1. **Anatomic Structures and Systems**

A. Definition: Terms used to describe biological structures from macromolecular level to individual level.

B. Structure under the entity (with examples):

1.1 Anatomic Sites (Floor of Mouth, Palate, Oral Cavity…)
1.2 Body Part, Organ or Tissue
   1.2.1 Organ (Heart, Lung, Eye…)
   1.2.2 Body Fluids and Substances (Adrenal Fluids and Secretions…)
   1.2.3 Tissue (Bone, Soft Tissue, Connective Tissue…)
      1.2.3.1 Cell
         1.2.3.1.1 Abnormal Cell
            1.2.3.1.1.1 Tumor Cell (Breast Cancer Cell…)
         1.2.3.1.2 Somatic Cell (Endothelial Cell, Blood Cell…)
         1.2.3.1.3 Germ Cell (Egg, Oocyte, Spermatozoa…)
         1.2.3.1.4 Stem Cell (Neural Stem Cell, Bone Marrow Stem Cell…)
         1.2.3.1.5 Cell Fraction (Cytosol, Insoluble Fraction…)
         1.2.3.1.6 Cell Line (Cells made by researchers)
1.3 Body Region (Anatomical areas of the body: Abdomen, Limb…)
1.4 Cell Structure
   1.4.1 Cell Membrane (Nuclear Membrane, Outer Mitochondrial Membrane…)
   1.4.2 Cell Surface Structure (Gap Junction, Myelin Sheath…)
   1.4.3 Subcellular Structure
      1.4.3.1 Organelle (Golgi Complex, Mitochondria…)
      1.4.3.2 Nuclear Structure (Chromosomal Bands, Philadelphia Chromosome, Nuclear Lamina…)
      1.4.3.3 Cytoskeleton (Microtubules, Microfilaments…)
1.5 Embryonic Structures (Blastocyst, Mesodem, Neuroblast…)
1.6 Extracellular Structure (Extracellular Matrix, Basement Membrane…)
1.7 Macromolecular Structure
   1.7.1 Chromatin Structure (Nucleosome, Chromatin Loop…)
   1.7.2 DNA Structure (Repetitive Sequences, Satellite DNA, Major Groove…)
   1.7.3 Protein Structure (Protein Motif, Alpha Helix, Binding Domain, Epitopes…)
   1.7.4 Peptide/MHC Complexes (Peptides…)
   1.7.5 RNA Conformation (Secondary level of structural organization of RNA)
2 Genes

A. Definition: Terms to describe the specific sequences of nucleotides along a molecule of DNA (or, in the case of some viruses, RNA) which represent the functional units of heredity.

B. Structure under the entity (with examples):

2.1 Allele (One of a series of possible alternative forms of a given gene, differing in DNA sequence, and affecting the functioning of a single product.)
2.2 Apoptosis Regulation Gene (BCL-2, BAX…)
2.3 Cancer Gene (Oncogene, Tumor Suppressor Gene…)
2.4 Candidate Disease Gene (A gene proposed to have a primary role in a disease, based upon its known function in other organisms or model systems or based upon its physical proximity to markers linked to a genetic disease.)
2.5 DNA Repair Gene (ATM Gene, ERCC1 Gene, MLH1 Gene…)
2.6 General Transcription Factor Gene (ALF Gene, TBP Gene…)
2.7 Housekeeping Gene (Genes that are expressed at a fairly consistent level throughout the cell cycle and from tissue to tissue.)
2.8 Major Histocompatibility Complex (A group of linked loci, collectively termed H-2 complex in the mouse and HLA complex in humans, that codes for cell-surface histocompatibility antigens and is the principal determinant of tissue type and transplant compatibility.)
2.9 Non-Human Gene (Viral Genes, Drosophila Patched Gene…)
2.10 Receptor Gene (T-Cell Receptor Gene, DRD2 Gene…)
2.11 Regulatory Gene (Genes which regulate or circumscribe the activity of other genes: Homeobox Gene, BCL-1 Gene…)
2.12 Replication Initiation Gene (ASK Gene, Cdc45…)
2.13 Reporter Gene (A gene which produces an easily assayed phenotype. Often used for expression studies of heterologous promoters: LacZ Gene…)
2.14 Telomere Maintenance Gene (TRF1 Gene…)

3 Proteins

A. Definition: Terms used to describe any of a group of complex organic macromolecules that contain carbon, hydrogen, oxygen, nitrogen, and usually sulfur and are composed of one or more chains of amino acids.

B. Structure under the entity (with examples):

3.1 Protein Complex Subunit (BAF155, Immunoglobulin Heavy Chain…)
3.2 Protein Families (Collection of proteins that are evolutionarily related. This is
reflected in the structural and functional similarities as well as in the extent of
sequence conservation or residue identity)

3.3 Protein, Organized by Function
3.4 Protein, Organized by Location
3.5 Protein, Organized by Origin
3.6 Protein, Organized by Structure
3.7 Tissue Polypeptide Specific Antigen (An antigenic keratin peptide combination
K8/K18)

4 **Drugs and Chemicals**

A. Definition: Terms to describe drugs and chemicals related to biomedical research.

B. Structure under the entity:

4.1 Drugs and Chemical, Functional Classification
   4.1.1 Agonist and Antagonist
   4.1.2 Analogue
   4.1.3 Chemical Modifiers
   4.1.4 Drug of Abuse
   4.1.5 Food and Food Product
   4.1.6 Immunologics
   4.1.7 Industrial Products
   4.1.8 Pharmacologic Substances
   4.1.9 Physiology-Regulatory Factors
   4.1.10 Pigment
   4.1.11 Reagents

4.2 Drugs and Chemical, Structural Classification
   4.2.1 Inorganic Chemicals (A broad class of substances encompassing all those
   that do not include carbon and its derivatives as their principal elements.)
   4.2.2 Organic Chemicals (A broad class of substances containing carbon and its
derivatives.)

5 **Diseases, Disorders and Findings**

A. Definition: Terms used to describe diseases, disorders and related scientific findings.

B. Structure under the entity (with examples):

5.1 Diseases and Disorders (Neoplasm…)
   5.1.1 Cancer-Related Condition (Familial Neoplastic Syndrome…)
   5.1.2 Molecular Disease (Bare Lymphocyte Syndrome, DNA Repair Disorders…)
5.1.3 Neoplasm (Bladder Clear Cell Adenocarcinoma…)
5.1.4 Non-Neoplastic Disease, Syndrome or Condition (Cardiovascular Disease: Hypertension, Infectious Disease: Herpes…)
5.2 Findings (Inflammation, Signs and Symptoms…)

6 Biological Processes

A. Definition: Terms used to describe various biological phenomena which occur in living organisms.

B. Structure under the entity (with examples):

6.1 Cell Processes
   6.1.1 Biochemical Processes (DNA Replication, Microtubule Polymerization…)
   6.1.2 Biophysical Processes (Ligand Binding, Protein Folding…)
   6.1.3 Cell Growth and Maintenance (Cell Cycle Regulation, Cell Death…)
   6.1.4 Cellular Transport (Endocytosis, Cell Secretion…)
   6.1.5 Signal Transduction (Protein Phosphorylation, Stress Response Signaling…)
   6.1.6 Gene Expression (Regulation of Gene Expression, Gene Transcription…)
   6.1.7 Genomic Instability (Loss of Heterozygosity…)
   6.1.8 Molecular Alteration (Gene Amplification, Gene Mutation…)
   6.1.9 Molecular Interaction (Protein-Protein/DNA-Protein Interactions…)
   6.1.10 Recombination (Mitotic Recombination, Homologous Recombination…)

6.2 Intercellular Process (Cell Adhesion, Cell Communication, Fertilization…)

6.3 Metabolic Processes (Acetylation, Biosynthesis, Detoxification…)

6.4 Organismal Processes (Aging, Development, Blood Circulation, Reproduction…)

6.5 Pathologic Processes (Cancer Cell Growth, Disease Progression, Pathogenesis…)

6.6 Physiological Processes (Cell Proliferation, Immune Function, Morphogenesis…)

6.7 Population Process (Evolution, Genetic Drift, Mutation Fixation…)

6.8 Viral Functions and Activities (Membrane Fusion Activity, Core Assembly…)

7 Organisms

A. Definition: Terms used to describe plants, animals, and other forms of life that are made up of complex and interconnected systems of cells and tissue.

B. Structure under the entity:

7.1 Animal
   7.1.1 Invertebrate (Drosophila, C. Elegans…)
   7.1.2 Vertebrate (Hamster, Chimpanzee…)
   7.1.3 Laboratory Animals (Knock-out Mouse, Recombinant Inbred Strain…)


7.2 Fungi (Yeast: Saccharomyces Cerevisiae…)
7.3 Other Organism Groups (Disease Vectors, Virus Infectious Agent…)
7.4 Plant
7.5 Prokaryotes (Bacteria: E. Coli…)
7.6 Viruses (Bacteriophage P1, Type D Retrovirus…)

8 Occupation or Discipline

A. Definition: Top level terms to describe the different occupation or discipline areas.

B. Structure under the entity (with examples):

8.1 Behavioral Sciences (Clinical Psychology, Ethnography…)
8.2 Biological Sciences (Comparative Anatomy, Enzymology…)
8.3 Health Sciences (Clinical Chemistry, Clinical Virology…)
8.4 Miscellaneous Occupations (Consumer Liaison…)
8.5 Physical Sciences (Classical Mechanics…)
8.6 Population Sciences (Dental Epidemiology…)
8.7 Social Sciences (Family Sociology…)
8.8 Technology (Biomaterials, Biosensors…)

9 Diagnostic, Therapeutic, and Research Equipment

A. Definition: Terms used to describe the equipments used in diagnostic, therapeutic and research fields.

B. Structure under the entity (with examples):

9.1 Cell Culture Systems (Roller Bottle, Hollow Fiber Apparatus…)
9.2 Computer Systems (Health Information System…)
9.3 Hybridization Arrays (DNA Microarray Chip…)
9.4 Imaging Devices (Fluroscope…)
9.5 Medical Devices (Laser, Optical Instrument…)
9.6 Special Equipment (Computer Program…)

10 Techniques

A. Definition: Terms used to describe the mode or manner or orderly sequence of events of a process or procedure.
B. Structure under the entity (with examples):

10.1 Biological Testing (Migration Assays, Toxicity Test…)
10.2 Computational Techniques (Pattern Recognition, Computer Modeling…)
10.3 Diagnostic Procedure (Molecular Diagnostic Methods…)
10.4 Diagnostic or Prognostic Tests (CEA Assay, Chemosensitivity Assay…)
10.5 Electrospray Ionization (A procedure used in mass spectrometry analysis. Means of delivering nonvolatile analytes into the gas phase for mass analysis.)
10.6 Epidemiological Methods (Epidemiological methods involve sophisticated statistics and higher mathematics. These methods allow epidemiologists to address issues like non-experimental studies of mechanistic questions in disease etiology, including studies of the impact of the social position of individuals in different social contexts.)
10.7 Fluorophotometry (Measurement of light given off by fluorescein in order to assess the integrity of various ocular barriers. The method is used to investigate the blood-aqueous barrier, blood-retinal barrier, aqueous flow measurements, corneal endothelial permeability, and tear flow dynamics.)
10.8 High Throughput Screening (Use of robots and other automated techniques to screen large numbers of samples.)
10.9 Imaging Techniques (Quantitative Autoradiography, Functional MRI…)
10.10 Lymph Node Mapping (The use of dyes and radioactive substances to identify lymph nodes that contain tumor cells.)
10.11 Palpation (Application of fingers with light pressure to the surface of the body to determine consistence of parts beneath in physical diagnosis; includes palpation for determining the outlines of organs.)
10.12 Preservation Techniques (Egg Preservation, Cryopreservation…)
10.13 Reproductive Techniques (In Vitro Fertilization…)
10.14 Research Techniques (Primary Cell Culture, Density Gradient Centrifugation…)
10.15 Statistical Methods (Biostatistical Methods, Multiparametric Analysis…)

11 Properties or Attributes

A. Definition: Terms used to describe the properties or attributes of a certain substance.

B. Structure under the entity (with examples):

11.1 Attributes of Chemicals (Neurotoxicity, Tumorigenicity…)
11.2 Clonality (Related by decent from a single progenitor cell.)
11.3 Demographics (Educational Level, Socioeconomic Factors…)
11.4 Disease Modifiers (Acute, Pediatric, Maglinant…)
11.5 General Modifiers (Physiologic, Vital…)
11.6 Personal Attributes (Genetic Status, Obesity…)
11.7 Physical Phenomena or Properties (Acoustic, Affinity, Radioactive…)
11.8 Ploidy (The degree of replication of the chromosome set in the karyotype:...
Diploidy, Polyploidy…)
11.9 Radiation Dose Unit (Gray, RAD…)
11.10 Radiation Sensitivity (The ability of some cells or tissues to withstand ionizing radiation without serious injury.)
11.11 S-Phase Fraction (The percentage of cells in a sample currently undergoing mitosis.)
11.12 Attributes of Genes
11.13 Attributes of Proteins

12 Social Concepts

A. Definition: Terms used to describe social activities related to biomedical research.

B. Structure under the entity (with examples):

12.1 Behavior (Lifestyle, Cigarette Smoking…)
12.2 Belief Systems (Religion…)
12.3 Cultural Diversity (The inevitable variety in customs, attitudes, practices, and behaviors that exists among groups of individuals from different ethnic, racial, or national backgrounds who come into contact.)
12.4 Culture (A collective expression for all behavior patterns acquired and socially transmitted through symbols. Culture includes customs, traditions, and language.)
12.5 Group Affiliation (Inclusion of an individual in a peer or minority group.)
12.6 Individual
12.7 Population Groups (Adolescents, Ethnic Groups…)
12.8 Support System (The circle of friends, family, and associates that provide love, care, and need gratification including church, school, and workplace.)

13 Conceptual Entities

A. Definition: Terms used to describe abstract biological phenomena and systems.

B. Structure under the entity (with examples):

13.1 3-Dimensional (3-D graphic display of depth, width, and height)
13.2 Clusters of Orthologous Groups of Genes (Groups of related genes which have been maintained through evolution: Homeobox Genes…)
13.3 Confidentiality (Genetic Privacy, Patient Data Privacy)
13.4 Environment (Altitude, Atmosphere Pressure, Cities…)
13.5 Epidemiological Factors (Life Style Factors, Geographic Location…)
13.6 Gene-Modified (Gene Transfer, Gene Transplantation for Gene Transfer)
13.7 Geographic Areas (City, Continent, Island…)
13.8 Geographic Distribution (Density, Age/Sex Composition…)
13.9 Global Change
13.10 Phylogenetic Patterns
13.11 Prognosis
13.12 Staging System
13.13 Tissue/Specimen Availability
13.14 Trends (Cyclical Fluctuation…)

14 Business Rules

A. Definition: Terms used to describe funding source, data source, animal source, grant-related issues, cooperation, researcher information, etc.