

# “实用生物信息技术”课程小组讨论总结报告

组次：G5 组长：韩佳凝 执笔：韩佳凝

## 1. 时间

2026.3.8-2026.3.13

## 2. 方式

小组成员根据自身研究方向在相关网站进行搜索探究，在小组讨论中提出自己的问题一起研究讨论。

## 3. 主题

课程中学习的网站在课题研究的过程中可以提供哪些帮助？

## 4. 内容

### (1) NCBI

- 同学们交流了用 ORCID 登录 NCBI 的步骤，确保每一位同学都成功注册，注册后可进入 MyNCBI 页面。而如果登陆后再想进入可以同样点击右上角中的“Dashbord”进入。

The screenshot shows the NCBI National Library of Medicine homepage. At the top, there is a blue header with the NIH logo and the text "National Library of Medicine National Center for Biotechnology Information". A "Log in" button is highlighted with a red box in the top right corner. Below the header is a search bar with a dropdown menu set to "All Databases" and a "Search" button. The main content area is divided into several sections:

- NCBI Home**: A vertical navigation menu on the left with categories like "Resource List (A-Z)", "All Resources", "Chemicals & Bioassays", "Data & Software", "DNA & RNA", "Domains & Structures", "Genes & Expression", "Genetics & Medicine", "Genomes & Maps", "Homology", "Literature", "Proteins", "Sequence Analysis", "Taxonomy", "Training & Tutorials", and "Variation".
- Welcome to NCBI**: A central section with the text "The National Center for Biotechnology Information advances science and health by providing access to biomedical and genomic information." and links for "About the NCBI", "Mission", "Organization", and "NCBI News & Blog".
- Submit**: "Deposit data or manuscripts into NCBI databases" with an upload icon.
- Download**: "Transfer NCBI data to your computer" with a download icon.
- Learn**: "Find help documents, attend a class or watch a tutorial" with a book icon.
- Develop**: "Use NCBI APIs and code libraries to build applications" with a code icon.
- Analyze**: "Identify an NCBI tool for your data analysis task" with a network icon.
- Research**: "Explore NCBI research and collaborative projects" with a microscope icon.
- Popular Resources**: A list of links including PubMed, Bookshelf, PubMed Central, BLAST, Nucleotide, Genome, SNP, Gene, Protein, and PubChem.
- NCBI News & Blog**: Recent news items such as "NCBI Adopts INSDC Minimal Specifications for GenBank and SRA" (18 Mar 2026) and "Changes Coming to NCBI Taxonomy: Try the New Browser" (11 Mar 2026).

# My NCBI

[Customize this page](#) | [NCBI Site Preferences](#) | [Video Overview](#) | [Help](#)

### Search NCBI databases

Search : PubMed



Hint: clicking the "Search" button without any terms listed in the search box will transport you to that database's homepage.

### Saved Searches

Search Name	What's New	Last Searched
PubMed Searches		
de_ying[Author]	0	6 days ago

[Manage Saved Searches >](#)

### My Bibliography

Your bibliography contains [3 items](#).  
Your bibliography is **private**.

[Manage My Bibliography >](#)

### Collections

All bibliographies and Other citations are now in [My Bibliography](#).

Collection Name	Items	Settings/Sharing	Type
<a href="#">Favorites</a>	edit 0	Private	Standard

[Manage Collections >](#)

### Recent Activity

Time	Database	Type	Term
15-Mar-2026	Books	record	<a href="#">Saving and Managing Searches - My N...</a>
08-Mar-2026	Books	search	<a href="#">hemoglobin</a>
08-Mar-2026	Books	record	<a href="#">Tutorials - Bookshelf Help</a>
08-Mar-2026	Books	record	<a href="#">Entrez Sequences Help</a>
08-Mar-2026	Books	record	<a href="#">Entrez Nucleotide and Entrez Protei...</a>
08-Mar-2026	Books	record	<a href="#">Entrez Sequences Quick Start - Entr...</a>

### Filters

Filters for: PubMed

You do not have any active filters for this database.  
[Add filters for the selected database.](#)

[Manage Filters >](#)

### SciENcv

- NCBI 页面右侧可进入 PubMed

**National Library of Medicine**  
National Center for Biotechnology Information

All Databases

**NCBI Home**

**Resource List (A-Z)**

- All Resources
- Chemicals & Bioassays
- Data & Software
- DNA & RNA
- Domains & Structures
- Genes & Expression
- Genetics & Medicine
- Genomes & Maps
- Homology
- Literature
- Proteins
- Sequence Analysis
- Taxonomy
- Training & Tutorials
- Variation

## Welcome to NCBI

The National Center for Biotechnology Information advances science and health by providing access to biomedical and genomic information.

[About the NCBI](#) | [Mission](#) | [Organization](#) | [NCBI News & Blog](#)

**Submit**

Deposit data or manuscripts into NCBI databases

**Download**

Transfer NCBI data to your computer

**Learn**

Find help documents, attend a class or watch a tutorial

**Develop**

Use NCBI APIs and code libraries to build applications

**Analyze**

Identify an NCBI tool for your data analysis task

**Research**

Explore NCBI research and collaborative projects

### Popular Resources

- PubMed
- Bookshelf
- PubMed Central
- BLAST
- Nucleotide
- Genome
- SNP
- Gene
- Protein
- PubChem

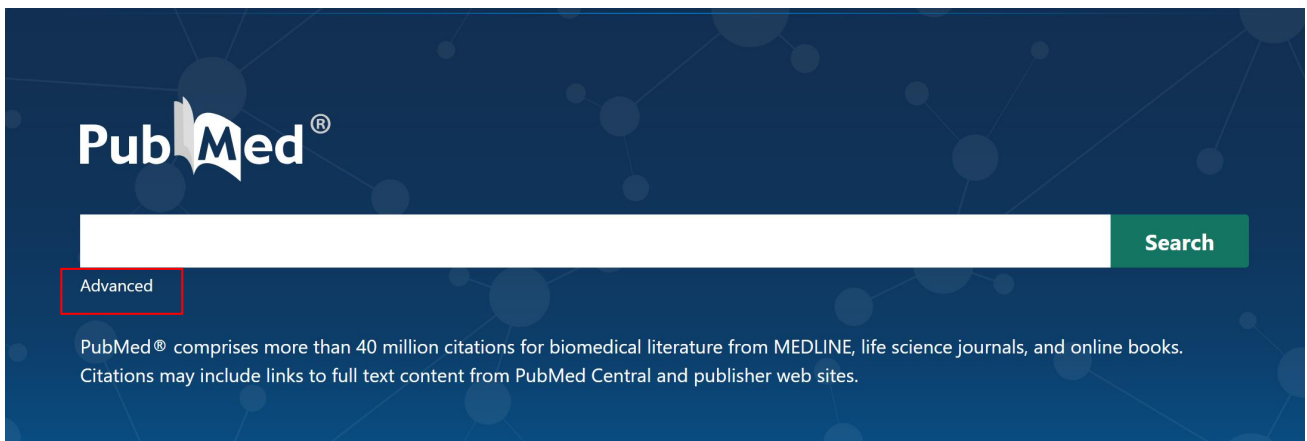
### NCBI News & Blog

NCBI Adopts INSDC Minimal Specifications for GenBank and SRA  
18 Mar 2026

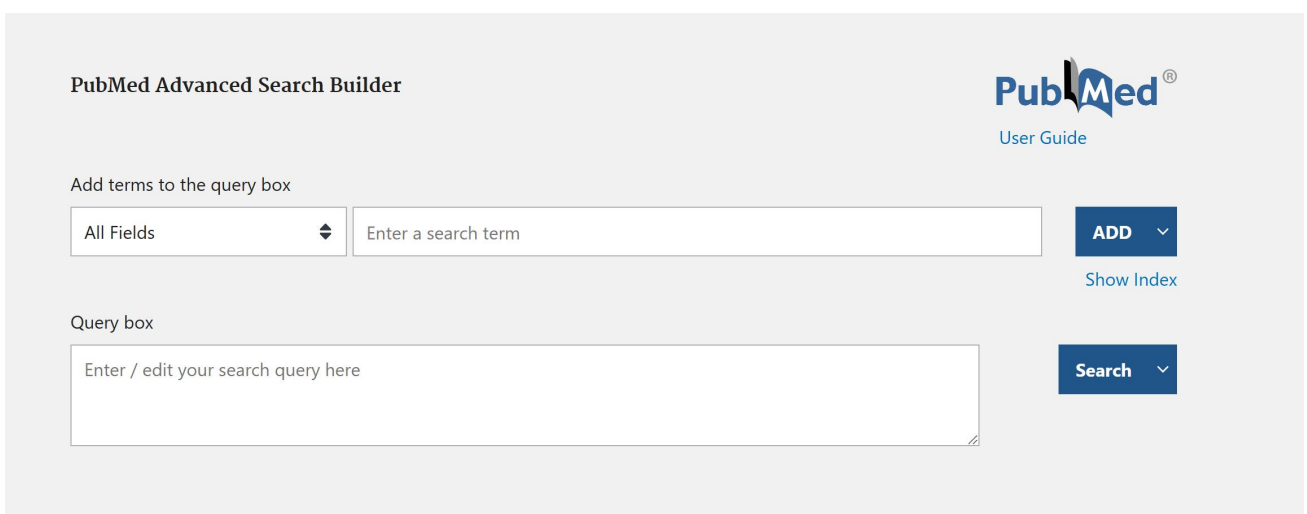
NCBI, with other members of the International Nucleotide Sequence  
11 Mar 2026

Changes Coming to NCBI Taxonomy: Try the New Browser  
11 Mar 2026

We invite you to try the redesigned NCBI Taxonomy Browser, developed with input



红框内意为高级检索，可加入不同的关键词

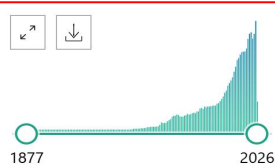


- **Stop 词**（停用词）是指在 PubMed 检索中，为了提升检索效率而被系统自动忽略的常见词、冠词、介词或连词。如果你输入了这些词，PubMed 会忽略它们，不进行索引匹配，例如 a, an, the, for, with 等。
- 搜索时可以在左侧设定文章的类型和发布年限以缩减文章数量，可以看到搜索框下方也有高级检索选项，各个关键词中间可以用 AND 连接
- 除第一幅图是课上案例外，另外两张截图为 G5B 薛媛和 G5C 赵宏芳课题相关的文献截图

## MY CUSTOM FILTERS

[Edit custom filters](#)

## RESULTS BY YEAR



## PUBLICATION DATE

- 1 year
- 5 years
- 10 years
- Custom Range

## TEXT AVAILABILITY

280,360 results

Page 1 of 28,036

1 [Cerebral activation following dynamic cycling in individuals with and without Parkinson's disease: an fNIRS investigation.](#)

Cite Smith BE, Shigo LM, Huyck JJ, Ridgel AL. *Front Hum Neurosci.* 2026 Mar 10;20:1755116. doi: 10.3389/fnhum.2026.1755116. eCollection 2026. PMID: 41884780 [Free PMC article.](#)

Functional near-infrared spectroscopy (fNIRS) is a neuroimaging tool that measures cortical activation by estimating **hemoglobin** content at the surface level of the brain. METHODS: 18 participants (N = 11 with PD) completed the present study in which changes in prefrontal c ...

2 [Hematological Safety of Contezolid versus Linezolid in Stage 5 Chronic Kidney Disease: An Active-Comparator New-User Retrospective Cohort Study.](#)

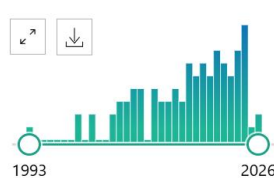
Cite Zhang W, Cai X, Hou R, Guo J, Ma Y, Kang J, Li X. *Drug Des Devel Ther.* 2026 Jan 30;20:576881. doi: 10.2147/DDDT.S576881. eCollection 2026. PMID: 41884477 [Free PMC article.](#)

The primary outcome was the impact of contezolid and linezolid on **hemoglobin** levels. The secondary outcomes included microbial eradication, clinical cure rate and adverse reaction. ...CONCLUSION: Compared with linezolid, contezolid was associated with a lower risk of clini ...

## MY CUSTOM FILTERS

[Edit custom filters](#)

## RESULTS BY YEAR



## PUBLICATION DATE

- 1 year

88 results

Page 1 of 1

1 [Afforestation of severely desertified land in semi-arid areas promotes soil carbon and nitrogen accumulation through microbial necromass.](#)

Cite Chen Y, Cao W, Mou X, Wang X, Li Y, Wang J. *Commun Biol.* 2026 Feb 27;9(1):499. doi: 10.1038/s42003-026-09775-9. PMID: 41760945 [Free PMC article.](#)

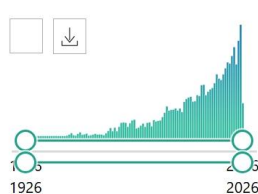
We investigated 10-, 20-, and 40-year-old **Caragana microphylla** and *Pinus sylvestris* var. *mongolica* plantations (2 years) established on mobile dunes in northern China, taking mobile dunes and natural grassland and forest as references. ...

2 [Water use and physiological ecological adaptation strategies of \*\*Caragana microphylla\*\* of different forest ages in hunshandake sandy.](#)

## MY CUSTOM FILTERS

[Edit custom filters](#)

## RESULTS BY YEAR



7,625 results

Page 1 of 763

1 [\*\*Medicago sativa.\*\*](#)

Cite Weber RW. *Ann Allergy Asthma Immunol.* 2005 Jun;94(6):A6. doi: 10.1016/s1081-1206(10)61316-6. PMID: 15984590 Review. No abstract available.

2 [\*\*Alfalfa \(Medicago sativa L.\).\*\*](#)

Cite Samac DA, Austin-Phillips S. *Methods Mol Biol.* 2006;343:301-11. doi: 10.1385/1-59745-130-4:301. PMID: 16988354 Review.

- 如果想将选中的文献加入“My Bibliography”，可选择文章后点击红框内的“Send to”选项，选择“My Bibliography”即可，也可以直接在“My NCBI”的“My Bibliography”部分直接搜索添加。

PubMed® hemoglobin Search User Guide

Advanced Create alert Create RSS

Save Email **Send to** Sort by: Most recent Display options

MY CUSTOM FILTERS Edit custom filters

RESULTS BY YEAR

1877 2026

PUBLICATION DATE

1 year 5 years 10 years Custom Range

TEXT AVAILABILITY

280,360 results Page 1 of 28,036

1 Cerebral activation following dynamic cycling in individuals with and without Parkinson's disease: an fNIRS investigation.  
Cite Smith BE, Shigo LM, Huyck JJ, Ridgel AL.  
Front Hum Neurosci. 2026 Mar 10;20:1755116. doi: 10.3389/fnhum.2026.1755116. eCollection 2026.  
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PubMed® hemoglobin Search User Guide

Advanced Create alert Create RSS

Save Email Send to Sort by: Most recent Display options

### Add to My Bibliography

Selection: Selection (1)

My Bibliography

Add Cancel

MY CUSTOM FILTERS Edit custom filters

RESULTS BY YEAR

280,360 results 1 item selected Clear selection Page 1 of 28,036

1 Cerebral activation following dynamic cycling in individuals with and without Parkinson's disease: an fNIRS investigation.  
Cite Smith BE, Shigo LM, Huyck JJ, Ridgel AL.

- 当搜索的各个关键词中间用多个 AND 或者 OR 连接，若想保存多个关键词组合下搜索到的文献，可以

点击红色框内的“Create alert”将关键词下的文献保存，并每一月/年将新文章发送至邮箱。

- 除前两张图是课上案例外，另外两张截图为 G5B 薛媛和 G5C 赵宏芳课题相关的文献截图。

The screenshot shows the PubMed search interface. At the top, the search term "hemoglobin" is entered in the search bar, with a red box highlighting the "Create alert" button. Below the search bar are buttons for "Advanced", "Create alert", and "Create RSS". The search results are displayed on page 1 of 28,036. Two results are visible:

1. **Cerebral activation following dynamic cycling in individuals with and without Parkinson's disease: an fNIRS investigation.**  
Smith BE, Shigo LM, Huyck JJ, Ridgel AL.  
Front Hum Neurosci. 2026 Mar 10;20:1755116. doi: 10.3389/fnhum.2026.1755116. eCollection 2026.  
PMID: 41884780 [Free PMC article.](#)  
Functional near-infrared spectroscopy (fNIRS) is a neuroimaging tool that measures cortical activation by estimating **hemoglobin** content at the surface level of the brain. METHODS: 18 participants (N = 11 with PD) completed the present study in which changes in prefrontal c ...

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PMID: 41884477 [Free PMC article.](#)  
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## Your saved search

\* Name of saved search:

hemoglobin

\* Search terms:

hemoglobin

[Test search terms](#)


Would you like email updates of new search results?

Yes

No

Email: **13352009125@163.com** [\(change\)](#)

Frequency: Monthly 

Which day? The first Sunday 

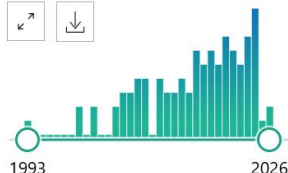
PubMed®   [Advanced](#) [Create alert](#) [Create RSS](#) [User Guide](#)

Sort by:

MY CUSTOM FILTERS

[Edit custom filters](#)

RESULTS BY YEAR



PUBLICATION DATE



88 results

Page 1 of 1

**Study on Components with Anti-Neuroinflammatory Activities from *Caragana microphylla* Lam.**

1 Cite Qi J, Su X, Xu L, Tang Y, Zhou D, Chen G, Hou Y, Li N.

Chem Biodivers. 2023 Jun;20(6):e202201172. doi: 10.1002/cbdv.202201172. Epub 2023 May 19.

PMID: 37144548

***Caragana microphylla*** Lam., is a perennial herb in the genus ***Caragana*** in the Fabaceae family. Two undescribed triterpenoid saponins (1-2), along with thirty-five known components (3-37) were obtained from the roots of *C. microphylla* Lam. These compounds ...

**Comprehensive transcriptome profiling of *Caragana microphylla* in response to salt condition using de novo assembly**

2

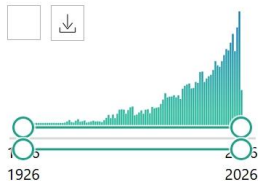
PubMed®   [Advanced](#) [Create alert](#) [Create RSS](#) [User Guide](#)

Sort by:

MY CUSTOM FILTERS

[Edit custom filters](#)

RESULTS BY YEAR



1926

7,625 results

Page 1 of 763

***Medicago sativa*.**

1 Weber RW.

Cite Ann Allergy Asthma Immunol. 2005 Jun;94(6):A6. doi: 10.1016/s1081-1206(10)61316-6.

PMID: 15984590 Review. No abstract available.

**Alfalfa (*Medicago sativa* L.).**

2 Samac DA, Austin-Phillips S.

Cite Methods Mol Biol. 2006;343:301-11. doi: 10.1385/1-59745-130-4:301.

PMID: 16988354 Review.

## (2) CNCB

- CNCB 中的课程可以在哔哩哔哩视频网站中进行观看。
- CNCB 虽然是中文网站，但由于数据库名称，搜索时依旧需要用英文。
- CNCB 也提供多个数据库，涵盖基因组、转录组和蛋白质等方面。
- CNCB 国家生物信息中心开放生物学文献数据库 OpenLB,同样可以高级检索。



# OpenLB v 1.0

## Open Library of Bioscience

OpenLB provides open access to massive literature texts with friendly links to relevant resources in CNCB-NGDC.

[Search](#)[Advanced Search](#)

e.g., "COVID-19" OR "SARS-COV-2"; cancer

40,726,071 Publications

The OpenLB's literature texts are sourced from [NCBI PubMed](#), [bioRxiv](#) and [medRxiv](#), including title, abstract, author, journal, reference, etc.

### Latest Literature

Last update: 2026-03-28 03:00:57

- ▶ A multiplex of connectome trajectories enables several connectivity patterns in parallel. 2025-03-18 [Source:bioRxiv]
- ▶ Redistribution of fragmented mitochondria ensure symmetric organelle partitioning and faithful chromosome segregation in mitotic mouse zygotes. 2025-03-18 [Source:bioRxiv]
- ▶ Controlled and polygynous mating in the black soldier fly: advancing breeding programs utilizing quantitative genetic designs. 2025-03-18 [Source:bioRxiv]

### (3) EBI

EBI 除了可以在主页的搜索框内查找外，还可点击红框内的“Find data resources”，新的页面不仅可以找寻数据资源，还可以找网站中的工具，如 blast。

EMBL's European Bioinformatics Institute

# EMBL-EBI

Unleashing the potential of big data in biology

[Search](#)[Find data resources](#)[Submit data](#)[Explore our research](#)[Train with us](#)

### Latest news



EMBL-EBI home Services Research Training About us EMBL-EBI

# Services

Data resources and analysis tools to support life science research

EMBL's European Bioinformatics Institute (EMBL-EBI) maintains the world's most comprehensive range of freely available and up-to-date molecular data resources.

Find a data resource or a tool

Search

Explore all our data resources and tools →

Our full range of data resources and data analysis tools are essential for supporting life science research.

Featured data resources



GWAS Catalog



International Genome Sample



AlphaFold DB

(4) 生物大分子月报

PDB-101 Molecule of the Month Browse Learn Train Teach Global Health SciArt Events About

RCSB PDB-101 Molecular explorations through biology and medicine

Search Molecule of the Month articles and more Go

Training and outreach portal of PDB

Molecule of the Month By Category By Date By Title

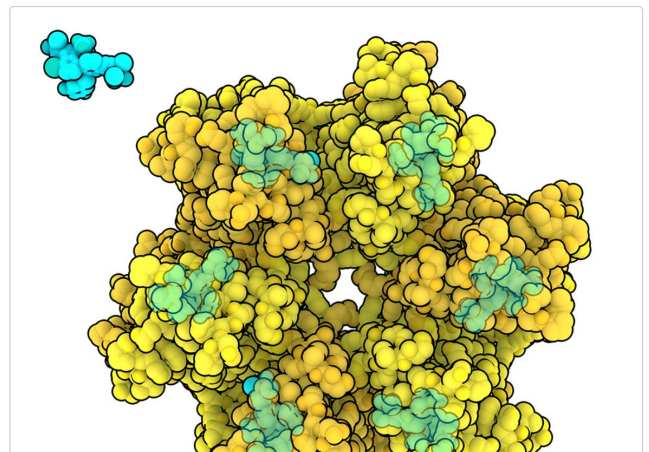
Molecule of the Month: Lenacapavir

A potent and long-acting drug that targets the HIV capsid

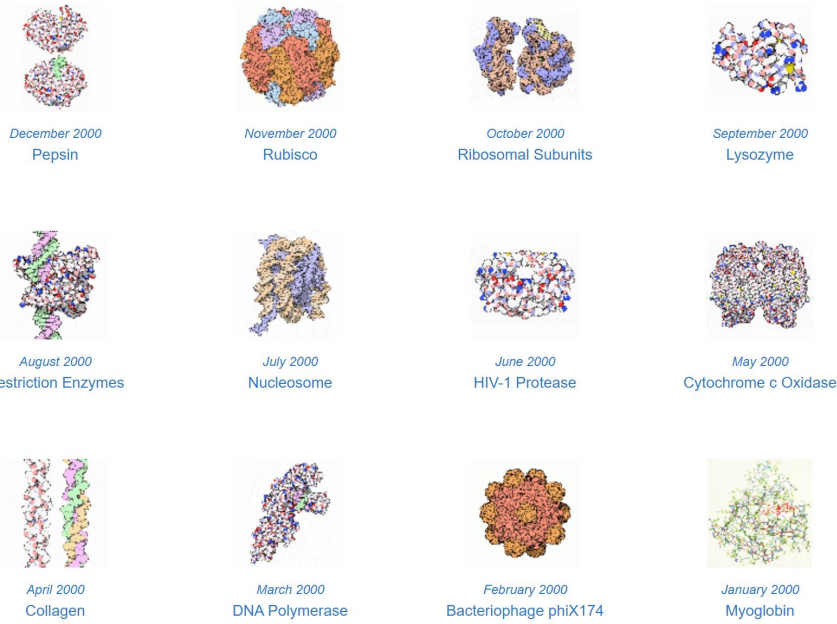
The AIDS epidemic, which started in the early 1980s, is caused by [human immunodeficiency virus \(HIV\)](#), a retrovirus that attacks the immune system. Although there is currently no cure for HIV, [antiretroviral therapy](#) can suppress viral replication when taken consistently, preventing disease progression and transmission and allowing HIV-positive individuals to live long and healthy lives. Maintaining a strict and life-long daily medication regimen, however, can pose a challenge for many people living with HIV, and lapses in adherence can lead to viral proliferation and allow the virus to be transmitted. While the number of new HIV infections has dropped significantly since its peak in the 1990s, the AIDS epidemic persists globally, with an estimated 1.3 million people newly infected with HIV in 2024.

Discovering a drug that targets the capsid

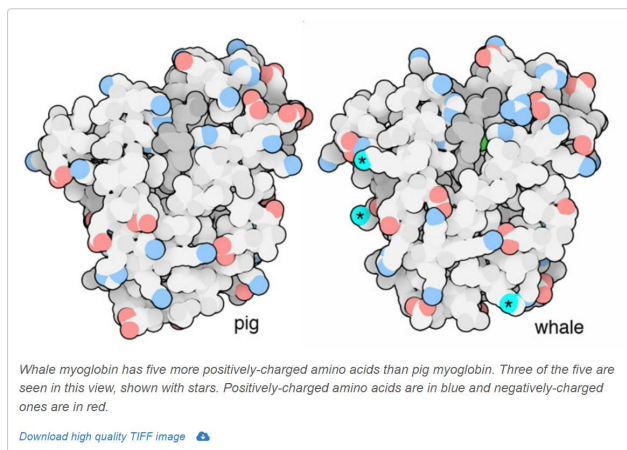
For decades, HIV drug development focused on targeting viral enzymes such as [reverse transcriptase](#), [protease](#), and [integrase](#), or on structural proteins on the viral surface, such as [envelope protein](#). [CA protein](#), which self-assembles to form a conical capsid protein shell around the viral genome, was not widely considered a "druggable" target. Starting in the late 1990s, however, a growing body of scientific studies from HIV researchers described the structure of CA and the capsid shell and showed that viral replication was dependent on the integrity of the capsid. These findings convinced a team at Gilead Sciences to initiate a program to discover and develop a capsid-targeting drug that could complement existing antiretroviral therapies.



- 精选简短的报道，主要包括蛋白质数据库中的分子，可以按照时间、种类和名称进行检索，每篇文章大概包括分子的生物学背景和功能意义、关键结构特征的图解说明和结构与功能关系。



- 文章技术术语较少，有彩色图片辅助理解阅读
- 文章中的蓝色字体是编号，点击可跳转去 PDB 网站



### Myoglobin and Whales

If you look at John Kendrew's PDB file, you'll notice that the myoglobin he used was taken from sperm whale muscles. Whales and dolphin have a great need for myoglobin, so that they can store extra oxygen for use in their deep undersea dives. Typically, they have about 30 times more than in animals that live on land. A recent study revealed that a few special modifications are needed to make this possible. Comparing whale myoglobin (PDB entry [1mbn](#)) with pig myoglobin (PDB entry [1pmb](#)), we find that there are several mutations that add extra positively-charged amino acids to the surface. Marine animals typically have these extra charges on the surface of their myoglobin to help repel neighboring molecules and prevent aggregation when myoglobin is at high concentrations.

- 按功能分类，该网站的生物大分子分为哪几大类？

健康与疾病 (Health and Disease)

生命分子 (Molecules of Life)

生物技术与纳米技术 (Biotech and Nanotech)

结构与结构测定 (Structures and Structure Determination)

- 2000 年 12 篇月报中描述的蛋白质分子，你熟悉的有哪些？

九月：溶菌酶

十月：核糖体亚基

十一月：核酮糖-1, 5-二磷酸羧化酶

十二月：胃蛋白酶

- 有关 DNA、rRNA、tRNA 的月报有哪几篇？

---

DNA: 39 篇

rRNA: 1 篇

tRNA: 15 篇

- 该网站中和 DNA 复制相关的蛋白质分子有哪些？

有滑动钳 (Sliding Clamps)、DNA 解旋酶 (DNA Helicase)、DNA 聚合酶 (DNA Polymerase)、解旋酶装载蛋白 (Helicase Loader) 等

- 该网站中介绍的病毒有哪些？

包括烟草花叶病毒 (TMV)、流感病毒 (Influenza Virus)、猿猴病毒 40 (Simian Virus 40, SV40) 等

- 该网站中你熟悉的酶分子有哪些？

DNA 解旋酶和 DNA 聚合酶

- 阅读该网站关于血红蛋白的短文，说明其结合和释放氧气时不同亚基之间如何协同作用。

血红蛋白通过运动和微小的结构变化来调节其作用。血红蛋白四个血红素位点的氧结合不会同时发生。一旦第一个血红素结合氧气，就会对相应的蛋白质链结构发生微小变化。这些变化使相邻链形成不同的形状，使其更容易结合氧气。因此，添加第一个氧分子较为困难，但结合第二、第三和第四个氧分子会越来越容易。这在血红蛋白功能上有很大优势。当血液进入肺部，氧气充足时，氧气会轻易结合到第一个亚基，然后迅速填满剩余的亚基。然后，随着血液在体内循环，氧气水平下降，二氧化碳浓度上升。在这种环境中，血红蛋白释放其结合的氧气。一旦第一个氧分子脱落，蛋白质就开始改变形状。这促使剩余的三种氧气迅速释放。

- 阅读该网站关于流感病毒神经氨酸酶 (Influenza Neuraminidase) 的短文，说明其结构特征和作用机制。流感病毒神经氨酸酶是一种四聚体糖蛋白，由四个相同的亚基组成，排列呈正方形，每个亚基包含一个球状催化头和细长的茎部结构。其活性中心位于球状头部，特异性识别并水解宿主细胞表面糖蛋白末端的唾液酸残基。神经氨酸酶则在病毒离开感染细胞后结合多糖链，切断这些多糖链的末端，确保病毒不会卡在细胞表面。这一切割作用破坏病毒与宿主细胞之间的连接，使新生病毒颗粒得以从感染细胞表面释放，并扩散至邻近细胞。茎部长度影响酶活性及病毒致病性，不同毒株间存在差异。

- 列举该网站中与你研究方向相关的生物大分子。

Abscisic Acid Receptor 脱落酸受体

当遇到异常干燥的环境时，植物会采取多种行动来帮助它们生存。许多应激反应是由脱落酸 (ABA) 激活的信号通路介导的，ABA 是一种由植物组织在干旱条件下合成的小分子激素。ABA 结合于 PYR/PYL/RCAR 家族的 ABA 受体。

- 阅读你最感兴趣的生物大分子，阐述该分子的结构、功能特点。

Abscisic Acid Receptor 脱落酸受体

结构：ABA 的结合位点是一个保守的囊袋，两侧有两个环，分别称为门环和锁扣。ABA 的绑定“锁定”了门环和锁扣。

功能特点：当 ABA 结合 ABA 受体后，ABA-ABA 受体复合物可以结合到 2C 型磷酸酶 (PP2C)。结合会阻塞 PP2C 活性位点，使其无法识别并结合激酶 SnRK2。SnRK2 随后自由磷酸化靶点，最终激活耐旱机制。

## (5) 蛋白质分子精选

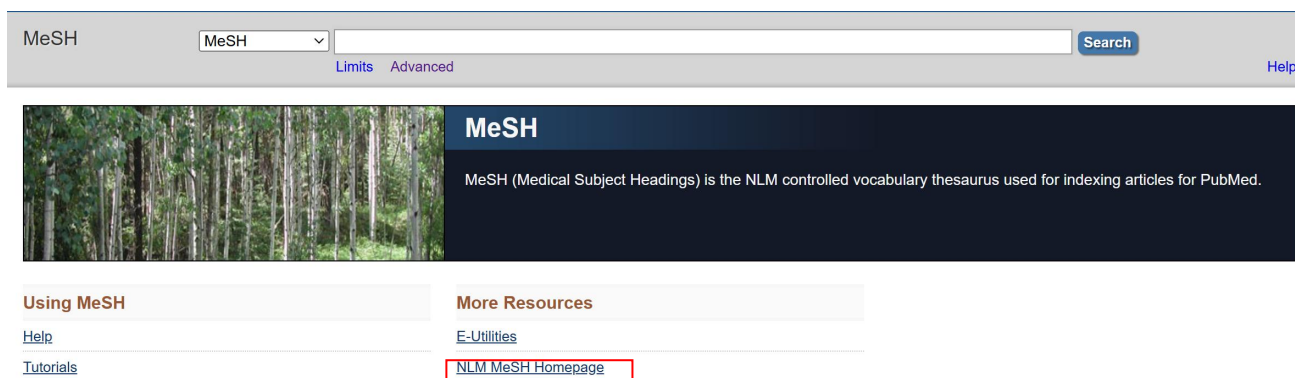
- Protein Spotlight 是 UniProt 数据库官方科普博客，蓝色圆圈内的数字是文章数量



- 没有 vpn 不能使用 search 直接搜索，只能在 Article 模块中用 Ctrl+F 搜索
- 写作偏故事性，有特别配图，但专业术语应用较多

## (6) MeSH

- 可在 PubMed 下方进入,点击红框内的链接可进入搜索



## Medical Subject Headings 2026

The files are updated each week day Monday-Friday by 8AM EST

Search MeSH... FullWord **Exact Match Exact** All Fragments All Any Fragment Any

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- MeSH 词表采用树状结构，最顶层共有 15 个大类（即 Treeview）。这些大类涵盖了生物医学及相关的  
所有领域，可以清晰了解各领域之间的联系。

Anatomy [A] +

Organisms [B] +

Diseases [C] +

Chemicals and Drugs [D] +

Analytical, Diagnostic and Therapeutic Techniques, and Equipment [E] +

Psychiatry and Psychology [F] +

Phenomena and Processes [G] +

Disciplines and Occupations [H] +

Anthropology, Education, Sociology, and Social Phenomena [I] +

Technology, Industry, and Agriculture [J] +

Humanities [K] +

Information Science [L] +

Named Groups [M] +

Health Care [N] +

Publication Characteristics [V] +

Geographicals [Z] +

### (7) EPMC——欧洲生物医学全文数据库 Europe PMC


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### Intravenous Ferumoxytol Compared With Oral Ferrous Sulfate for Iron Deficiency Anemia in Pregnancy: A Randomized Controlled Trial.

Igbinosa I<sup>1</sup>, Leonard SA, Iwekaogwu I, Sherwin EB, Berube C, Lyell DJ

Author information

Obstetrics and Gynecology, 19 Mar 2026, <https://doi.org/10.1097/aog.0000000000006245> PMID: 41860281

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## (8) 演化生物学网络教程 (Evolution 101)

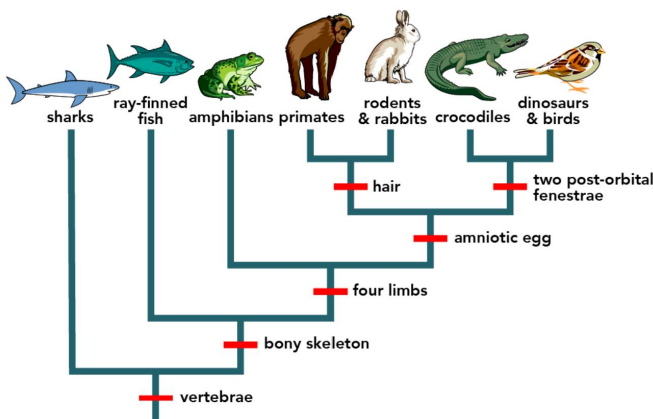
- 该网站内容和写作风格有什么特点？

结构清晰，逻辑性强：网站内容从“什么是演化”的基本定义开始，逐步深入到微观演化、物种形成、宏观演化等复杂概念

系统全面，通俗易懂：既可以通过点击“下一页”按钮快速了解核心概念，也可以通过每页底部的链接获得更详细的专业信息，核心概念页面也配有图片辅助理解

比喻生动，引人入胜：例如，用北极熊的例子来解释自然选择：被困在北极的棕熊中，那些毛色更白、更厚的个体更容易生存并繁衍后代，从而将这一有利性状传递下去。这种风格将抽象的理论具体化，非常易于理解。

- 下载该网站中 7 个代表性脊椎动物的图片，写出它们的名称和特点。



**Sharks:** 鲨鱼，软骨鱼纲，具备脊椎，属于脊椎动物；骨骼为软骨，不具备硬骨骨骼；运动器官为鳍，不具备四肢；卵生 / 卵胎生，无羊膜卵，依赖水环境繁殖。

**ray-finned fish:** 辐鳍鱼，硬骨鱼纲辐鳍亚纲，具备脊椎、硬骨骨骼；运动器官为鳍，不具备四肢；无羊膜

卵，依赖水环境繁殖；无毛发、无颞孔结构。是现存最繁盛的鱼类类群，绝大多数鱼类都属于辐鳍鱼。

**Amphibians:** 两栖动物，两栖纲，具备脊椎、硬骨骨骼、四肢；无羊膜卵，卵必须在水中孵化，幼体水生、成体水陆两栖；皮肤裸露，无毛发、鳞片 / 羽毛；变温动物，依赖环境温度调节体温。

**Primates:** 灵长类，灵长目，具备脊椎、硬骨骨骼、四肢、羊膜卵，体表被毛，恒温动物。大脑发达、立体视觉、抓握型手足，树栖 / 陆生。

**rodents & rabbits:** 啮齿类与兔类，啮齿目、兔形目，具备脊椎、硬骨骨骼、四肢、羊膜卵，体表被毛，恒温动物。门齿发达、终生生长，适应植食 / 杂食，繁殖能力强。

**Crocodiles:** 鳄鱼，鳄目，具备脊椎、硬骨骨骼、四肢、羊膜卵，双颞孔。水生 / 半水生，体表被角质鳞，变温，卵生。

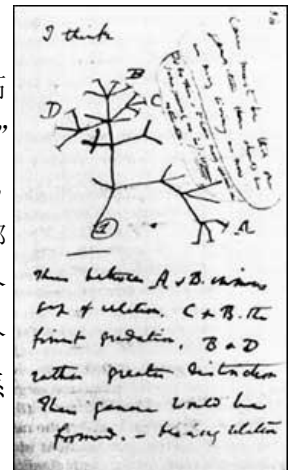
**dinosaurs & birds:** 恐龙与鸟类，恐龙总目（含鸟类），具备脊椎、硬骨骨骼、四肢、羊膜卵，双颞孔。

恐龙：中生代陆地霸主，多数陆生，体表被鳞 / 羽毛（部分兽脚类）；

鸟类：体表被羽毛，恒温，前肢特化为翼，多数具备飞行能力，卵生。

- 认真阅读分析该网站最后 **Big Issue** 图片，说明为什么关于演化地位的梯子模型不正确，而树枝模型正确。

梯子模型错误地认为某些物种（如人类）比其他物种（如细菌）更“进化”或更“高级”。从演化的角度看，所有现存的物种都经历了同样长的演化历史，都是“成功”的适应者，不存在高低贵贱之分。该模型将人类视为演化的“终极产物”和“顶峰”，这并非科学事实，而是一种以人类为中心的偏见。而树枝模型的核心是所有生物都拥有一个共同的祖先。演化的过程是“树状”的，从一个祖先物种可以分化出多个不同的后代物种。这些分支向不同方向发展，各自适应不同的环境，没有哪一个分支比另一个分支更“高级”或更“进化”。不仅清晰地展示了物种之间的亲缘关系远近，还解释了地球生命的多样性和统一性。



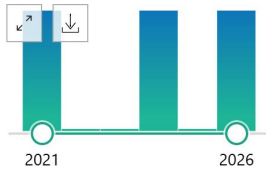
### (9) 个人报告

**A** 我在 PubMed 搜索了我导师的名字，并通过研究领域和作者单位排除了假阳性结果后搜索出三篇文献并存入 My Bibliography，用“草地早熟禾”和“干旱”两个关键词检索到相关文献并设定年限。后又以同样关键词在 EPMC 搜索文献，数量较 PubMed 变多了许多，仍需要进一步筛选。

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- 5 years
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3 results

Page 1 of 1

1  Analysis of chloroplast genomes and SSR classification and identification of *Agropyron* species and closely related species.

Cite Pan W, Yan W, Li Z, Wu Z, Tian Q, **De Y**, Wu C, Yan W. *Sci Rep.* 2026 Jan 11;16(1):3579. doi: 10.1038/s41598-025-33570-x. PMID: 41521194 [Free PMC article.](#)

2  Unraveling the signaling pathways of phytohormones underlying salt tolerance in *Elymus sibiricus*: A transcriptomic and metabolomic approach.

Cite **De Y**, Yan W, Gao F, Mu H. *Genomics.* 2024 Sep;116(5):110893. doi: 10.1016/j.ygeno.2024.110893. Epub 2024 Jun 27. PMID: 38944355 [Free article.](#)

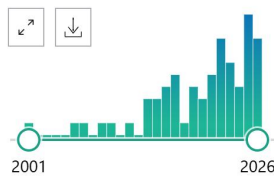
3  Siberian Wildrye (*Elymus sibiricus* L.) Abscisic Acid-Insensitive 5 Gene Is Involved in Abscisic Acid-Dependent Salt Response.

Cite **De Y**, Shi F, Gao F, Mu H, Yan W. *Plants (Basel).* 2021 Jul 2;10(7):1351. doi: 10.3390/plants10071351. PMID: 34371554 [Free PMC article.](#)

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1  Assessing the impact of perennial groundcover and interseeded annual cover crops on maize yield and drainage water quality.

Cite Myers-Bailey GM, Rockson PE, Andersen DS, Moore KJ, Helmers MJ, Raman DR. *J Environ Qual.* 2026 Mar-Apr;55(2):e70175. doi: 10.1002/jeq2.70175. PMID: 41928494 [Free PMC article.](#)  
This 3-year field study compared a Kentucky bluegrass (*Poa pratensis* L.) as a perennial groundcover (PGC), two interseeded annual cover crop systems (standard and wide-row), and a no-cover control for their effects on corn yield and subsurface drainage water quality ...

2  Medium -term monitoring and machine learning-based forecasting of drought dynamics in Iran.

Cite Zarei AR. *Sci Rep.* 2026 Mar 20. doi: 10.1038/s41598-026-45031-0. Online ahead of print. PMID: 41862634 [Free article.](#) No abstract available.

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#### Seed priming and irrigating with plasma-activated water improve the growth and drought resistance in *Poa pratensis*.

Zaboli M, Nejad-Alimoradi F, Rostami F, Keramat B, Mousavi EA, Nasibi F

BMC Plant Biol, 25(1):1747, 22 Nov 2025

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#### Isolation of Endophytic Bacteria from Kentucky Bluegrass and the Biocontrol Effects of *Neobacillus* sp. 718 on Powdery Mildew.

Liang Y, Wu F, Zhang Y, Guo Z, Han L, Gao P, Zhao X, Zhu H

Plants (Basel), 14(24):3758, 10 Dec 2025

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## 5. 问题

(1) 在 CNCB 主页面中间的搜索框内搜索不了相关信息，无论是中文或英文（用农科院的网络和自己的流量都不可以）

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