

Where bioethics research begins...

**NATIONAL REFERENCE CENTER FOR BIOETHICS LITERATURE
NATIONAL INFORMATION RESOURCE ON ETHICS & HUMAN GENETICS**

**BIOETHICS THESAURUS FOR GENETICS
Alphabetical List of Keywords
and Genetics Tree**

2009

**Appendix:
Examples of Genetics-Related Keyword Identifiers**

Services supported by NIH's National Library of Medicine and National Human Genome Research Institute
Kennedy Institute of Ethics Box 571212 Georgetown University Washington, DC 20057-1212
tel: 202-687-3885 / 1-888-BIO-ETHX (1-888-246-3849) fax: 202-687-8089
e-mail: bioethics@georgetown.edu Web: <http://bioethics.georgetown.edu>

BIOETHICS THESAURUS FOR GENETICS 2009

Introduction: Keyword Indexing of the GenETHX Database

With financial support from the National Human Genome Research Institute, the Kennedy Institute's Bibliographers have updated and enriched the *Bioethics Thesaurus* with genetics terminology. In May 2007 they began indexing documents in the GenETHX database with these terms.

The 2009 *Bioethics Thesaurus for Genetics* contains 98 Keyword Descriptors (subject terms in a controlled indexing vocabulary) related to genetics (a list of these terms follows). Eleven of these terms are new to the 2009 Thesaurus. Some of the terms (e.g., CLINICAL GENETICS, GENETIC ANCESTRY, GENETIC DISCRIMINATION, GENETIC EPIDEMIOLOGY, GENETIC RELATEDNESS TIES, GENETIC RESOURCES, HUMAN GENOME DIVERSITY PROJECT, INDUCED PLURIPOTENT STEM CELLS, PERSONAL GENOMICS, and SYNTHETIC BIOLOGY) are, as far as we know, unique to any Thesaurus.

All of the Thesaurus genetics terms, old and new, have been annotated with the date they were introduced (DT), with explanatory Scope Notes (SN), and with Broader Term (BT), Narrower Term (NT), and Related Term (RT) cross-references to other Thesaurus terms, some in subject areas other than genetics. (Following Thesaurus convention, "+" after a Narrower or Related Term indicates that the term cited has more specific Narrower Terms under it.)

The Classification field (CL) indicates what number, or combination of numbers, from the NRCBL Library Classification Scheme would have been assigned to the document. ("+" after a number indicates that a searcher might find either that number or a more specific number under it on the document.)

The 2009 *Bioethics Thesaurus* Genetics Tree, which begins on page 23, provides an easy-to-grasp three-page overview of the genetics terms in a hierarchical display. Searchers interested in a set of broader and narrower terms should "OR" the terms together in a search strategy statement.

An appendix to this Thesaurus provides examples of genetics-related Keyword Identifiers. Keyword Identifiers do not appear in the *Bioethics Thesaurus*, but may be searched in the same way as Keyword Descriptors in the Thesaurus.

So far, more than 2,200 documents in the GenETHX database have been indexed with Keyword Descriptors from the *Bioethics Thesaurus*. These documents have also been indexed, as appropriate, with non-Thesaurus Keyword Identifiers (proper nouns, including the names of persons, corporate bodies, laws, court decisions, and geographic names) and Keyword Proposed Descriptors (terms under consideration for inclusion in future editions of the *Bioethics Thesaurus*). They have also been indexed with many non-genetics related Keywords from the full *Bioethics Thesaurus*.

The comprehensive *Bioethics Thesaurus* is available on the Web at <http://bioethics.georgetown.edu/databases/bt/>.

Search tips geared to searching the GenETHX database are available on the Web at <http://bioethics.georgetown.edu/databases/GenETHX/genetips.htm>.

**GENETICS TERMS IN THE 2009 BIOETHICS THESAURUS (inclusive)
Revised December 11, 2008**

ADULT STEM CELLS

- DT 2007
SN Undifferentiated cells found in a differentiated tissue that can renew themselves and differentiate (with certain limitations) to give rise to more specialized cells
BT Stem cells
RT Induced pluripotent stem cells
CL 18.7

ANIMAL CLONING

- DT 2007 (was CLONING, 1974-2001)
SN Asexual single-parent reproduction of an animal, in which the offspring has DNA in the cell nucleus that is identical to the nuclear DNA of its parent
BT Cloning
CL 14.5 and 22.3

APO-E GENES

- DT 2009
SN Genes that provide instructions for making a protein called apolipoprotein E which carries cholesterol and other fats through the blood to be processed. Some variations of the APO-E gene are associated with a genetic predisposition to disorders such as Alzheimer disease
UF apoE genes
apolipoprotein genes
BT Genes
CL 15.+

BEHAVIORAL GENETICS

- DT 1974
SN The study of the effects of heredity on human behavior
BT Genetics
NT Genetic determinism
RT Psychiatric genetics
Sociobiology
XYY karyotype
CL 15.6

BIOTECHNOLOGY

- DT 2008
SN The manipulation (as through genetic engineering) of living organisms or their components to produce useful, usually commercial, products (as pest resistant crops, new bacterial strains, or novel pharmaceuticals; also, any of various applications of biological science used in such manipulation (Merriam-Webster Online Dictionary, accessed 1/17/08)
BT Genetic engineering
Technology
NT Synthetic biology
CL 15.+

BRCA1 GENES

DT 2008
SN Tumor suppressor genes, located on human chromosome 17, mutations of which are associated with a higher than average incidence of breast and ovarian cancer
BT Genes
CL 15.+

BRCA2 GENES

DT 2008
SN Tumor suppressor genes, located on human chromosome 13, mutations of which are associated with a higher than average incidence of breast and ovarian cancer
BT Genes
CL 15.+

CHIMERAS

DT 2007 (was HYBRIDS, 1974-2001)
SN The offspring of parents belonging to different species, varieties, or genotypes
UF Hybrids
BT Genetic engineering
CL 15.1 and 22.1

CHROMOSOME ABNORMALITIES

DT 1974
BT Congenital disorders
Genetic disorders
NT Down syndrome
Fragile X syndrome
Trisomy
XYY karyotype
CL 15.+

CLINICAL GENETICS

DT 2007
SN Genetics applied to the diagnosis, prognosis, management, and prevention of genetic diseases (Stedman's Online Medical Dictionary, 2007)
UF Medical genetics
BT Genetics
NT Gene therapy
Genetic counseling
Genetic screening
Genetic services
Preimplantation diagnosis
Prenatal diagnosis+
RT Genetic intervention+
CL 15.2 or 15.3 or 15.4

CLONING

DT 1974
SN Asexual single-parent reproduction, in which an offspring has DNA in the cell nucleus that is identical to the nuclear DNA of its parent
UF Human cloning
Embryo cloning (use CLONING and (EMBRYOS or EMBRYO RESEARCH+))
Reproductive cloning (use CLONING and REPRODUCTIVE TECHNOLOGIES)
Research cloning (use CLONING and EMBRYO RESEARCH+)

Therapeutic cloning (use CLONING and (STEM CELLS+ or STEM CELL TRANSPLANTATION))

BT Genetic techniques
Reproductive technologies
NT Animal cloning
RT Nuclear transfer techniques
CL 14.5

CYSTIC FIBROSIS

DT 1981
BT Genetic disorders
CL 15.+

DNA

DT 2007 (was GENETIC MATERIALS, 1997-2001)
SN A nucleic acid that is the primary genetic material of all cells
UF Deoxyribonucleic acid
BT Genetic materials
RT DNA sequences
CL 15.1 or 15.8

DNA FINGERPRINTING

DT 1991
SN A genetic identification procedure in which band patterns of DNA (the DNA fingerprint) from one individual or an unknown individual are evaluated for similarities with those of a known individual
BT Forensic genetics
Genetic techniques
RT Genetic databases
Genetic screening
CL 15.1 and 1.3.5

DNA SEQUENCES

DT 1997
SN Base pairs arranged in linear order, whether in a stretch of DNA, a gene, a chromosome, or an entire genome
UF Base sequence
BT Genetic materials
RT DNA
Genes
Genome+
CL 15.1 or 15.8

DOWN SYNDROME

DT 1974
UF Down's syndrome
Mongolism
Trisomy 21
BT Trisomy
RT Mentally retarded persons
CL 9.5.3 (often and 15.2)

DUCHENNE MUSCULAR DYSTROPHY

DT 1974

UF Dystrophy, Duchenne muscular
Muscular dystrophy, Duchenne
BT Genetic disorders
CL 15.+

EMBRYONIC STEM CELLS

DT 2007
SN Primitive (undifferentiated) cells derived from a 5-day blastocyst that have the potential to become a wide variety of specialized cell types
BT Stem cells
CL 18.7

EPIGENETICS

DT 2008 kwds
UF Epigenesis, genetic
Epigenetic processes
Genetic epigenesis
SN Heritable changes in phenotype (appearance) or gene expression that are caused by mechanisms other than changes in the underlying DNA sequence (Wikipedia)
BT Genetic phenomena
CL 15.+

EUGENICS

DT 1974
SN The study of or belief in the possibility of improving the qualities of the human species or a human population, esp. by such means as discouraging reproduction by persons having genetic defects or presumed to have inheritable undesirable traits (negative eugenics) or encouraging reproduction by persons presumed to have inheritable desirable traits (positive eugenics) (based on the Random House Unabridged Dictionary, 2006)
UF Negative eugenics
Positive eugenics
BT Genetic intervention
RT Genetic enhancement
CL 15.5

EVOLUTION

DT 1974
UF Natural selection
SN The process of cumulative change over successive generations through which organisms acquire their distinguishing morphological and physiological characteristics (MeSH)
BT Genetic phenomena
RT Sociobiology
CL 15.1 and/or 3.2

FORENSIC GENETICS

DT 2008
SN The branch of genetics that deals with the application of genetic knowledge to legal problems and legal proceedings, often referring specifically to matching DNA from a suspect in a crime to samples taken from a crime scene
BT Forensic medicine
Genetics
NT DNA fingerprinting
RT Law enforcement

CL 15.1 and 1.3.5

FRAGILE X SYNDROME

DT 2008

SN A genetic disorder caused by a mutation of the FMR1 gene on the X chromosome. It is associated with a range of developmental problems, including cognitive or intellectual disabilities

BT Chromosome abnormalities

RT Mental retardation

CL 15.+

GAUCHER DISEASE

DT 2009; *was* GENETIC DISORDERS, 1974-2001

SN A rare genetic disorder that results in the accumulation of fatty molecules called cerebrosides

BT Genetic disorders

CL 15.+

GENE POOL

DT 1974

SN The complete assortment of genes present in the gametes of the members of a population that are eligible to reproduce (Encyclopedia of Genetics, 2004)

BT Genetic phenomena

RT Population genetics

CL 15.+

GENE THERAPY

DT 1980

SN The treatment of genetic disorders through the introduction of properly functioning genes into the appropriate cells of an organism

UF Germline gene therapy (use GENE THERAPY and GERM CELLS)
Somatic gene therapy

BT Clinical genetics

Genetic engineering

RT Gene transfer techniques

Genetic enhancement

Genetic services

CL 15.4

GENE TRANSFER TECHNIQUES

DT 2007

SN Methods of introducing genes into an organism's cells, usually by a vector such as a modified virus

BT Genetic techniques

RT Gene therapy

Genetic enhancement

CL 15.+

GENES

DT 1997

SN Functional and physical units of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein (National Human Genome Research Institute Talking Glossary, 2007)

BT Genetic materials

NT APO-E genes
BRCA1 genes
BRCA2 genes
RT DNA sequences
CL 15.1 or 15.8

GENETIC ANCESTRY

DT 2007
SN Relationship to continental population groups through one's forebears
BT Population genetics
RT Pedigree
Pharmacogenetics
Racial groups+
CL 15.11

GENETIC CARRIERS

DT 2007 (was CARRIERS, 1974-2001)
SN Individuals possessing a specified gene who are capable of transmitting it to offspring but who do not show its typical expression
UF Carriers
BT Genotype
RT Genetic disorders+
CL 15.2 or 15.3

GENETIC COUNSELING

DT 1974
SN The process whereby an expert in genetic disorders provides information about risk and clinical burden of a disorder or disorders to patients or relatives in families with genetic disorders as an aid to making informed and responsible decisions about marriage, children, early diagnosis, and prognosis (Stedman's Online Medical Dictionary, 2007)
BT Counseling
Clinical genetics
Genetic intervention
RT Directive counseling
Genetic information+
Genetic screening
Genetic services
Prenatal diagnosis+
CL 15.2

GENETIC DATABASES

DT 2007 (was DNA DATA BANKS, 1994-2001)
SN Collections of genetic information that are maintained for clinical, research, or law enforcement purposes
UF DNA data banks
DNA databases
BT Databases
Genetic information
RT Biological specimen banks+
DNA fingerprinting
Genetic privacy
Genetic research+
CL 15.1 and 15.12

GENETIC DETERMINISM

- DT 1998
SN The theory that human character and behavior are determined solely or predominantly by the genes that comprise the individual's genotype, rather than shaped by genotype plus culture, social environment, and individual choice; also used for discussions of the degree to which genes determine physical phenotypes
UF Genetic reductionism
BT Behavioral genetics
Genetic phenomena
CL 15.6

GENETIC DISCRIMINATION

- DT 2007 (was SOCIAL DISCRIMINATION, 1982-2001, or INSURANCE SELECTION BIAS, 1998-2001)
SN Unfair treatment of a person or group based on genetic information, which may be used, e.g., to deny or limit insurance or employment
BT Psychosocial genetics
Social discrimination
CL 15.+ and (8.4 or 9.3.1 or occasionally 16.3)

GENETIC DISORDERS

- DT 1974
SN Pathological conditions caused by an absent or defective gene or by a chromosome aberration (American Heritage Dictionary of the English Language, 4th ed, 2000)
UF Genetic diseases
Hereditary diseases
Inborn genetic diseases
Inherited disorders
BT Genetics
NT Chromosome abnormalities+
Cystic fibrosis
Duchenne muscular dystrophy
Hemophilia
Late-onset disorders+
Phenylketonuria
Sickle cell anemia
Tay Sachs disease
Thalassemia
Note: consult the MeSH vocabulary (under Genetic Diseases, Inborn) for additional genetic disorders
RT Genetic carriers
Genetic predisposition
Growth disorders
Neural tube defects+
CL 15.+

GENETIC DIVERSITY

- DT 1998
SN Genotypic differences among individuals and among population groups
UF Genetic variation
Variation, genetic
BT Genetic phenomena
RT HapMap Project
Human Genome Diversity Project

CL Population genetics+
15.+

GENETIC ENGINEERING

DT 1974 (was GENETIC INTERVENTION, 1974-2001)
SN Directed modification of the gene complement of a living organism by such techniques as altering the DNA, substituting genetic material by means of a virus, transplanting whole nuclei, transplanting cell hybrids, etc. (MeSH)
UF Genetic technologies
BT Genetic intervention
NT Biotechnology+
Chimeras
Gene therapy
Genetic enhancement
Genetically modified food
Genetically modified organisms+
Recombinant DNA research
RT Containment (*of biohazards*)
Genetic Techniques+
CL 15.1 (or 15.7 for biohazards of genetic research)

GENETIC ENHANCEMENT

DT 1996 (was GENE THERAPY or GENETIC INTERVENTION, 1974-1995)
SN The use of genetic technologies to augment or improve human or animal capacities or traits, rather than to treat disease
BT Enhancement technologies
Genetic engineering
RT Eugenics
Gene therapy
Gene transfer techniques
Normality
CL 15.+ and 4.5

GENETIC EPIDEMIOLOGY

DT 2008
SN The study of genetics as a phenomenon of defined populations by the criteria, methods, and objectives of epidemiology rather than of population genetics (Online Medical Dictionary, accessed 1/17/08)
EN Epidemiological genetics
BT Epidemiology
Genetics
RT Genetic research+
Population genetics+
CL 15.+

GENETIC IDENTITY

DT 1998
SN Personal identity as it is based on the individual's genotype
BT Psychosocial genetics
RT Self concept
CL 15.+

GENETIC INFORMATION

- DT 1997
SN Genetic data, about an individual, family, or population group, derived from genetic research, tests, or family histories
BT Genetics
NT Genetic databases
Genetic privacy
Pedigree
RT Genetic counseling
Genetic research+
Genetic screening
Incidental findings
CL 15.+

GENETIC INTERVENTION

- DT 1974
SN General term for the modification of inheritable characteristics of individuals or populations through various social mechanisms and/or genetic technologies
BT Genetics
NT Eugenics
Genetic counseling
Genetic engineering+
Genetic screening
Preimplantation diagnosis
Prenatal diagnosis
RT Clinical genetics+
Genetic research+
Sex determination
Sex preselection
CL 15.+

GENETIC MARKERS

- DT 2007
SN Specific DNA sequences that are associated with the variability of a genetic disorder or trait and that can potentially be used to determine the locus of the gene or genes associated with that trait or disorder
BT Genetic phenomena
CL 15.+

GENETIC MATERIALS

- DT 1997
SN DNA and biological entities from which DNA can be extracted
BT Genetics
NT DNA
DNA sequences
Genes
Genetic resources
Genome+
RT Genetic patents
CL 15.+

GENETIC PATENTS

- DT 2007 (was PATENTS, 1974-2001)
SN Patents on life forms or genetic materials

UF Biopatents
BT Genetic research
Patents
RT Genetic materials+
CL 15.8

GENETIC PHENOMENA

DT 2007
SN Concepts related to genetic processes and structures
BT Genetics
NT Epigenetics
Evolution
Gene pool
Genetic determinism
Genetic diversity
Genetic markers
Nuclear reprogramming
Genotype+
Phenotype
CL 15.+

GENETIC PREDISPOSITION

DT 1995
SN The presence of genetic factors indicating a higher-than-average risk, but not the certainty, that an individual will develop a disorder later in life
BT Genotype
RT Genetic disorders+
Genetic screening
CL 15.2 or 15.3

GENETIC PRIVACY

DT 2007 (was GENETIC INFORMATION, 1997-2001)
SN The protection of genetic information about an individual, family, or population group, from unauthorized disclosure (MeSH)
BT Genetic information
Privacy
RT Confidentiality+
DNA fingerprinting
Genetic databases
Genetic research+
Genetic screening
CL 15.+ and 8.4

GENETIC RELATEDNESS TIES

DT 2007
SN The psychological significance of being linked genetically to another person, for example, one's child
UF Genetic kinship ties
Genetic relationship ties
Kinship ties, genetic
BT Psychosocial genetics
CL (15.1 or 15.2) and/or 14.+

GENETIC RESEARCH

- DT 1995
- SN Broadly, investigation into the cause, transmission, amelioration, elimination, or enhancement of inherited disorders and/or traits
- BT Biomedical research
Genetics
- NT Genetic patents
HapMap Project
Human Genome Diversity Project
Human Genome Project
Recombinant DNA research
- RT Genetic databases
Genetic epidemiology
Genetic information+
Genetic intervention+
Genetic privacy
Genome mapping+
Research subjects+
- CL 15.1 (or 15.7 for biohazards of genetic research)

GENETIC RESOURCES

- DT 2008
- SN Genetic materials found in an ecosystem or a population group that are of actual or potential value in commerce or research; not used to index literature or database resources on genetics
- BT Genetic materials
- RT Benefit sharing
Biodiversity
- CL 15.+

GENETIC SCREENING

- DT 1974
- SN The use of, on a (smaller or larger) population group, of diagnostic procedures intended to identify either individuals affected by a genetic disorder or asymptomatic carriers of a particular genetic trait
- UF Genetic testing
Predictive genetic testing (use GENETIC SCREENING and (predictive or GENETIC PREDISPOSITION or LATE-ONSET DISORDERS+))
Public health-oriented genetic screening (use GENETIC SCREENING and (MASS SCREENING or PUBLIC HEALTH))
- BT Clinical genetics
Genetic intervention
Mass screening
- RT DNA fingerprinting
Genetic counseling
Genetic information+
Genetic predisposition
Genetic privacy
Genetic services
Mandatory testing
Preimplantation diagnosis
Prenatal diagnosis+
- CL 15.3

GENETIC SERVICES

- DT 1997
- SN Organized services to provide diagnosis, treatment, and prevention of genetic disorders
- BT Clinical genetics
- RT Gene therapy
 - Genetic counseling
 - Genetic screening
 - Preimplantation diagnosis
 - Prenatal diagnosis+
- CL 15.2 or 15.3 or 15.4

GENETIC TECHNIQUES

- DT 2007
- SN Chromosomal, biochemical, intracellular, and other methods used in the study of genetics (MeSH)
- BT Genetics
- NT Cloning+
 - DNA fingerprinting
 - Gene transfer techniques
 - Genome mapping+
 - Nuclear transfer techniques
- RT Genetic engineering+
 - Pedigree
- CL 15.+

GENETICALLY MODIFIED ANIMALS

- DT 2007 (was TRANSGENIC ANIMALS, 1990-2001)
- SN Animals whose genomes have been altered by genetic engineering, or their offspring (MeSH)
- UF GM animals
 - Transgenic animals
- BT Genetically modified organisms
- RT Genetically modified food
- CL 15.1 and 22.3

GENETICALLY MODIFIED FOOD

- DT 2007
- SN Food derived from genetically modified organisms (MeSH)
- UF GM food
- BT Genetic engineering
- RT Genetically modified animals
 - Genetically modified plants
- CL 15.1 and 1.3.11

GENETICALLY MODIFIED ORGANISMS

- DT 2007 (was TRANSGENIC ORGANISMS, 1997-2001)
- SN Organisms whose genome has been changed by a genetic engineering technique (MeSH)
- UF GMOs
 - Transgenic organisms
- BT Genetic engineering
- NT Genetically modified animals
 - Genetically modified plants
- RT Genetically modified food

CL 15.1 and (1.3.11 or 22.3)

GENETICALLY MODIFIED PLANTS

DT 2007

SN Plants, or their progeny, whose genomes have been altered by genetic engineering (MeSH)

UF Genetically modified crops
Genetically modified seeds
GM plants
Transgenic plants

BT Genetically modified organisms

RT Genetically modified food

CL 15.1 and 1.3.11

GENETICS

DT 1974

SN The branch of science concerned with the means and consequences of transmission and generation of the components of biological inheritance (Stedman's Online Medical Dictionary)

BT Biology

NT Behavioral genetics+
Clinical genetics+
Forensic genetics+
Genetic disorders+
Genetic epidemiology
Genetic information+
Genetic intervention+
Genetic materials+
Genetic phenomena+
Genetic research+
Genetic techniques+
Genomics+
Pharmacogenetics
Population genetics+
Proteomics
Psychiatric genetics
Psychosocial genetics+
Sociobiology

CL 15.+

GENOME

DT 2007

SN All of the DNA contained in an organism or a cell, which includes both the chromosomes within the nucleus and the DNA in mitochondria (National Human Genome Research Institute Talking Glossary, 2007)

BT Genetic materials

NT Human genome

RT DNA sequences
Genomics+

CL 15.+

GENOME MAPPING

DT 1989

SN The use of genetic techniques to produce a detailed overview of the gene locations within a genome
BT Genetic techniques
Genomics
NT Human Genome Project
RT Genetic research+
CL 15.10

GENOME-WIDE ASSOCIATION STUDIES

DT 2008
SN Studies of genetic variation across the entire human genome that are designed to identify genetic associations with measurable traits (such as blood pressure or weight), or the presence or absence of a disease or condition (Genome-Wide Association Studies (GWAS) Web Site, accessed 2/14/08)
EN Whole-genome association studies
BT Genomics
CL 15.+

GENOMICS

DT 2007
SN The systematic study of the complete DNA sequences (genomes) of organisms (MeSH)
BT Genetics
NT Genome mapping+
Genome-wide association studies
Nutrigenomics
Personal genomics
RT Genome+
Human Genome Project
Proteomics
CL 15.1

GENOTYPE

DT 2007
SN The genetic makeup, as distinguished from the physical appearance, of an organism
BT Genetic phenomena
NT Genetic carriers
Genetic predisposition
RT Phenotype
CL 15.+

HapMap PROJECT

DT 2007
SN An international effort to identify and catalog genetic similarities and differences in human beings. Using the information in the HapMap, researchers will be able to find genes that affect health, disease, and individual responses to medications and environmental factors. The Project is a collaboration among scientists and funding agencies from Japan, the United Kingdom, Canada, China, Nigeria, and the United States (from the International HapMap Project webpage)
UF International HapMap Project
BT Genetic research
RT Genetic diversity
Population genetics+
CL (15.1 or 15.10) and 13.1 and 21.1

HEMOPHILIA

DT 1974
BT Genetic disorders
CL 15.+

HUMAN GENOME

DT 2007
SN The complete genetic complement contained in the DNA of a set of chromosomes in a human (based on MeSH)
BT Genome
CL 15.+

HUMAN GENOME DIVERSITY PROJECT

DT 2007 (was GENETIC DIVERSITY, 1998-2001)
SN An international research effort, under the auspices of the Human Genome Organization (HUGO), to collect biological samples from different population groups throughout the world, with the aim of building a representative database of human genetic diversity
UF HGDP
BT Genetic research
RT Genetic diversity
Human Genome Project
Population genetics+
CL 15.10 and 13.1 and 21.1

HUMAN GENOME PROJECT

DT 2007 (was GENOME MAPPING, 1989-2001)
SN An international research effort, completed in April 2003, to map and sequence all of the genes of the human genome
UF HGP
BT Genetic research
Genome mapping
RT Human genome
Human Genome Diversity Project
CL 15.10

HUNTINGTON DISEASE

DT 2007 (was HUNTINGTON'S DISEASE, 1974-2001)
BT Late-onset disorders
CL 15.+

INDUCED PLURIPOTENT STEM CELLS

DT 2009
SN Pluripotent stem cells that are artificially derived from non-pluripotent cells, typically adult somatic cells, through a variety of laboratory techniques
UF iPS cells
BT Pluripotent stem cells
RT Adult stem cells
CL 18.7

LATE-ONSET DISORDERS

DT 1995 (was GENETIC DISORDERS *or* HUNTINGTON'S DISEASE, 1974-1994)
UF Adult-onset genetic disorders
Late-onset genetic disorders
BT Genetic disorders

NT Huntington disease
CL 15.+

NUCLEAR REPROGRAMMING

DT 2009
SN The process that reverts cell nuclei of fully differentiated somatic cells to a pluripotent or totipotent state
BT Genetic phenomena
RT Nuclear transfer techniques
CL 15.1 or 18.7

NUCLEAR TRANSFER TECHNIQUES

DT 2007
SN Methods of implanting a cell nucleus from a donor cell into an enucleated acceptor cell. Often the nucleus of a somatic cell is transferred into a recipient ovum or stem cells with the nucleus removed (adapted from MeSH)
BT Genetic techniques
RT Cloning+
Nuclear reprogramming
Stem cells+
CL 14.5 or 15.1

NUTRIGENOMICS

DT 2008
SN The study of how different foods may interact with those having specific genotypes to increase or decrease the risk of common chronic diseases such as type-2 diabetes, obesity, heart disease, stroke, and certain cancers; nutrigenomics also seeks to provide a molecular understanding of how common chemicals in the diet affect health by altering the expression of genes and the structure of an individual's genome (MedicineNet.com, accessed 2/14/08)
EN Nutrigenetics
Nutritional genetics
Nutritional genomics
BT Genomics
RT Nutrition
CL 15.1

PEDIGREE

DT 2007
SN A record of descent or ancestry, particularly of a particular condition or trait, indicating individual family members, their relationships, and their status with respect to the trait or condition (MeSH)
BT Genetic information
RT Genetic ancestry
Genetic techniques+
CL 15.+

PERSONAL GENOMICS

DT 2008
SN Analysis of the DNA of a particular individual's genome
UF Personalized genomics
BT Genomics
RT Pharmacogenetics

CL 15.1 or 15.10

PHARMACOGENETICS

DT 2007

SN A branch of genetics that deals with the genetic variability in individual responses to drugs and drug metabolism

UF Pharmacogenomics

BT Genetics

RT Genetic ancestry
Personal genomics
Toxicogenetics

CL 15.1 and 9.7

PHENOTYPE

DT 2007

SN The outward appearance of an organism, as determined by both its genetic makeup and environmental influences

BT Genetic phenomena

RT Genotype+

CL 15.+

PHENYLKETONURIA

DT 1971

UF PKU

BT Genetic disorders

CL 15.+

PLURIPOTENT STEM CELLS

DT 2008

SN Cells that are able to develop into many different types of cells or tissues in the body or in tissue culture

BT Stem cells

NT Induced pluripotent stem cells

RT Adult stem cells

CL 18.7

POPULATION GENETICS

DT 2000

SN The study of the genetic composition of populations

UF Genetics, population

BT Genetics

NT Genetic ancestry

RT Gene pool
Genetic diversity
Genetic epidemiology
HapMap Project
Human Genome Diversity Project

CL 15.1 and 13.1

PREIMPLANTATION DIAGNOSIS

DT 1991

SN Determination of the genetic makeup of an early human embryo prior to implantation

UF Prenatal genetic diagnosis

BT Clinical genetics

Diagnosis
Genetic intervention
RT Genetic services
Prenatal diagnosis+
Sex predetermination
CL 15.2 and 14.4

PRENATAL DIAGNOSIS

DT 1974
SN Determination of fetal status prior to birth
UF Alpha-fetoprotein screening
Antenatal diagnosis
BT Clinical genetics
Diagnosis
Genetic intervention
NT Amniocentesis
Chorionic villi sampling
Sex determination
RT Fetal therapy
Genetic counseling
Genetic screening
Genetic services
Preimplantation diagnosis
CL 15.2

PROTEOMICS

DT 2008
SN The study of the expression, localizations, functions, and interactions of the full set of proteins encoded by a genome ((American Heritage Science Dictionary, 2005, modified)
BT Genetics
RT Genomics+
CL 15.+

PSYCHIATRIC GENETICS

DT 2009; *was* GENETICS *and* PSYCHIATRY
SN The study of the genetic causes and modes of inheritance that underlie the generally recognized mental illnesses (answers.com)
BT Genetics
RT Psychiatry
CL 15.1 and 17.1

PSYCHOSOCIAL GENETICS

DT 2007
SN The psychological and cultural impact of genetic factors on behaviors, attitudes, and beliefs; do not confuse with Behavioral Genetics, which is a branch of genetics that studies effects of genetics on behavior
UF Genetics and culture
Genetics and psychology
BT Genetics
Psychology
NT Genetic discrimination
Genetic identity
Genetic relatedness ties
CL 15.+

RECOMBINANT DNA RESEARCH

- DT 1978
SN Research using biologically active DNA that has been formed in the laboratory by the joining of segments of DNA from different sources
BT Genetic engineering
Genetic research
RT Containment of biohazards
CL 15.1 (or 15.7 for biohazards of recombinant DNA research)

RNA

- DT 2008
SN A nucleic acid found in all living cells that plays many roles in the storage and transmission of genetic information, including the delivery of DNA's genetic message to the cytoplasm, where proteins are made
UF Ribonucleic acid
BT Genetic materials
CL 15.+

SICKLE CELL ANEMIA

- DT 1974
UF Anemia, sickle cell
BT Genetic disorders
CL 15.+ or scattered

SOCIOBIOLOGY

- DT 1977
SN The study of biological influences on social behavior, based on the theory that such behavior is often genetically transmitted and subject to evolutionary processes (adapted from Amer Heritage Dictionary of the English Language, 4th ed, 2000)
BT Genetics
RT Behavioral genetics+
Evolution
CL 15.9

STEM CELLS

- DT 2007
SN Cells with the ability to divide for indefinite periods in culture and to give rise to more specialized cells
BT Body parts and fluids
NT Adult stem cells
Embryonic stem cells
Pluripotent stem cells+
RT Stem cell transplantation
CL 18.7

SYNTHETIC BIOLOGY

- DT 2008
SN The field at the interface of engineering and biology that involves designing and building systems from biological components (Nature Reviews Genetics: Glossary Terms, accessed 1/22/08)
BT Biology
Biotechnology
CL 1.3.9 and/or 15.1

TAY SACHS DISEASE

DT 1974
BT Genetic disorders
CL 15.+

THALASSEMIA

DT 1977
BT Genetic disorders
CL 15.+

TOXICOGENETICS

DT 2009; *was* GENETICS *and* (HEALTH HAZARDS *or* TOXICITY), 1974-2001
SN The study of existing genetic knowledge, and the generation of new genetic data, to understand and thus avoid drug toxicity and adverse effects from toxic substances in the environment (MeSH)
UF Toxicogenomics
BT Genetics
RT Health hazards
Pharmacogenetics
Toxicity
CL 15.1 (often *with* 9.7 or 16.1)

TRISOMY

DT 2008
SN The possession of a third chromosome number at a particular location in the genome when two chromosomes would be the usual number; trisomy 21 is also called Down syndrome
BT Chromosome abnormalities
NT Down syndrome
CL 15.*

XYY KARYOTYPE

DT 1975
SN A chromosome arrangement in males that is characterized by an extra Y chromosome
BT Chromosome abnormalities
RT Behavioral genetics+
CL 15.+

GENETICS TREE FOR THE 2009 BIOETHICS THESAURUS
Revised December 11, 2008

GENETICS

- BEHAVIORAL GENETICS
 - GENETIC DETERMINISM
- CLINICAL GENETICS
 - GENE THERAPY
 - GENETIC COUNSELING
 - GENETIC SCREENING
 - GENETIC SERVICES
 - PREIMPLANTATION DIAGNOSIS
 - PRENATAL DIAGNOSIS
- FORENSIC GENETICS
 - DNA FINGERPRINTING
- GENETIC DISORDERS
 - CHROMOSOME ABNORMALITIES
 - DOWN SYNDROME
 - FRAGILE X SYNDROME
 - TRISOMY
 - DOWN SYNDROME
 - XYY KARYOTYPE
 - CYSTIC FIBROSIS
 - DUCHENNE MUSCULAR DYSTROPHY
 - GAUCHER DISEASE
 - HEMOPHILIA
 - LATE-ONSET DISORDERS
 - HUNTINGTON DISEASE
 - PHENYLKETONURIA
 - SICKLE CELL ANEMIA
 - TAY SACHS DISEASE
 - THALASSEMIA
- GENETIC EPIDEMIOLOGY
- GENETIC INFORMATION
 - GENETIC DATABASES
 - GENETIC PRIVACY
 - PEDIGREE
- GENETIC INTERVENTION
 - EUGENICS
 - GENETIC COUNSELING
 - GENETIC ENGINEERING
 - BIOTECHNOLOGY
 - SYNTHETIC BIOLOGY
 - CHIMERAS
 - GENE THERAPY
 - GENETIC ENHANCEMENT
 - GENETICALLY MODIFIED FOOD
 - GENETICALLY MODIFIED ORGANISMS
 - GENETICALLY MODIFIED ANIMALS
 - GENETICALLY MODIFIED PLANTS
 - RECOMBINANT DNA RESEARCH
 - GENETIC SCREENING
 - PREIMPLANTATION DIAGNOSIS

- PRENATAL DIAGNOSIS
- GENETIC MATERIALS
 - DNA
 - DNA SEQUENCES
 - GENES
 - APO-E GENES
 - BRCA1 GENES
 - BRCA2 GENES
 - GENETIC RESOURCES
 - GENOME
 - HUMAN GENOME
 - RNA
- GENETIC PHENOMENA
 - EPIGENETICS
 - EVOLUTION
 - GENE POOL
 - GENETIC DETERMINISM
 - GENETIC DIVERSITY
 - GENETIC MARKERS
 - GENOTYPE
 - GENETIC CARRIERS
 - GENETIC PREDISPOSITION
 - NUCLEAR REPROGRAMMING
 - PHENOTYPE
- GENETIC RESEARCH
 - GENETIC PATENTS
 - HapMap PROJECT
 - HUMAN GENOME DIVERSITY PROJECT
 - HUMAN GENOME PROJECT
 - RECOMBINANT DNA RESEARCH
- GENETIC TECHNIQUES
 - CLONING
 - ANIMAL CLONING
 - DNA FINGERPRINTING
 - GENE TRANSFER TECHNIQUES
 - GENOME MAPPING
 - NUCLEAR TRANSFER TECHNIQUES
- GENOMICS
 - GENOME MAPPING
 - HUMAN GENOME PROJECT
 - GENOME-WIDE ASSOCIATION STUDIES
 - NUTRIGENOMICS
 - PERSONAL GENOMICS
- PHARMACOGENETICS
- POPULATION GENETICS
 - GENETIC ANCESTRY
- PROTEOMICS
- PSYCHIATRIC GENETICS
- PSYCHOSOCIAL GENETICS
 - GENETIC DISCRIMINATION
 - GENETIC IDENTITY
 - GENETIC RELATEDNESS TIES
- SOCIOBIOLOGY
- STEM CELLS

ADULT STEM CELLS
EMBRYONIC STEM CELLS
PLURIPOTENT STEM CELLS
INDUCED PLURIPOTENT STEM CELLS
TOXICOGENETICS

**Supplementary list of specific genetic disorders – consult the MeSH vocabulary for scope notes and additional disorders*

GENETIC DISORDERS
CHROMOSOME ABNORMALITIES
DOWN SYNDROME
FRAGILE X SYNDROME
TRISOMY
DOWN SYNDROME
XYY KARYOTYPE
CYSTIC FIBROSIS
DUCHENNE MUSCULAR DYSTROPHY
HEMOPHILIA
LATE-ONSET DISORDERS
HUNTINGTON DISEASE
PHENYLKETONURIA
SICKLE CELL ANEMIA
TAY SACHS DISEASE
THALASSEMIA

**APPENDIX:
EXAMPLES OF GENETICS-RELATED KEYWORD IDENTIFIERS (KWIs)
2009**

BiDil
deCode Genetics
Diamond v. Chakrabarty
Genetic Information Nondiscrimination Act
Human Genetics Commission (Great Britain)
International Declaration on Human Genetic Data
International Society of Nurses in Genetics
Myriad Genetics Inc.
National Human Genome Research Institute
National Society of Genetic Counselors
NCHGR Program on Ethical, Legal, and Social Implications (ELSI)
NHGRI Program on Ethical, Legal, and Social Implications (ELSI)
NIH-DOE Working Group on Ethical, Legal, and Social Implications (ELSI)
Secretary's Advisory Committee on Genetics, Health, and Society [SACGHS]
Targeted Genetics Corp.