INTRODUCTION and HISTORY

- The National Library of Medicine™ (NLM™) has been indexing the biomedical literature, since 1879, to help provide health professionals access to information necessary for research, health care, and education.

- Beginning in the 1960s, NLM’s computer-based Medical Literature Analysis and Retrieval System (MEDLARS®) has allowed rapid access to a vast store of references to biomedical information.

- MEDLARS is still used for preparing bibliographic printed publications, such as, Index Medicus®, the monthly subject/author guide to biomedical literature. Index Medicus began in 1880 as the Index Catalog of the Library of the Surgeon General’s Office.

MEDLINE is the National Library of Medicine’s premier bibliographic database containing citations and author abstracts from over 4,000 biomedical journals published in the United States and in other countries.

- MEDLINE currently contains over 10 million references dating back to 1966.
- New material is added weekly.
- Over 80% of the citations are published in the English Language.
- Over 80% of the citations are included with the published abstract.
- The scope of MEDLINE includes such diverse topics as microbiology, delivery of health care, nutrition, pharmacology and environmental health. The categories covered in MEDLINE include everything from anatomy, organisms, diseases, psychiatry, psychology and the physical sciences.

PREMEDLINE™ is a database designed to allow access to citations while they are undergoing the process of being indexed for MEDLINE.

- MEDLINE’s in-process database providing basic citation information and abstracts before the citation is assigned controlled vocabulary subject headings.
- The citation then proceeds to NLM’s quality assurance staff to be checked for errors.
- Citations are removed from PREMEDLINE once they have been promoted to MEDLINE.
MEDLINE - Basic Bibliographic Citation

One MEDLINE citation represents one journal article and is composed of fields that provide specific information (Title, Author, Language, etc.) about the journal article. The following information is generally provided:

- Title of the journal article
- Names of the Authors (up to 25 authors may appear on a MEDLINE record)
- Abstract published with the article
- Controlled Vocabulary Search Terms (MeSH headings)
- Journal Source Information
- First Author Affiliation
- Language in which the article was published
- Publication Type (description of the type of article, e.g., Review, Letter, etc.)

Sample MEDLINE citations from the National Library of Medicine’s PubMed and Internet Grateful Med retrieval systems follow.
Membrane rearrangements in fusion mediated by viral proteins.

Melikyan GB, Chernomordik LV

Dept of Molecular Biophysics and Physiology, Rush Medical College, Chicago, IL 60612, USA. gmelikyan@rpslmc.edu

Diverse enveloped viruses enter host cells by fusing their envelopes with cell membranes. The mechanisms of merger of lipid bilayers of two membranes mediated by influenza hemagglutinin and other viral fusion proteins apparently involve local lipidic connections that evolve into a bilayer septum in which a pore forms and expands.

Publication Types:
- Review
- Review, academic

MeSH Terms:
- Cell Membrane/virology*
- Cell Membrane/metabolism*
- Cells, Cultured
- Hemagglutinin Glycoproteins, Influenza Virus/metabolism*
- Lipids/metabolism
- Models, Biological
- Membranes/metabolism
- Viral Fusion Proteins/metabolism
- Viral Proteins/physiology
- Viral Proteins/metabolism

Substances:
- Viral Proteins
- Viral Fusion Proteins
- Forms
- Lipids
- Hemagglutinin Glycoproteins, Influenza Virus

PMID: 9294890, UI: 97440672
Internet Grateful Med MEDLINE citation:

**Title:** Membrane rearrangements in fusion mediated by viral proteins

**Authors:** Malekian Giti, Chernomoruk LV

**Affiliation:** Dept. of Molecular Biophysics and Physiology, Rush Medical College, Chicago, IL 60611, USA, gmelikan@ospac.edu

**Source:** Trends Microbiol 1997 Sep-Oct;5(9):349-55

**PMID:** 9293890

**Abstract:** Diverse enveloped viruses enter host cells by fusing their envelopes with cell membranes. The mechanisms of merger of lipid bilayers of two membranes mediated by influenza hemagglutinin and other viral fusion proteins appear to involve local lipidic constrictions that evolve into a bilayer system in which a pore forms and expands.

**Mesh Headings:**
- Cell Membranes
- Biological Membranes
- Influenza Virus
- Hemagglutinin
- Glycoprotein
- Fusion peptides

**Publication Types:** Journal Article, Review, Academic

**Language:** Eng
Free MEDLINE Searching

- Introduced on June 26, 1997
- From NLM Web site, click on the MEDLINE link on the right and then choose either of two interfaces: PubMed and Internet Grateful Med
The National Network of Libraries of Medicine®

Medical libraries throughout the United States are joined together in a network. The purpose of the National Network of Libraries of Medicine (NN/LM®) is to provide health science practitioners, investigators, educators, and administrators in the United States with timely, convenient access to biomedical and health care information resources.

- The network is administered by the National Library of Medicine.
- It consists of eight Regional Medical Libraries (major institutions under contract with the National Library of Medicine), more than 140 Resource Libraries (primarily at medical schools), and some 4,500 Primary Access Libraries (primarily at hospitals).
- The Regional Medical Libraries administer and coordinate services in the network's eight geographical regions.

Toll-free phone number:  1-800-338-7657

Document Delivery

Loansome Doc® offers full-text document ordering. This feature is part of both PubMed and Internet Grateful Med.

DOCLINE® is the computerized interlibrary loan system that is the foundation for Loansome Doc.

More information on Loansome Doc and DOCLINE may be found on factsheets found at the NLM Web Site:

NLM Technical Bulletin

- A bi-monthly newsletter published for NLM online searchers.
- The NLM Technical Bulletin keeps searchers apprised of:
  - changes and enhancements to NLM retrieval systems
  - changes to MeSH vocabulary
  - tips for searching
- The Technical Bulletin is published electronically on the NLM Web site. Its URL is:
Consumer Information

- On October 22, 1998 NLM launched a consumer health home page called MEDLINEplus®.
- It was designed to direct consumers to resources containing information that will assist this group of users to research their health questions.
- The pages are designed for educational use only and are not intended to replace advice from a health professional.
- These pages provide a carefully selected list of resources, not a comprehensive catalog.

Click on the MEDLINEplus image on the right-hand side of the NLM home page:
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Saturday 10:00 AM - 5:00 PM ET
(closed Sundays & Federal holidays)

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You will be taken to this screen:

Contact NLM Customer Service

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- Send an E-mail Question: custserv@nlm.nih.gov
- Phone Numbers:
  - (888) FTND-NLM
  - (888) 346-3656
  - (301) 594-5983 (local and international calls)

HAVE YOU CHECKED THESE SOURCES?

- Frequently Asked Questions (FAQs)
  Someone may have already asked your question
- NLM Fact Sheets
  Information about NLM's programs, products and services
- MEDLINE
  NLM's database of article references from biomedical journals
- MEDLINEplus
  Find information on hundreds of diseases, conditions and wellness issues
- LOCATORplus -- Search NLM's Collection
  Search for the titles of books, reports, journals and audiovisuals owned by NLM
- NLM Publications
  - NLM Technical Bulletin (Newsletter for online searchers)
  - NLM Newsline (Newsletter about current events at NLM)
  - List of Journals Indexed in Index Medicus
Subscribe to New Files Mailing List

Use this mailing list to remind you when new information has been added to the NLM Web site. For example:

- When articles have been added to the *NLM Technical Bulletin* Web site
- When the training manuals have been revised
- Other important NLM announcements and events


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- Send an email message to lists@mailserv.nlm.nih.gov
- Leave the subject line blank.
- In the body of the message, type: unsubscribe nlmfiles
Medical Subject Headings (MeSH) Vocabulary

What is MeSH?

- Acronym for Medical Subject Headings
- Authority list for subject analysis of biomedical literature at NLM
- Used for indexing journal articles for Index Medicus, MEDLINE and also used for cataloging books and audiovisuals
- The MeSH controlled vocabulary is a distinctive feature of MEDLINE
- Used by searchers
- Revised annually
- MeSH gives uniformity and consistency to the indexing of the biomedical literature
- MeSH is similar to key words on other systems
- MeSH terms are arranged in a hierarchial categorized manner called the MeSH Tree Structures

Examples of MeSH Headings:

- Body Weight
- Kidney
- Dental Cavity Preparation
- Self Medication
- Radioactive Waste
- Brain Edema

MeSH Publications

Medical Subject Headings (MeSH) are found in three NLM publications:

Medical Subject Headings - Annotated Alphabetic MeSH
Medical Subject Headings - Tree Structures
Permuted Medical Subject Headings

Medical Subject Headings - Annotated Alphabetic MeSH

- Lists all 18,000+ headings and synonyms
- Includes annotations.
- Republished each year to include the addition of new MeSH terms.

Medical Subject Headings - Tree Structures

- Each MeSH heading in the Annotated MeSH has at least one alphanumeric string known as a tree number, which is listed immediately below the heading.
- The Medical Subject Headings - Tree Structures publication lists each MeSH heading represented by its tree number(s) as it exists in the MeSH hierarchy.
- The trees are a hierarchial rearrangement of the MeSH terms, from the most general term to the most specific term in one or more of the following 15 subject categories:
A Anatomy
B Organisms
C Diseases
D Chemicals and Drugs
E Analytical, Diagnostic, and Therapeutic Techniques and Equipment
F Psychiatry and Psychology
G Biological Sciences
H Physical Sciences
I Anthropology, Education, Sociology and Social Phenomenon
J Technology, Industry, Agriculture
K Humanities
L Information Science
M Named Groups
N Health Care
Z Geographicals

Permuted Medical Subject Headings

- Alphabetic index that lists each significant word that appears in every MeSH heading.
- Indented under each word, is a list of all the MeSH headings and cross-references in which that word appears.
- Often considered to be the “gateway” to NLM’s medical vocabulary.
- Assists locating MeSH headings if only one word of the subject is known.
- Expedites locating a multi-word MeSH heading by using a common word from that MeSH heading.
- Provides another source to consult when you are searching for an unfamiliar or complicated topic.

Ordering information is available at:
Using the MeSH Publications

Medical Subject Headings - Annotated Alphabetic List:  Interpreting a MeSH Heading Annotation

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<tr>
<td>2</td>
<td>/legis: consider also FAMILY PLANNING POLICY CATALOG: /geog /form</td>
</tr>
<tr>
<td>3</td>
<td>68; BIRTH CONTROL was see under CONTRACEPTION 1975, was see under FAMILY PLANNING 1968-74, was heading 1963-67 use FAMILY PLANNING to search BIRTH CONTROL 1966-75 see related Contraception X Birth Control X Planned Parenthood XR Contraception XR Population Control</td>
</tr>
</tbody>
</table>

LEGEND

1 The MeSH heading, also called the “descriptor,” is the first entry of the annotation.

2 The number beneath the MeSH heading is the tree number. Tree numbers indicate the location of the MeSH heading in the tree structure listed in the Medical Subject Headings - Tree Structures publication. The “+” following the tree number indicates that more specific headings are listed beneath this MeSH heading within that tree.

3 The Indexing Annotation provides a brief informative note for the guidance of the indexer and searcher.
**Family Planning**

N2.421.143.401+

/legis: consider also FAMILY PLANNING POLICY       CATALOG:
/geog /form

68; BIRTH CONTROL was see under CONTRACEPTION 1975,
was see under FAMILY PLANNING 1968-74, was heading 1963-67

use FAMILY PLANNING to search BIRTH CONTROL 1966-75

see related
  Contraception
  X Birth Control
  X Planned Parenthood
  XR Contraception
  XR Population Control

4 The *History Note* gives brief information regarding the year the MeSH heading was introduced and any changes over the years. If no date is given, the heading was a MeSH heading before 1965. Many MeSH entries have been changed over the years. Parentheses around a date indicate how far back that term can be used to search the concept.

5 The *Online Note* provides information for online searchers.

6 See related - additional heading(s) suggested for consideration in selecting search terms.

   consider also - roots of other terms to consider.

7 *Cross References* appear at the bottom of the annotation, listing related terms to consider when searching.

   X - “See References” are synonyms for the MeSH heading; sometimes referred to as a entry terms; think of X as a “=” sign.

   XR - “See Related” references are additional MeSH headings to consider for your search strategies.
Indexing with MeSH Headings

- The NLM indexers examine articles and assign the most specific MeSH heading(s) appropriate to describe each major concept discussed.
- When there is no single specific MeSH heading for a concept, the indexer will use the closest, more general MeSH heading available.
- The indexer will assign as many MeSH headings as appropriate to cover the topics of the article (generally 5 to 15).
- The NLM indexing staff indexes directly onto a computer screen.
- Information the indexer provides includes:
  
  - topic of article
  - age group of population studied
  - human vs. animal studies
  - male vs. female studies
  - type of article (e.g., Review article)

**Article Title:**
Membrane rearrangements in fusion mediated by viral proteins.

**Abstract:**
Diverse enveloped viruses enter host cells by fusing their envelopes with cell membranes. The mechanisms of merger of lipid bilayers of two membranes mediated by influenza hemagglutinin and other viral fusion proteins apparently involve local lipidic connections that evolve into a bilayer septum in which a pore forms and expands.

**MeSH Terms:**
- Cell Membrane/Virology*
- Cell Membrane/metabolism*
- Cells, Cultured
- Hemagglutinin Glycoproteins, Influenza Virus/metabolism*
- Lipids/metabolism
- Models, Biological
- Porins/metabolism
- Viral Fusion Proteins/metabolism
- Viral Proteins/physiology
- Viral Proteins/metabolism

**Subheadings** further describe a particular aspect of a MeSH heading.

Subheading definitions appear in the introductory pages of the *Annotated MeSH*.

Asterisks (*) indicate MeSH concepts that are the **main** points (3-4 on average).

You can limit your search to articles where a particular concept is the main point.
Subheading Explosions

- Related subheadings have been grouped together in hierarchies.

- This allows you to search using a grouping called a subheading explosion.

- An inverted triangle beside a subheading in the *Annotated MeSH* indicates that a subheading is available as an explosion:

```
\/therapy
  subhead only; for general or unspecified therapy & multiple therapies; for tissue therapy & therapy with biological products; not for drug therapy (=/drug therapy), nor for diet therapy (=/diet therapy) nor for surgical therapy (=/surgery), nor for radiotherapy (=/radiotherapy), nor for rehabilitative therapy (=/rehabilitation); indexing policy: Manual 19.8.72; DF: /ther or /TH
  66; used with Category C & F 1966-74; C & F3 1975-87; C, F3 & SMOKING 1988; C, F3 & SMOKING+ 1989; C & F3 1990 forward
  search policy: Online Manual: use: main heading/TH or TH (SH) or SUBS APPLY TH
```

- Not all subheadings have been placed in these groupings - some do not logically fit.

A listing of subheading explosions appears in the introductory pages of *Annotated MeSH* and on the following pages of this workbook.
<table>
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<tr>
<th>Subheading</th>
<th>Abbreviation</th>
<th>Subheading</th>
<th>Abbreviation</th>
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<td>MA</td>
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# Families of Subheading Explosions

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</table>
Pharmacological Action Explosions

Every chemical MeSH heading has been assigned one or more headings which describe its pharmacological action (PA).

- Beginning in 1996, indexers add the appropriate pharmacological action MeSH heading as well as the specific chemical MeSH heading to a citation when the action of the chemical is being discussed in the article.

Example:

Here are the pharmacological actions established for the MeSH Heading, ASPIRIN:

<table>
<thead>
<tr>
<th>MeSH Heading</th>
<th>Pharmacological Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>Anti-Inflammatory Agents, Non-Steroidal</td>
</tr>
<tr>
<td></td>
<td>Cyclooxygenase Inhibitors</td>
</tr>
<tr>
<td></td>
<td>Platelet Aggregation Inhibitors</td>
</tr>
</tbody>
</table>

- A citation to an article that discusses *aspirin used as an anti-inflammatory agent* will be assigned both
  
  Aspirin
  
  Anti-Inflammatory Agents, Non-Steroidal

- A citation to an article that discusses *aspirin used to inhibit blood clotting* will be assigned both
  
  Aspirin
  
  Platelet Aggregation Inhibitors
The *Tree Structures* do not include each chemical under the Pharmacological Action MeSH headings.

- To allow searching on groups of chemicals, tables of chemicals with specific pharmacologic actions were created (see example below).

- These exploded headings can be used to retrieve citations indexed for a specific pharmacological action as a class of chemicals as well as articles discussing chemicals which perform that pharmacological action.

- An alphabetic list of the Pharmacological Action Explosions may be found in the front pages of the *Tree Structures*. This alphabetic listing additionally shows each chemical under the Pharmacological Action Pre-Explosion.

Example of a Pharmacological Action Pre-Explosion from the introductory pages of the *Tree Structures*:

**Platelet Aggregation Inhibitors**
- Alprostadil
- **Aspirin**
  - Dipyridamole
  - Disintegrins
  - Epoprostenol
  - Iloprost
  - Ketanserin
  - Mopidamol
  - Procainamide
  - Ticlopidine
  - Trapidil

- An alphabetic list of chemicals with assigned pharmacological action headings also may be found in the front pages of the *Tree Structures*:

**Aspirin**
- Anti-Inflammatory Agents, Non-Steroidal
- Cyclooxygenase Inhibitors
- Platelet Aggregation Inhibitors
Chemical Name of Substance

- Indicates the preferred name for a chemical or drug; may also be a MeSH heading.
- Available on records added to MEDLINE since mid-1980.
- May be a multiply-occurring field.

CAS Registry Number/EC Number

- Unique 5- to 9-digit number in hyphenated format representing either the Chemical Abstracts number or the E.C. number from the Enzyme Nomenclature.
- Appears only on records added to MEDLINE since mid-1980.
- May be a multiply-occurring field.
Age Group MeSH Headings

These are MeSH headings which specify the age of human subjects that are discussed in the article:

- Infant, Newborn Birth to 1 month
- Infant 1 to 23 months
- Child, Preschool 2 to 5 years
- Child 6 to 12 years
- Adolescence 13 to 18 years
- Adult 19 to 44 years
- Middle age 45 to 64 years
- Aged 65+

Publication Types

- Publication Types describe the type of material being indexed.

- The most common type is Journal Article. Other Publication Types include:
  
  - Clinical Trial
  - Comment
  - Practice Guidelines
  - Retracted Publication
  - Retraction of Publication
  - Review
  - Twin Study

- A list of Publication Types, along with definitions, appears in the introductory pages of the Annotated MeSH.

- Publication Types also appear in the main body of the Annotated MeSH.
MeSH Browser

• Allows you to look through the MeSH vocabulary to see if there is a MeSH term for a particular concept.

• Gives you access to the database of NLM’s vocabulary terms. You will not be searching or retrieving MEDLINE records.

Where is it?

• The MeSH browser is introduced on this page of NLM’s site:


• The link to the current MeSH browser (http://www.nlm.nih.gov/mesh/99MBrowser.html) is provided.

• A fuller description of this tool may be found at: (http://www.nlm.nih.gov/mesh/mbinfo.html).

What can I search?

• The Browser allows you to search the 3 types of MeSH records:

  1. MeSH Headings (Descriptors)
  2. Supplementary Concept Records (formerly known as Supplementary Chemical Records)
  3. Qualifiers (Subheadings) terms

How do I search?

• The initial MeSH Browser screen, shown on the next page, presents two ways of finding the MeSH term for a concept.

  1. You can work down (navigate) from the top of the tree
  2. Enter a term or root to be searched.
Navigate from the top of the tree

Let's start by using the Navigate button.

National Library of Medicine - Medical Subject Headings

1999 MeSH
Contains Supplementary Concept Records
Through July 2, 1999

Navigate from tree top

or

Enter term or the beginning of any root fragments:

Search for these record types:

- Main Headings
- Qualifiers
- Supplementary Concepts
- All of the Above

Search in these fields of chemicals:

- Heading Mapped To (HMT) (Supplementary List)
- Indexing Information (II) (Supplementary List)
- Pharmacological Action (PA)
- CAS Registry Number (RN)
- Related CAS Registry Number (RR)

Find Exact Term
Find Terms with ALL Fragments
Find Terms with ANY Fragment
Clear

Questions or Comments
The first level shows the fifteen broad categories in MeSH:

![MeSH Tree Structures - 1999](image)

Beginning at this level you can select a term and see detailed information about that concept, or continue down, or branch out.

1. **Anatomy [A]**
2. **Organisms [B]**
   - **Invertebrates [B01]**
   - **Vertebrates [B02]**
   - **Bacteria [B03]**
   - **Viruses [B04]**
   - **Algae and Fungi [B05]**
   - **Plants [B06]**
   - **Archaea [B07]**
3. **Diseases [C]**
4. **Chemicals and Drugs [D]**
If you click on a term you will go to a page that shows the positions of the hierarchy or tree in which the term is placed.

At the top of this page a record provides information about the term.

<table>
<thead>
<tr>
<th>MeSH Descriptor Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MeSH Heading</strong></td>
</tr>
<tr>
<td><strong>Record Type</strong></td>
</tr>
<tr>
<td><strong>Entry Term</strong></td>
</tr>
<tr>
<td><strong>Tree Number</strong></td>
</tr>
<tr>
<td><strong>Tree Number</strong></td>
</tr>
<tr>
<td><strong>Allowable Qualifiers</strong></td>
</tr>
<tr>
<td><strong>Annotation</strong></td>
</tr>
<tr>
<td><strong>Previous Indexing</strong></td>
</tr>
<tr>
<td><strong>Scope Note</strong></td>
</tr>
<tr>
<td><strong>History Note</strong></td>
</tr>
<tr>
<td><strong>Unique ID</strong></td>
</tr>
</tbody>
</table>

### MeSH Tree Structures

**Bacteria [B03]**

- Gram Negative Bacteria [B03.440]
  - Helicobacter [B03.440.500]
    - [Helicobacter pylori] [B03.440.500.550]

**Bacteria [B03]**

- Spiral and Curved Bacteria [B03.825]
  - Helicobacter [B03.825.400]
    - [Helicobacter pylori] [B03.825.410.550]
The data in a **MeSH Descriptor Record** may include:

- The MeSH Heading used for the concept.
- The Record Type: D for Main (MeSH) Headings
- Entry Term: Synonyms or concepts included by this term.
- Tree Number: The place holder(s) in the numbered hierarchy
- Allowable Qualifiers: Subheadings that are logical in combination with this term.
- See Also: Related terms that may be of interest
- Entry Combination: Conversion rules for Descriptors and Qualifiers
- Annotation: Guidelines for indexers and searchers
- Previous Indexing: Terms that may have been used to index this concept in the years prior to the year that this term was introduced.
- Scope Note: An explanation or definition of this concept to help in understanding it’s usage as an index term.
- History Note: The year this concept was introduced into MeSH. Includes historical changes over time.
- Unique ID: A unique number assigned for internal use. MeSH Heading UIs start with the letter D (for Descriptor) e.g., D001419
## Supplemental Concept Record

<table>
<thead>
<tr>
<th>Name of Substance</th>
<th>quinoxaline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Record Type</strong></td>
<td>C</td>
</tr>
<tr>
<td>Registry Number</td>
<td>2423-66-7</td>
</tr>
<tr>
<td>CAS Type 1 Name</td>
<td>quinoxaline, 1,4-dioxide</td>
</tr>
<tr>
<td>Related Number</td>
<td>30967-52-3 (hydroxide)</td>
</tr>
<tr>
<td>Related Number</td>
<td>34533-48-7 (con(1-))</td>
</tr>
<tr>
<td>Related Number</td>
<td>37141-85-5 (con(1+))</td>
</tr>
<tr>
<td><strong>Entry Term</strong></td>
<td>Grofaz</td>
</tr>
<tr>
<td><strong>Entry Term</strong></td>
<td>ICI 8173</td>
</tr>
<tr>
<td><strong>Entry Term</strong></td>
<td>quinoxaline-6-N-oxide</td>
</tr>
<tr>
<td><strong>Entry Term</strong></td>
<td>quinoxaline 1,4-dioxide</td>
</tr>
<tr>
<td><strong>Entry Term</strong></td>
<td>1,4-dihydroxyquinoxaline</td>
</tr>
<tr>
<td><strong>Heading Mapped to</strong></td>
<td><em>QUINOXALINES</em></td>
</tr>
<tr>
<td><strong>Pharm. Action</strong></td>
<td>MUTAGENS</td>
</tr>
<tr>
<td><strong>Pharm. Action</strong></td>
<td>ANTI INBIOTICS</td>
</tr>
<tr>
<td><strong>Indexing Information</strong></td>
<td>GROWTH/drug effects</td>
</tr>
<tr>
<td>Previous Indexing</td>
<td>CYCLIC N-OXIDES (72-76)</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Vet Rec 90(7):187,1972</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Contact Dermatitis 1(4):256,1975</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Chem Pharm Bull (Tokyo) 1979;27(3):1954</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Mod Waterc. 33(1):688,1977</td>
</tr>
<tr>
<td><strong>Thesaurus ID</strong></td>
<td>Negwer, 5th ed., #702</td>
</tr>
<tr>
<td><strong>Thesaurus ID</strong></td>
<td>USAN 1980, p.276</td>
</tr>
<tr>
<td>Frequency</td>
<td>22</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>RN given refers to parent cpd; structure in Negwer, 5th ed., #702</td>
</tr>
<tr>
<td><strong>Date of Entry</strong></td>
<td>7/20/1981</td>
</tr>
<tr>
<td><strong>Revision Date</strong></td>
<td>8/30/1977</td>
</tr>
<tr>
<td><strong>Unique ID</strong></td>
<td>C003282</td>
</tr>
</tbody>
</table>

See next page for details.
The data in a **Supplemental Concept record** may include:

- Name of Substance: For example: quindoxin
- Record Type: C for Supplemental Concepts
- Registry Number: For example: 2423-66-7
- CAS Type 1 Name: The systematic name of a chemical which defines its structure, e.g., quinoxaline, 1,4-dioxide
- Related Number: A unique number assigned to chemicals by the Chemical Abstract Service, or a code for enzymes assigned by the Commission on Biological Nomenclature. Related Number: Registry Numbers for salts and/or stereoisomers as well as its relation to the “parent” chemical.
- Entry Term: Synonyms that can be used for searching this concept.
- Heading Mapped to: The Descriptor used for indexing this chemical in MEDLINE.
- Pharm. Action: An action of a drug or chemical as reported in the literature, e.g., MUTAGENS; ANTIBIOTICS
- Indexing Information: Other MeSH terms that an indexer should consider using.
- Previous Indexing: MeSH terms used before the current descriptor became available, and also terms removed from the HM field over time.
- Source: Citations to articles in which the chemical has been identified, e.g., Contact Dermatitis 1(4):256;1975
- Thesaurus ID: An authoritative reference where the chemical is listed, e.g., USAN 1980, p.276
- Frequency: The number of times the chemical has been identified in MEDLINE journals.
- Note: RN given refers to parent cpd; structure in Negwer, 5th ed, #702
- Date of Entry: The date (YYMMDD) the record was added to the system.
- Revision Date: The date (YYMMDD) of the last major revision to this record.
- Unique ID, beginning with “C” for Supplementary Chemical Concept, e.g., C003282
MeSH Qualifier (subheading) record

<table>
<thead>
<tr>
<th>Subheading</th>
<th>therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Type</td>
<td>Q</td>
</tr>
<tr>
<td>Entry Version</td>
<td>THER</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>TH</td>
</tr>
<tr>
<td>Scope Note</td>
<td>Used with diseases for therapeutic interventions except drug therapy, diet therapy, radiotherapy, and surgery, for which specific subheadings exists. The concept is also used for articles and books dealing with multiple therapies.</td>
</tr>
<tr>
<td>Grateful Med Note</td>
<td>Consider Surgery (sh). Drug Therapy (sh). Radiotherapy (sh). or + for subheading group</td>
</tr>
<tr>
<td>Annotation</td>
<td>subhead only, for general or unspecified therapy &amp; multiple therapies, for therapy &amp; therapy with biological products, not for drug therapy (<del>/drug therapy), not for diet therapy (</del>/ diet therapy), not for surgical therapy (<del>/ surgery), not for radiotherapy (</del>/ radiotherapy), not for rehabilitative therapy (~/ rehabilitative), indexing policy Manual 19/3.73. DF, fiber or /TH</td>
</tr>
<tr>
<td>Online Note</td>
<td>search policy: Online Manual, use main heading/TH or TH (SH) or SUBS APPLY TH</td>
</tr>
<tr>
<td>Entry Term</td>
<td>Disease Management</td>
</tr>
<tr>
<td>Entry Term</td>
<td>treatment</td>
</tr>
<tr>
<td>Date of Entry</td>
<td>731227</td>
</tr>
<tr>
<td>Revision Date</td>
<td>940708</td>
</tr>
<tr>
<td>Date Established</td>
<td>660101</td>
</tr>
<tr>
<td>Unique ID</td>
<td>Q00628</td>
</tr>
</tbody>
</table>

The data in a MeSH Qualifier (subheading) record includes:

- **Subheading**: The name of the qualifier, e.g., therapy
- **Record Type**: Q for qualifiers.
- **Entry Version**: Another way of entering this term for indexers, e.g., THER
- **Abbreviation**: A short form for this term, e.g., TH
- **Scope Note**: Instructions to the indexers and catalogers about the use of this term.
- **Annotation**: Description of what the use of this term implies. Includes when not to use the term.
- **Online Note**: Information helpful for searchers
- **History Note**: The year, e.g., 66; the subheading was introduced along with changes over time.
- **Entry Term**: Synonyms for use
- **Date of Entry**: The date (YYMMDD) the record was added to the system.
- **Revision Date**: The date (YYMMDD) of the last major revision to this record.
- **Date Established**: The date (YYMMDD) the qualifier was established.
- **Unique ID**: A unique number assigned for internal use. Qualifier UIs start with the letter Q, e.g., Q000628.

Use the **Return to Entry Page** link to go back to the Browser’s initial screen.

Take Note:
Enter a specific term

National Library of Medicine - Medical Subject Headings

1999 MeSH

Contains Supplementary Concept Records Through July 2, 1999

Navigate from tree top

or

Enter term or the beginning of any root fragments:

gore throat

Search for these record types:

☐ Main Headings
☐ Qualifiers
☐ Supplementary Concepts
☐ All of the Above

Search in these fields of chemicals:

☐ Heading Mapped To (HM) (Supplementary List)
☐ Indexing Information (II) (Supplementary List)
☐ Pharmacological Action (PA)
☐ CAS Registry/EC Number (RN)
☐ Related CAS Registry Number (RR)

Click on one of these buttons to begin browsing:

Find Exact Term
Find Terms with ALL Fragments
Find Terms with ANY Fragment
Clear

Questions or Comments
Find Buttons

Find Exact Term button

- Enter “adrenal cortex” and click on the Find Exact Term button.
The MeSH Browser will look for an exact match with a MeSH term:

**National Library of Medicine - Medical Subject Headings**

1999 MeSH

**MeSH Descriptor Data**

```
MeSH Heading          Adrenal Cortex
Record Type          D
Entry Term           Adrenal Cortex Effects
Tree Number          A06.407.071.140
Allowable Qualifiers AB AH ES CH CY DR FM EN CD DM IN IR ME MI PA PH FE FS FA RE RESE RET RET
Annotation           PITUITARY-ADRENAL SYSTEM is available, also available are the 3 zones of the cortex: ZONA GLOMERULOSA (outer), ZONA FASCICULATA (middle) & ZONA RETICULARIS (inner)
Previous Indexing    Adrenal Glands (66-74)
Scope Note           The outer layer of the adrenal gland. It secretes mineralocorticoids, androgens, and glucocorticoids.
Online Note          search ADRENAL GLANDS 1966-74
History Note         78(75)62-67; was see under ADRENAL GLANDS 1968-77
Unique ID            D000322
```

**MeSH Tree Structures**

- Endocrine System [A06]
- Endocrine Glands [A06.407]
  - Adrenal Glands [A06.407.071]
    - Adrenal Cortex [A06.407.071.140]
      - Zona Fasciculata [A06.407.071.140.900]
      - Zona Glomerulosa [A06.407.071.140.960]
      - Zona Reticularis [A06.407.071.140.970]
  - Adrenal Medulla [A06.407.071.265]
Find Terms with ALL Fragments button

- Enter “adrenal cortex” and click on the Find Terms with ALL Fragments button:

The Browser will show you terms that contain all the words or word-fragments you entered:
Find Terms with ANY Fragment button

- Enter “adrenal cortex” and click on Find Terms with ANY Fragment button:
The Browser will show you terms that contain any of the words or word fragments:

Supplementary Concepts

- When searching Supplementary Concepts, you can search specific fields:

  © Search in these fields of chemicals:

  - Heading Mapped To (HM) (Supplementary List)
  - Indexing Information (II) (Supplementary List)
  - Pharmacological Action (PA)
  - CAS Registry/EC Number (RN)
  - Related CAS Registry Number (RR)
Practice Exercises

1. Use the MeSH Browser to find the answers to these questions:

   a. Can you use the term “Hypertension” to describe high pressure in the eye? What phrase of the Annotation explains this?

   b. How far back can you search with the MeSH term, “Recombinant DNA?”

   c. What ages are included by the term, “Child, Preschool?”

   d. What is the preferred MeSH term for “drooling?”

2. Pretend you are a MeSH Indexer. Use the MeSH Browser and select MeSH terms that address these titles of articles listed below. When possible include an appropriate subheading (see list of subheadings p. B13).

   a. Causes of Adult-Onset Diabetes

   b. Management of Breast Cancer

   c. The nursing care of Hemophiliacs

   d. Treating Depression with Prozac (Fluoxetine)

   e. Brain Toxicity from Zinc
Suggested Answers:

1. Use the MeSH Browser to find the answers to these questions:

   a. Can you use the term “Hypertension” to describe high pressure in the eye? What phrase of the Annotation explains this?

      No. “not for intracranial or intraocular pressure”

   b. How far back can you search with the MeSH term, “Recombinant DNA?”

      1977

   c. What ages are included by the term, “Child, Preschool?”

      A child between the ages of 2 and 5.

   d. What is the preferred MeSH term for “drooling?”

      Sialorrhea

2. Pretend you are a MeSH Indexer. Use the MeSH Browser and select MeSH terms that address these titles of articles listed below. When possible include an appropriate subheading (see list of subheadings p. B-7).

   a. Causes of Adult-Onset Diabetes

      Diabetes Mellitus, Non-Insulin-Dependent/etiology

   b. Management of Breast Cancer

      Breast Neoplasms/therapy

   c. The nursing care of Hemophiliacs

      Hemophilia A/nursing

   d. Treating Depression with Prozac (Fluoxetine)

      Depression/drug therapy
      Fluoxetine/therapeutic use

   e. Brain Toxicity from Zinc

      Brain/drug effects
      Zinc/toxicity
Boolean Logic

Boolean logic is a system of logic that symbolically represents relationships between entities.

Boolean Operators are:

- **AND**
- **OR**
- **NOT**

**Logical Operator AND:**

- Used to retrieve a set in which each citation contains all search terms.
- Each term is combined with the others by the **AND** operator.
- Use **AND** when you want articles on the intersection of multiple terms.

*Example:*  
**salmonella AND hamburger**

**Logical Operator OR:**

- Used to retrieve a set in which each citation contains at least one of the search terms.
- Each term is combined with others by the **OR** operator.
- Use **OR** when you want to pull together articles on similar topics.

*Example:*  
**football OR hockey OR soccer**

**Logical Operator NOT**

- Retrieves a set from which citations to articles containing specified search terms following the **NOT** have been excluded.
- Use **NOT** when you want to exclude citations to articles about a certain topic.
- Use the **NOT** operator with caution; you might eliminate relevant articles.

*Example:*  
**arthritic NOT letter**
NOTES
Boolean Operators Exercise

Construct search statements for each of the requests below using the appropriate Boolean operators and the controlled vocabulary terms given.

**Vocabulary:**
Letter
Elbow
Esophagus
Eyebrow
Hypertension
Satcher D
Varmus H

1. You are looking for information on the eyebrow, elbow or esophagus.

2. Find the articles co-authored by Harold Varmus and David Satcher.

3. We want articles about hypertension but exclude letters to the editor.
Suggested Answers

1. You are looking for information on the eyebrow, elbow or esophagus.

   eyebrow OR elbow OR esophagus

2. Find the articles co-authored by Harold Varmus and David Satcher.

   varmus h AND satcher d

3. We want articles about hypertension but exclude letters to the editor.

   hypertension NOT letter