Introduction to Molecular Biology

What is Molecular Biology ?

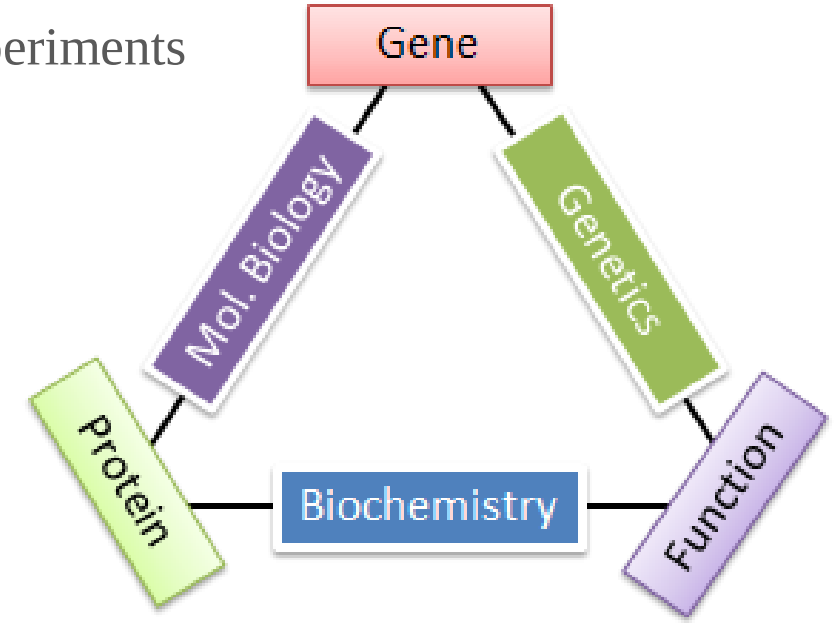
- "**Molecular Biology**" is the study of biology at the molecular level.

- It is the study of essential cellular macromolecules, including **DNA, RNA, and proteins**, and the biological pathways between them (replication, transcription, translation).

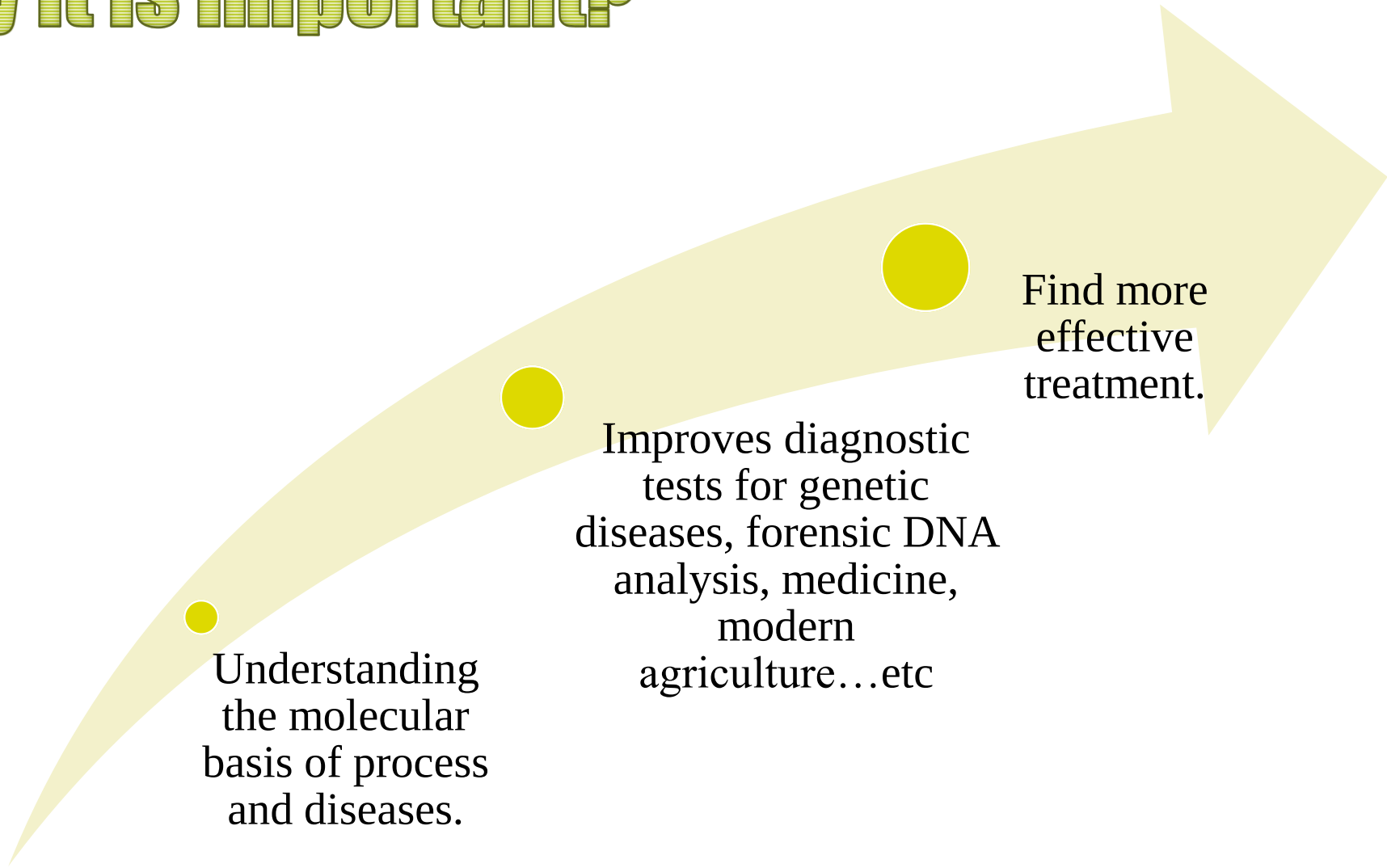
- Researchers in Molecular Biology field, design and perform experiments to gain insight into how these components operate, organization and communicate.

- The techniques used for these studies are **referred to as:**

"Techniques of Molecular Biology".



Understanding Molecular Biology…. Why it is important?



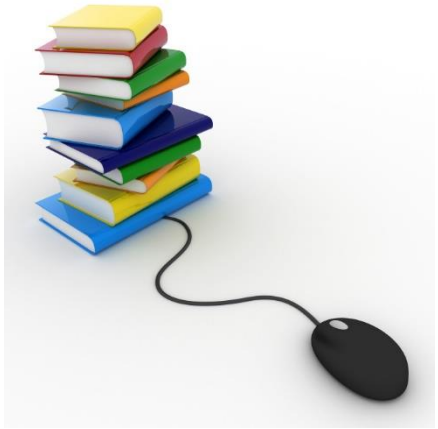
Things you need to Know :

Basic molecular biology background

Writing a lab report

Molecular Biologist

Techniques

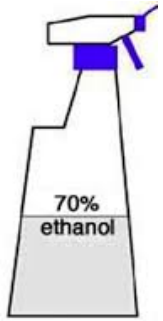


Website Sources of information

Lab safety

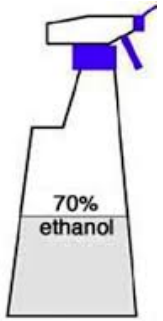
Safety

Before Start Working



While Working

After Working



Types of Hazards:

1. **Biological hazards.**

2. **Chemical hazards:**

-Ethidium bromide (EtBr).

3. **Physical, Electrical and Mechanical hazards:**

-Ultraviolet (UV) light.

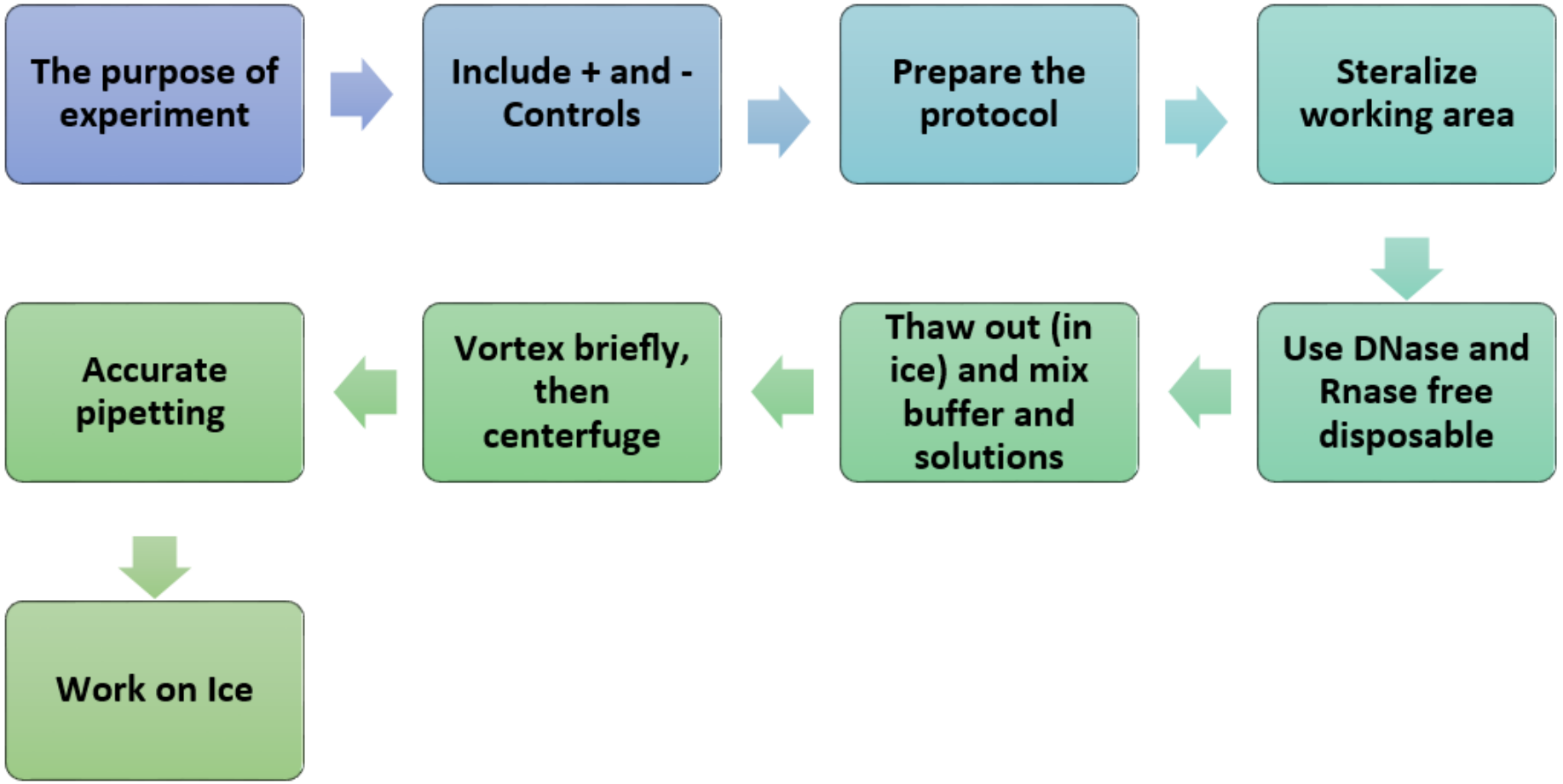
-Electricity.

-Centrifugation.

Writing a Report:

1. Cover page.
2. Introduction.
3. Objectives.
4. Materials and method.
5. Principle.
6. Results.
7. Discussion.
8. Questions.
9. References.

Conducting a Successful Molecular Biology Experiment



Searching the scientific literature:

- The most fundamental skill in bioinformatics is the ability to carry out an **efficient** and **comprehensive** search of the scientific literature to find out what is known about a **specific subject.**

- Sources of information:

➔**Books, Articles, Websites.**

- **Some academic research tools:**

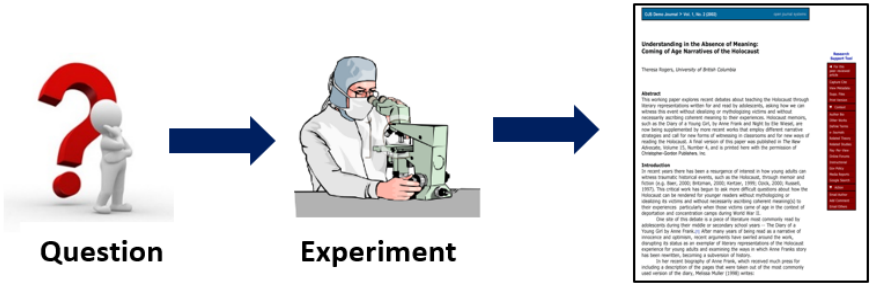
Types of scientific articles:

1. Primary research article:

➔ Peer-reviewed.

➔ New research.

➔ Answer a question.



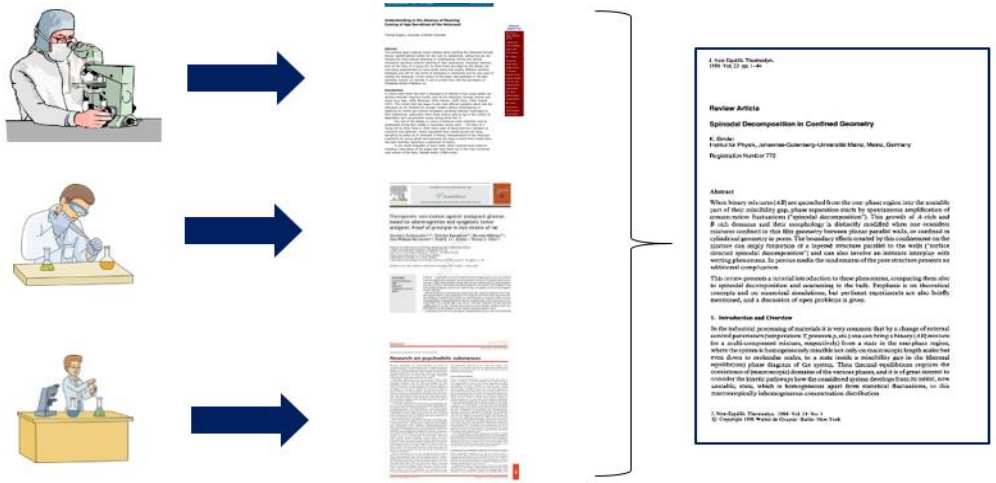
Primary research article that answering Specific question

2. Review article:

➔ Peer-reviewed.

➔No new information.

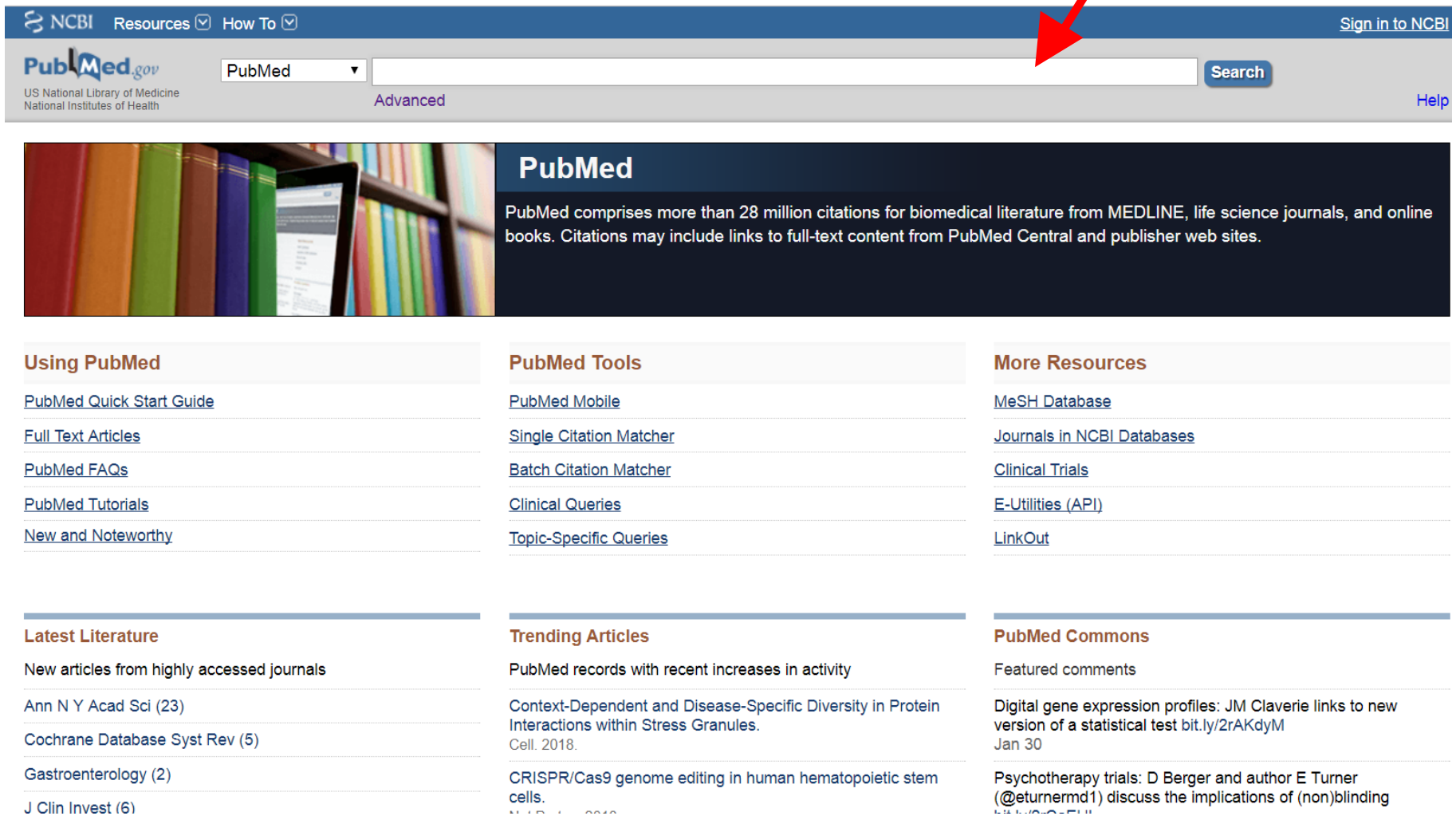
➔ Good to start with.



Review article summarize multiple primary research articles

How to search in PubMed:

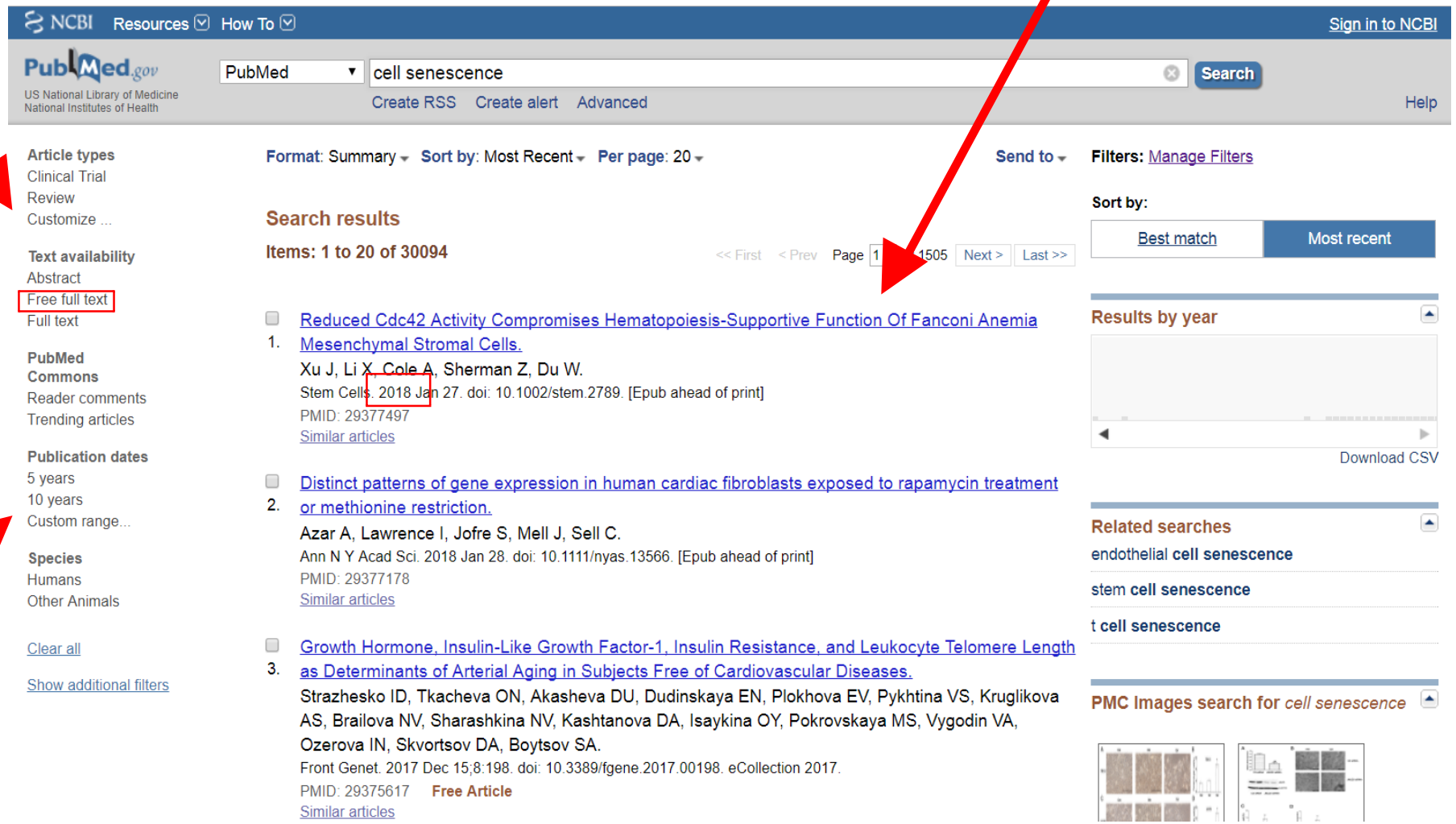
Search box
(Key Words)



How to search in PubMed:

Articles

Article type



Publication date

Home Work:

- Using some of the academic research tools that you learn them today, search for a primary research article and a review article for the same topic.

➔Mention the research tool.

➔The titles of the two articles.