

An aerial photograph of the EPFL campus in Lausanne, Switzerland, showing various buildings, green spaces, and a large circular pool. A large red rectangular overlay covers the upper right portion of the image, containing the title text.

Scientific literature search in bioengineering BIO-467

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Vincenzo Palatella

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Learning objectives

At the end of this training, you will be able to:

- Develop an information retrieval strategy
- Use Zotero to efficiently gather and organize your references
- Explain the basic facts about scholarly publication

Agenda

8:15

Introduction

8:20

Part 1 Information Retrieval Strategy

8:50

Break

9:00

Part 2 Zotero

9:25

Part 3 Scholarly communication

9:50

Q&A



Part I

Information retrieval strategy

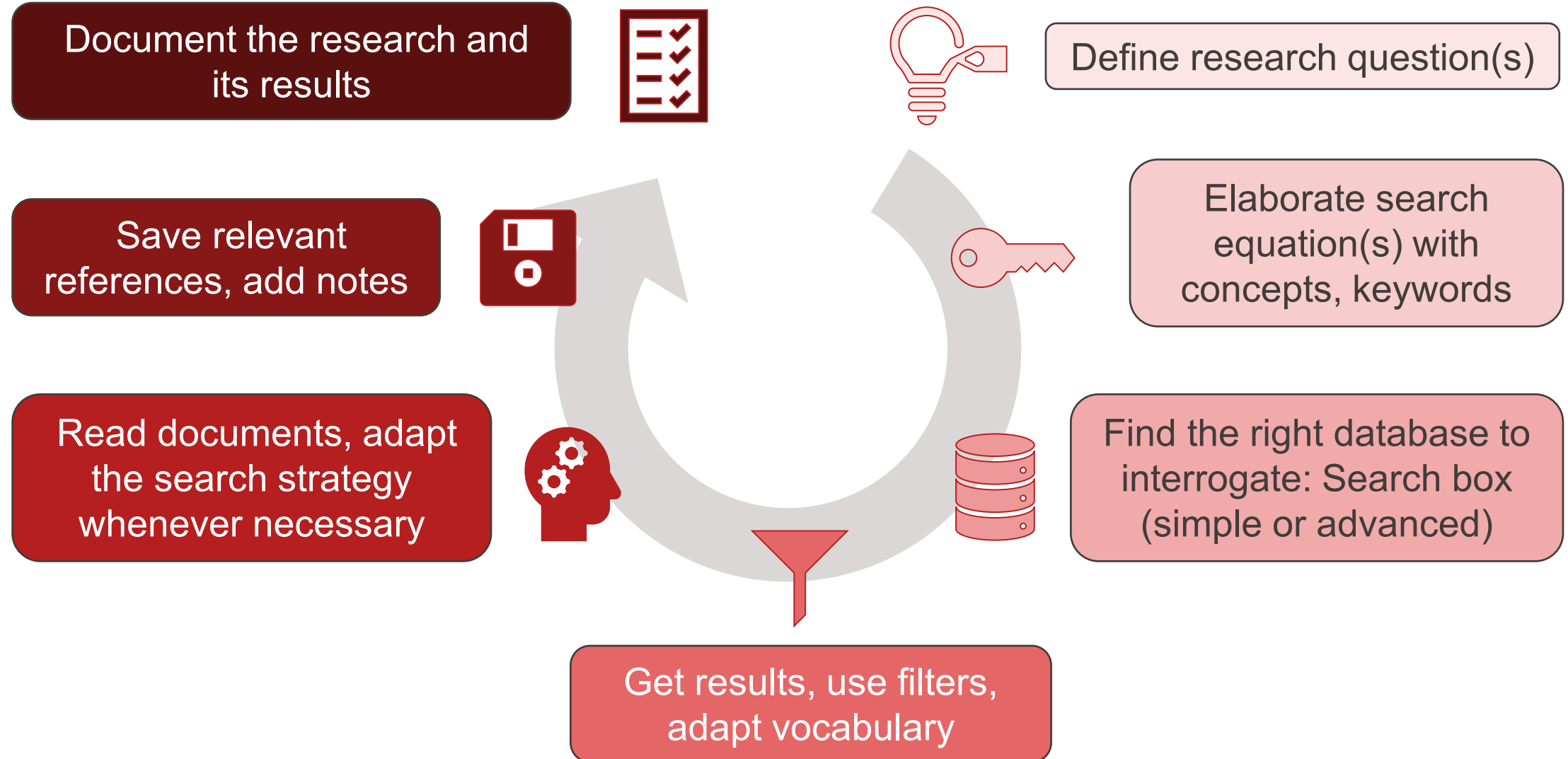
- How to build a search equation
- PubMed demo
- Web of Science demo

Your search on PubMed and Web of Science: how did it go?



Arslan Haider - Flaticon

Information retrieval strategy



Define research question(s)



- What's your research question?

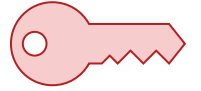
What are the most recent developments in CAR T-cell use in cancer-immune therapy?

The research grid



Define a subject and transform it into a question	What are the most recent developments in CAR T-cell use in cancer-immune therapy?		
Extract the main concepts and get keywords			
Search for synonyms and related terms			
Create the search equation			
Search 2 databases and compare their results			
Refine your search equation			

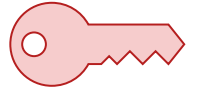
Enrich your search equation with close concepts and keywords



- Define the keywords that describe your concepts
- Think about synonyms and other languages

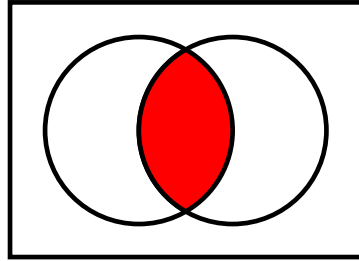
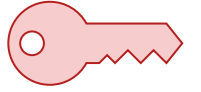
	Concept 1	Concept 2
Language #1	Keyword #1 Keyword #2	Keyword #1 Keyword #2 Keyword #3
Language #2	Keyword #1 Keyword #2	Keyword #1 Keyword #2

The research grid

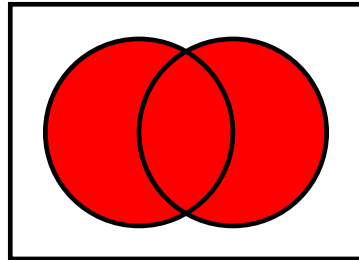


Define a subject and transform it into a question	What are the most recent developments in CAR T-cell use in cancer-immune therapy?		
Extract the main concepts and get keywords	CAR T-cell	Developments	Cancer-immune therapy
Search for synonyms and related terms	CAR T cell	Findings Advances	Adoptive immunotherapy Chimeric Antigen Receptor Therapy
Create the search equation			
Search 2 databases and compare their results			
Refine your search equation			

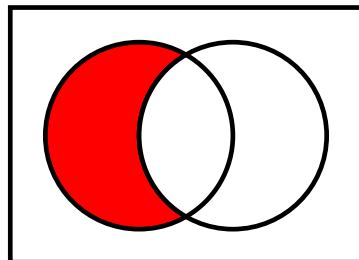
Boolean operators and more



AND to combine key concepts



OR to add alternative key concepts



NOT to exclude concepts

()

Group the keywords

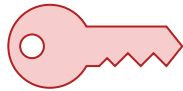
***** **or** **?**

Jolly character

« » or " "

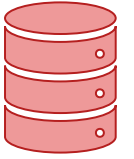
Exact expression

The research grid



Define a subject and transform it into a question	What are the most recent developments in CAR T-cell use in cancer-immune therapy?		
Extract the main concepts and get keywords	CAR T-cell	Developments	Cancer-immune therapy
Search for synonyms and related terms	CAR T cell	Findings Advances	Adoptive immunotherapy Chimeric Antigen Receptor Therapy
Create the search equation	("CAR T-cell*" OR "CAR T cell*") AND (development* OR finding* OR advances*) AND ("cancer immune therapy" OR "adoptive immunotherapy" OR "Chimeric Antigen Receptor Therapy")		
Search 2 databases and compare their results			
Refine your search equation			

Find the right database to interrogate



Web of Science

A multidisciplinary tool with a **large coverage** and a rich collection of **citation indexes**

Paywalled (EPFL library pays for the access)

Possibility to **keep track of your interesting findings** at different stages

- Create an account with your **EPFL account** to save your searches and access Full text

PubMed

A free biomedical and life sciences database since 1996

37 million+ citations

Includes **PubMed Central**, a full text archive

Free-text and **MeSH**: Medical Subject Headings from the U.S. National Library of Medicine, a controlled/consistent vocabulary

Let's test them!

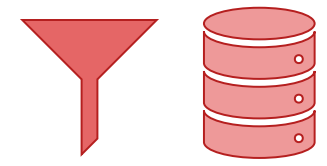


- Let's use the search equation we just created
- Let's evaluate the results:
 - How many results do you have?
 - Are they similar?

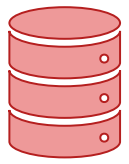
Finding information is an **iterative process**. Not happy with the results?

- Refine your search, use synonyms and related concepts or more targeted words

The research grid



Define a subject and transform it into a question	What are the most recent developments in CAR T-cell use in cancer-immune therapy?		
Extract the main concepts and get keywords	CAR T-cell	Developments	Cancer-immune therapy
Search for synonyms and related terms	CAR T cell	Findings Advances	Adoptive immunotherapy Chimeric Antigen Receptor Therapy
Create the search equation	("CAR T-cell*" OR "CAR T cell*") AND (development* OR finding* OR advances*) AND ("cancer immune therapy" OR "adoptive immunotherapy" OR "Chimeric Antigen Receptor Therapy")		
Search 2 databases and compare their results	WoS 444 results	PubMed 1871 results	
Refine your search equation	Too many results? Use filters / add concepts Too few results? Remove concept / add synonyms		



Consensus

The screenshot shows the Consensus web interface. At the top, there's a search bar with the query "What are the most recent developments in CAR T-cell use in cancer-immune therapy?". Below the search bar, there are toggle switches for "Synthesize" (active) and "Copilot". To the right, there are buttons for "Filter" and "Share". The main content area is divided into two columns. The left column, titled "Summary" (with a "Beta" tag), states "10 papers analyzed" and provides a summary: "These studies suggest that recent developments in CAR T-cell therapy include advancements in fourth-generation CAR-T cells, targeting both hematological and solid tumors, incorporating co-stimulatory domains, and addressing challenges like toxicity, tumor infiltration, and high costs." The right column features a "Consensus Meter" with three colored buttons (green checkmark, yellow minus, red X) and a message: "Not a yes or no question. To use the Consensus Meter, try asking a simple yes or no question." Below this, a "Try:" box suggests a new query: "Are there recent advancements in CAR T-cell therapy for cancer?" with a search icon.

Elicit

The screenshot shows the Elicit web interface. At the top, there's a navigation bar with "Elicit", "Notebooks", "Library", "Upgrade", "Help", and a user profile "Vincenzo Palatella". The main heading is "Recent Advances in CAR T-Cell Therapy". Below this, there's a search bar with the same query as the Consensus tool. The results are summarized as "Summary of top 4 papers" (with a "Copy" button). The summary text reads: "Recent developments in CAR T-cell therapy for cancer immunotherapy have shown promising results, particularly in hematological malignancies (Majumder, 2023). While CD19 CAR-T cells have led the way, new targets like BCMA for multiple myeloma are being explored (Lim & Ang, 2020). Despite success in blood cancers, challenges remain for solid tumors due to tumor heterogeneity and the immunosuppressive microenvironment (Majumder, 2023). Researchers are working on innovative CAR designs and combination therapies to overcome these limitations (Lim & Ang, 2020; Wehrli & Maus, 2021). Current challenges include cytokine release syndrome, T-cell exhaustion, and reduced cytotoxicity at tumor sites (Majumder, 2023). The field is rapidly evolving, with ongoing clinical trials and new strategies being developed to improve CAR-T cell efficacy and reduce side effects (El-Daly & Hussein, 2019; Wehrli & Maus, 2021). These advancements aim to expand the application of CAR-T cell therapy to various cancer types and potentially revolutionize cancer treatment."

- Check the **corpus** used by the tool
- Try to **compare the outcomes** with your «classic» research on PubMed and WoS
- Try to understand **how the tool works** to get the best results



Part II

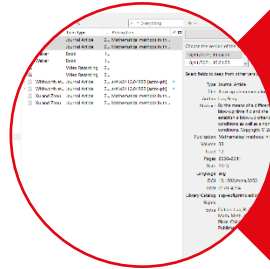
Zotero

- **Collect references and metadata from various sources**
- **Cite literature and create bibliographies**
- **Choose a citation style**
- **Create groups**

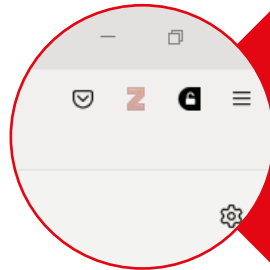


- Free and open source
- User-friendly and powerful
- Plenty of compatible resources / modular
- **Free unlimited storage** when creating an account with your EPFL's email address

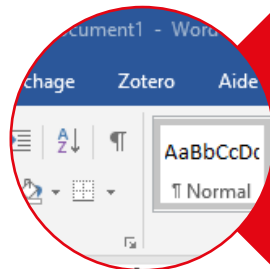
Is Zotero correctly installed?



Standalone software



Connector (for Chrome, Firefox and Edge + bookmarklet working in any browser)



Word processor add-in

FileEditViewToolsHelp

My Library

My Library

Personal

Aigues-Mortes

Bibliometrics

Copyright

Databases

DRM

eBooks

Information Literacy

Publishing

Search equation

Zotero

Work

Bonsai

Drifting classroom

Earthquake engineering

EM

Indie rock

JDM

Nanocomposite catalysts

Nomikai + Konpa

Pseudo-parabolic

T-cell

My Publications

Duplicate Items

Unfiled Items

Retracted Items

Trash

Group Libraries

Request

Read

Unavailable

Not needed

-Chloronitrobenzene Hydrogenation

02.30 Jr

02.70 Wz

05.45 Yv

20th century

34B27

35M99

60J75

65L12

65L20

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academic ethics

academic evaluation

Academic librarians

Academic libraries

academic standards

academic writing

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Date Added

Date Modified

Santa Cruz, USA

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Artwork

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Meet the hijacked journal that ...

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Which h-index?—A compariso...

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Scientometrics

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Le sang des Marais: Aigues-...

Barna...

Book

1993

Via Valeriano

8/6/2024, 1:54:43 PM

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Morte agli Italiani!: il massac...

Barna...

Book

2008

Infinito

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Le racisme au travail

Bataille

Book

1997

La Découverte

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Synthèse d'une série d'entretie...

Baudr...

Report

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Parasites

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Predatory publishers are corru...

Beall

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2012

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Academic Pr...

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Conoscere Fermi: nel centenari...

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Book

2002

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Coffee Lecture #13 | Predatory...

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Neutral Hydrogen Mass in Gal...

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Bonsai origin and philosophy

Bonsai

Web Page

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Mistral Bonsai

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Study of the effect of wood wa...

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Elsevier

Materials Today...

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ADONIS - The View of the Users

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1988

IFLA Journal

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Dynamo effect in unstirred self...

Brand...

Journal A...

2021

arXiv:2112.0383...

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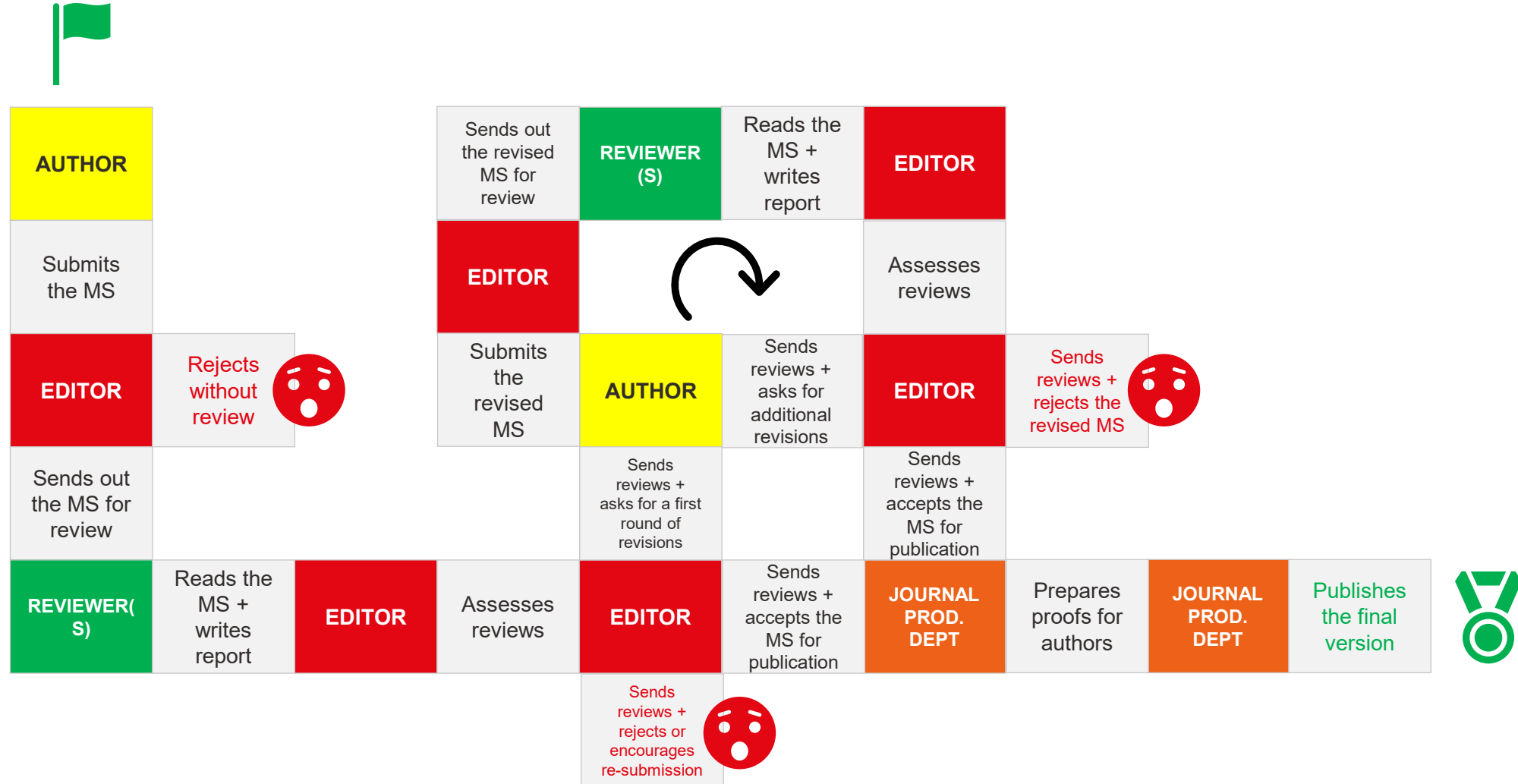


Part III

Scholarly communication

- The peer-review process
- Open Access basics

The peer-review process



Peer-review in-depth

- The peer-review process concerns mostly the articles.
- The main model is called **single blind model** (authors don't know who are the reviewers in charge of commenting on the manuscript)
- Another variant is called **double blind model** (reviewers don't know the identity of the authors neither)
- Less used is the **triple blind model** (not even the editor knows the identity of the authors)
- Emerging trends: **open peer review** (publishers add the reports of the reviewers online and sometimes the different versions of the article)

Peer-reviewed article lifecycle

Preprint and Postprint

Preprint

(aka **Submitted Version**)

- Author's original paper as submitted to the publisher
- Not peer-reviewed

Postprint

(aka **Author-accepted manuscript - AAM**)

- Version accepted by the publisher for publication
- Peer-reviewed

Published version

- Copy-edited, formatted and typesetted according to the journal style
- Copyright transferred
- DOI

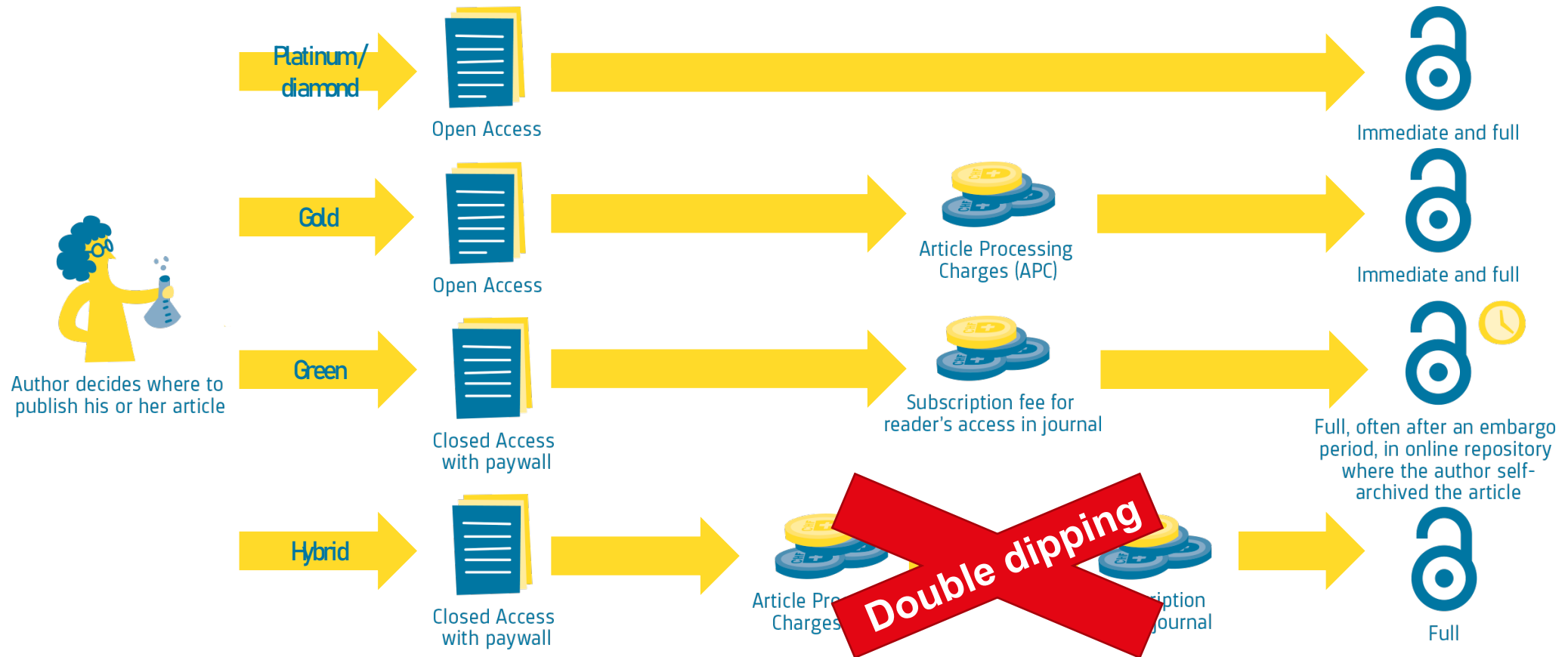
What is Open Access?

“Open-access (OA) literature is **digital, online, free of charge, and free of most copyright and licensing restrictions.**”

Peter Suber ([Open Access, 2012. MIT Press](#))

From “**LIBRARIES** pay subscriptions to **PUBLISHERS** to get access”...
...to “**AUTHORS** pay APCs to **PUBLISHERS** to get published”.

Roads to publish in Open Access

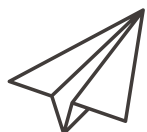


Adapted from: Académies suisses des sciences (2019) Open Science in Switzerland: Opportunities and Challenges. Swiss Academies Factsheet (14) 2.
https://scnat.ch/fr/uuid/i/f8bbfd68-8bf9-5ae3-ab03-313cbd51cacb-Open_Science_in_Switzerland_Opportunities_and_Challenges





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