**Course: Advance Bio Informatics**

**Module Title: Drug Discovery Technologies**

**Module No: 128**

Drug discovery is a multi-step process involving

1. Target selection
2. Lead identification
3. Clinical candidate selection
4. Clinical trials

**Drug Discovery Technologies**

Drug discovery is a computer technology Structural biology. It demonstrates Genomic & proteomic technologies.

**Genomic Technologies**

Genomic technology has novel DNA sequencing, DNA chip/ micro-array, metabolic profiling. HGP; 30,000 protein coding genes

Alternate splicing

99.9 % DNA conserved

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| **Biological Levels** | **Genomic Technologies** |
| Genome sequencing | Shotgun sequencing |
| Transcriptome | DNA micro-arrays and Chips |
| Proteome | Protein chips, MS, 2-D gel electrophoresis |
| Metabolome | MS, LC, NMR, GC |
| Chemical compounds Identification | Screening of target based assays |

**Proteomics Technology in Drug Discovery**

Contributions: target identification, validation & lead selection.

**Types:**

1. Chemical
2. Structural
3. Topological
4. Computational
   1. **Chemical Proteomics**

**Major area:** biochem,MS Synthetic chem, cell bio.

**Function:** probes to target proteins for enzymes

**Parts:** ligand, linker & tag

* 1. **Structural Proteomics**

3-D structures of protein. Proteins relations based on amino acids.

* 1. **Topological Proteomics**

Protein network within a cell. Quantitative & basic organization of proteins

TopNet

* 1. **Computational Proteomics**

It is Info about 3-D PS, good computing resources. PDB, 3-D\_GENOMICS