or an unnatural act as it was totally created by “design”. It sparked a long-running argument over the ethics of cloning, reaching further levels with the latest controversy and media frenzy over human cloning and stem cell research. Michael Crichton’s novel which was made into the blockbuster movie, *Jurassic Park* examined the unpredictable

world and chilling implications of cloning. More importantly, it brought to the fore, topics that were once exclusively the domain of researchers and scientists.

Another equally controversial scientific research is stem cell research. Stem cells are the “master” cells in the body which can become any type of tissue. It offers a renewable source of replacement cells and tissue to treat diseases and disabilities including Parkinson’s and Alzheimer’s diseases, spinal cord injury, stroke, heart disease, diabetes and cancer. Many scientists are supportive towards stem cell research as they believe it provides the answer to many diseases and ailments. However, it has been mired in much controversy. The concerns are similar to the issues over abortion as stem cells are obtained from destroyed embryos and many countries have regulated research in this area.

Singapore, however, has been relatively liberal in its approach to cutting-edge fields such as stem cell research. Scientists from Europe, North America and Asia have relocated their research labs to Biopolis, the sparkling new multimillion dollars complex. Alan Colman, the British scientist who was one of the creators of Dolly, is one of those who have taken up the generous offer and relative academic freedom to conduct research in the biomedical field here.

A less contentious subject is the development of prosthesis. Prosthesis is the artificial extension that acts as a replacement for a missing body part. Prosthetics was developed to serve a functional need, as a cosmetic façade or to appease the psychological and spiritual sense of being a complete person.

The story of prosthesis has had a long and interesting history. For instance, the Rig-Veda, an ancient Indian text made up of hymns written between 2000 and 1200BC, contains a story of a warrior queen, Vishpla, who lost her leg in battle but returned to the frontline after being fitted with an iron prosthesis.

For many years, bioengineers have been working on sophisticated bionic human parts, in place of the actual biological structure. From artificial limbs to special hearing devices, these works have helped people with disabilities as well as patients and disaster victims who need life-saving support. Part machine, part human, the bionic man is a familiar hybrid figure with heroic stories and superhuman powers in science fiction such as the television series, *Six Million Dollars Man* adapted from the book *Cyborg* by Martin Caidin. But this figure is more than a metaphor and is becoming a reality in all our lives.