What is proteomics? *These two organisms have exactly the same genome. Cells use the instructions in our genes to make proteins. Proteins are the operational molecules of life and carry out the functions of living organisms. As different proteins are made biological systems can change remarkably, as highlighted by the transformation of the caterpillar into the butterfly.*

Window on the Science

DNA shapes our lives. The Human Genome Project, to map human DNA, was the single largest undertaking in the history of biological science. Completed in 2003 it was a US$4 billion international collaboration. Today, cumulative benefits are estimated at US$1 trillion[1], and the foundation was laid for transformational changes in medicine, from stem cell therapies to cloning.

PILL believes the next generation of biological science opportunities lies in the area of proteomics. Alongside DNA, proteins are one of the two essential macromolecules of life, and their study is the focus of proteomics. Cells use DNA as a set of instructions to make proteins that carry out all the functions of living organisms.

Whereas a person's genes are stable over their lifetime and consistent between cells, protein compositions differ and evolve with a person's age and surrounding environment. Proteomics is now an integral part of the biotechnology and life sciences industries and plays an essential role in understanding disease and biological systems.

What is proteomics?
Proteomics is the large scale study of proteins. Genomes are static - the genes we are born with are the genes we die with, but the protein make-up in our bodies differs from cell to cell and changes considerably over time.

1. National Human Genome Research Institute (National Institute of Health): Human Genome Project produces many benefits 2011.