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**COURSE: BIO 206- CELL BIOLOGY**

**TITLE: THE SOCIO-ECONOMIC IMPORTANCE OF MORDERN CELL BIOLOGY TECHNIQUES**

**WHAT IS MORDERN CELL BIOLOGY TECHNIQUES?**

**Cell is the basic and functional unit of life of all living organisms. Cell biology techniques are methods** used to study the molecular basis of biological activity. These methods used to explore cells, their characteristics, parts, and chemical processes, and pays special attention to how molecules control a cell’s activities and growth.

**Common Cell Biology Techniques**

The following list covers some of the more commonly used cell biology techniques –

**Cell / Tissue Culture** – in the same way that bacteria and other simple organisms can be grown in the laboratory outside their normal environment, cells and tissues from more complicated organisms can be cultured as well. The techniques are slightly different, and the culture media are more complex to reflect the complex internal environment inside the host from which the cells are derived, however cell and tissue culture is a powerful tool which provides an almost limitless supply of test material for researchers to use without resorting to using whole organisms.

**Microscopy** – the basic tool of cell biology is microscopy. Recent advances in imaging technology have allowed an unprecedented amount of information to be gleaned from microscopic analysis. Types of microscopic techniques which are used include:

**Electron Microscopy** – uses a focused beam of electrons instead of light. Electron microscopy permits a much higher magnification of specimens than light microscopy and is useful in obtaining detailed information about sub-cellular structures.

**Fluorescence Microscopy** – uses fluorescent materials to indicate structures in a specimen. Fluorescence occurs when light of one wavelength “excites” a material and causes it to emit light of a different wavelength.

**Immunofluorescence** – antibodies are proteins made by the immune system which bind onto specific parts of proteins. Antibodies can be raised against any protein in the cell.

**RNA Interference** – RNA interference uses short sequences of RNA which are complementary to the mRNA which carries to instructions to translate proteins from the ribosomes.

**SOCIO-ECONOMIC IMPORTANCE OF MORDERN CELL BIOLOGY TECHNIQUES**

Why is cell biology so important? This is because it can be used in various field to the benefit of the society at large. Some field in which modern cell biology has been proven useful includes:

**Medicine**: By understanding how cells work in healthy and diseased states, cell biologists working in animal plant and medical science will be able to develop new vaccines, more effective medicines, plants with improved qualities and through increased knowledge a better understanding of how all living things live. Diseases or disorder such as cancer, cystic fibrosis, etc are caused by problems at cell level and modern tools and techniques discovered has been useful in this field.

**Agriculture:** Biotechnology uses techniques and information from cell biology to genetically modify crops to produce alternative characteristics like; to clone plants and animals, to produce and ensure high quality food is available at lower costs, to produce good fertilizers and manure for plant growth. This makes enough agricultural produce enough for the society at large.

**Employment:** It has served as a good career skill for the society. People who go into cell biology are being exposed to making good gains and profits in different areas. Work in cell biology covers the knowledge and skills of different of people of different subject areas which includes biochemistry, biophysicists, computer specialists, cell and molecular biologists, etc.