New MeSH Headings for 2018
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2-Hydroxypropyl-beta-cyclodextrin
Derivative of beta-cyclodextrin that is used as an excipient for steroid drugs and as a lipid chelator.

Tree locations:
beta-Cyclodextrins D04.345.103.333.500
D09.301.915.400.375.333.500
D09.698.365.855.400.375.333.500

AAA Domain
An approximately 250 amino acid domain common to AAA ATPases and AAA Proteins. It consists of a highly conserved N-terminal P-Loop ATPase subdomain with an alpha-bet-alpha conformation, and a less-conserved C-terminal subdomain with an all alpha conformation. The N-terminal subdomain includes Walker A and Walker B motifs which function in ATP binding and hydrolysis.

Tree locations:
Amino Acid Motifs G02.111.570.820.709.275.500.913

AAA Proteins
A large, highly conserved and functionally diverse superfamily of NTPases and nucleotide-binding proteins that are characterized by a conserved 200 to 250 amino acid nucleotide-binding and catalytic domain, the AAA+ module. They assemble into hexameric ring complexes that function in the energy-dependent remodeling of macromolecules. Members include ATPASES ASSOCIATED WITH DIVERSE CELLULAR ACTIVITIES.

Tree locations:
Acid Anhydride Hydrolases D08.811.277.040.013
Carrier Proteins D12.776.157.025

Abuse-Deterrent Formulations
Drug formulations or delivery systems intended to discourage the abuse of CONTROLLED SUBSTANCES. These may include physical barriers to prevent chewing or crushing the drug; chemical barriers that prevent extraction of psychoactive ingredients; agonist-antagonist combinations to reduce euphoria associated with abuse; aversion, where controlled substances are combined with others that will produce an unpleasant effect if the patient manipulates the dosage form or exceeds the recommended dose; delivery systems that are resistant to abuse such as implants; or combinations of these methods.

Tree locations:
Central Nervous System Agents D27.505.954.427.005
Dosage Forms D26.255.075
Drug Delivery Systems E05.916.250.500
Physiological Effects of Drugs D27.505.696.034
Sensory System Agents D27.505.696.663.850.007

Academic Failure
Student’s unsuccessful attempt at academic achievement or a marked inadequacy in the areas of scholarship or study. This is not underachievement which is performance, usually in school work, poorer than that predicted from aptitude and/or intelligence testing.

Tree locations:
Educational Status N01.824.196.125
New MeSH Headings for 2018

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**Academic Performance**
A quantitative or qualitative measure of intellectual, scholarly, or scholastic accomplishment.

*Tree locations:*
  Educational Measurement I02.399.136

**Academic Success**
Level of engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills, and competencies, persistence and attainment of educational outcomes.

*Tree locations:*
  Academic Performance I02.399.136.500

**Adaptive Clinical Trial (Pub Type)**
Clinical study in which a prospectively planned opportunity is included to modify trial designs and hypotheses based on analysis of data from subjects in the study.

*AN: this heading is used as a Publication Type; for original report of the conduct or results of a specific adaptive clinical trial; a different heading ADAPTIVE CLINICAL TRIALS AS TOPIC is used for general design, methodology, economics, etc. of adaptive clinical trials*

*Tree locations:*
  Clinical Trial V03.175.250.050

**Adaptive Clinical Trials as Topic**
Works about clinical studies in which a prospectively planned opportunity is included to modify trial designs and hypotheses based on analysis of data from subjects in the study.

*AN: for general design, methodology, economics, etc. of adaptive clinical trials; a different heading ADAPTIVE CLINICAL TRIAL is used for reports of a specific adaptive clinical trial*

*Tree locations:*
  Clinical Trials as Topic E05.318.760.250.500.100
  N05.715.360.775.088.500.100
  N06.850.520.450.250.250.100

**Addiction Medicine**
A medical specialty focused on the diagnosis and treatment of ADDICTIVE BEHAVIOR disorders, including SUBSTANCE-RELATED DISORDERS and IMPULSE CONTROL DISORDERS; and the management of co-occurring medical and psychiatric conditions

*Tree locations:*
  Medicine H02.403.007

**ADP-Ribosylation**
Post-translational modification of proteins with ADENOSINE DIPHOSPHATE RIBOSE.

*Tree locations:*
  Protein Processing, Post-Translational G02.111.660.871.790.600.200
  G02.111.691.600.200
  G03.734.871.790.600.200
  G05.308.670.600.200
New MeSH Headings for 2018

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**Adverse Outcome Pathways**
Models connecting initiating events at the cellular and molecular level to population-wide impacts. Computational models may be at levels relating toxicology to adverse effects.

*Tree locations:*
- Models, Biological E05.599.395.040
- Risk Assessment E05.318.740.600.800.715.250
  - N04.452.871.715.200
  - N06.850.505.715.250

**Aeromonadales**
An order of Gram-negative bacteria in the class GAMMAPROTEOBACTERIA, phylum PROTEOBACTERIA, which include important pathogens.

*Tree locations:*
- Gammaproteobacteria B03.660.250.018

**Agent Orange**
A herbicide that contains equal parts of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), as well as traces of the contaminant 2,3,7,8-tetrachlorodibenzo-p-dioxin.

*Tree locations:*
- 2,4,5-Trichlorophenoxyacetic Acid D02.241.081.018.386.682.800.500
  - D02.241.511.316.682.800.500
- 2,4-Dichlorophenoxyacetic Acid D02.241.081.018.386.682.224.500
  - D02.241.511.316.682.149.500
- Polychlorinated Dibenzodioxins D02.309.500.450.500
  - D03.633.300.786.500

**Alcoholic Korsakoff Syndrome**
A neurological disorder characterized by inattentiveness and the inability to form short term memories. It is caused by THIAMINE DEFICIENCY due to chronic ALCOHOLISM.

*Tree locations:*
- Alcohol Amnestic Disorder C10.720.112.100.250
  - C25.723.705.150.100.250
  - C25.775.100.087.193.100.250
  - F03.900.100.050.250
- Amnesia F03.615.200.131
- Korsakoff Syndrome C10.597.606.525.400.500
  - C23.888.592.604.529.400.500
  - F01.700.625.400.500

**Aldo-Keto Reductase Family 1 member B10**
Aldo-keto reductase that functions as an all-trans-retinaldehyde reductase. It also reduces aromatic and aliphatic ALDEHYDES.

*Tree locations:*
- Aldo-Keto Reductases D08.811.682.047.150.700.156.625
  - D08.811.682.047.820.284.813
New MeSH Headings for 2018

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**Aldo-Keto Reductase Family 1 Member C2**
Aldo-keto reductase that functions with 5-alpha and 5-beta-steroid reductases to convert steroid hormones into the 3-alpha or 5-alpha and 3-alpha or 5-beta-tetrahydrosteroid, including 5-ALPHA-DIHYDROTESTOSTERONE to ANDROSTANE-3,17-DIOL. It also binds to BILE ACIDS. Mutations in the AKR1C2 gene are associated with Type 8 46, XY DISORDERS OF SEX DEVELOPMENT (SRXY8).

*Tree locations:*
  Aldo-Keto Reductases D08.811.682.047.150.700.156.750
  D08.811.682.047.820.284.875

**Aldo-Keto Reductase Family 1 Member C3**
Aldo-keto reductase that functions as a bi-directional 17 BETA, 20 ALPHA-HYDROXYSTEROID DEHYDROGENASE. It catalyzes the reduction of PROSTAGLANDIN D2 and PROSTAGLANDIN H2, as well as the oxidation of 9alpha,11beta-PGF2 to prostaglandin D2. It can also interconvert estrogens, ANDROGENS; and PROGESTINS between their active forms and inactive metabolites.

*Tree locations:*
  17-Hydroxysteroid Dehydrogenases D08.811.682.047.436.375.140
  Aldo-Keto Reductases D08.811.682.047.150.700.156.875
  D08.811.682.047.820.284.937
  Hydroxyprostaglandin Dehydrogenases D08.811.682.047.820.375.500

**Aldo-Keto Reductases**
A family of NADPH-dependent oxidoreductases that reduce carbonyl substrates including sugar-aldehydes, KETOSTEROIDS; keto-prostaglandins, and QUINONES. They are monomers of approximately 37 KDa and are characterized by a parallel beta-8 (BETA SHEET)-alpha 8 (ALPHA HELICES)-barrel structure that contains the NADP binding site. This conformation favors aromatic and apolar substrates.

*Tree locations:*
  NAD (+) and NADP (+) Dependent Alcohol Oxidoreductases D08.811.682.047.820.284
  Sugar Alcohol Dehydrogenases D08.811.682.047.150.700.156

**Alemtuzumab**
An anti-CD52 ANTIGEN monoclonal antibody used for the treatment of certain types of CD52-positive lymphomas (e.g., CHRONIC LYMPHOCYTIC LEUKEMIA; CUTANEOUS T-CELL LYMPHOMA; and T-CELL LYMPHOMA). Its mode of actions include ANTIBODY-DEPENDENT CELL CYTOTOXICITY.

*Tree locations:*
  Antibodies, Monoclonal, Humanized D12.776.124.486.485.114.224.060.313
  D12.776.124.790.651.114.224.060.375

**Alethinophidia**
An infraorder of snakes in the order Serpentes that includes all snakes except blind snakes and thread snakes.

*Tree locations:*
  Snakes B01.050.150.900.833.672.125
New MeSH Headings for 2018
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Alphacoronavirus
A genus of the family CORONAVIRIDAE which causes respiratory or gastrointestinal disease in a variety of mammals. Human alphacoronaviruses include Human coronavirus 229E and NL63. All members share the identical core transcription regulatory sequences of 5’-CUAAAC-3’ and most have 1 to 2 ORFs downstream to the N protein gene.

AN: infection: coordinate IM with CORONAVIRUS INFECTIONS (IM)

Tree locations:
Coronavirus B04.820.504.540.150.075

Alphacoronavirus 1
The type species of ALPHACORONAVIRUS genus causing gastroenteritis, peritonitis and respiratory diseases in dogs, cats and swine. Previously separate species TRANSMISSIBLE GASTROENTERITIS VIRUS; PORCINE RESPIRATORY CORONAVIRUS; CANINE CORONAVIRUS AND FELINE CORONAVIRUS merged into this species on the basis of similar genome nucleotide sequence and genome organization.

AN: infection: coordinate IM with CORONAVIRUS INFECTIONS (IM)

Tree locations:
Alphacoronavirus B04.820.504.540.150.075.500

Amniotomy
A method of inducing labor by deliberate rupture of the AMNION to cause the release of amniotic fluid.

Tree locations:
Labor, Induced E04.520.252.968.500

Anesthesia, Cardiac Procedures
A range of methods used to induce UNCONSCIOUSNESS; ANALGESIA; and MUSCLE RELAXATION during cardiac procedures.

Tree locations:
Anesthesia E03.155.403

Angiopoietin-like 4 Protein
A secreted angiopoietin-like protein expressed under hypoxic conditions by ENDOTHELIAL CELLS. It inhibits cell proliferation, cell migration, and tubule formation; the inactive form accumulates in the endothelial EXTRACELLULAR MATRIX, reducing vascular leakage. ANGPTL4 has direct roles in regulating glucose and lipid metabolism, as well as INSULIN SENSITIVITY, and may also function as a regulator of angiogenesis and tumorigenesis.

Tree locations:
Angiopoietin-like Proteins D12.644.276.100.050.500
D12.776.467.100.050.500
D23.529.100.050.500
Angiopoietin-like Proteins
A family of proteins that is structurally similar to ANGIOPOIETINS but do not bind angiopoietin receptors. They are characterized by an amino-terminal coiled-coil domain, a linker region, and a carboxy-terminal FIBRINOGEN-like domain with the exception of ANGPTL8, which lacks the fibrinogen-like domain. They function in a variety of developmental and physiological processes, including INFLAMMATION, lipid metabolism, hematopoietic stem cell activity, and cancer metastasis.

Tree locations:
Angiogenic Proteins D12.644.276.100.050
D12.776.467.100.050
D23.529.100.050

Animal Fur
Usually densely-packed hairs on the skin of MAMMALS.

Tree locations:
Animal Structures A13.078
Hair A17.360.148

Animal Scales
Tough, horny, brittle, smooth, striated or plate-like extensions of the stratum corneum or outer layer of the skin. It serves as a protective layer in fishes, reptiles, birds, and mammals.

Tree locations:
Animal Structures A13.079
Integumentary System A17.907

Anoctamin-1
An anoctamin chloride channel expressed at high levels in the liver, skeletal muscle, and gastrointestinal muscles that functions in transepithelial anion transport and smooth muscle contraction. It is essential for the function of the INTERSTITIAL CELLS OF CAJAL and plays a major role in chloride conduction by airway epithelial cells and in tracheal cartilage development.

Tree locations:
Anoctamins D12.776.157.530.400.175.032.500
D12.776.543.550.450.175.032.500
D12.776.543.585.400.175.032.500

Anoctamins
A family of transmembrane proteins that function primarily as calcium-activated chloride channels. Structurally, they form a homodimer where each subunit consists of eight transmembrane helices with the N and C terminals exposed to the cytosol. The regions between helices 5 and 7 may be important for ion pore formation and calcium ion binding.

Tree locations:
Chloride Channels D12.776.157.530.400.175.032
D12.776.543.550.450.175.032
D12.776.543.585.400.175.032
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**Anti-Citrullinated Protein Antibodies**
Autoantibodies to citrullinated-peptides and proteins.

*Tree locations:*
- Autoantibodies [D12.776.124.486.485.114.323.095]
- Autoantibodies [D12.776.124.790.651.114.323.095]

**Antimicrobial Stewardship**
Programs and guidelines for selecting optimal ANTI-INFECTIVE AGENTS regimens in an effort to maintain antibiotic efficacy, reduce CROSS INFECTION related to ANTIBIOTIC RESISTANCE while managing satisfactory clinical and economic outcomes.

*Tree locations:*
- Drug Utilization Review [N04.452.706.477.400.500]
- Drug Utilization Review [N04.761.879.300.500]
- Drug Utilization Review [N05.700.900.300.500]

**Antineoplastic Agents, Immunological**
Antineoplastic agents containing immunological agents (e.g. MAbs). These pharmacologic preparations inhibit or prevent the proliferation of NEOPLASMS.

*Tree locations:*
- Antineoplastic Agents [D27.505.954.248.384]

**Apelin**
A 77 amino acid secreted endogenous ligand for the angiotensin II receptor-like 1 protein (APELIN RECEPTOR) that is proteolytically cleaved into four smaller peptides: Apelin-36, Apelin-31, Apelin-28, and Apelin-13. It inhibits entry of HIV into cells that express both APJ and CD4 ANTIGEN and is highly expressed in breast milk, where it may modulate the neonatal immune response.

*Tree locations:*
- Intercellular Signaling Peptides and Proteins [D12.644.276.150]
- Intercellular Signaling Peptides and Proteins [D23.529.134]

**Apelin Receptors**
G-protein coupled receptors for APELIN that function in a broad range of physiologic processes including blood pressure regulation and heart contractility. They also have an essential role in early embryo development for GASTRULATION and heart morphogenesis, and can also function as a CD4 co-receptor for HIV-1.

*Tree locations:*
- Receptors, G-Protein-Coupled [D12.776.543.750.695.006]
New MeSH Headings for 2018

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**Apolipoprotein L1**
An ApoL protein highly expressed by the liver. It has anti-trypanosomal activity through its ability to permeabilize *Trypanosoma* membranes. Mutations in the APOL1 gene are associated with type 4 focal segmental glomerulosclerosis.

*Tree locations:*
Apolipoproteins L
- D10.532.091.750.500
- D12.776.070.400.750.500
- D12.776.521.120.750.500

**Apolipoproteins L**
A family of apolipoproteins occurring in humans that are structurally similar to B-CELL LEUKEMIA 2 FAMILY PROTEINS. In addition to their roles in cholesterol and lipid transport, they are expressed by MYELOID CELLS and ENDOTHELIAL CELLS during INFLAMMATION and may function to promote CELL DEATH.

*Tree locations:*
Apolipoproteins
- D10.532.091.750
- D12.776.070.400.750
- D12.776.521.120.750

**Apolipoproteins M**
Apolipoproteins and lipocalins that occur in HIGH-DENSITY LIPOPROTEINS. They bind or transport lipids in the blood including sphingosine-1-phosphate, MYRISTIC ACID; STEARIC ACIDS; and ALL-TRANS RETINOIC ACID.

*Tree locations:*
Apolipoproteins
- D10.532.091.100
- D12.776.070.400.100
- D12.776.521.120.100
Lipocalins
- D12.776.157.469.025

**Aruba**
Island in the Caribbean Sea, north of Venezuela. In 1986 it became a separate, autonomous member of the Kingdom of the Netherlands.

*Tree locations:*
- Atlantic Islands Z01.639.040.109
- Caribbean Region Z01.107.084.113

**ATP Binding Cassette Subfamily B Member 11**
An ATP-binding cassette, sub-family B protein (P-glycoproteins) that functions in the ATP-dependent secretion of BILE SALTS into the BILE CANALICULI of HEPATOCYTES. Mutations in the ABCB11 gene are associated with progressive familial intrahepatic cholestasis 2 (see CHOLESTASIS, INTRAHEPATIC).

*Tree locations:*
ATP Binding Cassette Transporter, Sub-Family B
- D12.776.157.530.100.652.438
- D12.776.157.530.450.074.500.500.875.438
- D12.776.395.550.020.610.534
- D12.776.543.550.192.610.534
- D12.776.543.585.100.610.438
- D12.776.543.585.450.074.500.500.875.438
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ATP Binding Cassette Transporter, Sub-Family A
A large, highly conserved, subfamily of ATP binding cassette transporters structurally characterized by a membrane-spanning domain composed of six ALPHA-HELICES, a large extracellular loop, nucleotide-binding domain, and a conserved cytoplasmic 80 amino acid sequence. In humans, it includes ABCA1(ATP BINDING CASSETTE TRANSPORTER 1) through ABCA10, as well as ABCA12 and ABCA13.

Tree locations:
ATP-Binding Cassette Transporters D12.776.157.530.100.190
D12.776.395.550.020.381
D12.776.543.550.192.381
D12.776.543.585.100.190

ATP Binding Cassette Transporter, Sub-Family A, Member 4
An ATP binding cassette sub-family A transporter that translocates 11-cis and all-trans isomers of N-retinylidene-phosphatidylethanolamine (RETINOIDS) from the extracellular surface to the cytoplasmic membrane surface of RETINAL ROD CELLS and RETINAL CONE CELLS. Mutations in the ABCA4 gene are associated with Stargardt Disease 1, a hereditary juvenile form of MACULAR DEGENERATION.

Tree locations:
ATP Binding Cassette Transporter, Sub-Family A D12.776.157.530.100.190.750
D12.776.395.550.020.381.750
D12.776.543.550.192.381.750
D12.776.543.585.100.190.750

ATP Binding Cassette Transporter, Sub-Family D
A sub-family of ATP-binding cassette transporters that localize to the membranes of PEROXISOMES; ENDOPLASMIC RETICULUM; and LYSOSOMES. Members contain a transmembrane domain in their N-terminal half and generally function as homodimers in the transport of LIPIDS; BILE ACIDS; and VITAMIN B12. Mutations in some ABCD transporter genes are associated with PEROXISOMAL DISORDERS.

Tree locations:
ATP-Binding Cassette Transporters D12.776.157.530.100.209
D12.776.395.550.020.419
D12.776.543.550.192.419
D12.776.543.585.100.209

ATP Binding Cassette Transporter, Sub-Family D, Member 1
An ATP-Binding Cassette Transporter that functions in the import of long chain (13-21 carbons) and very long chain fatty acids (> 22 carbons), or their acyl-CoA-derivatives, into PEROXISOMES. Mutations in the ABCD1 gene are associated with the X-linked form of ADRENOLEUKODYSTROPHY.

Tree locations:
ATP Binding Cassette Transporter, Sub-Family D D12.776.157.530.100.209.500
D12.776.395.550.020.419.500
D12.776.543.550.192.419.500
D12.776.543.585.100.209.500
ATPases Associated with Diverse Cellular Activities
A large highly-conserved family of ATPases with diverse functions in cells that are characterized by the presence of a P-LOOP and a ring shape. They couple the energy generated by ATP hydrolysis to remodeling or mechanical translocation of their target molecules.

TREE LOCATIONS:

AAA Proteins D08.811.277.040.013.500
D12.776.157.025.750
Adenosine Triphosphatases D08.811.277.040.025.024

Aversive Agents
Chemicals added to pharmacologic preparations, poisonous household goods, and other chemicals to discourage their abuse or consumption.

TREE LOCATIONS:

Abuse-Deterrent Formulations D27.505.696.034.500
D27.505.696.663.850.007.500
D27.505.954.427.005.500
Molecular Mechanisms of Pharmacological Action
Pharmaceutic Aids D26.650.179
D27.720.744.179

B-Cell CLL-Lymphoma 10 Protein
A signal transducing adaptor protein that contains an N-terminal CARD DOMAIN and functions in the ADAPTIVE IMMUNE RESPONSE. It promotes PRO-CASPASE-9 maturation and APOPTOSIS, activation of NF-KAPPA B, and is a substrate for MALT1 PARACASPASE.

TREE LOCATIONS:

CARD Signaling Adaptor Proteins D12.644.360.024.131.140
D12.644.360.075.358.140
D12.776.157.057.006.140
D12.776.476.024.139.140
D12.776.476.075.358.140

Baculoviral IAP Repeat-Containing 3 Protein
A regulator of APOPTOSIS that functions as an E3 ubiquitin protein ligase. It contains three baculoviral IAP repeats in its N-terminal half, a CARD DOMAIN, and a RING finger domain at its C-terminus. It is highly expressed in fetal lung and kidney, and adult lymphoid tissues such as spleen, thymus, and peripheral blood lymphocytes. It functions in INFLAMMATION signaling, the INNATE IMMUNE RESPONSE, cell growth and proliferation, and metastasis of tumor cells.

TREE LOCATIONS:

Inhibitor of Apoptosis Proteins D08.811.464.938.750.210.250
D12.644.360.075.437.250
D12.776.476.075.437.250
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**Bedridden Persons**
Persons unable or unwilling, or otherwise incapacitated and not able to leave the bed due to physical or mental conditions.

*Tree locations:*
Persons  M01.079

**Bestrophins**
A protein family characterized by a highly conserved N-terminus and four to six transmembrane helices; they function as bicarbonate permeable, calcium-activated chloride channels. Bestrophin-1 (BEST-1) and bestrophin-2 are highly expressed in human RETINAL PIGMENT EPITHELIUM cells and mutations in the BEST-1 gene are associated with VITELLIFORM MACULAR DYSTROPHY, TYPE 2.

*Tree locations:*
Chloride Channels  D12.776.157.530.400.175.063
D12.776.543.550.450.175.063
D12.776.543.585.400.175.063
Eye Proteins  D12.776.306.228

**Betacoronavirus**
A genus of the family CORONAVIRIDAE which causes respiratory or gastrointestinal disease in a variety of mostly mammals. Human betacoronaviruses include HUMAN ENTERIC CORONAVIRUS; HUMAN CORONAVIRUS OC43; MERS VIRUS; and SARS VIRUS. Members have either core transcription regulatory sequences of 5’-CUAAAC-3’ or 5’-CUAAAC-3’ and mostly have no ORF downstream to the N protein gene.

*AN: infection: coordinate IM with CORONAVIRUS INFECTIONS (IM)*

*Tree locations:*
Coronavirus  B04.820.504.540.150.113

**Betacoronavirus 1**
The type species of BETACORONAVIRUS genus causing gastroenteritis respiratory diseases in mammals. Previously separate species HUMAN CORONAVIRUS OC43; BOVINE CORONAVIRUS; Human enteric coronavirus; Equine coronavirus; and Porcine hemagglutinating encephalomyelitis virus merged into this species on the basis of similar genome nucleotide sequence and genome organization.

*AN: infection: coordinate IM with CORONAVIRUS INFECTIONS (IM)*

*Tree locations:*
Betacoronavirus  B04.820.504.540.150.113.500

**Biological Coevolution**
The process of reciprocal evolutionary change occurring between pairs of species or among groups of species as they interact.

*Tree locations:*
Biological Evolution  G05.045.125
G16.075.125
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Biological Variation, Individual**
Differences in measurable biological values, characteristics, or traits, within one individual under different conditions for the individual such as fasting, season of the year, age, or state of wellness.

*Tree locations:*
Biological Phenomena G16.115

**Biological Variation, Population**
Differences in measurable biological values, characteristics, or traits, among individuals of a population or between population groups.

*Tree locations:*
Biological Phenomena G16.117

**Body Contouring**
Plastic surgery to shape many areas of the body simultaneously. This may include LIPECTOMY or RHYTIDOPLASTY or both.

*Tree locations:*
Cosmetic Techniques E02.218.064
Reconstructive Surgical Procedures E04.680.127

**Body Packing**
Concealing of drugs within the gastrointestinal tract or other body orifice for purposes of DRUG SMUGGLING or to avoid detection by law enforcement. Contraband other than drugs is also sometimes smuggled this way.

*Tree locations:*
Crime I01.198.240.142
I01.880.735.191.026

**Bone Marrow Stromal Antigen 2**
A GPI-linked membrane glycoprotein and antiviral factor that functions as a homodimer. It is induced by INTERFERON-GAMMA and blocks the release of enveloped mammalian viruses by directly tethering nascent VIRAL PARTICLES to the membranes of infected cells.

*Tree locations:*
GPI-Linked Proteins D12.776.395.550.448.150
D12.776.543.484.500.150
D12.776.543.550.418.150

**Bronchial Thermoplasty**
Thermal destruction of the excess bronchial SMOOTH MUSCLE tissue with heat delivered through a catheter assembly attached to a BRONCHOSCOPE. It is often used to control BRONCHIAL HYPERREACTIVITY in severe ASTHMA for better AIRWAY MANAGEMENT.

*Tree locations:*
Catheter Ablation E04.014.085.500
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Burkholderiales**
An order of gram-negative bacteria of the class BETAPROTEOBACTERIA which include highly pathogenic species such as BURKHOLDERIA; BORDETELLA; and RALSTONIA.

*Tree locations:*
Betaproteobacteria  B03.660.075.090

**c-Mer Tyrosine Kinase**
A receptor tyrosine kinase that transduces signals from EXTRACELLULAR MATRIX to the CYTOPLASM by binding ligands such as GALECTIN 3. It regulates many physiologic processes that include cell survival, migration, differentiation, and PHAGOCYTOSIS of apoptotic cells and ROD PHOTORECEPTORS in the RETINAL PIGMENT EPITHELIUM. Mutations in the MERTK gene are associated with type 38 RETINITIS PIGMENTOSA; it also plays a critical role as an inhibitor of TOLL-LIKE RECEPTORS signaling.

*Tree locations:*
Proto-Oncogene Proteins  D12.776.624.664.700.037
Receptor Protein-Tyrosine Kinases  D08.811.913.696.620.682.725.400.003
D12.776.543.750.630.003

**C9orf72 Protein**
A widely-expressed protein of approximately 400 to 500 amino acids. Its N-terminal region (DENN domain) interacts with RAB GTP-BINDING PROTEINS and may regulate AUTOPHAGY, as well as PROTEIN TRANSPORT to ENDOSOMES. Expansion of the GGGGCC hexanucleotide repeat in the first intron of the C9orf72 gene is associated with FRONTOTEMPORAL DEMENTIA with AMYTOTROPIC LATERAL SCLEROSIS (FTDALS1).

*Tree locations:*
Proteins  D12.776.141

**Campylobacteraceae**
A large and diverse group in the order CAMPYLOBACTERALES, individual species of which grow in aerobic and anaerobic conditions as free-living, commensal, or pathogenic forms.

*Tree locations:*
Campylobacterales  B03.660.150.235.250

**Campylobacterales**
Gram negative microaerophilic bacteria of the phylum PROTEOBACTERIA, class EPSILONPROTEOBACTERIA.

*Tree locations:*
Epsilonproteobacteria  B03.660.150.235

**Cancer Survivors**
Persons who have experienced prolonged survival with or the following neoplastic disease and the impact of the disease on the individual, family members, and significant others.

*Tree locations:*
Survivors  M01.860.350
Candida parapsilosis
A species of MITOSPORIC FUNGI and opportunistic pathogen associated with its ability to form BIOFILMS in catheters and parenteral nutrition IV lines. C. parapsilosis complex includes closely related species C. orthopsilosis; and C. metapsilosis.

AN: infection: coordinate IM with CANDIDIASIS (IM) or its indentions (IM)

Tree locations:
Candida B01.300.107.795.095.600
B01.300.381.147.600
B01.300.930.176.600

Canola Oil
Oil derived from the seeds of any of several varieties of the BRASSICACEAE family of plants.

Tree locations:
Plant Oils D10.627.700.066
D20.215.784.750.066

Carbapenem-Resistant Enterobacteriaceae
Strains of Enterobacteriaceae that are resistant to CARBAPENEMS, primarily due to the acquisition of carbapenemase (BETA-LACTAMASE) genes.

AN: infection: coordinate IM with ENTEROBACTERIACAE INFECTIONS (IM)

Tree locations:
Enterobacteriaceae B03.440.450.425.189
B03.660.250.150.097

Carbonyl Reductase (NADPH)
NADPH-dependent reductase that catalyzes the reduction of many carbonyl compounds including QUINONES; PROSTAGLANDINS; and XENOBIOTICS.

Tree locations:
NAD (+) and NADP (+) Dependent Alcohol Oxidoreductases D08.811.682.047.820.289

Cardiac Conduction System Disease
Diseases characterized by pathological irregularities in the HEART CONDUCTION SYSTEM. They may be associated with other heart diseases and syndromes (e.g., BRUGADA SYNDROME; NEUROMUSCULAR DISEASE, HEART BLOCKS), isolated or may result from injuries. You can have a conduction disorder without having an arrhythmia, but some arrhythmias arise from conduction disorders. OMIM: 601144.

Tree locations:
Heart Diseases C14.280.123

Caribbean Netherlands
A group Caribbean islands including Bonaire, Sint Eustatius, and Saba.

Tree locations:
Atlantic Islands Z01.639.040.619
Caribbean Region Z01.107.084.169
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Caryophyllales**
Diverse and ecologically specialized dicotyledonous flowering plants that include trees, annuals, shrubs, lianas, mangroves, stem or leaf succulents, and insectivores; acting as important food sources in many cases.

*Tree locations:*
Caryophyllanae  B01.650.940.800.575.912.250.198.500

**Caryophyllanae**
Superorder of dicot plants in the class MAGNOLIOPSIDA.

*Tree locations:*
Magnoliopsida  B01.650.940.800.575.912.250.198

**CCCTC-Binding Factor**
A repressor protein with poly(ADP)-ribose binding activity that binds CHROMATIN and DNA; its structure consisting of 11 CYS2-HIS2 ZINC FINGERS allows it to recognize many different DNA target sites. It functions as a repressor by binding to INSULATOR ELEMENTS and preventing interaction between promoters and nearby enhancers and silencers. It plays a critical role in EPIGENETIC PROCESSES, including GENOMIC IMPRINTING.

*Tree locations:*
Chromosomal Proteins, Non-Histone  D12.776.660.235.050
D12.776.664.235.050
DNA-Binding Proteins  D12.776.260.120
Poly-ADP-Ribose Binding Proteins  D12.776.157.687.157
D12.776.660.720.157
Repressor Proteins  D12.776.930.780.563

**CD52 Antigen**
A small GPI-linked glycoprotein expressed on the surface of normal and malignant B-CELLS; T-CELLS; MONOCYTES; MACROPHAGES; NK CELLS; and GRANULOCYTES. It is expressed densely and without modulation in many malignant T-cell neoplasms and therefore a target for antibody therapies (e.g., ALEMTUZUMAB).

*Tree locations:*
Antigens, Differentiation  D23.101.100.943
Antigens, Neoplasm  D23.050.285.022
GPI-Linked Proteins  D12.776.395.550.448.190
D12.776.543.484.500.190
D12.776.543.550.418.190

**Celastrales**
A taxonomic order of plants within the class MAGNOLIOPSIDA, which includes the staff vine.

*Tree locations:*
Rosanae  B01.650.940.800.575.912.250.859.500
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

Cell Adhesion Molecule-1
A cell adhesion molecule that contains extracellular immunoglobulin V and C2 domains. It mediates homophilic and heterophilic cell-cell adhesion independently of calcium, and acts as a tumor suppressor in NON-SMALL-CELL LUNG CANCER (NSCLC) cells. Its interaction with NATURAL KILLER CELLS is important for their cytotoxicity and its expression by MAST CELLS plays a role in their interaction with neurons; it may also function in synapse assembly, nerve growth and differentiation.

Tree locations:
Cell Adhesion Molecules D12.776.395.550.200.115
D12.776.543.550.200.128
D23.050.301.350.115

Cell Phone Use
Utilization of wireless phones for communication.

Tree locations:
Communication F01.145.209.186
Social Behavior F01.145.813.537

Cell-Free Nucleic Acids
Nucleic acids (DNA or RNA) found circulating in SERUM; PLASMA; or other BODY FLUIDS.

Tree locations:
Nucleic Acids D13.444.154

Centromere Protein A
A 17 kDa, centromeric, poly(ADP)-ribose binding protein that is structurally similar to HISTONE H3 and localizes to NUCLEOSOMES within the CENTROMERE; specifically within the region that binds KINETOCHORES, where it replaces histone H3. It plays a critical role in recruiting kinetochore proteins and progression through MITOSIS, chromosome segregation, and CYTOKINESIS. It also binds sera from patients with some scleroderma-like AUTOIMMUNE DISEASES.

Tree locations:
Autoantigens D23.050.422.031
Chromosomal Proteins, Non-Histone D12.776.660.235.100
D12.776.664.235.100
DNA-Binding Proteins D12.776.260.123
Poly-ADP-Ribose Binding Proteins D12.776.157.687.173
D12.776.660.720.173

Cerebral Intraventricular Hemorrhage
Bleeding within the CEREBRAL VENTRICLES. It is associated with intraventricular trauma, aneurysm, vascular malformations, hypertension and in VERY LOW BIRTH WEIGHT infants.

Tree locations:
Cerebral Hemorrhage C10.228.140.300.535.200.600
C14.907.253.573.200.600
C23.550.414.913.100.600
Channelrhodopsins
A subfamily of rhodopsin proteins that function as light-gated ion channels in GREEN ALGAE.

Tree locations:
- Ion Channels D12.776.157.530.400.163
- D12.776.543.550.450.163
- D12.776.543.585.400.163
- Photoreceptors, Plant D12.776.765.593.250

Charles Bonnet Syndrome
Repetitive visual hallucinations experienced mostly by elderly with diminished visual acuity or visual field loss, with awareness of the fictional nature of their hallucinations. It is not associated with delusions and other sensory hallucinations.

Tree locations:
- Hallucinations C10.597.606.762.300.500
- C23.888.592.604.764.300.500
- F01.700.750.300.500

Chemokine CCL18
A CC-type chemokine highly expressed in the lungs, lymph nodes, placenta, and bone marrow; it is also expressed by DENDRITIC CELLS in the GERMINAL CENTER, and peripheral blood MACROPHAGES. It functions as a chemotactic factor that specifically attracts LYMPHOCYTES, especially B-Cells, into lymph node follicles, and naive T-cells towards dendritic cells and activated T-cells. It does not attract MONOCYTES or GRANULOCYTES.

Tree locations:
- Chemokines, CC D12.644.276.374.200.110.100
- D12.776.467.374.200.110.100
- D23.125.300.110.100
- D23.469.200.110.100
- D23.529.374.200.110.100
- Macrophage Inflammatory Proteins D12.644.276.374.200.600.075
- D12.776.467.374.200.600.075
- D23.125.300.600.250
- D23.469.200.600.075
- D23.529.374.200.600.075

Chemokine CCL26
A C-C chemokine expressed by all tissues that functions as a chemoattractant for EOSINOPHILS and BASOPHILS. It binds to the CCR3 RECEPTOR.

Tree locations:
- Chemokines, CC D12.644.276.374.200.110.125
- D12.776.467.374.200.110.125
- D23.125.300.110.125
- D23.469.200.110.125
- D23.529.374.200.110.125
New MeSH Headings for 2018
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Chemokine CXCL16
A CXCR6 receptor-binding chemokine that functions as a scavenger receptor for oxidized low density lipoprotein (OxLDL) when expressed by MACROPHAGES. Its secreted, or cytokine form induces a strong chemotactic response for MONOCYTES when it is expressed by DENDRITIC CELLS.

Tree locations:
Chemokines, CXC D12.644.276.374.200.120.075
D12.776.467.374.200.120.075
D23.125.300.120.075
D23.469.200.120.075
D23.529.374.200.120.075
Scavenger Receptors, Class E D12.776.503.280.718.500
D12.776.543.750.705.940.734.500
D12.776.543.750.710.450.625.500.500
D12.776.543.750.710.450.750.734.500

Child, Adopted
Individual who becomes a child of a family by means of legal action.

Tree locations:
Persons M01.100

Child, Foster
Individual who is unable to live safely with his or her family, usually due to abuse or neglect in the family home. In most instances the placement is or is intended to be non-permanent and is placed with another family.

Tree locations:
Persons M01.107

Chromadorea
A class of invertebrate freshwater roundworms of the phylum NEMATODA. Most members are parasites with well-adapted body surfaces and sophisticated esophageal glands and pharynx.

Tree locations:
Nematoda B01.050.500.500.294.400

Cigar Smoking
The SMOKING of CIGARS.

Tree locations:
Tobacco Smoking F01.145.958.875.500

Cigarette Smoking
The SMOKING of CIGARETTES.

Tree locations:
Tobacco Smoking F01.145.958.875.750
Circulating MicroRNA
MicroRNAs found in cell-free BODY FLUIDS such as SERUM; PLASMA; SALIVA; OR URINE.

Tree locations:
- Cell-Free Nucleic Acids D13.444.154.250
- MicroRNAs D13.150.650.319.500
- D13.444.735.150.319.500
- D13.444.735.790.552.500.500

Circulating Tumor DNA
DNA released from tumor cells that is found circulating in PLASMA; SERUM; or other BODY FLUIDS.

Tree locations:
- Cell-Free Nucleic Acids D13.444.154.500
- DNA, Neoplasm D13.444.308.425.500

Citrullination
Conversion of ARGININE residues in proteins into CITRULLINE residues by PEPTIDYLARGININE DEIMINASES.

Tree locations:
- Protein Processing, Post-Translational G02.111.660.871.790.600.300
- G02.111.691.600.300
- G03.734.871.790.600.300
- G05.308.670.600.300

Clinical Deterioration
A critical disease progression, often measured by a set of clinical parameters, which activates HOSPITAL RAPID RESPONSE TEAM.

Tree locations:
- Disease Progression C23.550.291.656.350

Clostridiaceae
A non-sulfate spore-forming anaerobic family of Gram-positive bacteria, of the class clostridia.

Tree locations:
- Clostridiales B03.353.625.375

Cocaine Smoking
SMOKING of COCAINE.

Tree locations:
- Smoking, Non-Tobacco Products F01.145.805.250.250
New MeSH Headings for 2018

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**Coconut Oil**
Oil derived from fruits of the coconut plant, COCOS NUCIFERA.

*Tree locations:*
Plant Oils  D10.627.700.186

**Communicable Diseases, Imported**
Infectious diseases originating in one geographically delineated ecosystem that are carried (by travel or immigration) to another geographically delineated ecosystem by an infected individual, animal, or disease vector.

*Tree locations:*
Communicable Diseases  C01.539.221.625

**Composting**
A process of waste disposal involving the conversion of green waste (i.e. leaves, organic matter, food waste, manure) into soil-enhancing matter.

*Tree locations:*
Refuse Disposal  N06.850.780.200.800.800.700.500
                 06.850.860.510.900.600.200

**Connexin 30**
A gap junction beta subunit that forms heteromeric hemichannels when paired with alpha subunits such as connexin-40 or CONNEXIN 43. Mutations in the connexin 30 gene (GJ6B) are associated with CLOUSTON'S SYNDROME and some hereditary forms of deafness.

*Tree locations:*
Connexins  D12.776.543.585.250.150

**Conservation of Water Resources**
Preservation and or management of WATER RESOURCES especially under conditions of scarce supply.

*Tree locations:*
Conservation of Natural Resources  J01.256.837
                                 06.230.080.800

**Consumer Health Informatics**
The field devoted in Informatics from multiple consumer or patient views.

*Tree locations:*
Informatics  L01.313.187
Contraceptive Effectiveness
The rate of success or failure of a method of CONTRACEPTION; CONTRACEPTIVE AGENTS; or CONTRACEPTIVE DEVICES.

Tree locations:
Contraception E02.875.194.573

Contraindications
A condition or factor associated with a recipient that makes the use of a drug, procedure, or physical agent improper or inadvisable. Contraindications may be absolute (life threatening) or relative (higher risk of complications in which benefits may outweigh risks).

AN: general or unspecified; CONTRAINDICATIONS, DRUG and CONTRAINDICATIONS, PROCEDURE are also available; note entry term CONTRAINDICATIONS, PHYSICAL AGENT: coordinate with specific physical agent /adv eff or /ther use

Tree locations:
Therapeutics E02.208

Contraindications, Drug
A condition or factor associated with a recipient that makes the use of a specific drug improper or inadvisable.

AN: coordinate with specific drug with /adv eff or /ther use

Tree locations:
Contraindications E02.208.200

Contraindications, Procedure
A condition or factor associated with a recipient that makes the use of a procedure improper or inadvisable.

AN: coordinate with specific procedure /adv eff

Tree locations:
Contraindications E02.208.600

COP9 Signalosome Complex
A multiprotein complex that functions as a peptide hydrolase, or isopeptidase to cleave NEDD8 PROTEIN from the CULLIN and UBIQUITIN-PROTEIN LIGASES, controlling the activity of the ligases. It is highly conserved in eukaryotes and typically consists of 8 subunits (CSN 1-8 proteins). The COP9 signalosome was originally identified in plants, where it controls gene transcription in response to light.

Tree locations:
Multiprotein Complexes D05.500.139
Ubiquitin-Specific Proteases D08.811.037.750.250
D08.811.277.656.300.887.375
New MeSH Headings for 2018

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**Copper-transporting ATPases**

P-type ATPases which transport copper ions across membranes in prokaryotic and eukaryotic cells. They possess a conserved CYSTEINE-HISTIDINE-SERINE (CPx) amino acid motif within their transmembrane helices that functions in cation translocation and catalytic activation, and an N-terminal copper-binding CxxC motif that regulates enzyme activity. They play essential roles in intracellular copper homeostasis through regulating the uptake, efflux and storage of copper ions, and in cuproprotein biosynthesis.

*Tree locations:*

<table>
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<tr>
<th>Category</th>
<th>Tree Location</th>
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<tr>
<td>Cation Transport Proteins</td>
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<tr>
<td>P-type ATPases</td>
<td>D08.811.277.040.025.314.500</td>
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<td>D12.776.157.530.813.500</td>
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<td>D12.776.543.585.813.500</td>
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</table>

**Coral Snakes**

Elapid snakes indigenous to the Southern United States, Central, and South America. They are generally less than 1 meter in length and have a brightly-colored ringed pattern.

*Tree locations:*

<table>
<thead>
<tr>
<th>Category</th>
<th>Tree Location</th>
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<tbody>
<tr>
<td>Elapidae</td>
<td>B01.050.150.900.833.672.125.875.588</td>
</tr>
</tbody>
</table>

**Crotalinae**

A subfamily of snakes commonly known as pit vipers, crotaline snakes, or pit adders in the family VIPERIDAE. They are distinguished by a deep pit called a fossa or loreal, which functions as a heat-sensing organ located between the eye and nostril on either side of the head.

*AN: venom = CROTALID VENOMS*

*Tree locations:*

<table>
<thead>
<tr>
<th>Category</th>
<th>Tree Location</th>
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<tbody>
<tr>
<td>Viperidae</td>
<td>B01.050.150.900.833.672.125.937.240</td>
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</tbody>
</table>

**Cryobiology**

The study of biological materials or systems subjected to temperatures below their normal range.

*AN: use for the discipline only*

*Tree locations:*

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<th>Category</th>
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<tbody>
<tr>
<td>Biology</td>
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</tr>
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</table>

**Culicomorpha**

Insects of the order DIPTERA, suborder NEMATOCERA. They include mosquitoes, gnats, black flies, and true flies.

*Tree locations:*

<table>
<thead>
<tr>
<th>Category</th>
<th>Tree Location</th>
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<tr>
<td>Nematocera</td>
<td>B01.050.500.131.617.720.500.500.750.712.500</td>
</tr>
</tbody>
</table>

**Curacao**

Constituent country within the Kingdom of the Netherlands. Full autonomy in internal affairs was granted in 2010. It is an island located in the Caribbean Sea - north of Venezuela. (from CIA World Factbook)

*Tree locations:*

<table>
<thead>
<tr>
<th>Category</th>
<th>Tree Location</th>
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<tr>
<td>Caribbean Region</td>
<td>Z01.107.084.225</td>
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</tbody>
</table>
New MeSH Headings for 2018
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**CX3C Chemokine Receptor 1**
Receptor for CHEMOKINE CX3CL1 expressed by lymphocytes, neurons, and GLIAL CELLS. Its interaction with CX3CL1 mediates CELL ADHESION and CELL MIGRATION. It also functions as a co-receptor with the CD4 ANTIGEN for HIV-1 in vitro.

*Tree locations:*
Receptors, CXCR  D12.776.543.750.695.160.500.150  
D12.776.543.750.705.852.125.500.150  
Receptors, HIV  D12.776.543.750.830.700.315

**Cytokine TWEAK**
A proteolytically-cleaved membrane glycoprotein and member of the TNF superfamily that is highly expressed in a variety of tissues including heart, pancreas, brain, and peripheral blood lymphocytes. The secreted extracellular form is a weak inducer of APOPTOSIS for some cell types and a ligand for the FN14 RECEPTOR. It mediates activation of NF-KAPPA-B and promotes ANGIOGENESIS and proliferation of ENDOTHELIAL CELLS, as well as expression of cytokines involved in INFLAMMATION.

*Tree locations:*
Tumor Necrosis Factors  D12.644.276.374.750.155  
D12.776.467.374.750.155  
D23.529.374.750.155

**Data Warehousing**
A system for storing electronic data derived from various sources.

*Tree locations:*
Information Storage and Retrieval  L01.313.500.750.280.300  
L01.470.688

**DCC Receptor**
A receptor for NETRIN-1 that contains four membrane distal (N-terminal) Ig-like C2 domains and six membrane proximal (C-terminal) fibronectin type III domains. It is expressed primarily in the nerve axons and differentiated intestinal cells and is required for AXON GUIDANCE, mediating axon attraction of neuronal GROWTH CONES; however, it may also trigger axon repulsion through association with the UNC5 netrin-1 receptor. DCC also induces APOPTOSIS when it is unbound from netrin-1. Deletions of the DCC gene are observed in tumor metastases and the protein is not expressed in undifferentiated COLORECTAL CARCINOMA cells.

*Tree locations:*
Apoptosis Regulatory Proteins  D12.644.360.075.413  
D12.776.476.075.413  
Netrin Receptors  D12.776.543.750.003.500  
Tumor Suppressor Proteins  D12.776.624.776.021
New MeSH Headings for 2018

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Deleted in Azoospermia 1 Protein
An RNA recognition motif protein that is essential for spermatogenesis. It promotes entry of male germ cells to meiosis, possibly by regulating the translation of mRNAs. DAZ1 occurs within a cluster of similar genes on the Y chromosome that is prone to genetic deletions and duplications. Deletions in these genes, including DAZ1, are associated with azoospermia and oligospermia.

Tree locations:
RNA Recognition Motif Proteins D12.776.157.725.813.375
D12.776.664.962.813.375

Demethylation
Removal of one or more methyl groups from a chemical compound.

Tree locations:
Dealkylation G02.111.188.500
G02.607.141.500
G03.219.500

Dendroaspis
A genus of highly venomous elapid snake indigenous to sub-Saharan Africa.

Tree locations:
Elapidae B01.050.150.900.833.672.125.875.419

Desulfovibrionaceae
A family of obligately anaerobic Gram-negative bacteria of the class Deltaproteobacteria, order Desulfovibrionales. Majority are sulfate-reducing.

Tree locations:
Deltaproteobacteria B03.660.125.138

Deubiquitinating Enzyme CYLD
A deubiquitinase and tumor-suppressor protein that specifically cleaves lysine-63-linked polyubiquitin chains and also has endodeubiquitinase activity. It functions to regulate NF-kappa B and Wnt signaling pathway activity, contributing to cell survival, proliferation, and differentiation. Mutations in the CYLD gene are associated with familial cylindromatosis.

Tree locations:
Deubiquitinating Enzymes D08.811.037.375
Tumor Suppressor Proteins D12.776.624.776.482

Diapause
A period of arrested growth or development in animals that is triggered by external conditions, such as length of day, extreme temperatures, or reduced food availability. It can occur at the embryonic, larval, pupal, or adult stage, depending on the species.

Tree locations:
Life Cycle Stages G07.345.500.550.500.250
New MeSH Headings for 2018

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**Diet, High-Protein**
A diet that includes foods with a high protein content.

*Tree locations:*
  - Diet G07.203.650.240.269
  - Diet Therapy E02.642.249.268

**Diet, High-Protein Low-Carbohydrate**
A diet that consists mainly of foods with a high content of protein and limited amounts of CARBOHYDRATES.

*Tree locations:*
  - Diet, Carbohydrate-Restricted E02.642.249.245.250
    - G07.203.650.240.245.250
  - Diet, High-Protein E02.642.249.268.500
    - G07.203.650.240.269.500

**Dietary Approaches To Stop Hypertension**
Dietary recommendations that promote reduction in or prevention of high blood pressure. Recommendations include increasing intake of fruits and vegetables, and high-fiber, low-fat foods and reducing the intake of DIETARY SODIUM and high-fat foods.

*Tree locations:*
  - Diet G07.203.650.240.325
  - Diet Therapy E02.642.249.475

**Dietary Exposure**
The exposure to potentially harmful factors such as trace heavy metals, chemicals, radiation, or toxins due to FOOD CONTAMINATION including DRINKING WATER contamination.

*Tree locations:*
  - Environmental Exposure N06.850.460.350.040

**Dietary Sugars**
MONOSACCHARIDES and DISACCHARIDES present in food, such as those present in fruits and vegetables and milk products, or those added to food such as DIETARY SUCROSE (table sugar) or HIGH FRUCTOSE CORN SYRUP.

*AN: /adv eff: coordinate with disease /etiol, not /chem ind; /ther use: coordinate with specific disease /diet ther*

*Tree locations:*
  - Dietary Carbohydrates D09.301.831
    - G07.203.300.362.831
    - J02.500.362.831
  - Sugars D09.947.500
New MeSH Headings for 2018
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**Dipsacales**
An order of dicotyledonous flowering plants which includes six families. It is best known for its ornamental plants such as **Lonicera** (honesuckle), **Viburnum** (arrowwood and guelder rose), and **Scabiosa** (scabious, or pincushion flower).

*Tree locations:*
Magnoliopsida  B01.650.940.800.575.912.250.328

**Disks Large Homolog 1 Protein**
A signaling adaptor protein that contains three PDZ DOMAINS; an SH3 DOMAIN; and a GUANYLATE KINASE-like C-terminal region. It has an essential role in animal development and recruits ion channels, receptors, and signaling molecules to discrete plasma membrane regions of polarized cells in the HEART ATRIA MYOCARDIUM. It functions in the assembly of ADHERENS JUNCTIONS and regulation of CELL PROLIFERATION; synaptogenesis, LYMPHOCYTE ACTIVATION; and controls expression of KV4 POTASSIUM CHANNELS to regulate excitability of CARDIAC MYOCYTES.

*Tree locations:*
Adaptor Proteins, Signal Transducing  D12.644.360.024.287
                                        D12.776.157.057.023
                                        D12.776.476.024.325
Guanylate Kinases  D08.811.913.696.650.450.500
Membrane Proteins  D12.776.543.213

**Disks Large Homolog 4 Protein**
A neuronal protein consisting of three PDZ DOMAINS, an SH3 DOMAIN, and a C-terminal guanylate kinase-like region (see MAGUK PROTEINS). It localizes to the POST-SYNAPTIC DENSITY and associates with the cytoplasmic tail of NMDA RECEPTORS and SHAKER POTASSIUM CHANNELS, playing a critical role in NMDA receptor-mediated SYNAPTIC PLASTICITY.

*Tree locations:*
Guanylate Kinases  D08.811.913.696.650.450.750
Intracellular Signaling Peptides and Proteins  D12.644.360.265
                                        D12.776.476.265
Membrane Proteins  D12.776.543.219
Nerve Tissue Proteins  D12.776.631.224

**Diverticular Diseases**
Diseases of the DIVERTICULUM often due to infection and/or inflammation (DIVERTICULITIS).

*Tree locations:*
Gastroenteritis  C06.405.205.282
Intraabdominal Infections  C01.539.463.199
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

DNA (Cytosine-5-)-Methyltransferase 1
A DNA (cytosine-5-)-methyltransferase that contains a central CxxC type zinc finger motif. It binds poly(ADP)-ribose and its expression is regulated by POLY (ADP-RIBOSE) POLYMERASE-1. DNMT1 methylates CpG residues, with a preference for hemimethylated DNA, and associates with DNA replication sites in S PHASE to maintain the methylation pattern in the newly synthesized strand, which is essential for EPIGENETIC PROCESSES. It also associates with CHROMATIN during G2 PHASE and MITOSIS to maintain DNA methylation independently of replication. It is responsible for maintaining methylation patterns established in development; mutations in the DNMT1 gene are associated with HEREDITARY SENSORY NEUROPATHY TYPE 1 class E.

Tree locations:
DNA (Cytosine-5-)-Methyltransferases D08.811.913.555.500.350.100.500.500
Poly-ADP-Ribose Binding Proteins D12.776.157.687.313
D12.776.660.720.313

DNA Demethylation
Removal of methyl groups from DNA by enzymes (such as DIOXYGENASES and N-DEMETHYLASES) or by chemical reagents.

Tree locations:
Demethylation G02.111.188.500.500
G02.607.141.500.500
G03.219.500.500

DNA Polymerase gamma
A DNA-directed DNA polymerase that functions in the replication of MITOCHONDRIAL DNA. Mutations in the gene that encodes this enzyme (POLG) are associated with some forms of OPHTHALMOPLEGIA, CHRONIC EXTERNAL PROGRESSIVE.

Tree locations:
DNA-Directed DNA Polymerase D08.811.913.696.445.308.300.169
Mitochondrial Proteins D12.776.575.280

Drug Misuse
Use of a drug for a purpose not consistent with legal or medical guidelines.

Tree locations:
Drug Therapy E02.319.306

Dual Oxidases
NADPH oxidases that contain two additional EF HAND MOTIFS and an N-terminal PEROXIDASE domain. They are expressed by THYROCYTES and EPITHELIAL CELLS of the kidney, liver, trachea, lung, and glandular tissues such as the testis, pancreas, and prostate. They are critical for the activity of THYROID PEROXIDASE and play a role in the production of thyroid hormones; they may also have antimicrobial activity through the generation of REACTIVE OXYGEN SPECIES.

Tree locations:
NADPH Oxidases D08.811.682.608.575.500
D12.776.331.894.500
D12.776.543.653.500
New MeSH Headings for 2018
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**Dysbindin**
A dystrophin-associated protein and component of the Biogenesis of Lysosomal Organelles Complex-1 (BLOC-1 complex) which is essential for the formation of lysosome-derived organelles such as platelet dense granules and melanosomes. DTNBP1 is expressed primarily in the brain and neurons, where it functions with ADAPTOR PROTEIN COMPLEX 3 to transport membrane proteins to neurites and nerve terminals. It also regulates the release of neurotransmitters, transport of synaptic vesicles, and localization of dopamine D2 receptors. Mutations in the DTNBP1 gene are associated with Type 7 Hermansky-Pudlak Syndrome and schizophrenia.

**Tree locations:**
- Dystrophin-Associated Proteins D12.776.220.362.125
- Dystrophin-Associated Proteins D12.776.543.268.250
- Nerve Tissue Proteins D12.776.631.262
- Vesicular Transport Proteins D12.776.543.990.447

**Dysferlin**
A membrane protein that contains multiple C2 domains. It is highly expressed in skeletal muscle and functions as a calcium ion sensor in synaptic vesicle-plasma membrane fusion, as well as in sarcolemma repair following mechanical stress. Mutations in the dysferlin (DYSF) gene are associated with several hereditary muscular dystrophies.

**Tree locations:**
- Membrane Proteins D12.776.543.225

**Early Goal-Directed Therapy**
Critical care treatment using intensive monitoring and aggressive management of perioperative hemodynamics in high risk patients.

**Tree locations:**
- Critical Care E02.760.190.203

**Egypt, Ancient**
A civilization of ancient Northeastern Africa, concentrated along the lower reaches of the Nile River in the area of Egypt. It was active from 3100 B.C. until its conquest by Alexander the Great in 332 B.C.

**Tree locations:**
- Ancient Lands Z01.586.035.325

**Elongin**
A heterotrimeric protein complex composed of 110 kDa elongin A, 18 kDa elongin B, and 15 kDa elongin C subunits. It functions as a positive regulator of RNA polymerase II, increasing its rate of transcriptional elongation by suppressing transient pausing along the DNA template. Elongin A is the transcriptionally active component; elongins B and C enhance its activity.

**Tree locations:**
- DNA-Binding Proteins D12.776.260.197
- Transcription Factors D12.776.930.215
Endothelial Protein C Receptor
A glycosylated transmembrane receptor for PROTEIN C that is highly expressed by endothelial cells on the surface of large blood vessels in the heart and lungs. It facilitates protein C activation by the THROMBIN and THROMBOMODULIN complex in blood coagulation.

Tree locations:
Membrane Glycoproteins D12.776.395.550.294
D12.776.543.550.294
Receptors, Cell Surface D12.776.543.750.045

Environmental Biomarkers
A factor associated with the well-being of living organisms that is used as a measure of environmental change and or influence. For example, aldehyde dehydrogenase expression in earthworm tissue is used as an indication of heavy metal pollution in soils. Distinguish from BIOMARKERS.

Tree locations:
Biological Phenomena G16.505
Biomarkers D23.101.258
Environmental Monitoring N06.850.460.350.080.250

Epileptic Syndromes
EPILEPTIC SEIZURES that are of similar type and age of onset and have other similar features (e.g., clinical course, EEG findings, genetic association and neuropathology).

Tree locations:
Epilepsy C10.228.140.490.493

Equivalence Trial (Pub Type)
Trial that aims to show a new treatment is no better and no worse than the standard treatment.

AN: this heading is used as a Publication Type; for original report of the conduct or results of a specific equivalence trial; a different heading EQUIVALENCE TRIALS AS TOPIC is used for general design, methodology, economics, etc. of equivalence trials

Tree locations:
Randomized Controlled Trial V03.175.250.500.500.125

Equivalence Trials as Topic
Works about trials that aim to show a new treatment is no better and no worse than the standard treatment.

Tree locations:
Randomized Controlled Trials as Topic E05.318.760.250.500.365.500.125
N05.715.360.775.088.500.387.500.250
N06.850.520.450.250.250.365.500.250
New MeSH Headings for 2018
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**Essential Hypertension**
Hypertension that occurs without known cause, or preexisting renal disease. Associated polymorphisms for a number of genes have been identified, including AGT, GNB3, and ECE1. OMIM: 145500

*Tree locations:*
Hypertension  C14.907.489.165

**Eutheria**
Mammals which nourish their young in utero by means of a complex placenta, and give birth to their young alive. They include PRIMATES; CARNIVORA, WHALES; RUMINANTS; BATS; and RODENTS.

*Tree locations:*
Mammals  B01.050.150.900.649.313

**Expression of Concern (Pub Type)**
A notification about the integrity of a published article that is typically written by an editor and should be labelled prominently in the item title. It is the responsibility of the editor to initiate appropriate investigative procedures, discover the outcome of the investigation, and notify readers of that outcome in a subsequent published item. The outcome may require the publication of a retraction notice.

*Tree locations:*
Publication Components  V01.405

**Extracorporeal Shockwave Therapy**
A nonsurgical treatment that uses either HIGH-ENERGY SHOCK WAVES or low energy ACOUSTIC WAVES to treat various musculoskeletal conditions (e.g., PLANTAR FASCIITIS; TENNIS ELBOW). A probe placed on the skin conducts the shock waves thereby delivering a mechanical force to the body's tissues.

*Tree locations:*
Physical Therapy Modalities  E02.779.488
E02.831.535.488
Ultrasonic Therapy  E02.565.280.945.200

**F-Box-WD Repeat-Containing Protein 7**
A component of SCF(FBW7) UBIQUITIN LIGASE that contains an F-box motif and multiple WD REPEATS. It recognizes and binds phosphorylated signals in several proteins involved in CELL PROLIFERATION and targets them to the SCF complex for UBIQUITINATION. Targets include CYCLIN E; PROTO-ONCOGENE PROTEINS C-JUN; PROTO-ONCOGENE PROTEINS C-MYC; and JNK MITOGEN-ACTIVATED PROTEIN KINASES.

*Tree locations:*
Cell Cycle Proteins  D12.776.167.242
F-Box Proteins  D12.776.157.169.750
SKP Cullin F-Box Protein Ligases  D08.811.464.938.750.750.750
New MeSH Headings for 2018

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**Fagales**
Order of dicotyledonous flowering plants in the superorder ROSANAE, and class MAGNOLIOPSIDA. They include birch, beech, bayberry, and walnut species.

**Tree locations:**
Rosae  B01.650.940.800.575.912.250.859.750

**Faith-Based Organizations**
Organizations such as (1) congregations; (2) national networks, which include national denominations, their social service arms (for example, Catholic Charities, Lutheran Social Services), and networks of related organizations (such as YMCA and YWCA); and (3) freestanding religious organizations, which are incorporated separately from congregations and national networks. http://www.huduser.gov/portal/publications/faithbased.pdf

**Tree locations:**
Organizations  N03.540.297

**Fanconi Anemia Complementation Group N Protein**
A Fanconi anemia complementation group protein that contains an N-terminal DNA-binding region and seven, C-terminal, WD REPEATS. It is an essential factor in HOMOLOGOUS RECOMBINATION DNA REPAIR through its interactions with BRCA2 PROTEIN; RAD51 RECOMBINASE; and BRCA1 PROTEIN. It functions as a molecular scaffold to localize and stabilize these proteins at homologous recombination sites. Mutations in the PALB2 gene are associated with FANCONI ANEMIA complementation group N; type 3 PANCREATIC NEOPLASMS; and susceptibility to BREAST CANCER.

**Tree locations:**
Fanconi Anemia Complementation Group Proteins  D12.776.313.953
Nuclear Proteins  D12.776.660.323
Tumor Suppressor Proteins  D12.776.624.776.051

**Fascism**
Political movement which combines nationalism with demands for political and social renewal. Characteristics include militaristic nationalism, belief in a natural social hierarchy and the rule of elites, and the desire to create a “people’s community”, in which individual interests would be subordinated to the good of the nation. (From www.britannica.com/topic/fascism)

**Tree locations:**
Political Systems  I01.696.480

**Fatty Acid Binding Protein 3**
A small cytosolic fatty-acid binding protein that forms a lipid-binding beta-barrel structure and is expressed by CARDIOMYOCYTES and at lower levels in brain tissue. It is released into plasma immediately following cardiac injury and may therefore serve as a useful biomarker for the early detection of MYOCARDIAL INFARCTION.

**Tree locations:**
Fatty Acid-Binding Proteins  D12.776.157.170.125
New MeSH Headings for 2018

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**Feliformia**
A suborder of cat-like mammals in the order CARNIVORA. Examples include HYENAS; MONGOOSES; CIVETS; and related species. They are distinguishable from dog-like carnivores.

*Tree locations:*
Carnivora  B01.050.150.900.649.313.750.377

**FERM Domains**
Widely occurring protein domains that function to link signaling and CYTOSKELETAL PROTEINS to the PLASMA MEMBRANE. They occur mostly at the N-terminal region of proteins that contain them.

*Tree locations:*
Protein Interaction Domains and Motifs  G02.111.570.820.709.275.750.500.422

**Fermented Foods**
Foods and beverages that are prepared by using microorganisms to convert their components into various FERMENTATION end products. Some pickled foods are considered fermented foods as their pickling results from the microbial production of LACTIC ACID.

*Tree locations:*
Diet, Food, and Nutrition  G07.203.200
Food and Beverages  J02.350

**Food Addiction**
A cluster of chemical dependencies to specific foods or food in general in which there develops a physical craving for these foods.

*Tree locations:*
Behavior, Addictive  F01.145.527.100.120.500
Feeding and Eating Disorders  F03.400.813

**Food Ingredients**
Substances included in prepared foods and beverages.

*Tree locations:*
Food  G07.203.300.514
J02.500.514
Specialty Uses of Chemicals  D27.720.372

**Food Intolerance**
Digestive system disorder where a particular food irritates the digestive tract or cannot be properly digested (i.e., due to a lack of a digestive enzyme). It differs from FOOD HYPERSENSITIVITY which is an immune system disorder, usually due to specific proteins in food. http://my.clevelandclinic.org/health/articles/problem-foods-is-it-an-allergy-or-intolerance.

*Tree locations:*
Signs and Symptoms, Digestive  C23.888.821.387
Forkhead Box Protein L2
A forkhead box transcription factor that is expressed in the developing eyelid and during very early development of the gonad, prior to sex determination. It is essential for development of the ovary and inhibits SOX9 TRANSCRIPTION FACTOR to prevent differentiation to testes. It also induces APOPTOSIS in ovarian cells. Mutations in the FOXL2 gene are associated with BLEPHAROPHIMOSIS; Ptosis, and Epicanthus inversus (BPES with ovarian failure).

Tree locations:
Forkhead Transcription Factors D12.776.260.950.249.032
D12.776.930.977.249.032

Frailty
A state of increased vulnerability to stressors, following declines in function and reserves across multiple physiologic systems, characterized by MUSCLE WEAKNESS; FATIGUE; slowed motor performance; low physical activity; and unintentional weight loss.

AN: coordinate with FRAIL ELDERLY if pertinent

Tree locations:
Pathologic Processes C23.550.359

Funeral Homes
Facilities for the preparation of the dead for burial or cremation, for the viewing of the body, and for funeral services.

Tree locations:
Non-Medical Public and Private Facilities J03.240

Gain of Function Mutation
A mutation that results in an increase in a gene's activity or in acquiring a new molecular function or a new pattern of gene expression.

Tree locations:
Mutation G05.365.590.288

Gammacoronavirus
A genus of the family CORONAVIRIDAE that causes respiratory or gastrointestinal disease in avian species (or birds). The type species, AVIAN CORONAVIRUS, includes the previously separate species TURKEY CORONAVIRUS; and INFECTIOUS BRONCHITIS VIRUS.

AN: infection: coordinate IM with CORONAVIRUS INFECTIONS (IM)

Tree locations:
Coronavirus B04.820.504.540.150.400

Gender-Based Violence
Violence based on gender that results in, or is likely to result in, physical, sexual or mental harm or suffering, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life. (From www.who.int/topics/gender_based_violence/en/)

Tree locations:
Violence I01.198.240.856.463
Gene Drive Technology
The techniques involved in creating and inserting synthetic selfish genetic elements called gene drives. Gene drives carry a "payload gene" and are designed to increase in frequency in the population over time, eventually to all members of the population.

Tree locations:
Directed Molecular Evolution E05.393.420.175.500

Graphic Novels as Topic
Works about book-length narratives told using a combination of words and sequential art, often presented in comic book style.

Tree locations:
Books, Illustrated L01.178.682.192.289.500

Greece, Ancient
A civilization extant from about 1200 BC. to the death of Alexander the Great, in 323 B.C. It extended from the Greek city states to North Africa and eastward to the Indus River.

Tree locations:
Ancient Lands Z01.586.035.519

Greenhouse Gases
Gaseous elements, chemicals that are in the atmosphere that may contribute to GREENHOUSE EFFECT.

Tree locations:
Air Pollutants D27.888.284.101.696
Gases D01.362.311

Guanylyl Cyclase C Agonists
Compunds that bind to and activate GUANYLYL CYCLASE-C RECEPTORS.

Tree locations:
Enzyme Activators D27.505.519.374.400
Gastrointestinal Agents D27.505.954.483.590

Health Information Interoperability
Automatic and seamless exchange or cross-talk of HEALTH INFORMATION across HEALTH INFORMATION SYSTEMS.

Tree locations:
Information Storage and Retrieval L01.313.500.750.280.555
L01.470.813
New MeSH Headings for 2018
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Health Risk Behaviors
Pattern of behavior which predisposes certain individuals to increased risk for contracting disease or sustaining personal injury. These behaviors may cluster into a risky lifestyle.

AN: coordinate with specific type of behavior (e.g. DRIVING UNDER THE INFLUENCE)

Tree locations:
Health Behavior  F01.145.488.250

Healthy Aging
The development and maintenance of optimal physical, mental, spiritual, and social well-being and function with advancing age.

Tree locations:
Healthy Lifestyle  F01.829.458.205.250

Heat Shock Transcription Factors
Heat and cold stress-inducible, transcription factors that bind to inverted 5'-NGAAN-3' pentamer DNA sequences and are regulated by poly(ADP) ribosylation. They play essential roles as transcriptional activators of the HEAT-SHOCK RESPONSE by inducing expression of large classes of MOLECULAR CHAPERONES and heat-shock proteins. They also function in DNA REPAIR; transcriptional reactivation of latent HIV-1; and pre-mRNA processing and nuclear export of HSP70 HEAT-SHOCK PROTEINS during heat stress.

Tree locations:
DNA-Binding Proteins  D12.776.260.260
Poly-ADP-Ribose Binding Proteins  D12.776.157.687.450
D12.776.660.720.462
Transcription Factors  D12.776.930.317

Heavy Metal Poisoning
Poisoning that results from chronic or acute ingestion, injection, inhalation, or skin absorption of HEAVY METALS. Acute and chronic exposures can cause ANEMIA; KIDNEY and LIVER damage; PULMONARY EDEMA; MEMORY LOSS and behavioral changes; bone deformities in children; and MISCARRIAGE or PREMATURE LABOR in pregnant women.

Tree locations:
Poisoning  C25.723.522

Helicobacteraceae
A family of Gram-negative bacteria of the order CAMPYLOBACTERALES that have a helical shape, and occur in the mammalian digestive track.

Tree locations:
Campylobacterales  B03.660.150.235.500
Heller Myotomy
Surgical incision of the lower esophageal sphincter near the CARDIA often used to treat ESOPHAGEAL ACHALASIA.

Tree locations:
- Digestive System Surgical Procedures E04.210.511
- Sphincterotomy E04.515.750.250

Hemachatus
A genus of elapid snake indigenous to Southern Africa. It is closely related to the cobras (Naja) and is capable of spitting its venom.

Tree locations:
- Elapidae B01.050.150.900.833.672.125.875.516

Hemodynamic Monitoring
Continuous measurement of the movement and forces of blood in the CARDIOVASCULAR SYSTEM.

Tree locations:
- Diagnostic Techniques, Cardiovascular E01.370.370.428
- Monitoring, Physiologic E01.370.520.365

Heterogeneous Nuclear Ribonucleoprotein A1
A heterogeneous ribonucleoprotein that contains an RNA-BINDING MOTIF and has poly(ADP)ribose-binding capability. It functions in the packaging of pre-mRNA into hnRNP particles for export to the cytoplasm and may play a role in RNA SPLICING site selection.

Tree locations:
- Heterogeneous-Nuclear Ribonucleoprotein Group A-B D12.776.157.725.813.750.100.500
- D12.776.260.735.500.500
- D12.776.660.235.700.500.500
- D12.776.664.962.813.750.100.500
- Poly-ADP-Ribose Binding Proteins D12.776.157.687.462

High-Temperature Requirement A Serine Peptidase 1
A secreted serine protease that contains a Kazal domain-like region and a C-terminal PDZ domain. It has a broad range of targets that include EXTRACELLULAR MATRIX PROTEINS; PROTEOGLYCANS; and INSULIN-LIKE GROWTH FACTOR BINDING PROTEINS. Mutations in the HTRA1 gene are associated with AGE-RELATED MACULAR DEGENERATION 7 and Cerebral Autosomal Recessive Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CARASIL).

Tree locations:
- Serine Endopeptidases D08.811.277.656.300.760.420
- D08.811.277.656.959.350.420
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**High-Temperature Requirement A Serine Peptidase 2**
A serine peptidase that contains a C-terminal PDZ domain. It localizes to the mitochondrial membrane and intermembrane space, translocating to the cytoplasm following APOPTOSIS stimuli, such as UV irradiation; it promotes cell death by binding to and inhibiting INHIBITOR OF APOPTOSIS PROTEINS, resulting in an increase in activity of CASPASES. Mutations in the HTRA2 gene are associated with Type 13 PARKINSON DISEASE.

**Tree locations:**
- Apoptosis Regulatory Proteins D12.644.360.075.429
- Mitochondrial Proteins D12.776.575.656
- Parkinson Disease Associated Proteins D12.776.637.625
- Serine Endopeptidases D08.811.277.656.300.760.431

**Histone Deacetylase 6**
A class II histone deacetylase that removes acetyl groups from N-terminal LYSINES of HISTONE H2A; HISTONE H2B; HISTONE H3; and HISTONE H4. It plays a critical role in EPIGENETIC REPRESSION and regulation of GENETIC TRANSCRIPTION, as well as CELL MOTILITY through deacetylation of TUBULIN. It also targets misfolded proteins for clearance by AUTOPHAGY when MOLECULAR CHAPERONE-mediated folding is overwhelmed.

**Tree locations:**
- Histone Deacetylases D08.811.277.087.520.350

**Holometabola**
A superorder of insects within the NEOPTERA that go through metamorphosis from egg to larva, pupa, and adult stages. Orders of MOSQUITOES; BEES; BUTTERFLIES; and FLEAS belong to this group.

**Tree locations:**
- Neoptera B01.050.500.131.617.720.500.500

**Human Genetics**
The scientific study of inherited human variation.

*AN: use for the discipline only; note that Medical Genetics is available for the subfield of human genetics dealing with genetic or hereditary disorders*

**Tree locations:**
- Genetics H01.158.273.343.385

**Hyaluronan Synthases**
Membrane-associated glucuronosyltransferases that catalyze the reaction of UDP-N-acetyl-D-glucosamine and UDP-D-glucuronate to produce HYALURONAN. HYALURONAN SYNTHASE 2 (HAS2) is essential for embryogenesis and its expression by tumor cells is associated with metastasis.

**Tree locations:**
- Glucuronosyltransferase D08.811.913.400.450.480.500
**Hydrophiidae**
A subfamily of marine elapid snakes comprising about 50 species with flattened oar-like tails used as sculls. They are found mostly in the coastal waters of south Asia and Australia. The largest reach a length of almost 9 feet but most species are only about a third as long. They are all venomous. (Goin, Goin, and Zug, Introduction to Herpetology, 3d ed, pp331-3; Moore: Poisonous Snakes of the World, 1980, p159)

*Tree locations:*
Elapidae  B01.050.150.900.833.672.125.875.564

**Hypoadrenocorticism, Familial**
Hereditary forms of Addison disease that may exhibit autosomal recessive or X-linked inheritance. They are characterized by severe neurological symptoms, APNEA; and death in infancy. OMIM: 240200

*Tree locations:*
Addison Disease  C19.053.500.263.500

**Immune Privilege**
Phenomenon which occurs in certain tissue sites and organs (e.g., the ANTERIOR CHAMBER and CORNEA of the eye, brain PARENCHYMAL TISSUE and fetus) to tolerate a known antigen, thereby suppressing the inflammatory immune response. Foreign tissue grafts survive for prolonged periods when placed within such immune privileged sites and organs.

*Tree locations:*
Immune Tolerance  G12.535.425.460

**Immune Reconstitution**
Regeneration of normal immune function after immune depleting procedures or infections (e.g., HEMATOPOIETIC STEM CELL TRANSPLANTATION). Delayed and incomplete reconstitution of the ADAPTIVE IMMUNE system in particular involving T-CELLS is associated with increase or relapse of infection.

*Tree locations:*
Immune System Phenomena  G12.432

**Immunoglobulin Light-chain Amyloidosis**
A nonproliferative disorder of the PLASMA CELL characterized by excessive production and misfolding of IMMUNOGLOBULIN LIGHT CHAINS that form insoluble amyloid fibrils (see AMYLOID DEPOSITS) in various tissues. Clinical features include LIVER FAILURE; MULTIPLE MYELOMA; NEPHROTIC SYNDROME; RESTRICTIVE CARDIOMYOPATHY, and neuropathies.

*Tree locations:*
Amyloidosis  C18.452.845.500.550
Lymphoproliferative Disorders  C20.683.515.507
Neoplasms, Plasma Cell  C04.557.595.250
Paraproteinemias  C20.683.780.565
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**Immunoturbidimetry**
Immunochromatographic analysis which measures specific target antigen bound to antibody complex. Antibodies in assay form insoluble light scattering immune-aggregates which cause changes in the measured turbidity proportional to the concentration of the antigen.

_Tree locations:_
- Immunoassay E05.478.566.510
- Nephelometry and Turbidimetry E05.196.712.650.500

**Incivility**
Low-intensity deviant behavior with ambiguous intent to harm the target, in violation of norms for mutual respect.

_Tree locations:_
- Social Behavior F01.145.813.301
- Social Problems I01.880.735.461

**Indochina**
Area in Southeastern Asia that comprises CAMBODIA, LAOS, and VIETNAM.

_Tree locations:_
- Asia, Southeastern Z01.252.145.232

**Information Technology**
Interconnected system that is used in the automatic acquisition, storage, manipulation, movement, control, display, interchange, transmission, routing or reception of data or information, including computers, ancillary equipment, system software, support services, and related resources. (NAL Agricultural Thesaurus)

_Tree locations:_
- Information Science L01.479

**Inhibitor of Growth Protein 1**
A nuclear protein and tumor suppressor that contains a C-terminal PHD ZINC FINGER. It is expressed in different isoforms in various tissues and interacts with TUMOR SUPPRESSOR PROTEIN P53 to negatively regulate cell growth. Reduced expression and chromosomal rearrangements of the ING1 gene are associated with different cancers including HEAD AND NECK NEOPLASMS.

_Tree locations:_
- Intracellular Signaling Peptides and Proteins D12.644.360.368
- Nuclear Proteins D12.776.660.494
- Tumor Suppressor Proteins D12.776.624.776.503
Injection Site Reaction
Adverse reactions that occur initially at the site of injection or infusion. Milder type is confined to a local allergic flare reaction. A more severe reaction is caused by extravasation of VESICANTS from the blood vessel at the site of injection and can cause damage to the surrounding tissue. In tumor flare reaction symptoms involve well beyond the injection site such as an increase in the tumor size and tumor markers levels, bone pain, and HYPERCALCEMIA.

Tree locations:
- Drug-Related Side Effects and Adverse Reactions C25.100.781
- Extravasation of Diagnostic and Therapeutic Materials C23.550.340.500

Integrative Oncology
These evidence-based therapies to reduce symptoms associated with treatment of cancer.

Tree locations:
- Complementary Therapies E02.190.463

Interatrial Block
Impaired or delayed impulse conduction between the right and left HEART ATRIA. Advanced interatrial blocks are often associated with arrhythmias (e.g., ATRIAL FLUTTER; and ATRIAL FIBRILLATION), direct conduction block via the Bachmann's bundle and concomitant left atrial enlargement. Syndrome of advanced interatrial block associated with SUPRAVENTRICULAR TACHYCARDIA is referred to as Bayes syndrome.

Tree locations:
- Heart Block C14.280.067.558.430
- C14.280.123.500.430
- C23.550.073.425.270

Intercellular Adhesion Molecule-3
A membrane glycoprotein and cell adhesion molecule expressed by LEUKOCYTES that contains multiple Ig-like domains. It is a ligand for LFA-1 (integrin alphaLbeta2) and integrin alpha-D/beta-2. Its interaction with LFA-1 may play a role in the PHAGOCYTOSIS of NEUTROPHILS by MACROPHAGES following APOPTOSIS.

Tree locations:
- D12.776.543.550.200.494
- D23.050.301.350.494

Interdisciplinary Placement
Teaching strategy of shared learning based cross-discipline experiences and placements.

Tree locations:
- Education I02.578
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Interdisciplinary Research**

Research combining mastery in distinct fields or disciplines that apply and exchange tools, concepts, ideas, data methods, or results around a common project.

*Tree locations:*

Research  H01.770.644.287

**Intraepithelial Lymphocytes**

T Lymphocytes with limited diversity of receptors (e.g., ALPHA E INTEGRINS) in the epidermis of the skin and the mucosal linings. They recognize common microbes via T-CELL RECEPTORS and PATHOGEN-ASSOCIATED MOLECULAR PATTERN MOLECULES and function as effector cells for INNATE IMMUNITY. Activation of intraepithelial lymphocytes is a marker for various gastrointestinal diseases (e.g., CELIAC DISEASE; HAIRY CELL LEUKEMIA; and ENTEROPATHY-ASSOCIATED T-CELL LYMPHOMA).

*Tree locations:*

T-Lymphocyte Subsets  A11.118.637.555.567.550.500.050
A11.118.637.555.567.569.500.050
A15.145.229.637.555.567.550.500
A15.145.229.637.555.567.569.500.050
A15.382.490.555.567.550.500.050
A15.382.490.555.567.569.500.050

**Involuntary Fertility Control**

Behavior that interferes with a woman's autonomous reproductive decision-making.

*Tree locations:*

Involuntary Treatment  I01.880.604.528.250

**Involuntary Treatment**

Procedures, surgery, or other treatment without consent of person or persons receiving treatment.

*Tree locations:*

Social Control, Formal  I01.880.604.528

**Involuntary Treatment, Psychiatric**

Treatment of persons with MENTAL DISORDERS without the persons' consent.

*Tree locations:*

Involuntary Treatment  I01.880.604.528.500

**Ion Mobility Spectrometry**

Techniques for separation and identification of ionized molecules based on their drift through a gas phase after being accelerated by an electric field. Their mobilities will be effected by their shape, size, and charge.

*Tree locations:*

Spectrum Analysis  E05.196.867.427
**Ipilimumab**

An anti-CTLA-4 ANTIGEN monoclonal antibody initially indicated for the treatment of certain types of metastatic MELANOMA. Its mode of actions may include blocking of CTLA-4 mediated inhibition of CYTOTOXIC T LYMPHOCYTES, allowing for more efficient destruction of target tumor cells.

**Tree locations:**

- Antibodies, Monoclonal, Humanized  D12.776.124.486.485.114.224.060.798
- D12.776.124.790.651.114.224.060.798

**Janus Kinase Inhibitors**

Agents that inhibit JANUS KINASES.

**Tree locations:**

- Protein Kinase Inhibitors  D27.505.519.389.755.500

**Katanin**

An AAA ATPase consisting of the 60 kDa ATPase subunit (p60 subunit A1) which severs MICROTUBULES, and an 80 kDa accessory protein (p80 subunit B1), which targets the enzyme to the CENTROSOME. It releases microtubules from the mitotic SPINDLE POLES to allow depolymerization and poleward motion of chromosomes.

It is also a regulator of microtubule dynamics in NEURONAL OUTGROWTH.

**Tree locations:**

- ATPases Associated with Diverse Cellular Activities  D08.811.277.040.013.500.250
- D08.811.277.040.025.024.250
- D12.776.157.025.750.250
- Microtubule-Associated Proteins  D12.776.220.600.450.325
- D12.776.631.560.338

**Kazal Motifs**

Highly conserved protein domains characteristic of SERINE PROTEASE INHIBITORS, KAZAL TYPE. They generally occur as tandem repeats, with each domain consisting of approximately 60 amino acids that form a large extended amino acid chain, two short ALPHA-HELICES, and a three-stranded anti-parallel BETA-SHEET. Kazal-like domains also occur in the extracellular portions of AGRIN.

**Tree locations:**

- Amino Acid Motifs  G02.111.570.820.709.275.500.490

**Kerectectomy**

Surgical excision of a part of the CORNEA.

**Tree locations:**

- Surgical Procedures, Operative  E04.378
Kounis Syndrome
A disorder of cardiac function secondary to hypersensitivity reactions. It is characterized by coexistence of acute coronary syndromes and cardiac MAST CELL and PLATELET ACTIVATION. It may be induced by exposure to drugs (e.g., antibiotics, anesthetics, contrast media), food, and environmental triggers (e.g., insect bites and stings, poison ivy).

Tree locations:
- Hypersensitivity C20.543.560
- Myocardial Ischemia C14.280.647.375
- C14.907.585.375

KRIT1 Protein
A microtubule-associated protein consisting of four ANKYRIN REPEATS and a C-terminal FERM DOMAIN. It links the CYTOSKELETON to CELL JUNCTIONS via integrin cytoplasmic domain-associated protein-1 and plays an important role in regulating cell proliferation and integrity of endothelial cell junctions. It is also involved in REACTIVE OXYGEN SPECIES metabolism. Mutations in the KRIT1 gene are associated with type I CEREBRAL Cavernous Malformations.

Tree locations:
- Microtubule-Associated Proteins D12.776.220.600.450.458
- D12.776.631.560.465
- Proto-Oncogene Proteins D12.776.624.664.700.119

Kruppel-Like Factor 6
A Kruppel-like transcription factor that contains three C-terminal CYS2-HIS2 ZINC FINGERS and binds to GC RICH SEQUENCE (GC box) in upstream gene promoters. It functions as a transcriptional activator, tumor suppressor, and may regulate growth and development of B-cells.

Tree locations:
- Kruppel-Like Transcription Factors D12.776.260.522.563
- D12.776.930.375.563
- Proto-Oncogene Proteins D12.776.624.664.700.120
- Trans-Activators D12.776.260.755.050

Lateral Internal Sphincterotomy
Surgical incision of the INTERNAL ANAL SPHINCTER typically in the treatment of FISSURE IN ANO; chronic ANAL FISSURE and FECAL INCONTINENCE.

Tree locations:
- Digestive System Surgical Procedures E04.210.638
- Sphincterotomy E04.515.750.375

Laticauda
A genus of semi-aquatic elapid snake that inhabits coastal waters of the tropical Indian and Western Pacific Oceans.

Tree locations:
- Elapidae B01.050.150.900.833.672.125.875.576
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Laurales**
Order of flowering plants in the superorder Magnolianae. Common examples are bay laurel, AVOCADO; sassafras and CINNAMON.

**Tree locations:**
Magnoliopsida  B01.650.940.800.575.912.250.595

**Lepisma**
A small nocturnal wingless insect with tapering physical outline.

**Tree locations:**
Insecta  B01.050.500.131.617.576

**Leukocyte Immunoglobulin-like Receptor B1**
A receptor for HISTOCOMPATIBILITY ANTIGENS CLASS I that also functions as a receptor for the UL18 protein, an MHC class I homolog expressed by human CYTOMEGALOVIRUS. It consists of four Ig-like C2 domains and is expressed primarily by B-cells and MONOCYTES, as well as DENDRITIC CELLS; its interaction with MHC1 functions to down-regulate the immune response.

**Tree locations:**
Receptors, Immunologic  D12.776.543.750.705.023

**Lilianae**
A superorder of flowering plants (Angiosperms) which includes monocotyledonous plants.

**Tree locations:**
Magnoliopsida  B01.650.940.800.575.912.250.618

**Liquid Biopsy**
Obtaining material for pathological examination and analysis, from bodily fluids. Material retrieved includes CELL-FREE NUCLEIC ACIDS; CELL-DERIVED MICROPARTICLES; EXOSOMES; CIRCULATING NEOPLASM CELLS; and other circulating cells and CELLULAR STRUCTURES.

**AN: usually NIM with specific organ /pathol + disease /diag or /pathol**

**Tree locations:**
Biopsy  E01.370.225.500.384.100.396
         E01.370.225.998.054.396
         E05.200.500.384.100.396
         E05.200.998.054.396
         E05.242.384.100.396

**Long-Acting Reversible Contraception**
Prevention of CONCEPTION by devices, chemical substances or agents with contraceptive activity in females which last for years and can be removed.

**Tree locations:**
Contraception  E02.875.194.589
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

Loss of Function Mutation
A mutation that causes a decrease in or elimination of a gene product’s activity.

Tree locations:
Mutation  G05.365.590.538

Lysine Acetyltransferase 5
A catalytic subunit of the NuA4 histone acetyltransferase complex that functions in transcriptional activation of genes by acetylation of nucleosomal HISTONES H4 and H2A, altering nucleosome-DNA interactions and interaction of the modified histones with other activating transcription factors. It may control gene expression changes associated with oncogene and proto-oncogene mediated growth induction, tumor suppressor mediated growth arrest; CELL AGING; APOPTOSIS; and DNA REPAIR. It is polyubiquitinated and degraded during HIV-1 infection through its interaction with the viral TAT PROTEIN.

Tree locations:
Histone Acetyltransferases  D08.811.913.050.134.415.500.062

Manual Lymphatic Drainage
The application of massage to control EDEMA and improve circulation by manually moving excess lymph out of a tissue.

Tree locations:
Drainage  E02.309.416
Massage  E02.190.599.750.750.500
         E02.779.867.880.750.500
         E02.831.535.867.880.750.500

Marijuana Use
Medicinal or recreational utilization of MARIJUANA.

Tree locations:
Behavior  F01.145.610
Substance-Related Disorders  F03.900.643

Mass Drug Administration
Administration of a medication to at-risk individuals in a population without individual diagnosis. It is often used in order to treat, control, and/or prevent spread of often endemic DISEASE OUTBREAKS such as NEGLECTED DISEASES in high disease burden areas.

Tree locations:
Chemoprevention  E02.319.162.575
Communicable Disease Control  N06.850.780.200.600
Disease Eradication  N06.850.275.500
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

Mastoidectomy
Surgical removal of the diseased cells from the MASTOID PROCESS. It often involves simultaneous resection and/or repair of the MIDDLE EAR and EAR DRUM in MIDDLE EAR CHOLESTEATOMAS and MASTOIDITIS.

Tree locations:
Otologic Surgical Procedures E04.580.450.375

Materials Science
An interdisciplinary study of the microstructure and composition of various materials such as metals, semiconductors, ceramics, and polymers, in relation to their macromolecular physical and chemical properties. Materials science enables the custom creation of new materials with specific properties and uses.

Tree locations:
Natural Science Disciplines H01.413
Technology J01.897.461

MDS1 and EVI1 Complex Locus Protein
A DNA binding protein, transcriptional regulator, and proto-oncogene protein that contains 10 CYS2-HIS2 ZINC FINGERS. It functions as a positive or negative regulator of expression for target genes involved in organism development.

Tree locations:
DNA-Binding Proteins D12.776.260.534
Proto-Oncogene Proteins D12.776.624.664.700.129
Transcription Factors D12.776.930.419

Mechanistic Target of Rapamycin Complex 1
An evolutionarily conserved multiprotein complex that functions as a cellular energy sensor and regulator of protein synthesis for cell growth and proliferation. It consists of TOR SERINE-THREONINE KINASES; REGULATORY-ASSOCIATED PROTEIN OF MTOR (RAPTOR); MLST8 PROTEIN; and AKT1 substrate 1 protein. The activity of the complex is regulated by SIROLIMUS; INSULIN; GROWTH FACTORS; PHOSPHATIDIC ACIDS; some amino acids or amino acid derivatives, and OXIDATIVE STRESS.

Tree locations:
Multiprotein Complexes D05.500.337
TOR Serine-Threonine Kinases D08.811.913.696.620.682.700.931.500
D12.776.476.925.500

Mechanistic Target of Rapamycin Complex 2
A multiprotein complex consisting of MTOR KINASE; MLST8 PROTEIN; rapamycin-insensitive companion of mTOR protein (RICTOR PROTEIN); and PRR5 (proline-rich protein 5). Like MTORC1, it also regulates cell growth and proliferation in response to growth factors but may not be as sensitive to nutrient availability and is insensitive to SIROLIMUS. In contrast to MTORC1, it can regulate the ACTIN CYTOSKELETON through RHO GTPASES to promote the formation of STRESS FIBERS. The mTORC2 complex also plays a critical role in AKT1 PROTEIN KINASE phosphorylation and activation.

Tree locations:
Multiprotein Complexes D05.500.356
TOR Serine-Threonine Kinases D08.811.913.696.620.682.700.931.750
D12.776.476.925.750
New MeSH Headings for 2018

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**Meconium Ileus**  
Intestinal obstruction caused by congealed MECONIUM in the distal ILEUM and CECUM. It presents shortly after birth as a failure to pass meconium and frequently occurs in infants with CYSTIC FIBROSIS.

*Tree locations:*
Intestinal Obstruction  C06.405.469.531.788

**Median Arcuate Ligament Syndrome**  
Compression of the CELIAC ARTERY by the median arcuate ligament, a fibrous band of the DIAPHRAGM, causing abdominal pain after eating and weight loss. OMIM: 116870

*Tree locations:*
  - Arterial Occlusive Diseases  C14.907.137.527
  - Digestive System Abnormalities  C06.198.929
  - Vascular Malformations  C14.240.850.922
          C16.131.240.850.898

**Memory and Learning Tests**  
Tests designed to evaluate general and specific areas of behaviors and abilities associated with memory and/or learning.

*Tree locations:*
  - Neuropsychological Tests  F04.711.513.401

**Meniscectomy**  
Surgical incision of a torn MENISCUS.

*Tree locations:*
Orthopedic Procedures  E04.555.490

**Mental Health Recovery**  
Recovery from mental disorders and/or substance abuse. The process of change in which individuals improve their MENTAL HEALTH and wellness, live a self-directed life, and work to achieve their full potential.

*Tree locations:*
Rehabilitation  N02.421.784.444

**Mental Status and Dementia Tests**  
Tests designed to assess various aspects of neurocognitive function and/or dementia.

*Tree locations:*
  - Neuropsychological Tests  F04.711.513.603
New MeSH Headings for 2018
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**Metal-Organic Frameworks**
Supramolecular networks that consist of ordered arrangements of organic electron donor linkers (usually ditopic or polytopic organic carboxylates) and metal cations. They can have an extremely high surface area and adjustable pore size that allows for the insertion of other molecules capable of various functions such as catalysis, capture of carbon dioxide, and drug delivery.

*Tree locations:*
Organometallic Compounds D02.691.638
Polymers D05.750.215

**Metallocenes**
Organometallic compounds that generally consist of two cyclopentadiene ANIONS joined in their centers by a metallic cation such as NICKEL; IRON; or TITANIUM.

*Tree locations:*
Organometallic Compounds D02.691.657

**Mice, Knockout, ApoE**
Strains of mice that contain genetic disruptions (knockout) of APOLIPOPROTEINS E genes. They are used as models for ATHEROSCLEROSIS research.

*AN: NIM with no qualifiers when experimental animal*

*Tree locations:*
Mice, Knockout B01.050.050.136.500.500.500
B01.050.150.900.649.313.992.635.505.500.455.500
B01.050.150.900.649.313.992.635.505.500.800.500.512

**Microorganisms, Genetically-Modified**
Microorganisms whose GENOME has been altered by GENETIC ENGINEERING.

*AN: coordinate with specific microorganism /genet*

*Tree locations:*
Organisms, Genetically Modified B05.620.368

**Microvascular Rarefaction**
The reduction in density of the MICROVASCULATURE.

*Tree locations:*
Pathological Conditions, Anatomical C23.300.818

**Models, Spatial Interaction**
Estimates of the flow of people, material or information between locations in geographic space.

*Tree locations:*
Models, Statistical E05.599.835.893
New MeSH Headings for 2018
Listed in alphabetical order with Headings, Scope Note, Annotation (AN), and Tree Locations

MRE11 Homologue Protein
A component of the MRN complex along with Rad50 and Nibrin. Together, these perform a critical function in the repair of DOUBLE-STRANDED DNA BREAKS; RECOMBINATIONAL DNA REPAIR; maintenance of TELOMERE integrity and MEIOSIS. MRE11, which contains a poly(ADP)-ribose binding motif and associates with PARP1, possesses single-strand endonuclease activity and double-strand-specific 3’-5’ exonuclease activity. Mutations in the MRE11 gene are associated with ATAXIA-TELANGIECTASIA-like disorder 1.

Tree locations:
- DNA-Binding Proteins: D12.776.260.539
- Endodeoxyribonucleases: D08.811.277.352.335.350.650, D08.811.277.352.355.325.600
- Exodeoxyribonucleases: D08.811.277.352.335.375.813, D08.811.277.352.365.290.250

MTOR Associated Protein, LST8 Homolog
An adaptor protein, consisting of seven WD REPEATS along its length, that functions as a component of the MECHANISTIC TARGET OF RAPAMYCIN COMPLEX 1 and MTORC2 COMPLEX. It interacts directly with MTOR to enhance its kinase activity and stabilizes the MTOR-RPTOR PROTEIN interaction in nutrient-poor conditions, favoring RPTOR inhibition of MTOR activity.

Tree locations:
- Mechanistic Target of Rapamycin Complex 1: D05.500.337.250, D08.811.913.696.620.682.700.931.500.250, D12.776.476.925.500.250

Mucosa-Associated Lymphoid Tissue Lymphoma Translocation 1 Protein
A caspase-like cysteine endopeptidase that also exhibits ubiquitin ligase activity. It contains an N-terminal DEATH DOMAIN, two IMMUNoglobulin-LIKE DOMAINS, and localizes to the perinuclear region of MONOCYTES, where it functions in activation of NF-KAPPA B; it also binds to and activates TRAF6. Chromosomal translocations involving the MALT1 and BIRC2 genes are associated with MALT LYMPHOMA, and mutations in the MALT1 gene are associated with Type 12 IMMUNODEFICIENCY SYNDROMES.

Tree locations:
- Caspases: D08.811.277.656.262.500.126.775, D08.811.277.656.300.200.126.775
- Ubiquitin-Protein Ligases: D08.811.464.938.750.233

Multifocal Intraocular Lenses
Artificially implanted lenses that direct light toward distant and near focal points allowing clear vision for a range of distances.

Tree locations:
- Lenses, Intraocular: E07.632.500.460.250, E07.695.460.500
New MeSH Headings for 2018
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**Multimorbidity**
The complex interactions of several co-existing diseases.

*Tree locations:*
  - Comorbidity N05.715.350.225.500
  - N06.850.490.687.500

**Multitasking Behavior**
Simultaneous task performance, or switching between tasks in a concentrated period of time.

*Tree locations:*
  - Behavior F01.145.666

**MutS Homolog 3 Protein**
A MutS homolog protein and component of post-replicative DNA MISMATCH REPAIR. It forms a heterodimer with MUTS HOMOLOG 2 PROTEIN (MSH2) and recognizes large insertion-deletion loops up to 13 nucleotides in length. This directs downstream events such as strand discrimination, excision, and resynthesis.

*Tree locations:*
  - MutS Proteins D12.776.260.556.875

**MutS Proteins**
DNA repair proteins that include the bacterial MutS DNA mismatch-binding protein and its eukaryotic homologs that function in DNA MISMATCH REPAIR and recombination of DNA during MEIOSIS. MutS has a conserved mismatch recognition domain characterized by GxFxE, or similar AMINO ACID MOTIFS that also occur in eukaryotic homologs such as MSH1, MSH6, and MSH8. All MutS proteins also contain a highly-conserved ATP-binding domain and most have weak ATPase activity.

*Tree locations:*
  - Adenosine Triphosphatases D08.811.277.040.025.292
  - DNA Repair Enzymes D08.811.074.844
  - DNA-Binding Proteins D12.776.260.556

**Mycobacterium abscessus**
A rapidly growing non-tuberculous environmental mycobacterium causing OPPORTUNISTIC INFECTION that infects the skin and subcutaneous tissues. It is associated with HEALTH CARE ASSOCIATED INFECTION and causes serious lung infections in persons with various chronic lung diseases.

*AN: infection: coordinate IM with MYCOBACTERIUM INFECTIONS, NONTUBERCULOUS (IM)*

*Tree locations:*
  - Nontuberculous Mycobacteria B03.510.024.049.525.500.720.050
  - B03.510.460.400.410.552.552.720.050
New MeSH Headings for 2018

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**Myeloid Ecotropic Viral Integration Site 1 Protein**
A TALE-type homeodomain protein and transcription factor that functions as a regulator of PAX6 PROTEIN expression and as an activator of PLATELET FACTOR 4 gene expression. It is essential for hematopoiesis, differentiation of MEGAKARYOCYTES, and vascular patterning. It may also have a role in the induction of myeloid leukemias.

*Tree locations:*
- Homeodomain Proteins D12.776.260.400.483
- Transcription Factors D12.776.930.462

**MYND Domains**
Zinc finger domains (named for myeloid, Nervy and DEAF-1) that occur in a variety of eukaryotic proteins, including RUNT-RELATED TRANSCRIPTION FACTOR 1. They are characterized by a cluster of cysteine and histidine residues with conserved spacing that forms the zinc-binding motif and have beta-beta-alpha (see BETA-SHEET and ALPHA-HELIX) topology, similar to LIM domains (see LIM DOMAIN PROTEINS) and RING FINGER DOMAINS. MYND domains function as protein interaction motifs and have affinity for PROLINE-RICH PROTEIN DOMAINS.

*Tree locations:*
- Protein Interaction Domains and Motifs G02.111.570.820.709.275.750.500.474
- Zinc Fingers G02.111.570.820.709.275.750.500.985.375

**Myotomy**
Surgical incision of the muscle.

*Tree locations:*
- Surgical Procedures, Operative E04.515

**Myristoylated Alanine-Rich C Kinase Substrate**
A membrane and ACTIN CYTOSKELETON associated, N-terminal myristoylated protein that binds CALMODULIN and is a prominent substrate for PROTEIN KINASE C. Both phosphorylation and poly(ADP)-ribosylation inhibit its F-ACTIN crosslinking activity; phosphorylation also causes MARCKS to relocate from the membrane to cytoplasm.

*Tree locations:*
- Calmodulin-Binding Proteins D12.776.157.142.375
- Intracellular Signaling Peptides and Proteins D12.644.360.537
- Membrane Proteins D12.776.543.637
- Microfilament Proteins D05.750.078.730.556
- Poly-ADP-Ribose Binding Proteins D12.776.157.687.496
- D12.776.660.720.496
New MeSH Headings for 2018

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**NADPH Oxidase 1**
An NADPH oxidase that functions as a voltage-gated proton channel expressed by PHAGOCYTES, especially in the colon. It regulates intracellular pH, generates SUPEROXIDES upon activation by PHAGOCYTOSIS, and may play a role in INNATE IMMUNITY.

*Tree locations:*
NADPH Oxidases D08.811.682.608.575.750  
D12.776.331.894.750  
D12.776.543.653.750

**NADPH Oxidase 2**
An NADPH oxidase that is expressed by PHAGOCYTES where it transfers electrons across the plasma membrane from cytosolic NADPH to molecular oxygen on the exterior. It regulates proton (H+) flux into resting phagocytes to control intracellular pH. Mutations in the CYBB gene are associated with X-LINKED CHRONIC GRANULOMATOUS DISEASE.

*Tree locations:*
NADPH Oxidases D08.811.682.608.575.875  
D12.776.331.894.875  
D12.776.543.653.875

**NADPH Oxidase 4**
An NADPH oxidase that is strongly expressed in the kidney. It forms a complex with CYBA-P22PHOX and produces intracellular SUPEROXIDES that may regulate cellular signaling in APOPTOSIS; BONE RESORPTION; and NF-KAPPA B activation.

*Tree locations:*
NADPH Oxidases D08.811.682.608.575.937  
D12.776.331.894.937  
D12.776.543.653.937

**NADPH Oxidase 5**
An NADPH oxidase that contains four EF HANDS and is expressed primarily by SPERMATOCYTES and LYMPHOCYTES, as well as by endothelial cells. It functions as a calcium-dependent proton channel to generate SUPEROXIDES that regulate cell growth, APOPTOSIS; and PHYSIOLOGIC ANGIOGENESIS.

*Tree locations:*
NADPH Oxidases D08.811.682.608.575.968  
D12.776.331.894.968  
D12.776.543.653.968

**Naja**
A genus of elapid snakes, also known as cobras, that are indigenous to Africa, Central and Southern Asia, and adjacent islands such as Taiwan and the Philippines.

*Tree locations:*
Elapidae B01.050.150.900.833.672.125.875.612
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Naja haje**
A species of cobra (Naja) that is indigenous primarily to Northern Africa.

*Tree locations:*
Naja  B01.050.150.900.833.672.125.875.612.250

**Naja naja**
Species of cobra (Naja) indigenous to the Indian Subcontinent, Southern Asia, and adjacent islands.

*Tree locations:*
Naja  B01.050.150.900.833.672.125.875.612.500

**Narrative Medicine**
NARRATION as a tool to collect and interpret information on a patient's experience of illness

*Tree locations:*
Narration  F01.145.209.459.500
Patient-Centered Care  N04.590.233.727.407.250
Quality of Health Care  N05.715.520

**Nectins**
A family of calcium-independent cell adhesion molecules of the immunoglobulin superfamily. They are expressed by most cell types and mediate both homotypic and heterotypic cell-cell adhesion. Nectins function in a variety of morphogenetic and developmental processes that include organogenesis of the eye, ear, tooth, and cerebral cortex; they also play roles in viral infection and cell proliferation.

*Tree locations:*
D12.776.543.550.200.130
D23.050.301.350.123

**Nedd4 Ubiquitin Protein Ligases**
E3 ubiquitin ligases that consist of four WW DOMAINS. They accept UBIQUITIN from E2 UBIQUITIN-CONJUGATING ENZYME as a thioester via their C-terminal HECT domains and transfer it specifically to the 63rd LYSINE residue (Lys-63) of target proteins. NEDD4 targets include many proteins and receptors with important functions for cell growth and homeostasis such as VEGFR-2; FGFR1 TYROSINE KINASE; and ERBB-4 RECEPTOR. They play a critical role in the internalization of these receptors, their degradation by LYSOSOMES, and also function as part of the ESCRT complex in VIRUS RELEASE.

*Tree locations:*
Endosomal Sorting Complexes Required for Transport  D05.500.199.500
D12.776.543.990.493.500
Ubiquitin-Protein Ligases  D08.811.464.938.750.257
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**NEDD8 Protein**
A ubiquitin-like protein that functions in CELL CYCLE regulation and embryogenesis. It is attached covalently to its substrates following activation by the UBIQUITIN-ACTIVATING ENZYME E1-UBA3 enzyme complex. NEDD8 attaches to CULLINS, activating their E3 UBIQUITIN LIGASE activity, to promote polyubiquitination and degradation of CYCLINS and regulatory proteins.

*Tree locations:*
Ubiquitins  D12.776.947.218

**Nematocera**
A suborder of insects which belong to the order DIPTERA. They include mosca, mosquito, gnats, black flies, true flies and long-horned flies.

*Tree locations:*
Diptera  B01.050.500.131.617.720.500.500.750.712

**Neonicotinoids**
A class of insecticides that are structurally similar to NICOTINE and have physiologically similar effects as agonists of NICOTINIC ACETYLCOLINE RECEPTORS, but are less toxic to vertebrates. They are widely used in agriculture.

*Tree locations:*
Heterocyclic Compounds, 1-Ring  D03.383.464

**Neoptera**
Modern insects belonging to the subclass PTERYGOTA, Many have the ability to fold their wings with exceptions being butterflies, moths, and a few others within the group.

*Tree locations:*
Pterygota  B01.050.500.131.617.720.500

**Nephrolithotomy, Percutaneous**
Surgical removal of large KIDNEY CALCULI by means of a percutaneous nephroscope which is passed into the KIDNEY PELVIS through a track created in the patient’s back.

*Tree locations:*
Laparoscopy  E04.502.250.520.790
Urologic Surgical Procedures  E04.950.774.638

**Nephrotomy**
Surgical incision into any part of the kidney.

AN: note entry terms PYELOTOMY and PYELOSTOMY: coordinate with KIDNEY PELVIS /surg

*Tree locations:*
Urologic Surgical Procedures  E04.950.774.739
New MeSH Headings for 2018
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**Nephroureterectomy**
Surgical removal of a kidney and adjoining ureter.

*Tree locations:*
Nephrectomy E04.950.774.435.500

**Netrin Receptors**
Cell surface receptors that bind NETRINS. They typically contain both IMMUNOGLOBULIN DOMAINS and FIBRONECTIN TYPE III DOMAINS and function to mediate CELL MIGRATION and AXON GUIDANCE.

*Tree locations:*
Receptors, Cell Surface D12.776.543.750.003

**Netrin-1**
A netrin that binds the DCC RECEPTOR or UNC5 receptors, resulting respectively in axon attraction or repulsion. Its interaction with these receptors also prevents APOPTOSIS; it may function as a tumor suppressor protein.

*Tree locations:*
Netrins D12.644.276.860.494.500
D12.776.467.860.494.500
D12.776.631.600.494.500
D12.776.860.300.731.500
D23.125.842.500
D23.529.850.494.500

**Netrins**
A family of extracellular proteins that are related structurally to LAMININ. They function as CHEMOTACTIC FACTORS for CELL MIGRATION and AXON GUIDANCE, acting as chemoattractants for some cell types, and as chemorepellents for others.

*Tree locations:*
Chemotactic Factors D23.125.842
Extracellular Matrix Proteins D12.776.860.300.731
Nerve Growth Factors D12.644.276.860.494
D12.776.467.860.494
D12.776.631.600.494
D23.529.850.494

**Neuroticism**
Personality trait related to tendency to respond to threat, frustration or a loss with negative emotions (e.g., ANGER; ANXIETY; FRUSTRATION; embarrassment and sadness).

*Tree locations:*
Personality F01.752.723
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Nicotine Chewing Gum
Chewing gum which contains NICOTINE.

Tree locations:
- Chewing Gum D05.750.078.739.249.500
  - D05.750.078.739.249.450
  - D09.698.700.249.500
  - G07.203.300.140.200.500
  - J02.500.140.200.500
- Tobacco Products J01.637.767.844.250

Night Eating Syndrome
Little or no appetite for breakfast due to eating more food after dinner than during the meal and eating more than half of daily food intake after dinner hour.

AN: coordinate with SLEEP-WAKE DISORDERS if pertinent
Tree locations:
- Feeding and Eating Disorders F03.400.844

Nitrosative Stress
A metabolic excess of REACTIVE NITROGEN SPECIES, including NITRIC OXIDE and PEROXYNITRITE, that leads to damaging effects of oxidation and nitration.

Tree locations:
- Oxidative Stress G03.673.345
  - G07.775.750.500

Non-Point Source Pollution
Water pollution from a variety of diffuse sources carried over or through the ground and into water sources such as LAKES; RIVERS; WETLANDS; coastal waters; and GROUNDWATER. Such diffuse sources include roadways and parking lots (GASOLINE; HEAVY METALS; and motor oil), lawns or agricultural land (excess FERTILIZERS, livestock excrement, and PESTICIDES), landfill seepage, and construction sites (chemicals and trash used in construction processes).

Tree locations:
- Water Pollution N06.850.460.790.205

Noncommunicable Diseases
Diseases of long duration and generally slow progression. The four main types of noncommunicable diseases are CARDIOVASCULAR DISEASES (e.g., heart attacks and stroke), CANCER, chronic respiratory diseases (e.g., CHRONIC OBSTRUCTIVE PULMONARY DISEASE and ASTHMA) and DIABETES MELLITUS.

Tree locations:
- Chronic Disease C23.550.291.500.750
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Nonlinear Optical Microscopy
Microscopic imaging techniques that utilize nonlinear responses of light-matter interactions which occur with high-intensity illumination, such as from LASERS, and specialized light signal detection instrumentation to produce images without the need for dyes or fluorescent labels.

Tree locations:
Microscopy E01.370.350.515.717
E05.595.717

Nut and Peanut Hypersensitivity
Allergic reaction to tree nuts and peanuts, including other LEGUMES, that is triggered by the immune system. It includes co-sensitization to other food (e.g., sesame seed).

Tree locations:
Food Hypersensitivity C20.543.480.370.572

Obesity Management
An integrated professional approach to screening, evaluation, control, and reduction of abnormal WEIGHT GAIN.

Tree locations:
Disease Management N04.590.607.250
Therapeutics E02.570
Weight Reduction Programs N02.421.726.407.579.650.500

Occupational Stress
Adverse psychological and behavioral reactions caused by the pressures and demands of employers or clients or other factors, such as the physical environment of the workplace, WORKPLACE VIOLENCE; or WORKPLACE BULLYING.

Tree locations:
Occupational Diseases C24.580
Stress, Psychological F01.145.126.990.734
F02.830.900.666

Oligodendrocyte Precursor Cells
Neuroglial cells that first appear during mid-embryogenesis in the central nervous system of mammals and give rise to OLIGODENDROCYTES. Mitotically-active populations remain through late adulthood and are capable of regenerating MYELIN lost to disease or injury.

Tree locations:
Neural Stem Cells A11.872.653.500
Neuroglia A08.637.550
A11.650.550
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**Oligodendrocyte Transcription Factor 2**
A basic helix-loop-helix transcription factor that is required for differentiation of OLIGODENDROCYTES and motor neurons in the spinal cord, and development of somatic motor neurons in the hindbrain.

*Tree locations:*
- Basic Helix-Loop-Helix Transcription Factors D12.776.260.103.798
  - D12.776.930.125.782
- Nerve Tissue Proteins D12.776.631.654

**Oncogene Addiction**
The dependence of tumor cells on a single oncogenic pathway or protein for their continued proliferation and survival.

*Tree locations:*
- Neoplastic Processes C04.697.850
  - C23.550.727.850

**One Health**
An integrative effort of multiple disciplines working collaboratively and locally, nationally, and globally in all aspects of health care for humans, animals, and the environment.

*Tree locations:*
- Health N01.400.530

**Ophiophagus hannah**
The longest of all venomous snakes and largest Elapid. It is not a member of the Naja genus, although its hood resembles the hood of Naja species. Its bite can deliver large quantities of neurotoxic and cardiotoxic venom, consisting primarily of ALPHA-NEUROTOXINS. King cobras are indigenous to forests of India and Southeast Asia.

*Tree locations:*
- Elapidae B01.050.150.900.833.672.125.875.806

**Opium Dependence**
Strong physiological and emotional dependence on OPIUM.

*Tree locations:*
- Opioid-Related Disorders C25.775.675.800
  - F03.900.675.800

**Organ Motion**
Movement of internal organs due to physiological processes.

*Tree locations:*
- Movement G07.568.750
  - G11.427.410.849
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**Organic Cation Transporter 2**
Organic cation transporter consisting of twelve transmembrane domains and expressed primarily in the kidney. It transports a wide range of metabolites, drugs, and neurotransmitters from the blood to the KIDNEY TUBULES, including DOPAMINE; SEROTONIN; CHOLINE; and CISPLATIN.

**Tree locations:**
- D12.776.157.530.937.612.625
- D12.776.543.585.450.250.812.625
- D12.776.543.585.937.701.625

**Organism Hydration Status**
Quantitative measure of water or fluids contained in the body of a living organism.

**Tree locations:**
- Physiological Phenomena G07.670

**P-type ATPases**
A highly conserved family of ATPases that facilitate the transport of lipids and cations across the plasma membrane. Structurally, they are elongated ALPHA-HELICES constituting five functionally distinct domains: three cytoplasmic domains A, N, and P which contain the catalytic sites, and two transmembrane domains. The N domain phosphorylates the P-domain at an invariant ASPARTATE residue, which, in turn, is dephosphorylated by the A domain. The phosphorylation and dephosphorylation cycles drive conformational changes in the protein between two states (E1 and E2), which allow the substrate to access the other side of the membrane.

**Tree locations:**
- Adenosine Triphosphatases D08.811.277.040.025.314
- Membrane Transport Proteins D12.776.157.530.813
- D12.776.543.585.813

**Pain, Procedural**
Pain associated with examination, treatment or procedures.

**Tree locations:**
- Pain C23.888.592.612.860

**Palaeoptera**
Infraclass of ancient winged insects belonging to the subclass PTERYGOTA.

**Tree locations:**
- Pterygota B01.050.500.131.617.720.750

**Palm Oil**
Nutritive oil extracted from the fleshy mesocarp of the fruit of the African palm tree, Elaeis guineensis.

**Tree locations:**
- Plant Oils D10.627.700.798
- D20.215.784.750.728
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Pancreatitis-Associated Proteins
C-type lectins that restrict growth of bacteria in the intestinal epithelia and have bactericidal activity against gram-positive and gram-negative bacteria. They also regulate proliferation and differentiation of KERATINOCYTES following injury. Human pancreatitis-associated protein-1 (Reg3a) is overexpressed by pancreatic ACINAR CELLS in patients with CHRONIC PANCREATITIS. It is also highly expressed by pancreatic, bladder, and gastrointestinal cancer cells and may serve as a diagnostic biomarker.

Tree locations:
- Antigens, Neoplasm D23.050.285.733
- Biomarkers, Tumor D23.101.140.780
- Lectins, C-Type D12.776.503.280.578

Patient Generated Health Data
Health-related data created, recorded, or gathered by patients, family members, or caregivers, to help address a health concern. Distinct from data generated in clinical settings and through encounters with providers.

Tree locations:
- Health Records, Personal E05.318.308.940.968.249.625

Patient Health Questionnaire
A self-administered version of the Primary Care Evaluation of Mental Disorders (PRIME-MD), a diagnostic tool containing modules on multiple mental health disorders including anxiety, alcohol, eating, and somatoform modules. The Patient Health Questionnaire (PHQ-9) is designed specifically for mood/depression scoring each of the 9 DSM-IV criteria based on the mood module from the original PRIME-MD. The Generalized Anxiety Disorder scale (GAD-7) scores 7 common anxiety symptoms.

AN: restrict to evaluation of mental health status

Tree locations:
- Psychological Tests F04.711.580
- Surveys and Questionnaires E05.318.308.980.493
  N05.715.360.300.800.485
  N06.850.520.308.980.485

Peanut Oil
Oil derived from PEANUTS.

Tree locations:
- Plant Oils D10.627.700.809

Peptide Transporter 1
A proton-coupled symporter that transports OLIGOPEPTIDES and DIPEPTIDES. It localizes to the brush-border membrane of the INTESTINAL EPITHELIUM and plays a critical role in the assimilation of dietary proteins.

Tree locations:
- Solute Carrier Proteins D12.776.157.530.937.613
  D12.776.543.585.937.702
- Symporters D12.776.157.530.450.625.202
  D12.776.543.585.450.625.202
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**Periphyton**
A complex mixture of organisms (algae, cyanobacteria, heterotrophic microbes, detritus, etc.) clinging on the surfaces of plants and other objects projecting from the bottom sediments of aquatic ecosystems.

*Tree locations:*
- Aquatic Organisms B05.080.250
- Microbiota G06.591.937
  - G16.500.275.157.049.100.500.937
  - N06.230.124.049.100.500.875

**Peroxins**
Proteins that are essential for the assembly of PEROXISOMES. They recognize and transport cytoplasmic proteins that contain PEROXISOMAL TARGETING SIGNALS (PTS) to the peroxisome. Mutations in peroxin (PEX) genes are associated with several PEROXISOMAL DISORDERS.

*Tree locations:*
- Carrier Proteins D12.776.157.635

**Peroxisomal Biogenesis Factor 2**
A multi-pass transmembrane protein that contains a C-terminal RING finger domain. It localizes to the PEROXISOME membrane and is essential for peroxisome biogenesis. Mutations in the PEX2 gene are associated with ZELLWEGER SYNDROME and INFANTILE REFSUM DISEASE.

*Tree locations:*
- Membrane Proteins D12.776.543.689
- Peroxins D12.776.157.635.500

**Peroxisomal Targeting Signal 2 Receptor**
A cytoplasmic receptor and peroxin that contains a series of WD40 REPEATS and binds to PEROXISOME TARGETING SIGNAL 2. It is essential for protein import into PEROXISOMES; mutations in the human PEX7 gene are associated with PEROXISOMAL DISORDERS such as Type 1 CHONDRODYPLASIA PUNCTATA, RHIZOMELIC.

*Tree locations:*
- Peroxins D12.776.157.635.625

**Peroxisomal Targeting Signals**
Protein sorting signals that target proteins to PEROXISOMES.

*Tree locations:*
- Protein Sorting Signals D12.644.770.805
  - G02.111.570.060.670.805
New MeSH Headings for 2018

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**Peroxisome-Targeting Signal 1 Receptor**
A cytoplasmic receptor and peroxin that contains a series of TETRACOTIPEPTIDE REPEATS and binds to PEROXISOME TARGETING SIGNAL 1 (SKL-type). It is essential for protein import into PEROXISOMES; mutations in the PEX5 gene are associated with PEROXISOMAL DISORDERS such as ZELLWEGER SYNDROME.

*Tree locations:*
Peroxisins  D12.776.157.635.750

**PHD Zinc Fingers**
Zinc finger domains of approximately 50 to 80 amino acids in length that are characterized by a conserved Cysteine(3)-Histidine-Cysteine(4) amino acid motif which coordinates binding of two zinc ions. They are similar structurally to RING FINGER DOMAINS, with a globular fold topology of two BETA-SHEETS and an ALPHA-HELIX. PHD fingers occur in many proteins that function in chromatin-mediated gene expression and EPIGENETICS such as POLYCOMB-GROUP PROTEINS.

*Tree locations:*
Zinc Fingers  G02.111.570.820.709.275.500.985.438

**Pictorial Works as Topic**
Works that discuss pictures but not technical drawings.

*Tree locations:*
Art  K01.093.701

**Pipe Smoking**
SMOKING by use of a narrow conveying tube which feeds from an open cavity where smoked product is loaded and burned.

*Tree locations:*
Smoking  F01.145.805.063

**Platelet-Rich Fibrin**
A fibrin matrix derived from platelet-rich plasma that contains high concentration of BLOOD PLATELETS; LEUKOCYTES; CYTOKINES; and GROWTH FACTORS. It is used in a variety of clinical and TISSUE ENGINEERING applications.

*Tree locations:*
Platelet-Rich Plasma  A12.207.152.693.600.500
A12.207.270.695.600.500
A15.145.693.600.500

**Political Activism**
Active involvement in the political process including promoting, impeding or raising awareness of a certain issue or set of issues.

*Tree locations:*
Politics  I01.738.708
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**Poly ADP Ribosylation**
Post-translational modification of proteins with POLY ADENOSINE DIPHOSPHATE RIBOSE.

*Tree locations:
ADP-Ribosylation  G02.111.660.871.790.600.200.500
G02.111.691.600.200.500
G03.734.871.790.600.200.500
G05.308.670.600.200.500*

**Poly-ADP-Ribose Binding Motif**
A protein motif 22 to 26 amino acids in length that binds POLY(ADP RIBOSE) polymers through non-covalent interactions. It is characterized by basic and hydrophobic residues that frequently include ALANINE; VALINE; Isoleucine; or LEUCINE and flank LYSINE and ARGinine amino acids.

*Tree locations:
Amino Acid Motifs  G02.111.570.820.709.275.500.695*

**Poly-ADP-Ribose Binding Proteins**
Proteins that contain POLY-ADP RIBOSE BINDING MOTIFS. They include HISTONES and other proteins that function in DNA REPAIR, replication, gene transcription, and APOPTOSIS.

*Tree locations:
Carrier Proteins  D12.776.157.687
Nuclear Proteins  D12.776.660.720*

**Popular Culture**
Choices and ways of doing things that predominate or are fashionable among ordinary people in a society during a point in time.

*Tree locations:
Culture  I01.076.201.450.715
I01.880.853.100.628*

**Population Health**
The health outcomes of a group of individuals, including the distribution of such outcomes within the group. These populations are often geographic regions, such as nations or communities, but they can also be other groups.

*Tree locations:
Health  N01.400.548*
Positive Regulatory Domain I-Binding Factor 1
A transcriptional repressor protein that contains an N-terminal PR-SET domain, four C-terminal CYS2-HIS2 ZINC FINGERS, and binds the PRDI element in the INTERFERON-BETA gene. It has methyltransferase activity and mediates gene transcription in tissue-specific innate and adaptive immune lymphocyte T-CELLS, repressing expression of proteins that promote exit of these tissue-specific T-cell populations from non-lymphoid organs.

Tree locations:
- Protein Methyltransferases D08.811.913.555.500.800.700
- Repressor Proteins D12.776.260.703.650
- D12.776.930.780.904

PR-SET Domains
Highly conserved protein domains of approximately 130 to 140 amino acids. The SET domain was first identified in the Drosophila proteins (S)u(var)3-9, (E)nhancer-of-zeste and (T)rithorax and occurs in other proteins with a variety of functions, including histone-lysine N-methyltransferases. Structurally, it consists of BETA-SHEETS interspersed among loops and turns that result in an "L" shape. The most conserved motifs are a stretch at the C-terminal that contains a strictly conserved tyrosine residue and an adjacent loop that the C-terminal segment passes through to form a "knot". These motifs and especially the tyrosine residue are essential for S-ADENOSYLMETHIONINE binding and catalysis. The PR domain has high homology to the catalytic region of the SET domain and occurs at the N-terminal of PRDM proteins such as PRDM1 PROTEIN.

Tree locations:
- Protein Domains G02.111.570.820.709.275.750.477

Pre-Analytical Phase
Laboratory processes prior to specimen analysis. These processes include study design, compliance of the subjects investigated, compliance in adherence to protocols, choice of specimens utilized and sample collection.

Tree locations:
- Clinical Laboratory Techniques E01.370.225.955

Pre-B-Cell Leukemia Transcription Factor 1
A TALE-type homeodomain protein and transcription factor that binds the DNA sequence 5'-ATCAATCAA-3'. It forms a heterodimer with MEIS1 TRANSCRIPTION FACTOR and functions as a transcriptional activator of HOMEBOX PROTEIN NKX-2.5 and ELONGIN A, and as a transcriptional repressor of CDKN2B PROTEIN, in the regulation of developmental and morphogenetic processes such as spleen and limb development. Chromosome translocations involving the PBX1 and TCF3 genes occur in cases of pre-B-cell ACUTE LYMPHOID LEUKEMIA.

Tree locations:
- Homeodomain Proteins D12.776.260.400.836
- Proto-Oncogene Proteins D12.776.624.664.700.163
- D12.776.930.712
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**Preliminary Data**
First-released version of study results in a series of data collection efforts used for the purpose of generating further interest in and or funding of a research study.

*Tree locations:*
- Data Collection E05.318.308.763
- N05.715.360.300.638
- N06.850.520.308.763

**Prescription Drug Monitoring Programs**
Programs, usually run by state governments, that require pharmacists to collect and distribute data on the prescription and dispensation of CONTROLLED SUBSTANCES. They are intended to prevent the abuse of such substances by the patient, or their transfer to recreational users and drug dealers.

*Tree locations:*
- Drug Information Services N02.421.668.320.600
- Product Surveillance, Postmarketing E05.337.800.800

**Procrastination**
The deferment of actions or tasks to a later time, or to infinity.

*Tree locations:*
- Defense Mechanisms F01.393.661
- Mental Processes F02.463.617

**Prolotherapy**
Treatment of MUSCULOSKELETAL PAIN by injecting a substance into a joint space, ligament, or tendon to promote the growth of new tissue.

*Tree locations:*
- Complementary Therapies E02.190.777

**Promyelocytic Leukemia Zinc Finger Protein**
A Kruppel-type transcription factor consisting of an N-terminal BTB DOMAIN and nine CYS2-HIS2 ZINC FINGERS. It localizes to the nucleus and regulates cell cycle progression and gene expression for tissue development and homeostasis; it may also function as an epigenetic regulator through its interactions with HISTONE DEACETYLASE. Genetic rearrangements involving the ZBTB16 gene are associated with ACUTE PROMYELOCYTIC LEUKEMIA.

*Tree locations:*
- Kruppel-Like Transcription Factors D12.776.260.522.625
- D12.776.930.375.625

**Proof of Concept Study**
An empirical investigation which pertains to the development of prototypes or models that demonstrate the feasibility of novel concepts, ideas, principles, schema or their practical application.

*Tree locations:*
- Research H01.770.644.578
Protein Kinase C-theta
A calcium-independent, phospholipid- and diacylglycerol-dependent, protein kinase C subtype that contains an N-terminal C2 DOMAIN and two diacylglycerol-binding ZINC FINGERS. It is expressed primarily by T-LYMPHOCYTES and localizes to IMMUNOLOGICAL SYNAPSES where it regulates downstream signaling for the activation, proliferation, and survival of mature T-cells. It plays a critical role in allergic, autoimmune, and alloimmune responses of TH2 CELLS and TH17 CELLS.

Tree locations:
Protein Kinase C D08.811.913.696.620.682.700.725.075

Protein-Arginine Deiminases
A family of ENZYMES that, in the presence of calcium ion, converts ARGinine to CITRULLINE in proteins.

Tree locations:
Hydrolases D08.811.277.721

Proteostasis
Regulation of the concentration, folding, interactions, and cellular localization of each of the proteins that comprise the PROTEOME.

Tree locations:
Biochemical Phenomena G02.111.730
Metabolism G03.816

Psycho-Oncology
A specialty which deals with the interrelationship of physical, psychological, social, behavioral, and ethical aspects of cancer. Psycho-oncology examines the behavioral and psychosocial factors that may influence the course of the disease, cancer risk, prevention, and detection.

Tree locations:
Medical Oncology H02.403.429.515.250
Psychology, Medical F04.096.628.808.500
H02.720.500

Pterygota
A subclass of winged insects belonging to the class Insecta.

Tree locations:
Insecta B01.050.500.131.617.720

Pyloromyotomy
Surgical incision of the PYLORUS used to treat pyloric stenoses (e.g. INFANTILE HYPERTROPHIC PYLORIC STENOSIS).

Tree locations:
Endoscopy, Gastrointestinal E04.210.240.250.760
Gastrectomy E04.210.419.500
Myotomy E04.515.375
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Quasispecies
Variations among a population of a given species due to errors in replication of the genome that result in a distribution of non-identical members.

Tree locations:
Genetic Variation  G05.365.897

rab27 GTP-Binding Proteins
GTP-binding proteins associated with membranes, MELANOSOMES; LYSOSOMES; and late ENDOSONES. They play a role in the release of cytotoxic SECRETORY GRANULES from lymphocytes and are required for granule maturation, as well as granule docking and priming at IMMUNOLOGICAL SYNAPSES.

Tree locations:
rab GTP-Binding Proteins  D08.811.277.040.330.300.400.400.075
D12.644.360.525.400.075
D12.776.157.325.515.400.075
D12.776.476.525.400.075

Rapamycin-Insensitive Companion of mTOR Protein
An adaptor protein subunit of MTORC2 COMPLEX. It functions as a structural component and is phosphorylated by RIBOSOMAL PROTEIN S6 KINASES, integrating signals for cell growth and proliferation, especially during embryonic development.

Tree locations:
Adaptor Proteins, Signal Transducing  D12.644.360.024.323
D12.776.157.057.156
D12.776.476.024.411
Mechanistic Target of Rapamycin Complex 2  D05.500.356.500
D08.811.913.696.620.682.700.931.750.500
D12.776.476.925.750.500

Ras Homolog Enriched in Brain Protein
A GTP-binding protein with low intrinsic GTPase activity that activates MTORC1 protein kinase activity.

Tree locations:
Monomeric GTP-Binding Proteins  D08.811.277.040.330.300.400.488
D12.644.360.525.488
D12.776.157.325.515.488
D12.776.476.525.488
Neuropeptides  D12.776.631.650.665

Receptor, Notch4
A notch receptor and proto-oncogene protein characterized by a large extracellular domain that consists of 29 EPIDERMAL GROWTH FACTOR - like repeat sequences (EGF repeats) and five ANKYRIN REPEATS. It functions as a receptor for SERRATE-JAGGED PROTEINS and Delta1 (DLK1) protein to control cell fate determination.

Tree locations:
Proto-Oncogene Proteins  D12.776.624.664.700.815
Receptors, Notch  D12.776.543.750.725.937
D12.776.930.770.937
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**Receptors for Activated C Kinase**
Receptors for PROTEIN KINASE C that consist of seven WD40 REPEATS. They function in a wide variety of cellular and physiologic processes including the assembly of signaling complexes, protein translation, cell growth and proliferation, APOPTOSIS, and MUSCARINIC RECEPTOR transport. RACK1 depends on protein kinase C activity to translocate from the perinuclear region to the cell periphery and associates with the plasma membrane through interactions with KERATIN-1 and INTEGRIN BETA-1.

*Tree locations:*
  - Receptors, Cytoplasmic and Nuclear  D12.776.826.313

**Receptors, CXCR6**
CXCR receptors that are specific for CHEMOKINE CXCL16. They are expressed by lymphoid tissues, activated T-cells, and also function as co-receptors for SIMIAN IMMUNODEFICIENCY VIRUSES; HIV-2; and HIV-1 infection of MACROPHAGES.

*Tree locations:*
  - Receptors, CXCR  D12.776.543.750.695.160.500.625
  - Receptors, Virus  D12.776.543.750.830.475

**Receptors, Enterotoxin**
Guanylate cyclase-coupled receptors that bind bacterial ENTEROTOXINS, as well as the endogenous peptides guanylin and uroguanylin. Ligand binding stimulates production of CYCLIC GMP by EPITHELIAL CELLS of the intestinal lumen, altering barrier permeability and mucus secretion. Mutations in the gene (GUCY2C) encoding this receptor are associated with some cases of hereditary diarrhea (Diarrhea 6) and MECONIUM ILEUS.

*Tree locations:*
  - Receptors, Guanylate Cyclase-Coupled  D08.811.520.650.600.500.250
  - Receptors, Peptide  D12.776.543.750.750.025

**Receptors, Histamine H4**
G-Protein-coupled histamine receptors that are expressed primarily in BONE MARROW as well as in peripheral tissues and organs. They are expressed by immune cells that include EOSINOPHILS; T-CELLS; DENDRITIC CELLS; and MAST CELLS.

*Tree locations:*
  - Receptors, G-Protein-Coupled  D12.776.543.750.695.358
  - Receptors, Histamine  D12.776.543.750.670.450.750
  - Receptors, Histamine  D12.776.543.750.720.480.750

**Receptors, Kisspeptin-1**
G protein coupled receptors for the C-terminally amidated peptide of KISSPEPTIN-1. KISS1R plays an essential role in sexual development during puberty through its regulation of GONADOTROPIN-released hormones.

*Tree locations:*
  - Receptors, G-Protein-Coupled  D12.776.543.750.695.022
  - Receptors, Peptide  D12.776.543.750.750.013
Recidivism
Repeated problem behavior.

**Tree locations:**
Crime I01.198.240.679

Refugee Camps
Areas of shelter and protection for people who leave their own country or habitual residence to escape danger, persecution, or disaster.

**Tree locations:**
Housing J03.340.825

Regulatory-Associated Protein of mTOR
An adaptor protein component of the MECHANISTIC TARGET OF RAPAMYCIN COMPLEX 1 that forms stoichiometric complexes with TOR KINASES, which it negatively regulates. It functions as a positive regulator of RIBOSOMAL PROTEIN S6 KINASES.

**Tree locations:**
Adaptor Proteins, Signal Transducing D12.644.360.024.324
D12.776.157.057.157
D12.776.476.024.419
Mechanistic Target of Rapamycin Complex 1 D05.500.337.500
D08.811.913.696.620.682.700.931.500.500
D12.776.476.925.500.500

Remyelination
The reforming of the MYELIN SHEATH around AXONS following loss due to injury or DEMYELINATING DISEASES.

**Tree locations:**
Nerve Regeneration G11.561.585.250
G16.762.611.250

Resonance Frequency Analysis
A non-invasive assessment of the stability of tissue-embedded prosthetic devices such as dental implants.

**Tree locations:**
Diagnostic Techniques and Procedures E01.370.502
Prosthodontics H02.163.876.708.500
rhoC GTP-Binding Protein
A rho GTP-binding protein that is prenylated (see PROTEIN PRENYLATION) at its C-terminus and cycles between the cytoplasm and plasma membrane, linking receptor signaling pathways with assembly of FOCAL ADHESIONS; STRESS FIBERS; and contractile ring formation during CYTOKINESIS. It is overexpressed in proliferating and metastatic tumor cells.

Tree locations:
rho GTP-Binding Proteins  D08.811.277.040.330.300.400.700.650
D12.644.360.525.700.650
D12.776.157.325.515.700.650
D12.776.476.525.700.650

Rice Bran Oil
OIL extracted from the hard outer brown layer of rice bran after the husk has been removed.

Tree locations:
Plant Oils  D10.627.700.819
D20.215.784.750.784

Risk Evaluation and Mitigation
Strategies required by the US Food and Drug Administration (FDA) Amendments Act of 2007 when a question exists as to whether the benefits of a drug outweigh its risks. These constitute a safety plan with several potential components, including a medication guide, a communication plan, elements to ensure safe use and an implementation system to help guide the prescribers, pharmacists and patients.

Tree locations:
Risk Assessment  N06.850.505.715.750
Risk Management  N04.452.871.758

Rosanae
A suborder of flowering plants of the class MAGNOLIOPSIDA which comprises two major groups, Eurosids I and II.

Tree locations:
Magnoliopsida  B01.650.940.800.575.912.250.859

Rumination, Cognitive
Obsessive thinking about an idea, situation, or choice.

Tree locations:
Cognition  F02.463.188.878

Rumination, Digestive
Regurgitation and re-chewing of previously swallowed food in RUMINANTS.

Tree locations:
Digestion  G10.261.190.400
**RUNX1 Translocation Partner 1 Protein**
A transcriptional co-repressor that contains a MYND-type zinc finger (MYND DOMAIN) at its C-terminal and functions as a homo-oligomer. It associates with DNA-binding transcription factors, other repressor proteins, and HISTONE ACETYLTRANSFERASES to repress expression of genes involved in cell growth and differentiation such as MATRIX METALLOPROTEINASE 7 and TCF12. A CHROMOSOMAL TRANSLOCATION involving the RUNX1T1 and CORE BINDING FACTOR ALPHA 2 SUBUNIT (RUNX1) genes frequently occurs in cells of leukemia patients; the resulting fusion protein (AML1-ETO or RUNX1-RUNX1T1) plays a critical role in leukemogenesis.

**Tree locations:**
- Co-Repressor Proteins D12.776.930.780.625.575
- Proto-Oncogene Proteins D12.776.624.664.700.936

**S100 Calcium Binding Protein A6**
An S100 calcium binding protein that contains two EF HAND MOTIFS and plays a role as a calcium sensor and modulator for many cellular processes such as CELL CYCLE progression; CELL MOTILITY and reorganization of the ACTIN CYTOSKELETON. Its expression is induced by growth factors and it is overexpressed in patients with ACUTE MYELOID LEUKEMIA.

**Tree locations:**
- Cell Cycle Proteins D12.776.167.481
- S100 Proteins D12.776.157.125.750.532

**S100 Calcium Binding Protein A7**
An S100 calcium binding protein that contains two EF HAND MOTIFS and also binds zinc. It is secreted via a non-classical secretory pathway and expressed by KERATINOCYTES and epithelial cells of the tongue. It has antimicrobial and immunomodulatory activities and is highly expressed in the skin of patients with PSORIASIS, as well as in bladder and skin epithelial carcinomas.

**Tree locations:**
- S100 Proteins D12.776.157.125.750.563

**Salpingo-oophorectomy**
Combined surgical resection of the fallopian tube and the ovary.

**Tree locations:**
- Ovariectomy E04.270.282.685.500
- E04.950.165.685.500
- E04.950.300.680.500
- Salpingectomy E04.950.300.715.500
SAM Domain and HD Domain-Containing Protein 1
A host restriction triphosphorylhydrolase and dNTPase that contains an N-terminal STERILE ALPHA MOTIF and central, conserved ASPARTATE and HISTIDINE (HD) domain. It acts on single-stranded RNA, yielding deoxynucleosides and triphosphate, and functions in anti-viral defense through its dNTPase activity, reducing cellular dNTP levels below what is required for retroviral reverse transcription in DENDRITIC CELLS and MYELOID CELLS. It also has RIBONUCLEASE activity which blocks early replication of retroviruses such as HIV-1. Mutations in the SAMHD1 gene are associated with type 5 Aicardi-Goutieres syndrome (AGS5) and type 2 chilblain LUPUS (CHBL2).

Tree locations:
- Acid Anhydride Hydrolases D08.811.277.040.725
- Ribonucleases D08.811.277.352.700.843

Sao Tome and Principe
Islands in the Gulf of Guinea, just north of the Equator, and west of Gabon.

Tree locations:
- Africa, Central Z01.058.290.100.690
- Atlantic Islands Z01.639.040.847

SAP90-PSD95 Associated Proteins
Proteins expressed at SYNAPSES throughout the brain where they interact with different scaffolding proteins, cytoskeletal proteins, and signaling factors to assemble functional multiprotein complexes.

Tree locations:
- Intracellular Signaling Peptides and Proteins D12.644.360.700
- D12.776.476.700
- Nerve Tissue Proteins D12.776.631.703

Scholarly Communication
System through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. It includes both formal means of communication, such as publication in peer-reviewed journals, and informal channels, such as electronic listservs. (from Association of College & Research Libraries, “Principles and Strategies for the Reform of Scholarly Communication 1,” 2003)

Tree locations:
- Communication L01.143.865
- Social Networking L01.143.910.500

Science in Literature
Literary works whose subject matter is science or about the profession of science and related areas.

Tree locations:
- Literature K01.517.864
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

Science in the Arts
Depiction of scientific issues or themes via the arts including visual, oral, or written forms of expression.

AN: coordinate IM with scientific aspect (IM) + specific art heading (IM)
Tree locations:
Art  K01.093.796

Scientific Experimental Error
Deviation or aberration in the practical implementation of standard empirical procedures, distinct from MEDICAL ERRORS and SCIENTIFIC MISCONDUCT.

AN: for intentional falsification of scientific data, use SCIENTIFIC MISCONDUCT
Tree locations:
Data Accuracy  E05.318.780.725.250.500
              N05.715.360.300.202.500

Second Harmonic Generation Microscopy
A microscopic imaging technique that takes advantage of the process of harmonic generation that occurs when photons interact to generate new photons of a different wavelength. In second harmonic generation, two photons of the same wavelength and frequency, such as from a LASER, interact inside a medium and are converted to a photon of twice the frequency and half of the wavelength of the two incident photons. The light signals captured are used to produce images that are dependent on the unique optical properties of the material.

Tree locations:
Nonlinear Optical Microscopy  E01.370.350.515.717.500
                              E05.595.717.500

Self-Directed Learning as Topic
Process in which individuals take the initiative, in diagnosing their learning needs, formulating learning goals, identifying resources for learning, choosing and implementing learning strategies and evaluating learning outcomes (Knowles, 1975)

Tree locations:
Learning  F02.463.425.818
           Teaching  I02.903.771

Self-Management
Individual's ability to manage the symptoms, treatment, physical and psychosocial consequences and lifestyle changes inherent in living with a chronic condition. Efficacious self-management encompasses ability to monitor one's condition and to effect the cognitive, behavioral, and emotional responses necessary to maintain a satisfactory quality of life.

Tree locations:
Rehabilitation  N02.421.784.760
Semantic Web
A framework for development and promotion of common data formats and exchange protocols linked in a way that can be read directly by computers. Semantic Web is a platform for sharing and reusing data across application, enterprise, and community boundaries, by linking concepts rather than just documents.

Tree locations:
    Computing Methodologies   L01.224.740

Serine Peptidase Inhibitor Kazal-Type 5
A secreted serine peptidase inhibitor that consists of 15 KAZAL MOTIFS and inhibits KALLIKREINS KLK5, KLK7, and KLK14 as well as TRYPSIN. It plays important roles in protecting MUCOSA against infection and inflammation, and in maintaining the integrity of the skin. Mutations in the SPINK5 gene are associated with NETHERTON SYNDROME.

Tree locations:
    Serine Peptidase Inhibitors, Kazal Type   D12.644.822.750.250
    D12.776.645.688.250

Serine Peptidase Inhibitors, Kazal Type
A family of serine peptidase inhibitors that occur in animals, some single-cell eukaryotes, and higher plants. They contain variable numbers of KAZAL MOTIFS and inhibit SERINE ENDOPEPTIDASES such as ACROSIN and TRYPSIN.

Tree locations:
    Proteinase Inhibitory Proteins, Secretory   D12.644.822.750
    D12.776.645.688
    Serine Proteinase Inhibitors   D27.505.519.389.745.800.562

Serum Albumin, Human
Serum albumin from humans. It is an essential carrier of both endogenous substances, such as fatty acids and BILIRUBIN, and of XENOBITOICS in the blood.

Tree locations:
    Serum Albumin   D12.776.034.841.603
    D12.776.124.727.906

Sexual Health
A state of physical, emotional, mental and social well-being in relation to SEXUALITY, according to the World Health Organization.

Tree locations:
    Health   N01.400.663
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Shift Work Schedule**
Job schedule in which working hours deviate from the standard hours (e.g., evening shift, night shift or rotating shift).

*Tree locations:*
Personnel Staffing and Scheduling  I03.946.225.250  
N04.452.677.650.250

**Short Chain Dehydrogenase-Reductases**
A large family of oxidoreductases that are predominantly NAD- or NADP-dependent and 250 to 350 amino acids in length. They generally consist of two PROTEIN DOMAINS: A catalytic N-terminal domain that binds the substrate, and a C-terminal coenzyme-binding domain.

*Tree locations:*
NAD (+) and NADP (+) Dependent Alcohol Oxidoreductases  D08.811.682.047.820.900

**Short Stature Homeobox Protein**
A homeodomain protein that is highly expressed in the nuclei of skeletal muscle, bone marrow, and osteogenic cells and has critical roles in growth and development. Its gene resides within PSEUDOAUTOSOMAL REGION 1 of X and Y chromosomes and mutations are associated with several growth disorders including LERI-WIEIL SYNDROME; LANGER MESOMELIC DYSPLASIA; and SHORT STATURE, IDIOPATHIC, X-LINKED.

*Tree locations:*
Homeodomain Proteins  D12.776.260.400.859

**Sida Plant**
A genus of flowering plants in the family of mallows (MALVACEAE). Their common name is fanpetals.

*Tree locations:*
Malvaceae  B01.650.940.800.575.912.250.700.777

**Sint Maarten**
Dutch part of the island of Saint Martin in the Caribbean Sea; Sint Maarten lies east of the US Virgin Islands.

*Tree locations:*
Caribbean Region  Z01.107.084.450

**Sleep Latency**
The time it takes to reach REM SLEEP. It is typically measured by POLYSOMNOGRAPHY or EEG as a part of various sleep pattern tests (e.g., multiple sleep latency test).

*Tree locations:*
Sleep  F02.830.855.765  
G11.561.803.377
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

Smokers
Persons with a history or habit of SMOKING.

Tree locations:
Persons M01.808

Smoking Devices
Gadgets, utensils, apparatuses or instruments used for SMOKING.

Tree locations:
Manufactured Materials J01.637.767

Smoking Pipes
Devices used for SMOKING which convey SMOKE directly into the mouth.

Tree locations:
Smoking Devices J01.637.767.750

Smoking Prevention
Efforts directed at preventing SMOKING of TOBACCO and non-tobacco products.

Tree locations:
Health Education I02.233.332.812
N02.421.726.407.840

Smoking Reduction
A decrease in the incidence and frequency of SMOKING. Smoking reduction differs from SMOKING CESSATION in that the smoker continues to smoke albeit at a lesser frequency without quitting.

Tree locations:
Health Behavior F01.145.488.738
Smoking F01.145.805.157

Smoking Water Pipes
Pipes for smoking tobacco, cannabis, and other substances, in which smoke is drawn through water. Do not confuse with SMOKING PIPES.

Tree locations:
Smoking Pipes J01.637.767.750.500

Smoking, Non-Tobacco Products
SMOKING of non-TOBACCO (or NICOTINE-containing) substances.

Tree locations:
Smoking F01.145.805.250
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Smoldering Multiple Myeloma**
An asymptomatic and slow-growing PLASMA CELL dyscrasia characterized by presence of MYELOMA PROTEINS and clonal bone marrow plasma cells without end-organ damage (e.g., renal impairment). It is distinguished from MONOCLONAL GAMMOPATHY OF UNDETERMINED SIGNIFICANCE by a much higher risk of progression to symptomatic MULTIPLE MYELOMA.

*Tree locations:*
- Hypergammaglobulinemia C15.378.147.542.820
- C20.683.460.820
- Paraproteinemias C15.378.147.780.838
- C20.683.780.838
- Precancerous Conditions C04.834.794

**Sodium-Hydrogen Exchanger 1**
A sodium-hydrogen antiporter expressed by many cell types, especially on the basolateral surfaces of EPITHELIAL CELLS. It functions through an inward sodium ion chemical gradient to eliminate acids (protons) generated by metabolism and regulate intracellular pH. It is highly sensitive to AMILORIDE.

*Tree locations:*
- Sodium-Hydrogen Exchangers D12.776.157.530.450.162.775.500
- D12.776.157.530.937.703.500
- D12.776.543.550.190.775.500
- D12.776.543.585.450.162.775.500
- D12.776.543.585.937.828.500

**Sodium-Hydrogen Exchanger 3**
A sodium-hydrogen antiporter expressed primarily by EPITHELIAL CELLS in the kidneys, it localizes to the apical membrane of the PROXIMAL KIDNEY TUBULE, where it functions in sodium and water reabsorption and possibly calcium homeostasis. It also is expressed in heart, brain, and lung tissues and is resistant to AMILORIDE inhibition.

*Tree locations:*
- Sodium-Hydrogen Exchangers D12.776.157.530.450.162.775.750
- D12.776.157.530.937.703.750
- D12.776.543.550.190.775.750
- D12.776.543.585.450.162.775.750
- D12.776.543.585.937.828.750

**Solitary Kidney**
Either a single or a single functioning kidney due to NEPHRECTOMY, birth defects or other kidney diseases.

*Tree locations:*
- Pathological Conditions, Anatomical C23.300.925
- Urogenital Abnormalities C12.706.846
- C13.351.875.846
Solute Carrier Family 22 Member 5
A high-affinity, ATP-binding, co-transporter for CARNITINE that is highly expressed in kidney, skeletal muscle, heart, and placental tissues. It transports one sodium ion with one carnitine molecule. It has a lower affinity for other organic cations and transports them independently of sodium. Mutations in the SLC22A5 gene are associated with systemic carnitine deficiency.

Tree locations:
D12.776.157.530.937.612.750
D12.776.543.585.450.250.812.750
D12.776.543.585.937.701.750

Solute Carrier Organic Anion Transporter Family Member 1B3
A sodium-independent organic anion transporter that functions in the uptake of various drugs and endogenous compounds including ESTRADIOL; TAUROCHOLATE; LEUKOTRIENE C4; and METHOTREXATE. It also functions in clearing BILE ACIDS and organic anions from the liver. Mutations in the SLCO1B3 gene are associated with Rotor Type HYPERBILIRUBINEMIA.

Tree locations:
Organic Anion Transporters, Sodium-Independent D12.776.157.530.450.074.500.781.875
D12.776.543.585.450.074.500.875.875
Solute Carrier Proteins D12.776.157.530.937.905
D12.776.543.585.937.950

Sp7 Transcription Factor
An Sp transcription factor that contains three CYS2–HIS2 ZINC FINGERS. It binds to GC RICH SEQUENCES and performs an essential function in regulating gene expression for differentiation of OSTEOBLASTS. Mutations in the SP7 gene are associated with type 12 OSTEOGENESIS IMPERFECTA.

Tree locations:
Sp Transcription Factors D12.776.260.522.750.937
D12.776.930.375.750.937

Spastin
An AAA ATPase that binds and severs MICROTUBULES. It specifically recognizes and cuts polyglutamylated microtubules with short polyglutamate tails to promote reorganization of cellular microtubule arrays and the release of microtubules from the CENTROSOME following nucleation. It is critical for the biogenesis and maintenance of complex microtubule arrays in AXONS; SPINDLE APPARATUS; and CILIA. Mutations in the spastin gene (SPAST) are associated with type 4 of HEREDITARY SPASTIC PARAPLEGIA.

Tree locations:
ATPases Associated with Diverse Cellular Activities D08.811.277.040.013.500.500
D08.811.277.040.025.024.500
D12.776.157.025.750.500
Microtubule-Associated Proteins D12.776.220.600.450.465
D12.776.631.560.480
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Sphincterotomy**
Surgical incision of a sphincter.

*Tree locations:*
Myotomy  E04.515.750

**Spotted Fever Group Rickettsiosis**
A group of arthropod-borne diseases caused by spotted fever bio-group members of Rickettsia. They are characterized by fever, headache, and petechial (spotted) rash.

*AN: coordinate IM with Rickettsia species if pertinent, but note specifics*

*Tree locations:*
Rickettsia Infections  C01.252.400.780.790.750
Tick-Borne Diseases  C01.252.400.825.887

**Stakeholder Participation**
A process between an entity and those groups or individuals potentially or actually impacted by the actions of that entity over a range of activities and approaches.

*Tree locations:*
Human Activities  I03.743
Politics  I01.738.805

**Staphylococcus capitis**
A COAGULASE-negative species of STAPHYLOCOCCUS found on the skin and MUCOUS MEMBRANE of warm-blooded animals. Similar to STAPHYLOCOCCUS EPIDERMIDIS and STAPHYLOCOCCUS HAEMOLYTICUS, it is a nosocomial pathogen in NICU settings. Subspecies include generally antibiotic susceptible and BIOFILM negative capitis and antibiotic resistant and biofilm positive urealyticus isolates.

*AN: infection: coordinate IM with STAPHYLOCOCCAL INFECTIONS (IM)*

*Tree locations:*
Staphylococcus  B03.300.390.400.800.750.222
B03.353.500.750.750.222
B03.510.100.750.750.222
B03.510.400.790.750.222

**Stereolithography**
A 3D printing technology where a computer-controlled moving laser beam is used to build up the required structure, layer by layer, from liquid POLYMERS that harden on contact with laser light (photopolymerization).

*Tree locations:*
Printing, Three-Dimensional  J01.897.564.500
L01.224.108.150.500.500
L01.296.110.150.500.500
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**Strobilurins**
Benzene or pyrimidine derivatives of methacrylic acid that block the Qo site of CYTOCHROME B. They are widely used as agricultural fungicides.

*Tree locations:*
Methacrylates D02.241.081.069.600.575

**Sublimation, Chemical**
The process of solids transforming into a gaseous state or vice versa, without passing through a liquid state.

*Tree locations:*
Phase Transition G01.645.563 G02.734.700

**Substance Abuse, Oral**
Abuse, overuse, or misuse of a substance by ingestion.

*Tree locations:*
Substance-Related Disorders C25.775.814 F03.900.809

**Sugars**
Short chain carbohydrate molecules that have hydroxyl groups attached to each carbon atom unit with the exception of one carbon that has a doubly-bond aldehyde or ketone oxygen. Cyclical sugar molecules are formed when the aldehyde or ketone groups respectively form a hemiacetal or hemiketal bond with one of the hydroxyl carbons. The three dimensional structure of the sugar molecule occurs in a vast array of biological and synthetic classes of specialized compounds including AMINO SUGARS; CARBASUGARS; DEOXY SUGARS; SUGAR ACIDS; SUGAR ALCOHOLS; and SUGAR PHOSPHATES.

*Tree locations:*
Carbohydrates D09.947

**Sunflower Oil**
Oil derived from the seeds of SUNFLOWER plant, Helianthus.

*Tree locations:*
Plant Oils D20.215.784.750.910

**Suprachiasmatic Nucleus Neurons**
Neurons of the SUPRACHIASMATIC NUCLEUS.

*Tree locations:*
Neurons A08.675.947 A11.671.947
Suprachiasmatic Nucleus A08.186.211.464.497.342.625.500 A08.186.211.730.317.357.342.625.500
New MeSH Headings for 2018

Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

Survivorship
Functional, psychosocial, emotional and spiritual domains and needs of patients and families following life-threatening disease or events.

Tree locations:
Emotional Adjustment  F01.058.144.500

Sustainable Growth
Achievement of an economic system that can continue to grow for the foreseeable future.

Tree locations:
Technology, Industry, and Agriculture  J01.839

Symbolic Interactionism
Theoretical approach to social processes with a fundamental concern with power phenomena. There is a focus on the analysis of culture, the influence of Foucault, and the development of feminist perspectives.

Tree locations:
Social Theory  F02.970.500
Symbolism  K01.752.798.750

Synovectomy
Surgical removal of the SYNOVIAL MEMBRANE.

Tree locations:
Orthopedic Procedures  E04.555.640

T-Cell Acute Lymphocytic Leukemia Protein 1
A basic helix-loop-helix transcription factor that plays a critical role in HEMATOPOIESIS and as a positive regulator in the differentiation of ERYTHROID CELLS. Chromosome translocations involving the TAL-1 gene are associated with T-CELL ACUTE LYMPHOCYTIC LEUKEMIA.

Tree locations:
Basic Helix-Loop-Helix Transcription Factors  D12.776.260.103.829
D12.776.930.125.829
Proto-Oncogene Proteins  D12.776.624.664.700.960
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

**T-Cell Intracellular Antigen-1**
An RNA-binding protein characterized by three RNA RECOGNITION MOTIFS. It binds to AU RICH ELEMENTS in the 3'-untranslated regions of mRNA and regulates alternative pre-RNA splicing and mRNA translation; it may also function in APOPTOSIS. Mutations in the TIA-1 gene are associated with WELANDER DISTAL MYOPATHY.

**Tree locations:**
- Poly(A)-Binding Proteins D12.776.157.725.452.750
- RNA Recognition Motif Proteins D12.776.157.725.813.937
- RNA Splicing Factors D12.776.157.725.829.875

**T-Lymphoma Invasion and Metastasis-inducing Protein 1**
A Rho guanine nucleotide exchange factor that consists of two pleckstrin homology domains flanking central Ras-binding, Dbl-homology (DH) and PDZ domains. It stimulates GTP-GDP exchange of rho-like GTPases such as RAC1 PROTEIN; CDC42 PROTEIN; and RHOA PROTEIN, and functions to link extracellular signals to remodeling of the CYTOSKELETON for CELL ADHESION and CELL MOVEMENT.

**Tree locations:**
- Guanine Nucleotide Exchange Factors D12.644.360.325.300.850
- D12.776.476.325.300.850

**Tetratricopeptide Repeat**
A structural motif present in a variety of proteins that mediates protein-protein interactions and assembly of multiprotein complexes. It consists of 3 to 16 tandem repeats of 34 amino acids, mostly of small and large hydrophobic residues, that form ALPHA-HELIX pairs.

**Tree locations:**
- Amino Acid Motifs G02.111.570.820.709.275.500.920
- Protein Interaction Domains and Motifs G02.111.570.820.709.275.750.500.829
- Repetitive Sequences, Amino Acid G02.111.570.060.720.394
  - G02.111.570.060.720.394
  - G02.111.570.820.709.275.875.394

**Therapeutic Index**
An indicator of the benefits and risks of treatment.

**Tree locations:**
- Treatment Outcome E01.789.800.665
  - N04.761.559.590.800.713

**Therapeutic Index, Drug**
The ratio of the dose that produces toxicity to the dose that produces a clinically desired or effective response.

**Tree locations:**
- Therapeutic Index E01.789.800.665.500
  - N04.761.559.590.800.713.500
New MeSH Headings for 2018
Listed in alphabetical order with Heading, Scope Note, Annotation (AN), and Tree Locations

THP-1 Cells
A human leukemia monocytic cell line derived from a patient with LEUKEMIA, MONOCYTIC, ACUTE. It is used as a model to study the function of MONOCYTES and MACROPHAGES, their signaling pathways, nutrient and drug transport.

AN: almost always NIM with no subheadings; check HUMAN; do not routinely add LEUKEMIA, MONOCYTIC, ACUTE

Tree locations:
Cell Line, Tumor A11.251.210.190.815
A11.251.860.180.815

Thyroid Nuclear Factor 1
A homeobox protein and transcription factor that localizes to the cell nucleus where it activates expression of thyroid specific genes such as THYROGLOBULIN and the THYROTROPIN RECEPTOR. It is critical for maintaining thyroid tissue in a differentiated state and also plays a role in lung development. Mutations in the NKX2-1 gene are associated with CHOREA, BENIGN HEREDITARY.

Tree locations:
Homeodomain Proteins D12.776.260.400.871
Nuclear Proteins D12.776.660.823
Transcription Factors D12.776.930.888

Tobacco Smoking
The process of SMOKING specific to TOBACCO.

Tree locations:
Tobacco Use F01.145.958.875

Tobacco, Waterpipe
Flavored tobacco whose vapor or smoke is passed through a water basin before inhalation.

Tree locations:
Tobacco Products J01.637.767.844.750

Toxin-Antitoxin Systems
Mechanisms that allow bacteria and archaea to rapidly adapt to changing environmental conditions via a toxin, produced during adverse conditions, that inhibits a specific vital process, and a partner antitoxin that blocks the effects of the toxin, under normal growth conditions.

Tree locations:
Microbiological Phenomena G06.773
**Transactinide Series Elements**
A series of radioactive elements with atomic numbers greater than 103. Current members include Rutherfordium, atomic number 104, to and including Ununoctium, atomic number 118. All members are synthetic with short half-lives.

*Tree locations:*
- Elements, Radioactive  D01.268.271.935
- D01.496.749.305.935

**Transcription Factor 4**
A basic helix-loop-helix leucine zipper transcription factor that functions in neuronal CELL DIFFERENTIATION. It dimerizes with other bHLH transcription factors and activates transcription through binding to E-BOX ELEMENTS containing 5'-ACANNTGT-3' or 5'-CCANNTGG-3' sequences. Mutations in the TCF-4 gene are associated with Pitt-Hopkins Syndrome, a severe developmental disorder.

*Tree locations:*
- D12.776.930.125.500.937

**Transfusion-Related Acute Lung Injury**
A rare but serious transfusion-related reaction in which fluid builds up in the lungs unrelated to excessively high infusion rate and/or volume (TRANSFUSION-ASSOCIATED CIRCULATORY OVERLOAD). Signs of Transfusion-Related Acute Lung Injury include pulmonary secretions; hypotension; fever; DYSPNEA; TACHYPNEA; TACHYCARDIA; and CYANOSIS.

*Tree locations:*
- Acute Lung Injury  C08.381.520.500.500
- Transfusion Reaction  C15.378.962.500
- C20.920.500

**Transplantation, Haploidentical**
Transplantation between individuals who share a partial haplotype match.

*Tree locations:*
- Transplantation, Homologous  E04.936.864.350

**Travel-Related Illness**
Health problems associated with TRAVEL.

*Tree locations:*
- Signs and Symptoms  C23.888.914
- Travel  I03.883.855
New MeSH Headings for 2018

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Treatment Adherence and Compliance
Extent to which the patient follows prescribed treatment such as keeping APPOINTMENTS AND SCHEDULES and MEDICATION ADHERENCE for desired therapeutic outcome. It implies active responsibility shared by patient and health care providers.

Tree locations:
- Attitude to Health F01.100.150.750
  - N05.300.150.800
- Health Behavior F01.145.488.887

Triggering Receptor Expressed on Myeloid Cells-1
An approximately 230 amino acid membrane glycoprotein characterized by an IMMUNOGLOBULIN V-SET DOMAIN in its N-terminal half. It is expressed by MONOCYTES and NEUTROPHILS in response to INFLAMMATION related to bacterial and fungal infections. It triggers the release of pro-inflammatory CHEMOKINES; CYTOKINES, and expression of cell activation markers and is a critical regulator of SEPTIC SHOCK.

Tree locations:
- Membrane Glycoproteins D12.776.395.550.919
  - D12.776.543.550.919
- Receptors, Immunologic D12.776.543.750.705.985

Triose Sugar Alcohols
Sugar alcohol molecules that contain three carbons.

Tree locations:
- Sugar Alcohols D02.033.800.875
  - D09.853.875

Tripartite Motif-Containing Protein 28
A tripartite motif protein consisting of an N-terminal RING finger, two B-box type ZINC FINGERS, and C-terminal PHD domain. It functions as a transcriptional repressor by associating with Kruppel-association box domain (KRAB domain) transcription factors and has E3-SUMO-ligase activity towards itself and also sumoylates INTERFERON REGULATORY FACTOR-7 to reduce its activity as a transcriptional activator. It can also function as a ubiquitin protein ligase towards TUMOR SUPPRESSOR PROTEIN P53.

Tree locations:
- Repressor Proteins D12.776.260.703.675
  - D12.776.930.780.911
- Tripartite Motif Proteins D12.776.934.875
- Ubiquitin-Protein Ligases D08.811.464.938.750.782
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**Trisomy 13 Syndrome**
A chromosome disorder associated with TRISOMY of all or part of CHROMOSOME 13. Clinical manifestations include CONGENITAL HEART DEFECTS (e.g., PATENT DUCTUS ARTERIOSUS), facial malformations (e.g., CLEFT LIP; CLEFT PALATE; COLOBOMA; MICROPHTHALMIA); HYPOTONIA, digit malformations (e.g., POLYDACTYL or SYNDACLY), and SEIZURES and severe INTELLECTUAL DISABILITY associated with NERVOUS SYSTEM MALFORMATIONS.

**Tree locations:**
- Abnormalities, Multiple C16.131.077.919
- Chromosome Disorders C16.131.260.923
- C16.320.180.923
- Heart Defects, Congenital C14.240.400.970
- C14.280.400.970
- C16.131.240.400.965
- Intellectual Disability C10.597.606.643.835

**Trisomy 18 Syndrome**
A chromosome disorder associated with TRISOMY of all or part of CHROMOSOME 18. Clinical manifestations include INTRAUTERINE GROWTH RETARDATION; CLEFT PALATE; CONGENITAL HEART DEFECTS; MICROCEPHALY; MICROGONATHIA and clenched fists with overlapping fingers. Most affected fetuses do not survive to birth. Those who survive through their first year often have severe INTELLECTUAL DISABILITY.

**Tree locations:**
- Abnormalities, Multiple C16.131.077.929
- Chromosome Disorders C16.131.260.932
- C16.320.180.932
- Heart Defects, Congenital C14.240.400.975
- C14.280.400.975
- C16.131.240.400.968

**TRPA1 Cation Channel**
A highly conserved, non-selective TRP cation channel that contains 14-17 ANKYRIN REPEATS. It functions in cold sensation and NOCICEPTION of endogenous inflammatory factors and volatile irritants. TRPA1 is also activated by CANNABINOIDS and may play a role in sound perception by hair cells of the inner ear.

**Tree locations:**
- Transient Receptor Potential Channels D12.776.157.530.400.901.250
  D12.776.543.585.400.901.250

**TRPC6 Cation Channel**
A non-selective, calcium permeant TRPC cation channel that contains four ANKYRIN REPEATS and is activated by DIACYLGLYCEROL independently of PROTEIN KINASE C. It is expressed in placenta, lung, spleen, ovary and the small intestine, as well as by PODOCYTES in the kidney glomerulus. Mutations in the TRPC6 gene are associated with FOCAL SEGMENTAL GLOMERULOSCLEROSIS type 2.

**Tree locations:**
- Calcium Channels D12.776.157.530.400.150.850
  D12.776.543.550.450.150.900
  D12.776.543.585.400.150.850
- TRPC Cation Channels D12.776.157.530.400.901.500.500
  D12.776.543.585.400.901.500.500
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**Tubular Sweat Gland Adenomas**
Various tubular forms of benign tumors of the SWEAT GLAND with glandular differentiation. Common types include syringocystadenoma papilliferum of the head and neck; erosive adenomatosis of the nipple and hidradenoma papilliferum of the vulva area. Hidradenoma papilliferum may be derived from mammary-like glands of the vulva whereas erosive adenomatosis is of mammary gland origin.

**AN:** coordinate IM with SWEAT GLAND NEOPLASMS (IM)

**Tree locations:**
- Adenoma, Sweat Gland C04.557.470.035.175.900
- C04.557.470.550.175.900

**TWEAK Receptor**
A receptor for TWEAK cytokine that is highly expressed by cells in the heart, placenta, and kidney. It plays a role in ANGIOGENESIS and the proliferation of endothelial cells; it may also modulate cellular adhesion to the extracellular matrix.

**Tree locations:**
- Receptors, Tumor Necrosis Factor D12.776.543.750.705.852.760.974

**Ubiquitin-Specific Peptidase 7**
A ubiquitinyl hydrolase that deubiquitinates several proteins with critical roles in DNA REPAIR, cell growth, and survival, including TUMOR SUPPRESSOR PROTEIN P53; MDM-2 PROTEIN; and PTEN PHOSPHOHYDROLASE. It also stabilizes herpesvirus 1 trans-acting transcriptional protein VMW110 during HSV-1 infection, contributing to its function as a TRANS-ACTIVATOR.

**Tree locations:**
- Ubiquitin Thiolesterase D08.811.037.500.500
- D08.811.277.352.897.850.500
- Ubiquitin-Specific Proteases D08.811.037.750.750
- D08.811.277.656.300.887.875

**Undifferentiated Connective Tissue Diseases**
Diseases that exhibit signs and symptoms suggestive of a connective tissue disease that do not fulfill clinical or diagnostic criteria for any one defined disease but overlap with criteria of multiple such diseases. Commonly overlapping diseases include systemic autoimmune connective tissue diseases such as RHEUMATOID ARTHRITIS; SYSTEMIC LUPUS ERYTHEMATOSUS; and SYSTEMIC SCLEROSIS.

**Tree locations:**
- Autoimmune Diseases C20.111.904
- Connective Tissue Diseases C17.300.849

**Vaccination Coverage**
Rate of VACCINATION as defined by GEOGRAPHY and or DEMOGRAPHY.

**Tree locations:**
- Preventive Health Services N02.421.726.930
  - Vaccination N02.421.726.758.310.890.750
Valosin Containing Protein
A highly-conserved AAA ATPase that functions in the biogenesis of the transitional ENDOPLASMIC RETICULUM and fragmentation and reassembly of the GOLGI APPARATUS during MITOSIS. It also functions in a complex with UFD1L and NPLOC4 proteins to export misfolded ubiquitinated proteins from the endoplasmic reticulum and outer mitochondrial membrane to the cytoplasm for degradation by the PROTEASOME and also plays a role in AUTOPHAGY of ubiquitinated proteins. It occurs in neuronal INCLUSION BODIES from patients with AMYOTROPHIC LATERAL SCLEROSIS and LEWY BODIES from PARKINSON DISEASE patients.

Tree locations:
ATPases Associated with Diverse Cellular Activities D08.811.277.040.013.500.750
D08.811.277.040.025.024.750
D12.776.157.025.750.750
Cell Cycle Proteins D12.776.167.800

Varicella Zoster Virus Infection
Infection caused by HUMAN HERPES VIRUS 3 (e.g. CHICKENPOX and HERPES ZOSTER).
AN: CHICKENPOX; HERPES ZOSTER; and ENCEPHALITIS, HERPES ZOSTER are also available

Tree locations:
Herpesviridae Infections C02.256.466.930

Vascular Ring
Congenital vascular malformation in which the AORTA arch and its branches encircle the TRACHEA and ESOPHAGUS. Signs and symptoms include DYSPNEA; RESPIRATORY SOUNDS, especially with eating, DYSPHAGIA, persistent cough, and GASTROESOPHAGEAL REFLUX or may be asymptomatic. Two most common types are double aortic arch and right aortic arch. It may be associated with other anomalies (e.g., DIGEORGE SYNDROME).

Tree locations:
Aortic Arch Syndromes C14.907.109.239.825
Vascular Malformations C14.240.850.992
C16.131.240.850.984

Vasopeptidase Inhibitors
A class of cardiovascular drugs indicated for hypertension and congestive heart failure that simultaneously inhibit both NEUTRAL ENDOPEPTIDASE and ANGIOTENSIN CONVERTING ENZYME. They increase the availability of NATRIURETIC PEPTIDES and BRADYKININ and inhibit production of ANGIOTENSIN II.

Tree locations:
Angiotensin-Converting Enzyme Inhibitors D27.505.519.389.745.085.500

Virtual Reality
Using computer technology to create and maintain an environment and project a user's physical presence in that environment allowing the user to interact with it.

Tree locations:
Computer Simulation L01.224.160.875
Data Display L01.296.555
New MeSH Headings for 2018

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**Vulvectomy**
Surgical resection of the VULVA.

*Tree locations:*
Gynecologic Surgical Procedures  E04.950.300.970

**Water Pipe Smoking**
A process by which SMOKE produced from burning substance is mixed with flavor-altering substances and drawn through water or other liquid into the mouth.

*Tree locations:*
Pipe Smoking  F01.145.805.063.500

**Water Sports**
Activities or games performed in a body of water.

*Tree locations:*
Sports  I03.450.642.845.945

**Wearable Electronic Devices**
Electronic implements worn on the body as an implant or as an accessory. Examples include wearable diagnostic devices, wearable ACTIVITY TRACKERS, wearable INFUSION PUMPS, wearable computing devices, SENSORY AIDS, and electronic pest repellents.

*Tree locations:*
Electrical Equipment and Supplies  E07.305.906

**Wechsler Memory Scale**
A neuropsychological test designed to assess different memory functions. It may incorporate an optional cognitive exam (Brief Cognitive Status Exam) that helps to assess memory related cognitive function.

*Tree locations:*
Memory and Learning Tests  F04.711.513.401.500
Wechsler Scales  F04.711.141.493.822.500

**Whole Exome Sequencing**
Techniques to determine the complete complement of sequences of all EXONS of an organism or individual.

*Tree locations:*
Whole Genome Sequencing  E05.393.760.700.825.500

**Whole Genome Sequencing**
Techniques to determine the entire sequence of the GENOME of an organism or individual.

*Tree locations:*
Sequence Analysis, DNA  E05.393.760.700.825
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Wildfires
Fires that occur outdoors in the natural environment caused by natural forces or human activity.

**AN:** coordinate with DISASTERS if pertinent; specify geographic location

**Tree locations:**
- Fires N06.230.216.875
- Geological Phenomena G01.311.988

Wisconsin Card Sorting Test
A neuropsychological test designed to assess EXECUTIVE FUNCTION typically assigned to the FRONTAL LOBE (e.g., abstract thinking, and strategic planning). The subjects are asked to sort numbered response cards according to different principles and to alter their approach during testing.

**Tree locations:**
- Neuropsychological Tests F04.711.513.919

WNK Lysine-Deficient Protein Kinase 1
A serine-threonine kinase which plays an important role in the regulation of electrolyte homeostasis, cell signaling, survival, and proliferation. It functions as an activator and inhibitor of sodium-coupled chloride co-transporters and as an inhibitor of potassium-coupled chloride co-transporters. Mutations in the WNK1 gene are associated with type 2C PSEUDOHYPOALDOSTERONISM and type 2A HEREDITARY SENSORY AND AUTONOMIC NEUROPATHIES.

**Tree locations:**
- Intracellular Signaling Peptides and Proteins D12.644.360.975
- Minor Histocompatibility Antigens D23.050.301.500.600.962
- Protein-Serine-Threonine Kinases D08.811.913.696.620.682.700.982

Work Engagement
Extent to which members of a workplace perceive their emotional commitment to and involvement in the organization and its goals.

**Tree locations:**
- Personnel Management N04.452.677.896
- Work I03.946.562

WW Domain-Containing Oxidoreductase
A short chain oxidoreductase that contains two N-terminal WW DOMAINS and functions as a tumor suppressor and in APOPTOSIS. It is also required for bone development.

**Tree locations:**
- Short Chain Dehydrogenase-Reductases D08.811.682.047.820.900.500
- Tumor Suppressor Proteins D12.776.624.776.980
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WW Domains
An approximately 40 amino acid protein domain that occurs in a variety of unrelated proteins and may be repeated up to four times in some proteins. It is characterized by two TRYPTOHAN residues (WW) about 20 amino acids apart and folds into a stable triple-stranded BETA-SHEET. It binds PROLINE-RICH PROTEIN DOMAINS and PHOSPHOSERINE or PHOSPHOTREONINE-containing protein domains that occur in many signal transducing and cytoskeletal proteins, such as DYSTROPHIN.

Tree locations:
Protein Interaction Domains and Motifs  G02.111.570.820.709.275.750.500.937

X-linked Nuclear Protein
ATP-dependent DNA helicase that contains two N-terminal ZINC FINGERS and C-terminal ATP-binding and helicase domains. It functions in the regulation of gene transcription and CHROMATIN REMODELING. ATRX undergoes cell-cycle dependent phosphorylation, which causes it to translocate from the NUCLEAR MATRIX to CHROMATIN; thus, it may change its role from gene regulation during INTERPHASE to ensuring proper chromosome segregation at MITOSIS. Mutations in the ATRX gene are associated with cases of X-LINKED MENTAL RETARDATION co-morbid with ALPHA-THALASSEMIA (ATRX syndrome).

Tree locations:
DNA Helicases  D08.811.399.340.375

X-ray Repair Cross Complementing Protein 1
A poly(ADP)-ribose-binding protein that functions in the rejoining of DNA single-strand breaks that arise following treatment with alkylating agents or ionizing radiation. It interacts with DNA LIGASE III and POLY ADP RIBOSE POLYMERASE in BASE EXCISION REPAIR, and may also function in DNA processing and chromosome recombination in GERM CELLS.

Tree locations:
DNA-Binding Proteins  D12.776.260.963
Poly-ADP-Ribose Binding Proteins  D12.776.157.687.813
D12.776.660.720.813

Zinc Finger E-box Binding Homeobox 2
A transcription factor that consists of 8 CYS2-HIS2 ZINC FINGERS flanking a central HOMEBOX. It binds to the 5’-CACCT-3’ DNA sequence located within E-BOX ELEMENTS of many genes essential for embryonic growth and development and regulates their activity; it represses transcription of the E-CADHERIN gene. Mutations in the ZEB2 gene are associated with MOWAT-WILSON SYNDROME.

Tree locations:
Homeodomain Proteins  D12.776.260.400.883
Repressor Proteins  D12.776.260.703.700
D12.776.930.780.918
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Zinc Finger Nucleases
Genetically engineered nucleases that cleave DNA at a defined distance from specific DNA sequences recognized by ZINC FINGER DNA-BINDING DOMAINS. They are composed of a DNA cleaving domain adapted from DNA endonucleases fused to a zinc finger DNA-binding domain.

Tree locations:
Endodeoxyribonucleases D08.811.277.352.335.350.925
D08.811.277.355.325.850
Recombinant Fusion Proteins D12.776.828.300.990

Zinc Finger Protein Gli2
A transcriptional activator that contains five adjacent CYS2-HIS2 ZINC FINGERS. It functions in the hedgehog signaling pathway and is required for normal embryonic development. Mutations in the GLI2 gene are associated with type 9 HOLOPROSENCEPHALY and type 2 PALLISTER-HALL SYNDROME.

Tree locations:
Trans-Activators D12.776.260.755.925
D12.776.930.900.850

Zinc Finger Protein Gli3
A zinc finger transcription factor that contains five CYS2-HIS2 ZINC FINGERS and binds to the GLI consensus sequence 5’-GGGTGGTC-3’. The full-length protein functions as a transcriptional activator whereas the truncated C-terminal form functions as a transcriptional repressor of the Sonic Hedgehog (Shh) signaling pathway; a balance between these two forms is critical for limb and digit development. GLI3 also plays a critical role in the differentiation and proliferation of CHONDROCYTES.

Tree locations:
Kruppel-Like Transcription Factors D12.776.260.522.875
D12.776.930.375.875
Repressor Proteins D12.776.260.703.900
D12.776.930.780.972

Zinc Transporter 8
A zinc efflux transporter highly expressed by ISLET CELLS of the pancreas. It functions in the accumulation of zinc in intracellular vesicles and may be involved in INSULIN maturation and storage processes. Variations in the SLC30A8 gene are associated with susceptibility to DIABETES MELLITUS, TYPE 2.

Tree locations:
Cation Transport Proteins D12.776.157.530.450.250.940
D12.776.543.585.450.250.945
Solute Carrier Proteins D12.776.157.530.937.952
D12.776.543.585.937.975