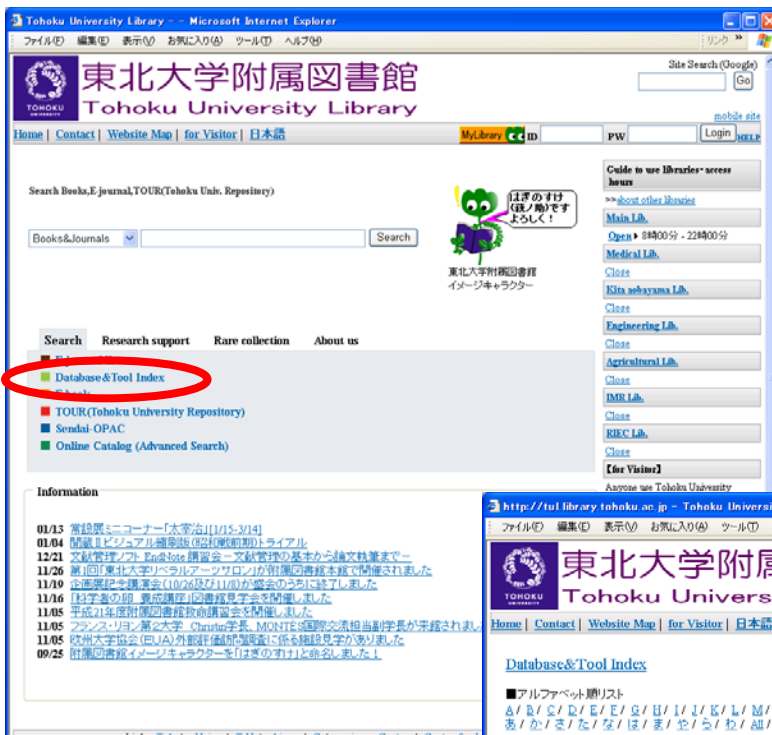


## 4 Databases

### 4.1 How to access databases

Tohoku University Library provides a wide range of databases for students and staff. Most databases are available online on campus. You can access databases through the site below. This section will show how to use some of them.



Tohoku University Library website



Database Services (Research tools)

**Notice:** The screenshot of database services may differ from the actual site.

## 4.2 Web of Science

### 4.2.1 About Web of Science

This database contains citation information. You can search for articles from about 10,500 journals. From one article, you can find bibliographical information, the abstract, a full-text link, and cited/citing articles. In addition, you can use various analytical tools.

Items	Information
Subject	all
Creator	Thomson Reuters
Content	Bibliographic information of journal article, et al.
Source	Natural science about 6,400 Social science about 1,800 Arts & Humanities about 1,130
Coverage	“Science Citation Index Expanded [SCIE]” (1900- )      “Social Sciences Citation Index [SSCI]”(1956- ) “Arts & Humanities Citation Index [A&HCI]”(1975- ) “Index Chemicus” “Current Chemical Reactions”
Update	weekly
URL	<a href="http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=5">http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=5</a>
How to use	Available on campus

### 4.2.2 Features

- Covers all subjects
- It's possible to search for the relation between one article and another
- Various analyzing functions

## 4.2.3 Operation

e.g. To search for an article written by Krunks.M, which has “spray pyrolysis” and “solar cell” as the keywords.

### 1) Start screen

The screenshot shows the ISI Web of Knowledge search interface. The browser address bar displays `http://apps.isiknowledge.com - ISI Web of Knowledge [v.4.4] - Web of Science Home - Microsoft Internet Explorer`. The page header includes navigation links: [Sign In](#), [My EndNote Web](#), [My ResearcherID](#), [My Citation Alerts](#), [My Saved Searches](#), [Log Out](#), and [Help](#). The main navigation bar features **Select a Database** (Web of Science), **Additional Resources**, and a search mode selector (Search, Cited Reference Search, Structure Search, Advanced Search, Search History, Marked List (0)).

The search area is titled **Web of Science®** and contains three search fields:

- Search for:**  in **Topic** (Example: oil spill\* mediterranean)
- AND**  in **Author** (Example: O'Brian C\* OR OBrian C\*)  
Need help finding papers by an author? Use [Author Finder](#).
- AND**  in **Publication Name** (Example: Cancer\* OR Journal of Cancer Research and Clinical Oncology)  
[Add Another Field >>](#)

Buttons for **Search** and **Clear** are located below the search fields.

**Current Limits:** [\[Hide Limits and Settings\]](#) (To save these permanently, [sign in](#) or [register](#).)

**Timespan:**

- All Years (updated 2009-01-10)
- From 1900-1914 to 2009 (default is all years)

**Citation Databases:**

- Science Citation Index Expanded (SCI-EXPANDED)--1900-present
- Social Sciences Citation Index (SSCI)--1980-present
- Arts & Humanities Citation Index (A&HCI)--1980-present

**Chemical Databases:**

- Index Chemicus (IC)--1993-present
- Current Chemical Reactions (CCR-EXPANDED)--1986-present  
(includes Institut National de la Propriete Industrielle structure data back to 1840)

Annotations with red brackets point to specific features:

- Select Search mode**: Points to the search mode selector.
- Enter keywords and Choose tag**: Points to the search fields.
- Change Limits and Settings**: Points to the **Current Limits** section, specifically the **Timespan** and **Citation Databases** options.

Additional content on the right side of the page includes:

- Looking for ISI Proceedings?** It is now searchable from within *Web of Science as the Conference Proceedings*.
- Discover Web of Science**: Example: More than 10,000 journals, database with multidisciplinary coverage of over 10,000 high-impact journals in the sciences, social sciences, and arts and humanities, as well as international proceedings coverage for over 120,000 conferences. Powerful tools include cited reference searching, Citation Maps, and the Analyze Tool.
  - [Want to know more?](#)
  - [Training in multiple languages](#)
- My ResearcherID**
  - [What is ResearcherID?](#)
  - [Sign In](#) to ISI Web of Knowledge to get your ResearcherID.

2) Enter keyword

The screenshot shows the ISI Web of Knowledge search page. The search bar contains the query: "spray pyrolysis" AND "solar cell" in Topic, and Krunk M\* in Author. Below the search bar, there are options for Citation Databases (Science Citation Index Expanded, Social Sciences Citation Index, Arts & Humanities Citation Index) and Chemical Databases (Index Chemicus, Current Chemical Reactions). The page also features a sidebar with links for "Looking for ISI Proceedings?" and "Discover Web of Science".

Callouts provide the following instructions:

- For Phrase Search, use double quotation like "spray pyrolysis".
- Select tag from pull-down menu.
- For right truncation, add "\*" like "Krunk M\*".
- By "Author Finder", you can limit author's subject category and institution.
- You can add another field if you want.

More search tips

- Use terms without quotation to find the records which contain all terms.
- Wildcards are available. "flavor\$r" matches flavor and flavour, "sul\*ur" matches sulfur and sulphur.
- solar cell(without quotation marks) finds the records containing the word solar and the word cell.
- Stopwords(e.g. words such as A, THE, OF, IN) are not searchable.

### 3) Results list

The screenshot shows the ISI Web of Knowledge interface. A search query is entered: `Topic=("spray pyrolysis" AND "solar cell") AND Author=(Krunks M*)`. The results list shows 8 records. The 'Refine Results' sidebar is visible on the left, and the 'Output Records' settings are shown at the bottom.

**Search condition** (points to the search query)

**Results** (points to the search query)

**Number of results** (points to 'Results: 8')

**Functions to Refine, Analyze, etc.** (points to the 'Refine Results' sidebar)

**Settings output results.** (points to the 'Output Records' settings)

**Output Records Settings:**

- Step 1: Selected Records on page (selected)
- Step 2: Authors, Title, Source (selected); plus Abstract (checked)
- Step 3: [How do I export to bibliographic management software?]; Print, E-mail, Add to Marked List (selected); Save to EndNote Web (selected); Save to EndNote, RefMan, ProCite (selected); Save to other Reference Software (dropdown); Save (button)

**Search Results List:**

- Title: Nanostructured solar cell based on spray pyrolysis deposited ZnO nanorod array  
Author(s): Krunks M, Katerski A, Dedova T, et al.  
Source: SOLAR ENERGY MATERIALS AND SOLAR CELLS Volume: 92 Issue: 9 Pages: 1016-1019 Published: SEP 2008 Times Cited: 1
- Title: Surface analysis of spray deposited copper indium disulfide films  
Author(s): Katerski A, Mere A, Kazlauskieni V, et al.  
Source: THIN SOLID FILMS Volume: 516 Issue: 20 Pages: 7110-7115 Published: AUG 30 2008 Times Cited: 1
- Title: Research in solar cell technologies at Tallinn University of Technology  
Author(s): Mellikov E, Altosaar M, Krunks M, et al.  
Source: THIN SOLID FILMS Volume: 516 Issue: 20 Pages: 7125-7134 Published: AUG 30 2008 Times Cited: 0
- Title: Crystal quality studies of CuInS2 films prepared by spray pyrolysis  
Author(s): Oja I, Nanu M, Katerski A, et al.  
Source: THIN SOLID FILMS Volume: 480 Special Issue: Sp. Iss. SI Pages: 82-86 Published: JUN 1 2005 Times Cited: 13

4) Detailed display

Bibliographic information links, to see another list, Abstracts. etc

**Zinc oxide thin films by the spray pyrolysis method**

Full Text | Print | E-mail | Add to Marked List | Save to EndNote Web | more

Author(s): Krunks M, Mellikov E

Source: THIN SOLID FILMS Volume: 270 Issue: 1-2 Pages: 33-36 Published: DEC 1 1995

Times Cited: 71 References: 10

Abstract: Undoped and In-doped ZnO thin films have been prepared on glass substrates from solutions of Zn(CH<sub>3</sub>CO<sub>2</sub>)<sub>2</sub> · 2H<sub>2</sub>O in a mixture of deionized water and isopropyl alcohol by spray pyrolysis. Their optical, morphological and structural qualities have been studied and the effect of the preparation conditions discussed. It was shown that the main factors determining the parameters of ZnO films are the growth temperature and the indium concentration. The growth temperatures of 625-675 K, indium doping levels of 1-1.5 at % and precursor concentrations of 0.1-0.2 mol l<sup>-1</sup> are preferable to achieve ZnO films with optical and structural qualities as required for solar cell applications.

Document Type: Article

Language: English

Author Keywords: zinc oxide, pyrolysis; solar cells; indium

KeyWords Plus: ZNO

Addresses: Krunks, M (reprint author), TALLINN TECH UNIV, INST MAT TECHNOL, CHAIR SEMICONDUCTOR TECHNOL, EHITAJATE 5, TALLINN 0026, ESTONIA

Publisher: ELSEVIER SCIENCE SALAUSANNE, PO BOX 564, 1001 LAUSANNE 1, SWITZERLAND

Subject Category: Materials Science, Multidisciplinary, Materials Science, Coatings & Films; Physics, Applied; Physics, Condensed Matter

IDS Number: TM187

ISSN: 0040-6090

**Cited by: 71**  
This article has been cited 71 times (from Web of Science).  
Winfield RJ, Koh LHK, O'Brien S, et al. Excimer laser processing of ZnO thin films prepared by the sol-gel process. APPLIED SURFACE SCIENCE 4 855-858 DEC 15  
Murali KR. Properties of sol-gel dip-coated zinc oxide thin films. JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS 12 2293-2296 DEC  
Kim H, Wang SJ, Park HH, et al. Study of Ag nanoparticles incorporated SnO<sub>2</sub> transparent conducting films by photochemical metal-organic deposition. THIN SOLID FILMS 2-4 198-202 DEC 3

[ view all 71 citing articles ]  
[ Create Citation Alert ]

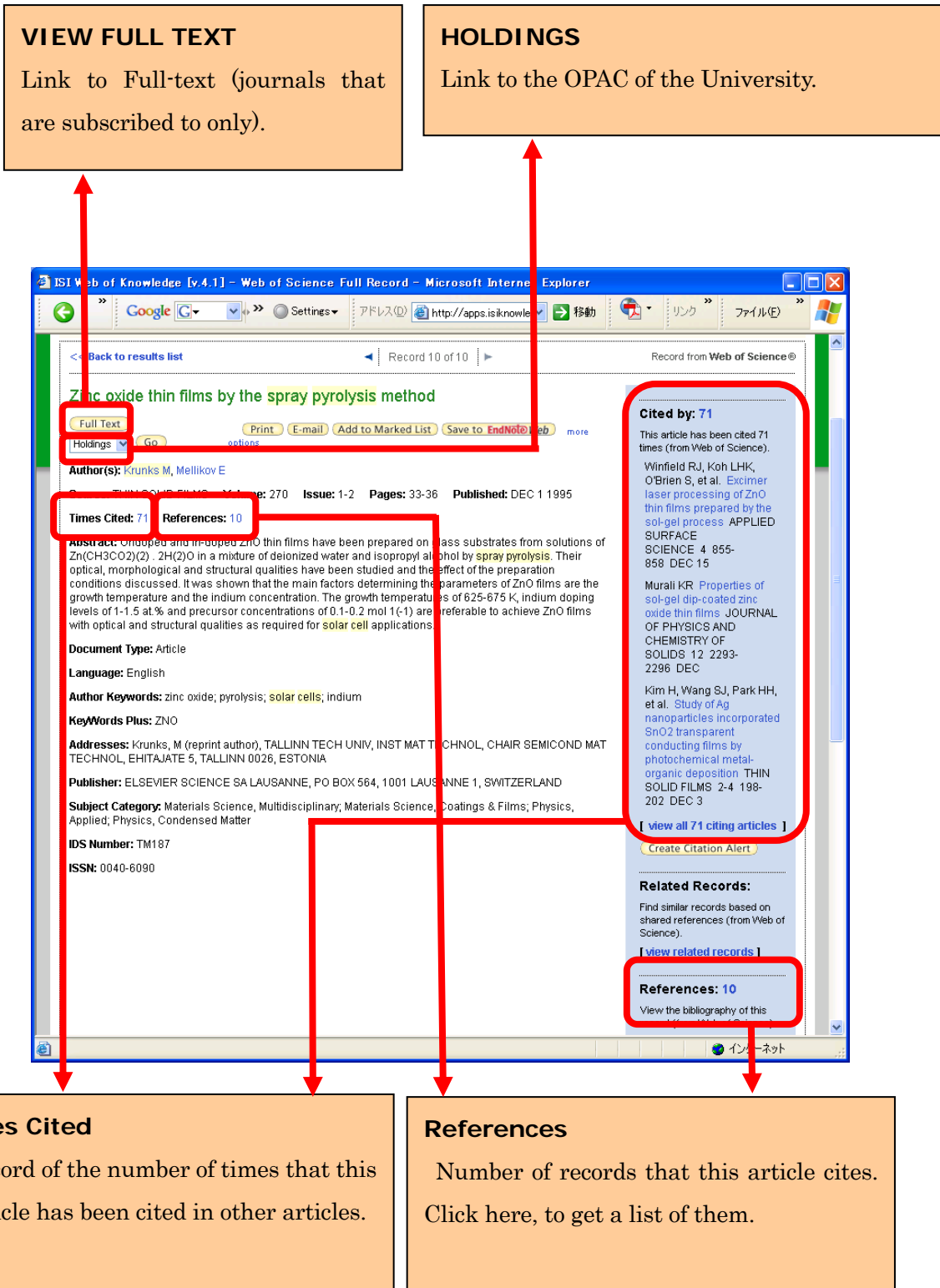
**Related Records:**  
Find similar records based on shared references (from Web of Science).  
[ view related records ]

**References: 10**  
View the bibliography of this record (from Web of Science).

Author keywords, Addresses of authors, Publisher, and so on.

- Number of “Cited by” articles  
This article has been cited by some other articles. This number will change when someone cites this article in the future.
- Related Records  
You can find a list of articles which have similar references.
- Number of “References”  
Reference list for this article. This number will not change.

## 4.2.4 Relation of articles

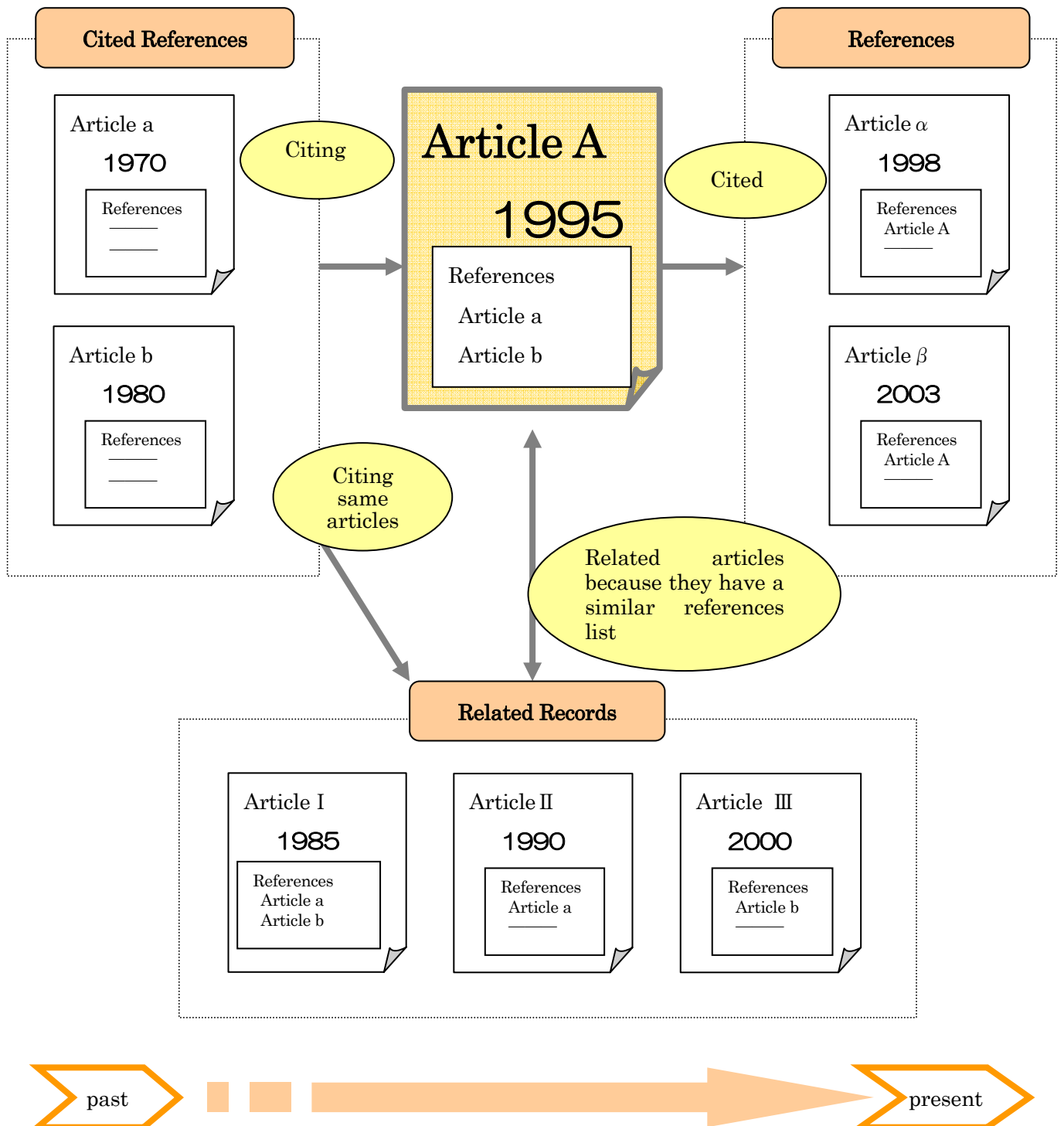


Character	Information	Example
*	Right truncation	sul*ur* → sulfur, sulphur sulfuric, sulphuric
?	Singular letter variant	wom?n → woman, women
\$	Plural letters variant	labo\$r → labor, labour
SAME	Keywords are contained in same sentence	cellulose SAME wood → wood cellulose, cellulose from wood

Items	Information	Example
TOPIC	Retrieve from article title, abstracts and keywords. Plural words without quotation marks will retrieve records that contain all of the words.	reduc* sodium → reduced sodium, reducing sodium
AUTHOR	Recommended "Family name(one space)First letter of first name+*". Searchable by all authors (not only first author).	田中耕一 = Tanaka K* de la Rosa M = de\$la\$Rosa M* Shi Wa Yen = Yen S* OR Shi W* Schröder A = Schr*der A*
GROUP AUTHOR	Select from "group author index".	CERN MACRO COLLABORATION TIMI STUDY GRP
SOURCE TITLE	Search registered title from "full source titles list". If you know abbreviated title only, use "*".	IEEE CIRCUITS DEVICES JOURNAL OF AIRCRAFT PHYS* REV*
ADDRESS	Confirm registered name by "abbreviations help", "*" is recommended. Use "SAME" to search faculty or institute.	東北大学医学部 = Tohoku Univ SAME Med* IBM 東京基礎研究所 = IBM SAME Tokyo Res*



### 4.2.5 Article Relations in Web of Science

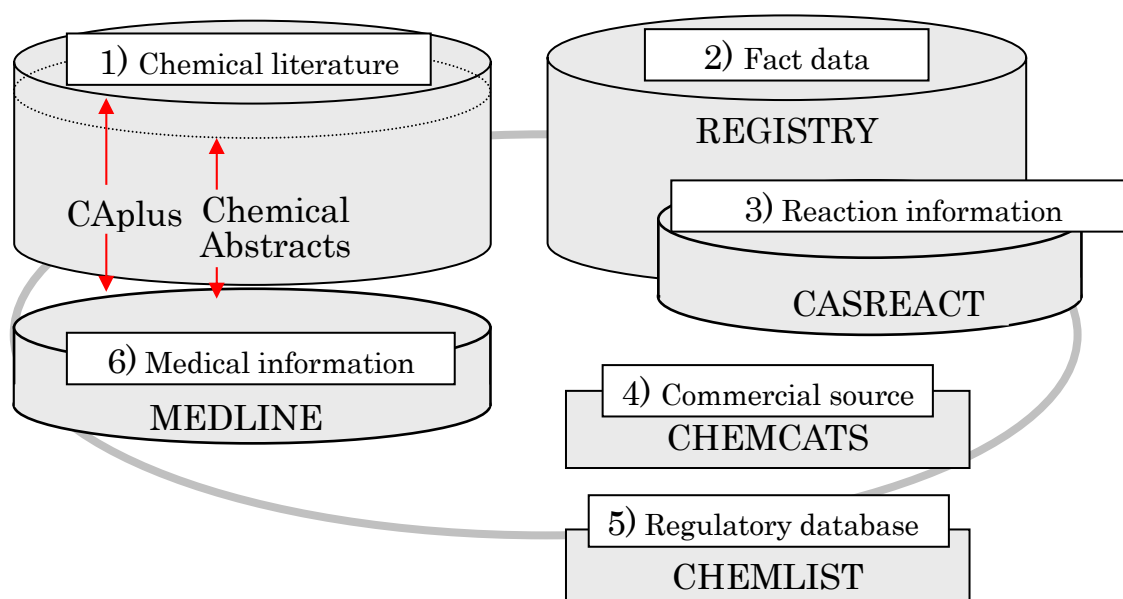


### 4.3 SciFinder(Academic)

#### 4.3.1 About SciFinder (Academic)

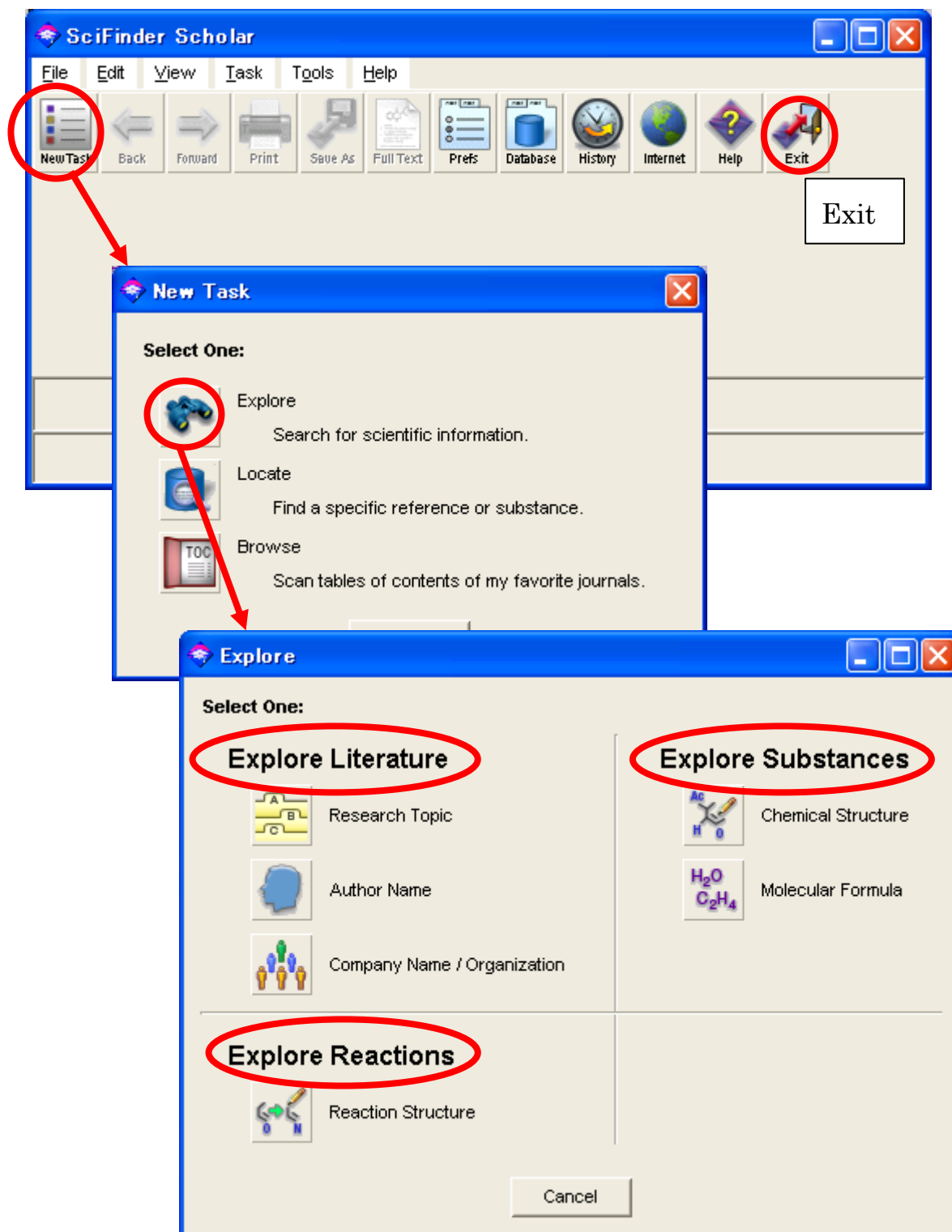
Item	Information
Subject	Chemistry, chemical engineering, physics, pharmacology, life science, agriculture, etc.
Creator	CAS(Chemical Abstracts Service)
Type	Article, proceedings, patent, thesis, technical report, etc.
Source	Approximately 9,500 journals (Chemistry, from 150 countries)
Coverage	1840-
Update	Daily
URL	Exclusive browser download is needed.
How to use	Registration is required by laboratory. Pay for use.
Other	<a href="http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=26">http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=26</a>

- 1) Chemical literature information – Article, patent, etc. (1840- )
- 2) Fact data – Compounds, etc. (1957- )
- 3) Reaction information of organic compounds – Reaction information issued as article or patents (1840- )
- 4) Commercial source information – Including supplier addresses and pricing information
- 5) Regulatory information – Including substance identity information, inventory status, and compliance information.
- 6) Medical information – Including information in “MEDLINE” (1950- )





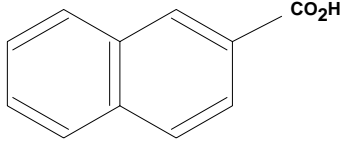






### 4.3.2 Begin Search

You will find the “New Task” window at the first step. There are 3 kinds of search flow: Explore, Locate, Browse.



## Major Search Items

Item		Information	Example
Explore Literature	 Research Topic	Search by topic. Enter keyword or sentence.	[I am interested in] composition for polymer-dispersed liquid crystal
	 Author Name	Search by author name.	Tanaka (Last name) K (First name or initial)
	 Company Name / Organization	Search by organization.	Tohoku Univ, Japan Seiko Epson Corp, Japan Sony Corp, Japan
Explore Substances	 Chemical Structure	Search by structure. There is the default editor, and it's possible to copy and paste from "ISIS/DRAW" and "ChemDraw".	
	 Molecular Formula	Search by molecular formula.	C11H8O2 O2C11H8 O2 C11 H8
Locate	 Bibliographic Information	By journal name, article title	Cellular Microbiology
	 Document Identifier	By CA abst. number	122:252283 (CAN)
		By patent number	JP07026265
	 Substance Identifier	By CAS registered name	2-Naphthalenecarboxylic acid
By other name		Isonaphthoic acid	
		By CAS registry number	93-09-4(93094)

### 4.3.3 Literature Search (Basic Flow)

Introducing the basic flow of literature search, using the example of the following research topic:

e.g. Search the literature written about “composition of polymer-dispersed liquid crystal display”.

- 1) You find ”I am interested in” in the Explore window. Enter the keyword after this phrase. By clicking “Filters”, you can set Publication Year, Author Name and more.

**Explore by Research Topic**

**Describe your topic using a phrase.**

I am interested in:

composition of polymer-dispersed liquid crystal display

Examples:  
The effect of antibiotic residues on dairy products  
Photocyanation of aromatic compounds  
Hydrocarbon-water emulsions as fuels


Filters ▼

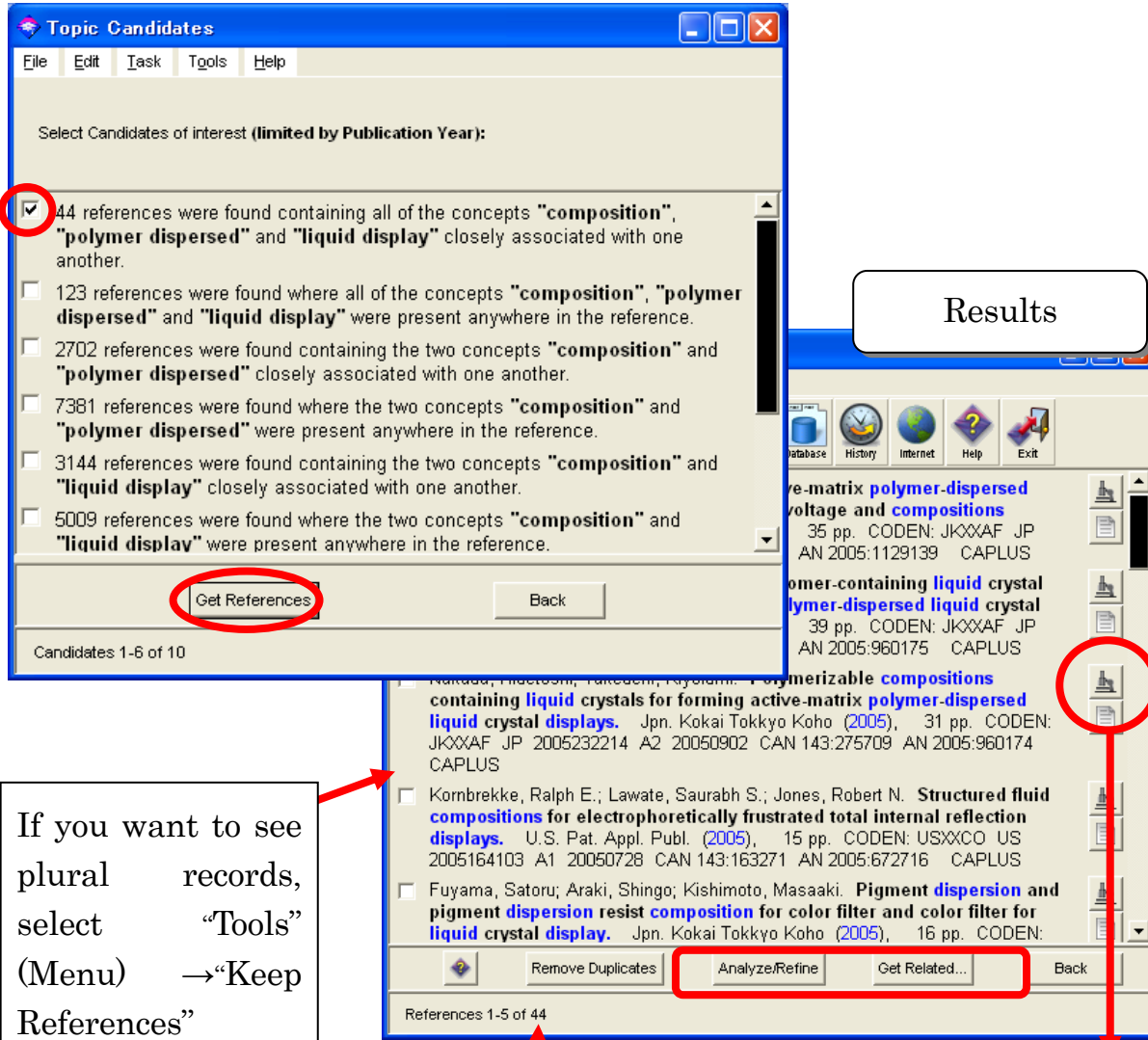
Publication year	Only return references published in this year or range of years: <input type="text"/>
Document type	Only return references coming from the following sources: <input type="checkbox"/> Clinical Trial <input type="checkbox"/> Journal <input type="checkbox"/> Conference <input type="checkbox"/> Patent
Language	Only return references from papers written in the following languages: <input type="checkbox"/> Chinese <input type="checkbox"/> French <input type="checkbox"/> Japanese <input type="checkbox"/> English <input type="checkbox"/> German <input type="checkbox"/> Spanish
Author name	Only return references written by the following author: Last: <input type="text"/> First: <input type="text"/> Middle initial: <input type="text"/>
Company name	Only return references written by the following company: <input type="text"/>

■ Publication Year  
■ Document Type  
■ Language  
■ Author Name  
■ Company Name

OK    Cancel

2) If you click the “OK” button, the windows will appear as below.

This window shows you the number of results for your search under several search conditions. Select a results group, and click the “Get References” button to see the result list. Confirm the detailed information by clicking the  icon.



**Topic Candidates**

Select Candidates of interest (limited by Publication Year):

- 44 references were found containing all of the concepts "composition", "polymer dispersed" and "liquid display" closely associated with one another.
- 123 references were found where all of the concepts "composition", "polymer dispersed" and "liquid display" were present anywhere in the reference.
- 2702 references were found containing the two concepts "composition" and "polymer dispersed" closely associated with one another.
- 7381 references were found where the two concepts "composition" and "polymer dispersed" were present anywhere in the reference.
- 3144 references were found containing the two concepts "composition" and "liquid display" closely associated with one another.
- 5009 references were found where the two concepts "composition" and "liquid display" were present anywhere in the reference.

Get References      Back

Candidates 1-6 of 10

---

**Results**

active-matrix polymer-dispersed voltage and compositions  
35 pp. CODEN: JKXXAF JP AN 2005:1129139 CAPLUS

polymer-containing liquid crystal polymer-dispersed liquid crystal  
39 pp. CODEN: JKXXAF JP AN 2005:960175 CAPLUS

polymerizable compositions containing liquid crystals for forming active-matrix polymer-dispersed liquid crystal displays. Jpn. Kokai Tokkyo Koho (2005), 31 pp. CODEN: JKXXAF JP 2005232214 A2 20050902 CAN 143:275709 AN 2005:960174 CAPLUS

Kombrekke, Ralph E.; Lawate, Saurabh S.; Jones, Robert N. Structured fluid compositions for electrophoretically frustrated total internal reflection displays. U.S. Pat. Appl. Publ. (2005), 15 pp. CODEN: USXXCO US 2005164103 A1 20050728 CAN 143:163271 AN 2005:672716 CAPLUS


Fuyama, Satoru; Araki, Shingo; Kishimoto, Masaaki. Pigment dispersion and pigment dispersion resist composition for color filter and color filter for liquid crystal display. Jpn. Kokai Tokkyo Koho (2005), 16 pp. CODEN: JKXXAF JP 2005232214 A2 20050902 CAN 143:275709 AN 2005:960174 CAPLUS


Remove Duplicates      Analyze/Refine      Get Related...      Back

References 1-5 of 44

If you want to see plural records, select “Tools” (Menu) → “Keep References”

Number of results

 Detail (next page)

 Full-text  
Via “ChemPort”, you can see the full-text of a journal to which your organization subscribes.

### 3) Detailed literature information (e.g. patent)

**Bibliographic Information**

**Liquid crystal composition for polymer-dispersed liquid crystal displays.** Kobayashi, Hidekazu; Chino, Eiji; Yazaki, Masayuki; Iizaka, Hideto. (Seiko Epson Corp, Japan). Jpn. Kokai Tokkyo Koho (1995), 12 pp. CODEN: JKXXAF **JP 07026265 A2** 19950127 Heisei. Patent written in Japanese. Application: JP 93-168196 19930707. Priority: . CAN 122:252283 AN 1995:508066 CAPLUS

**Patent Family Information**

Patent No.	
Application No.	JP 07026265
	1993-168196
	19930707
Priority Application	JP 1993-168196
	19930707

**Abstract**

The title photoresist compn. contains 1-5% I [R = alkyl, alkoxy, alkylamino; X = F, Cl, CN] or II [R = alkyl, alkoxy, alkylamino, X = F, Cl, CN] in a host liq. crystal. Low driving potential and light resistance are superior and the compn. is useful in laptop computers.

**Chemical Structure I:**

R-C1CCCCC1-C(=O)OC2=CC=C(C#N)C=C2X

**Patent Classifications**

**Main IPC:** C09K019-56. **Secondary IPC:** C09K019-20; C09K019-22; C09K019-30; C09K019-32; C09K019-38; C09K019-46; C09K019-60; G02F001-13. **Additional IPC:** G02F001-1333.

**Indexing** -- Section 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Liquid crystals  
(compn.; polymer dispersed)

Optical imaging devices  
(liq.-crystal, low-voltage drive, light)

**CA section**

92-94-4D, p-Terphenyl, cyano-, derivs.  
93-09-4D, 2-Naphthoic acid, derivs., cyanophenyl or cyanobiphenyl ester  
98-89-5D, Cyclohexanecarboxylic acid, derivs., cyanophenyl and cyanobiphenyl esters

- Title
- Author
- Organization
- Source
- Language
- CA number (CAN)
- Accession number (AN)
- Patent info.,

- Abstract

- Patent classification

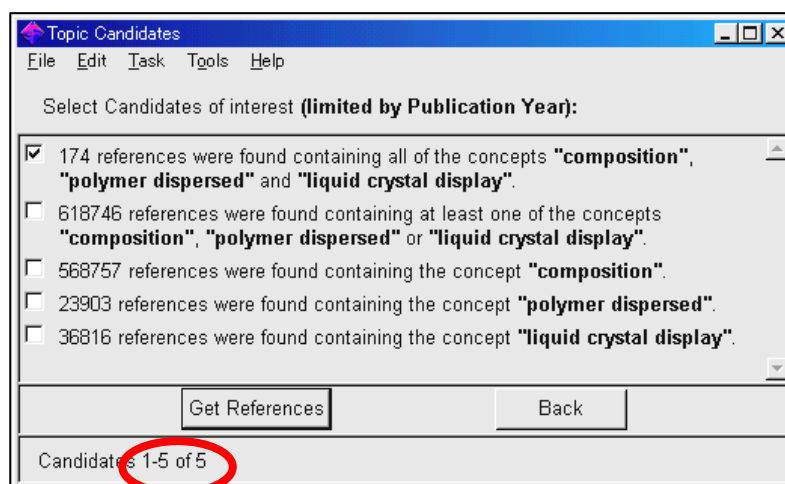
- Indexing

#### 4.3.4 Search by “Research Topic”

◇ Tips

- Check commonly used abbreviations, such as “BTU” and “Prep”.
  - Check commonly misspelled words (“affect” instead of “effect”)
  - Check words spelled according to either British or American English (“colour” or “color”)
- You will get different search results depending upon the sentence you enter. Compare the two examples that follow(they use the same words):

e.g.1) composition and polymer-dispersed liquid crystal display



e.g.2) composition of polymer-dispersed liquid crystal display

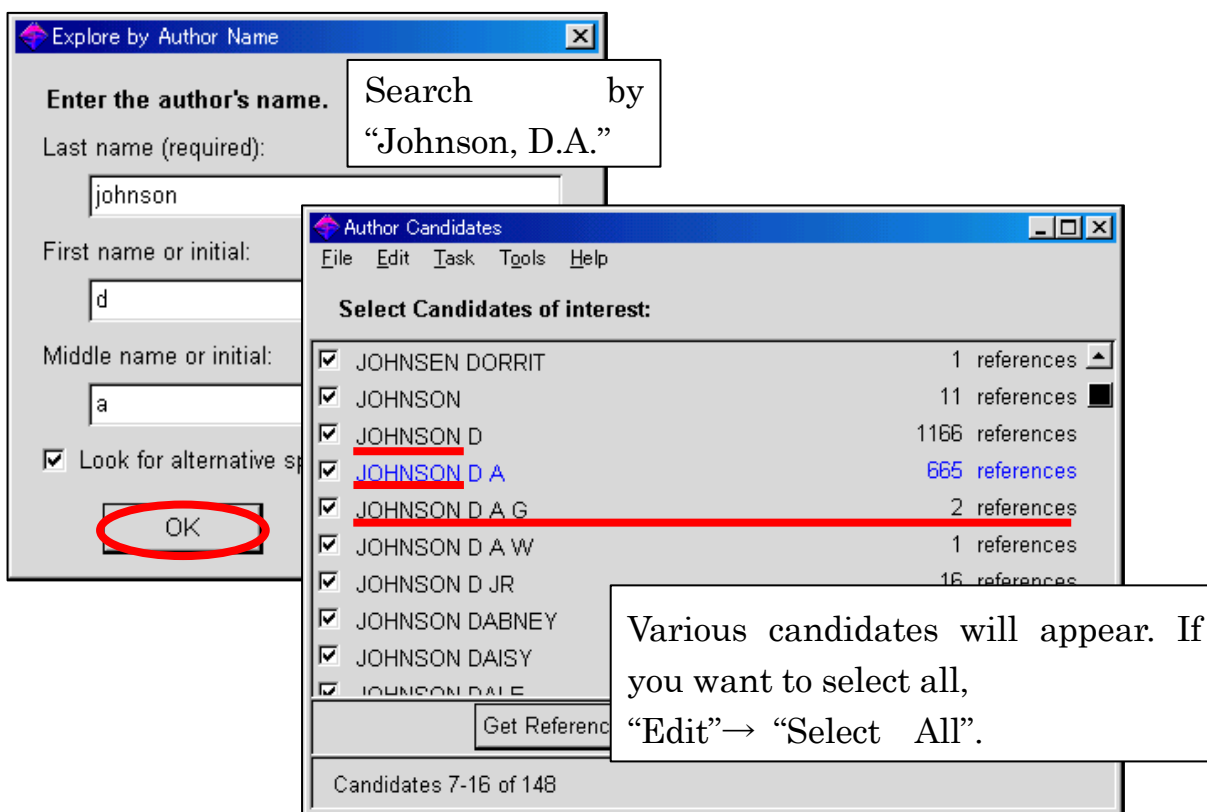
See the results Part II 4.2.3

- If you use plural words combined with “and” or “or”, enter as follows;  
e.g.) numeric and bibliographic data  
→ numeric data and bibliographic data
- If you want to get results that include different words, add them inside () as follows;  
e.g.) the milk production of cow(cattle, bovines)



### 4.3.5 Search by “Author”

Family name is mandatory for an author search. Enter first or middle name if necessary. If you can not identify the correct author because of many authors of the same name, the “Analyze / Refine” function is recommended.



### 4.3.6 Search by “Document Identifier”

When you get the results of this search, you had better write down the specific number to identify the record.

e.g. Kobayashi, Hidekazu; Chino, Eiji; Yazaki, Masayuki; Iizaka, Hideto.

Liquid crystal composition for polymer-dispersed liquid crystal displays.

Jpn. Kokai Tokkyo Koho (1995), 12 pp. CODEN: JKXXAF③ JP07026265

A2 19950127 Heisei. CAN 122:252283 AN 1995:508066 CAPLUS

②

①

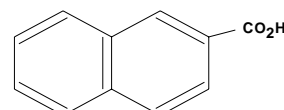
Database name

①Accession Number ②CA Number ③Patent Number

### 4.3.7 Chemical Substance Search(Basic Flow)

Introducing basic flow of chemical substance search by example “Chemical Structure” as follows:

e.g. Search the name of chemical substance and its CAS registered number.



- 1) To draw a Benzene ring, click the Benzene icon.  
Place the cursor in the editor window, then click.
- 2) To combine another Benzene ring, overlap them and the color of the point will change, then click there.

Use the eraser tool to edit. To cancel the operation, select “Edit” → “Undo Insertion”.

Molecular weight

Molecular Formula

3) To add functional groups (e.g. CO<sub>2</sub>H), select from “Short” icon.

Enter atom here or select from “Atom” icon.

Choose usual atom from this button.

CH	Bu-n	o-C6H4	Cl3	NH2
CH2	Bu-i	m-C6H4	CHO	NH3
Me	Bu-s	p-C6H4	CN	NO2
OMe	Bu-t	CF3	COCH3	OH
Et	OBu-n	CF3	CO2H	OPO3H2
OEt	OBu-i	CCl2	COOH	OS03H
Pr-n	OBu-s	CCl3	COSH	PO3H2
Pr-i	OBu-t	CBr2	CS2H	SH
OPr-n	Ph	CBr3	CSSH	SO2
OPr-i	OPh	Cl2	NH	SO3H

4) After drawing, click “Get Substances” button. You will see a dialog box as below. Check “Exact search”, and check your search options by clicking “Filters”.

For example, check here to search single components.

Get substances that match your query using:

- Exact search
- Substructure search
- Similarity search

Filters

Substance class

Return substances that are:

- Alloys
- Coordination compounds
- Incompletely defined
- Mixtures
- Polymers
- Organics, and others not listed above

Structure components  Only return substances that are single components

Commercial availability  Only return substances that are commercially available

References  Only return substances having one or more references

Studies

Only return substances having these reported studies:

- Analytical
- Biological
- Preparation
- Reactant or Reagent

OK Cancel

5) Results appear in order of CAS registry number.

Sort results by  
"View" menu.

To view selected  
data only, check the  
boxes and "Tools" →  
"Keep Substances"

Number of results

iFinder Scholar

Edit View Task Tools Help

Back Forward Print Save As Full Text Prefs Database History Internet Help Exit

~No References  
REGISTRY

50787-42-3

Component Number 1

~2 References  
REGISTRY

40480-74-8

~1 Reference  
REGISTRY

3198-25-2

~32 References  
REGISTRY

93-09-4

~1375 References  
REGISTRY

Get References Get Reactions Analyze/Refine Back

Substances 16-22 of 22

## 6) Detailed information of chemical substance

**Detail of Substance 22**

File Edit Help

**Registry Number:** 93-09-4

**Formula:** C11 H8 O2

**CA Index Name:** 2-Naphthalenecarboxylic acid

**Other Names:** 2-Naphthoic acid (BCI);  $\beta$ -Naphthalenecarboxylic acid;  $\beta$ -Naphthoic acid; 2-Carboxynaphthalene; Isonaphthoic acid

**Experimental Properties**

**Calculated Properties**

**-- Resources --**

**References:** ~1378

**STN Files:** CAPLUS, AGRICOLA, ANABSTR, BEILSTEIN, BIOSIS, BIOTECHNO, CA, CAOLD, CASREACT, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, CSNB, DDFU, DETHERM, DRUGU, EMBASE, GMEJIN, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK, MSDS-OHS, RTECS, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL

(Additional Information is available through STN International. Contact your information specialist, a local CAS representative, or the CAS Help Desk for Assistance)

**Database:** REGISTRY

Close

**Annotations:**

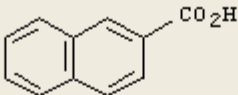
- CAS registry number (points to 93-09-4)
- Structure (points to the naphthalene ring)
- Formula (points to C11 H8 O2)
- CA name (points to 2-Naphthalenecarboxylic acid)
- Other name (points to the list of other names)
- Resources (points to the STN Files list)

## Experimental Properties window

Experimental Properties for 93-09-4

File Edit Help

Registry Number: 93-09-4



Formula: C<sub>11</sub> H<sub>8</sub> O<sub>2</sub>

CA Index Name: 2-Naphthalenecarboxylic acid

Property	Value	Condition	Note
Boiling Point	>300 °C		(1) SRC
Carbon-13 NMR Spectrum	<a href="#">See spectrum</a>		(2) WSS
Carbon-13 NMR Spectrum	<a href="#">See spectrum</a>		(3) WSS
Carbon-13 NMR Spectrum	<a href="#">See spectrum</a>		(4) WSS
Carbon-13 NMR Spectrum	<a href="#">See spectrum</a>		(4) WSS
Carbon-13 NMR Spectrum	<a href="#">See spectrum</a>		(5) WSS
Carbon-13 NMR Spectrum	See full text		(6) CAS
IR Absorption Spectrum	<a href="#">See spectrum</a>		(7) AIST
IR Absorption Spectrum	<a href="#">See spectrum</a>		(7) AIST
IR Absorption Spectrum	See full text		(8) CAS
Mass Spectrum	<a href="#">See spectrum</a>		(9) WSS
Mass Spectrum	<a href="#">See spectrum</a>		(9) WSS
Mass Spectrum	<a href="#">See spectrum</a>		(9) WSS
Mass Spectrum	<a href="#">See spectrum</a>		(9) WSS
Mass Spectrum	See full text		(10) CAS
Mass Spectrum	See full text		(11) CAS
Mass Spectrum	See full text		(12) CAS
Mass Spectrum	See full text		(13) CAS
Mass Spectrum	See full text		(14) CAS
Mass Spectrum	See full text		(15) CAS
Melting Point	186-187 °C		(16) CAS
Melting Point	186 °C		(17) IC
Melting Point	185.5 °C		(1) SRC
Melting Point	185-187 °C		(18) CAS
Melting Point	180-183 °C		(19) IC
Permeability	See full text		(20) CAS

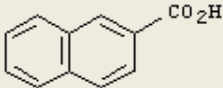
Print Close

Calculated Properties window

Calculated Properties for 93-09-4

File Edit Help

Registry Number: 93-09-4



Formula: C<sub>11</sub> H<sub>8</sub> O<sub>2</sub>

CA Index Name: 2-Naphthalenecarboxylic acid

Property	Value	Condition	Note
Bioconcentration Factor	140	pH 1 Temp: 25 °C	(22)
Bioconcentration Factor	139	pH 2 Temp: 25 °C	(22)
Bioconcentration Factor	131	pH 3 Temp: 25 °C	(22)
Bioconcentration Factor	85.8	pH 4 Temp: 25 °C	(22)
Bioconcentration Factor	19.3	pH 5 Temp: 25 °C	(22)
Bioconcentration Factor	2.29	pH 6 Temp: 25 °C	(22)
Bioconcentration Factor	1.0	pH 7 Temp: 25 °C	(22)
Bioconcentration Factor	1.0	pH 8 Temp: 25 °C	(22)
Bioconcentration Factor	1.0	pH 9 Temp: 25 °C	(22)
Bioconcentration Factor	1.0	pH 10 Temp: 25 °C	(22)
Boiling Point	332.9±11.0 °C	Press: 760 Torr	(22)
Density	1.265±0.06 g/cm <sup>3</sup>	Temp: 20 °C Press: 760 Torr	(22)
Enthalpy of Vaporization	60.77±3.0 kJ/mol	Press: 760 Torr	(22)
Flash Point	151.3±13.9 °C		(22)
Freely Rotatable Bonds	1		(22)
H Acceptors	2		(22)
H Donors	1		(22)
H Donor/Acceptor Sum	3		(22)
Koc	1190	pH 1 Temp: 25 °C	(22)
Koc	1190	pH 2 Temp: 25 °C	(22)
Koc	1120	pH 3 Temp: 25 °C	(22)

Print Close

## 4.4 Pubmed

### 4.4.1 About Pubmed

Item	Information
Subject	Medicine (Pharmacology) , Nursing
Creator	U.S. National Library of Medicine
Type	Article, Reviews, Monograph and more
Source	Approximately 5,200 journals (70 countries)
Coverage	1948-
Update	Weekly (Daily, without subject headings)
URL	<a href="http://pubmed.gov/">http://pubmed.gov/</a>
How to use	Free. Access the URL above.
Other	Offered also via “Medline(Ovid)”(see Part II 4.5)

### 4.4.2 Features

- “MeSH” thesaurus are available to search articles written about the specific topic.
- PubMed provides links to other sites as well as biological resources, research tools, and more.
- Searchable via Entrez system developed by National Center for Biotechnology Information (NCBI). Entrez includes many databases, so across searching or linking to other databases are possible.



### 4.4.3 Keyword Search

- (1) In initial screen, “PubMed” database is automatically selected. Enter keyword (“influenza” in this example) in the search field, then click the “Search” button for search.

Enter keyword:  
ex.) h1n1 vaccine  
vaccine\*  
→vaccines, vaccinate,etc.

Via “Single Citation Matcher”,  
you can search by journal title,  
volume and issue, and so on.  
(see Part II 4.5)

In “Advanced search”  
screen, you can use  
“Search History” or limit  
your results by document  
type and so on.

## 2) Results list

Number of results

Display Settings

Results: 1 to 20 of 53479

Search details

"influenza, human"[MeSH Terms] OR ("influenza"[All Fields] AND "human"[All Fields]) OR "human influenza"[All Fields]

Change display mode, number to be shown, and sort key.

You can check how your search query worked in PubMed system. You can arrange search query in this field as you like.

Display Settings

Summary, 20 per page, Sorted by Recently Added

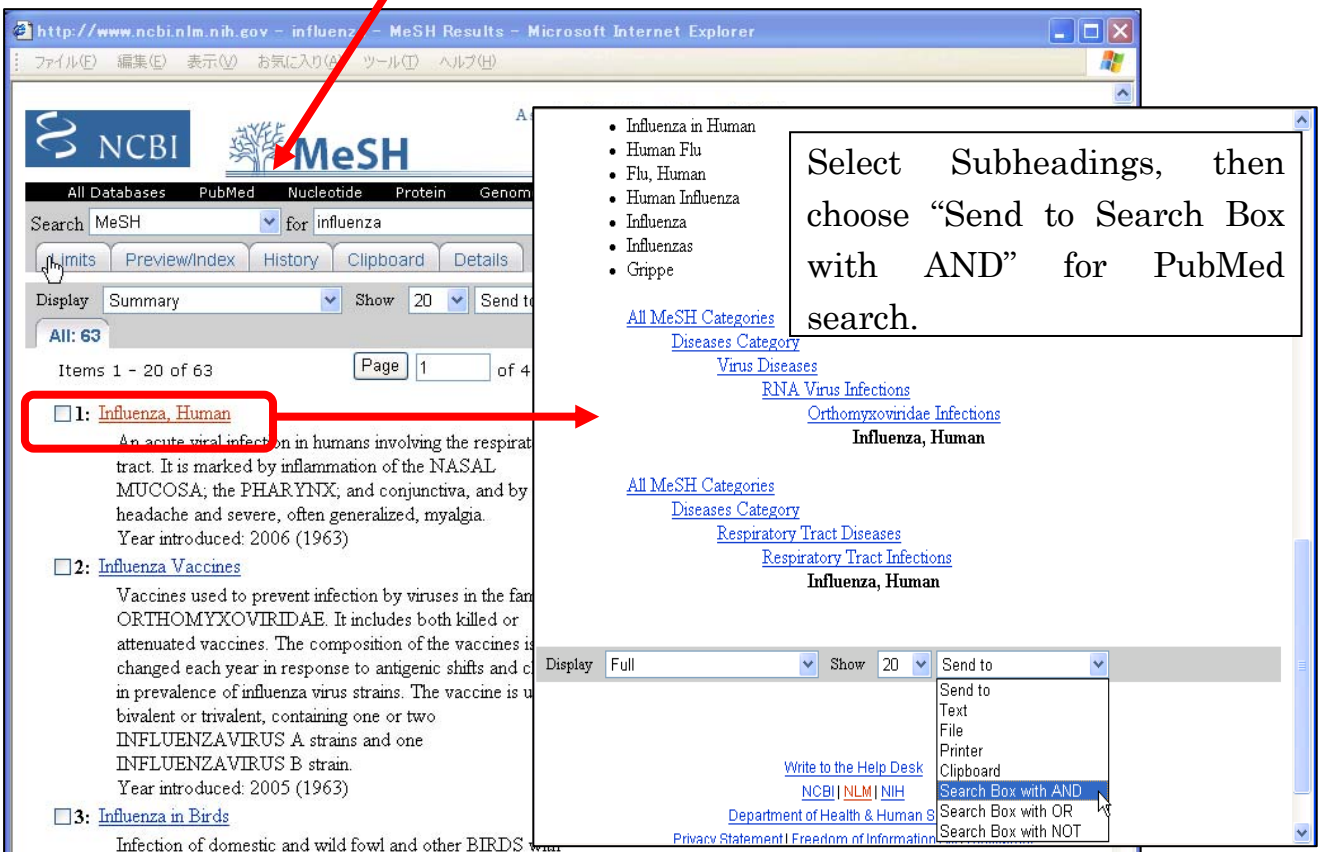
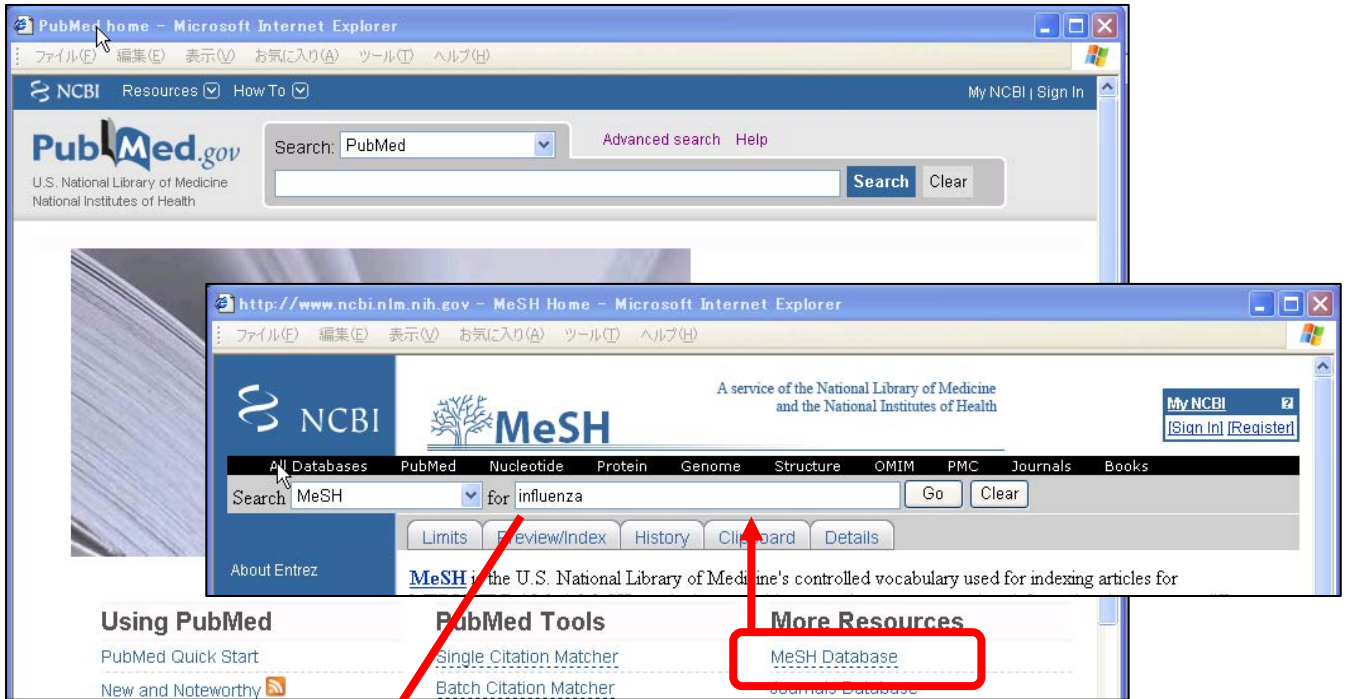
Format	Items per page	Sort by
<input checked="" type="radio"/> Summary	<input type="radio"/> 5	<input checked="" type="radio"/> Recently Added
<input type="radio"/> Summary (text)	<input type="radio"/> 10	<input type="radio"/> Pub Date
<input type="radio"/> Abstract	<input checked="" type="radio"/> 20	<input type="radio"/> First Author
<input type="radio"/> Abstract (text)	<input type="radio"/> 50	<input type="radio"/> Last Author
<input type="radio"/> MEDLINE	<input type="radio"/> 100	<input type="radio"/> Journal
<input type="radio"/> XML	<input type="radio"/> 200	<input type="radio"/> Title
<input type="radio"/> PMID List		

Apply

#### 4.4.4 Keyword search with “MeSH” Database

This database can be used to find MeSH terms for a PubMed search.

\*MeSH is controlled vocabulary used for indexing articles for PubMed/Medline.



### 4.4.5 Single Citation Matcher

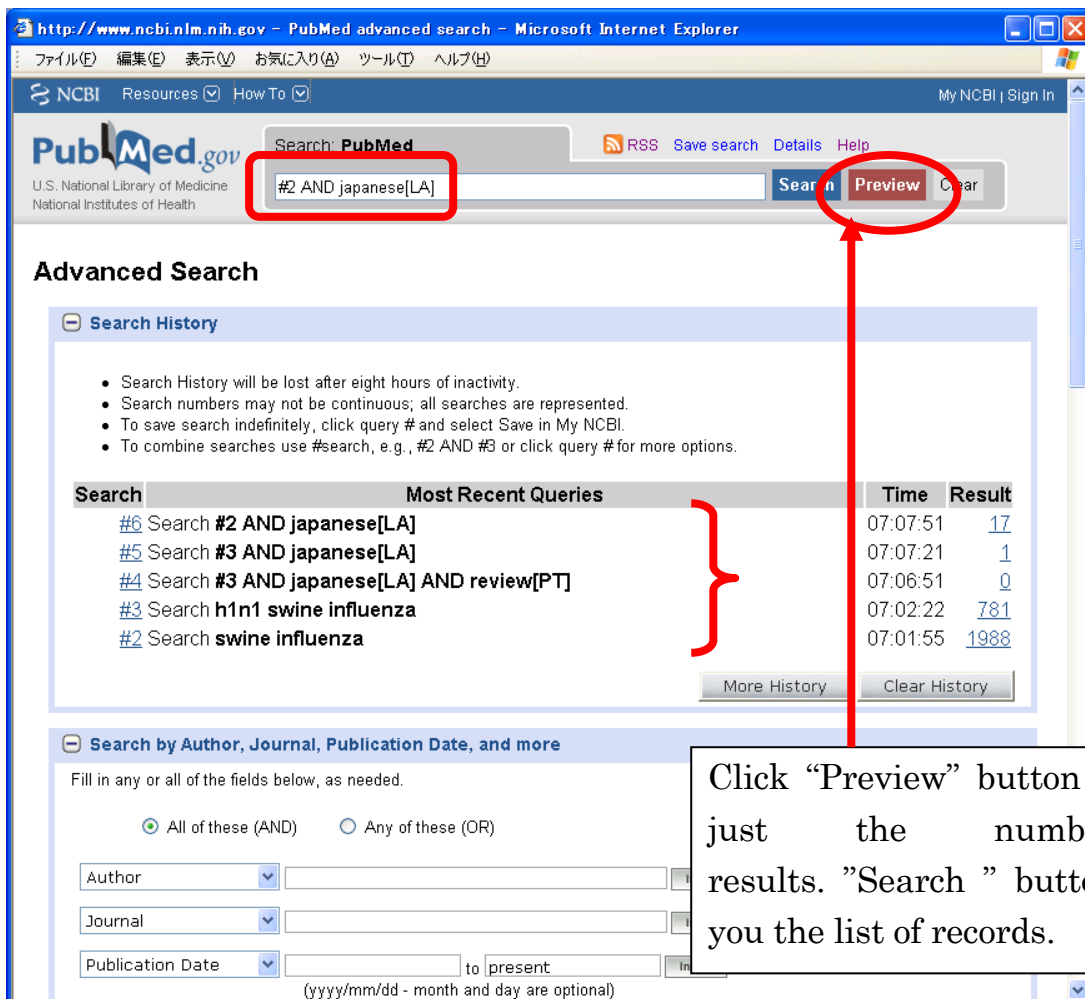
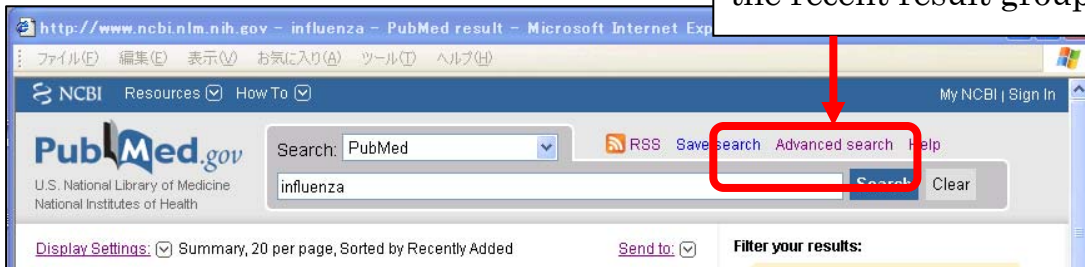
If you have the information about the article, use “Single Citation Matcher” to get full-text in a short time. You can search by bibliographic information.

When you search by “Author name”, enter the author’s last name and initials. Don’t use punctuation. Like “smith ja” or “jones k”.

For Full-Text

## 4.4.6 History Search

By clicking “Advanced Search” tab, you can use the recent result group.



Click “Preview” button to check just the number of results. “Search ” button shows you the list of records.



### 4.4.7 PubMed and Other Resources in Entrez

Entrez is the research platform including Pubmed, offered by NCBI. Each database links to other like synapses.

(<http://www.ncbi.nlm.nih.gov/Database/index.html>)

The diagram shows the Entrez databases and the connections between them. Each database is represented by a colored circle, where the color indicates the approximate number of records in the database. Mouse over a circle to see which databases are linked to the one selected, and how many links exist between those databases.

This diagram requires [Flash](#) for viewing.

Start from PubMed, referable to other databases.

Search across all databases in "All Databases" tab.

The screenshot displays the NCBI website interface. The top navigation bar includes links for HOME, SEARCH, SITE MAP, PubMed, All Databases (highlighted with a red box), Human Genome, GenBank, Map Viewer, and BLAST. Below the navigation bar is a search area with the text "Search across databases" and a "GO" button. The main content area is titled "Welcome to the Entrez cross-database search page" and lists various databases with their descriptions and icons. The "All Databases" tab is selected, showing a list of databases such as PubMed, Nucleotide, Protein, Genome, and many others.

Database	Links
PC Compounds	9,649
PC BioAssay	306
PopSet	8,865
Taxonomy	-
GEO	305,951
Uni Gene	290,778
Cancer Chromosomes	8,418
Nucleotide	248,428
Gene	346,113
Gene	92,650
Genome	4,301
Protein	206,244
Uni STS	15,130
Homolo Gene	69,772
PubMed	-
Structure	24,305
OMIM	-
SNP	77
PC Substance	-
3D Domains	-

## 4.5 Medline

### 4.5.1 About Medline

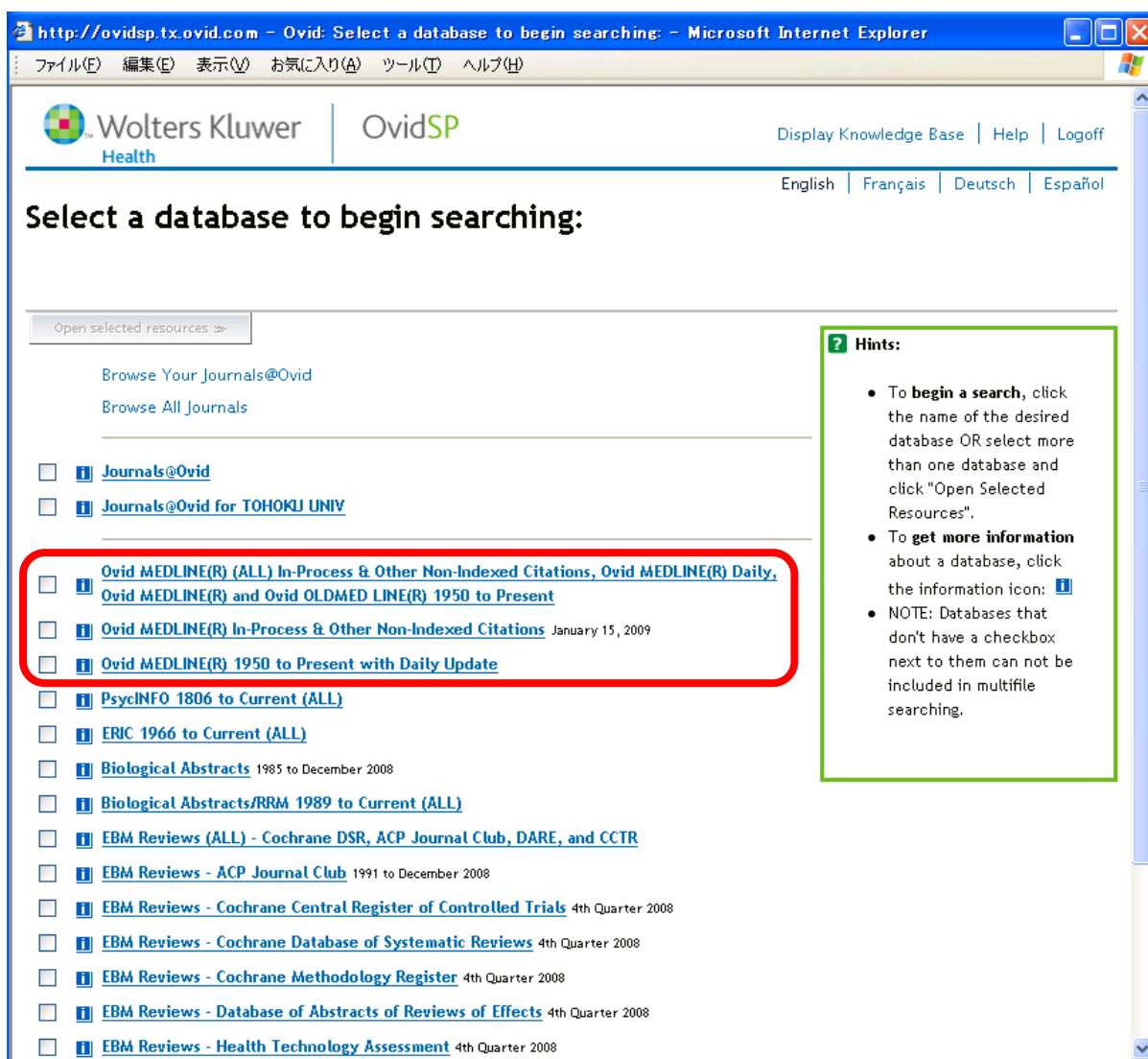
Item	Information
Subject	Medicine (Pharmacology) , Nursing, Dentistry
Creator	U.S. National Library of Medicine
Type	Article, Reviews, Monograph and more
Source	Approximately 4,800 (70 countries)
Coverage	1950-
Update	Weekly (Daily, without subject headings)
URL	<a href="http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=47">http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=47</a>
How to use	Use through OvidSP. Registration required as a laboratory. Free of charge to University members. You can use this database without registration at computers in the library.
Other	Offered also via “PubMed”(free) <a href="http://www.ncbi.nlm.nih.gov/PubMed/">http://www.ncbi.nlm.nih.gov/PubMed/</a>

### 4.5.2 Features

- Searchable not only by the title or author, but also medicine or name of disease.
- Includes a “MeSH(Medical Subject Headings)” thesaurus to search articles written about the specific topic(they appear under various terms).
- You can search in-process data before the thesaurus is given with “MEDLINE In-Process & Other Non-Indexed Citations (PREM) ”

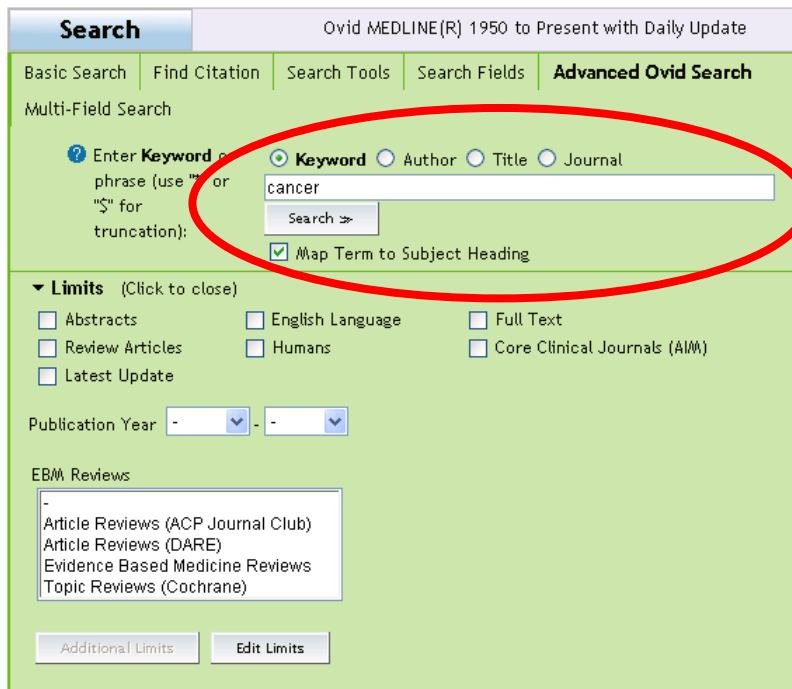
### 4.5.3 Keyword Search Using Thesaurus

1) To access MEDLINE, go to Tohoku University Library home page at <http://www.library.tohoku.ac.jp/dbsi/ovid/>. Select a database by clicking the appropriate link.

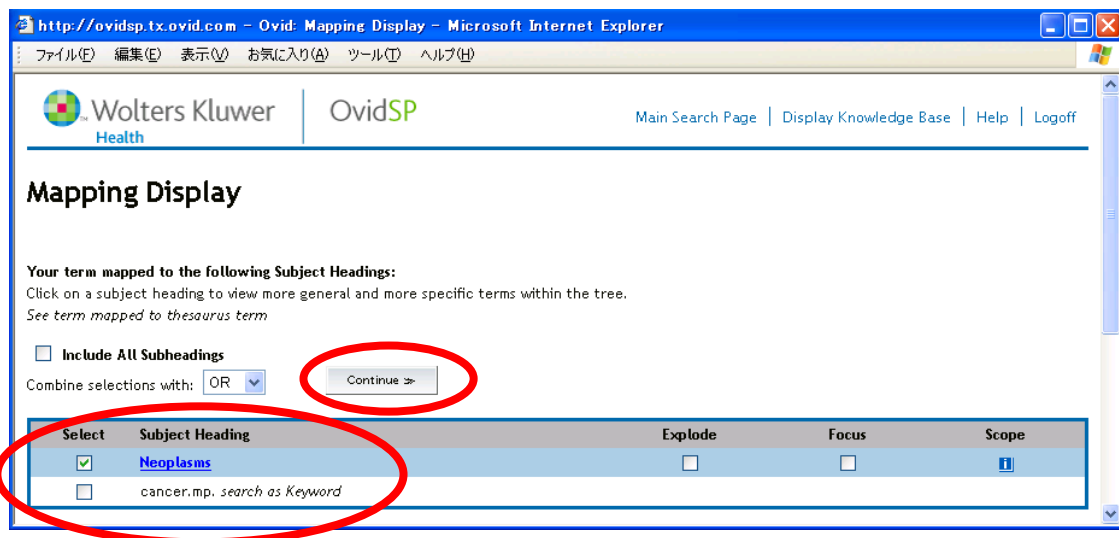




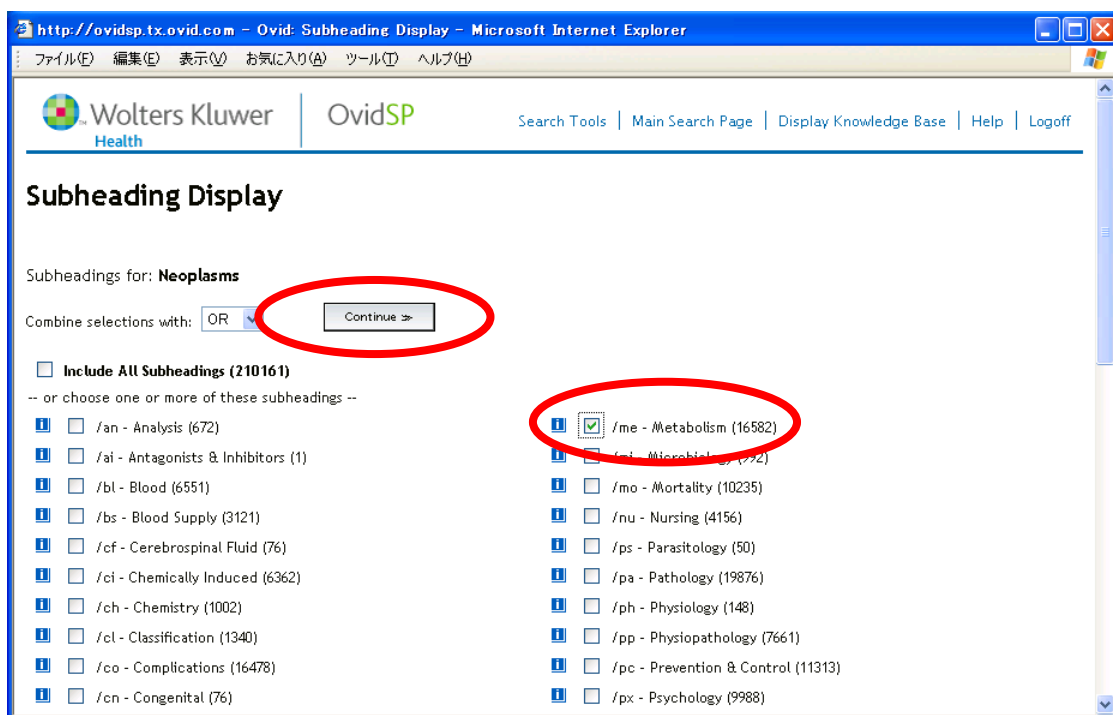
2) Enter a keyword or phrase in the search box (e.g. *cancer*), and click on Search.



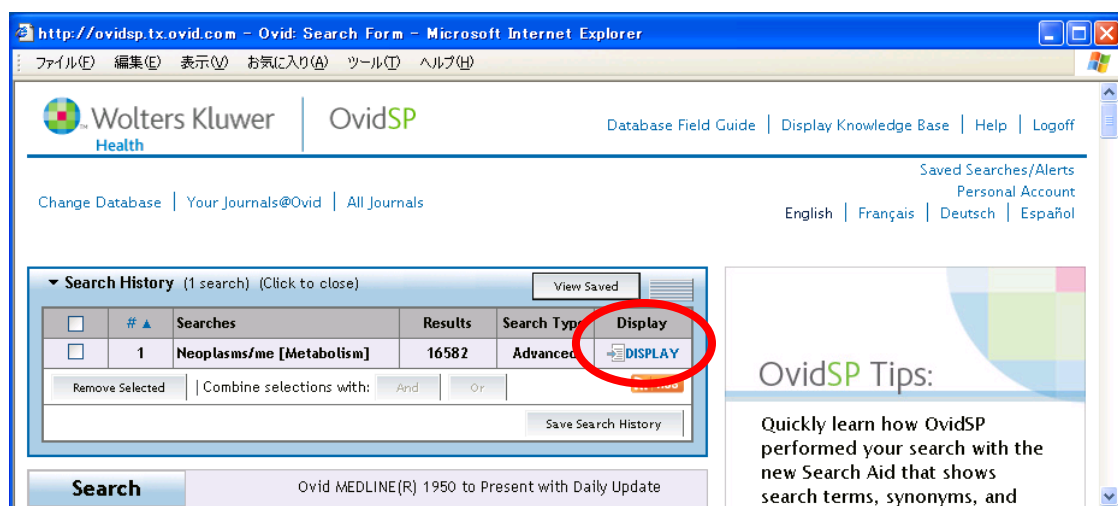
3) The “Mapping Display” gives a thesaurus list relating to the entered keyword. Select thesaurus word that you are searching for, and click on CONTINUE. (In this sample, *Neoplasms* has been selected.)



4) The “Subheading Display” lists a number of possible subheadings for the selected Subject Headings. Select these subheadings to restrict your search to particular aspects (in this sample, selecting *Metabolism*), and click on Continue.



5) To see your search results, click on DISPLAY or scroll down from the main page.



6) For each article, you can click on Abstract (summary of the article), Complete Reference (for more details), Library Holdings (to directly search Tohoku University Online Catalogue), Bibliographic Links (to link to another databases), E-Journal Search (to search the E-Journal subscribed in Tohoku University), Find Similar (to find similar articles), and Find Citing Articles (to find articles that cite the article).

To display the results, print, email, save, you can use Results Manager.

The screenshot shows the Ovid Search Form interface in Microsoft Internet Explorer. The browser window title is "http://ovidsp.tx.ovid.com - Ovid: Search Form - Microsoft Internet Explorer". The main content area is titled "Results Manager (Click to close)".

The "Results Manager" panel is highlighted with a red border and contains the following sections:

- Results:**
  - Selected Results
  - All on this page
  - All in this set (1-16582)
  - and/or Range:
  - Clear Selected Results
- Fields:**
  - Citation (Title, Author, Source)
  - Citation + Abstract
  - Citation + Abstract + Subject
  - Headings:  Complete Reference
  - Select Fields
- Result Format:**
  - Ovid
  - BRS/Tagged
  - Reprint/Medlars
  - Brief (Titles) Display
  - Direct Export
  - XML
  - Include Search History
- Actions:**
  - Display
  - Print Preview
  - Email
  - Save
- Sort Keys:**
  - Primary:  Ascending
  - Secondary:  Ascending

Below the "Results Manager" panel, the search results are displayed. The search terms used are "neoplasms". The results list shows two articles:

2. Bach JP, Rinn B, Meyer B, Dodel R, Bacher M. **Role of MIF in inflammation and tumorigenesis. [Review] [69 refs]** [Journal Article. Review] *Oncology*. 75(3-4):127-33, 2008. UI: 18791328
  - Authors Full Name: Bach, Jan-Philipp, Rinn, Birgit, Meyer, Bernhard, Dodel, Richard, Bacher, Michael
  - View Abstract
  - Find Similar
  - Find Citing Articles
  - Abstract
  - Complete Reference
  - Library Holdings
  - Bibliographic Links
  - E-Journal Search
3. Benz CC, Yau C. **Ageing, oxidative stress and cancer: paradigms in parallax. [Review] [58 refs]** [Journal Article. Research Support, N.I.H., Extramural. Research Support, Non-U.S. Gov't. Review] *Nature Reviews. Cancer*. 8(11):875-9, 2008 Nov. UI: 18948997
  - Authors Full Name: Benz, Christopher C, Yau, Christina
  - View Abstract
  - Find Similar
  - Find Citing Articles
  - Abstract
  - Complete Reference
  - Library Holdings
  - Bibliographic Links
  - E-Journal Search

The "Search Aid" panel on the left shows the search terms used and narrow search options for Subjects, Authors, and Journals.

## 4.6 Scopus

### 4.6.1 Scopus

Scopus is a database containing a very large collection of citations and abstracts. It provides more than 15,600 peer-reviewed journals from over 4,000 international publishers. Moreover, you can also search *Scirus*, the web search engine, via this database.

Item	Information
Subject	all
Creator	Elsevier
Content	Bibliographic information of journal article, et al.
Source	Natural science 12,850 Social science 2,950 Arts & Humanities 220
Update	Daily
URL	<a href="http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=7">http://tul.library.tohoku.ac.jp/modules/newdb/detail.php?id=7</a>
How to use	Available on campus

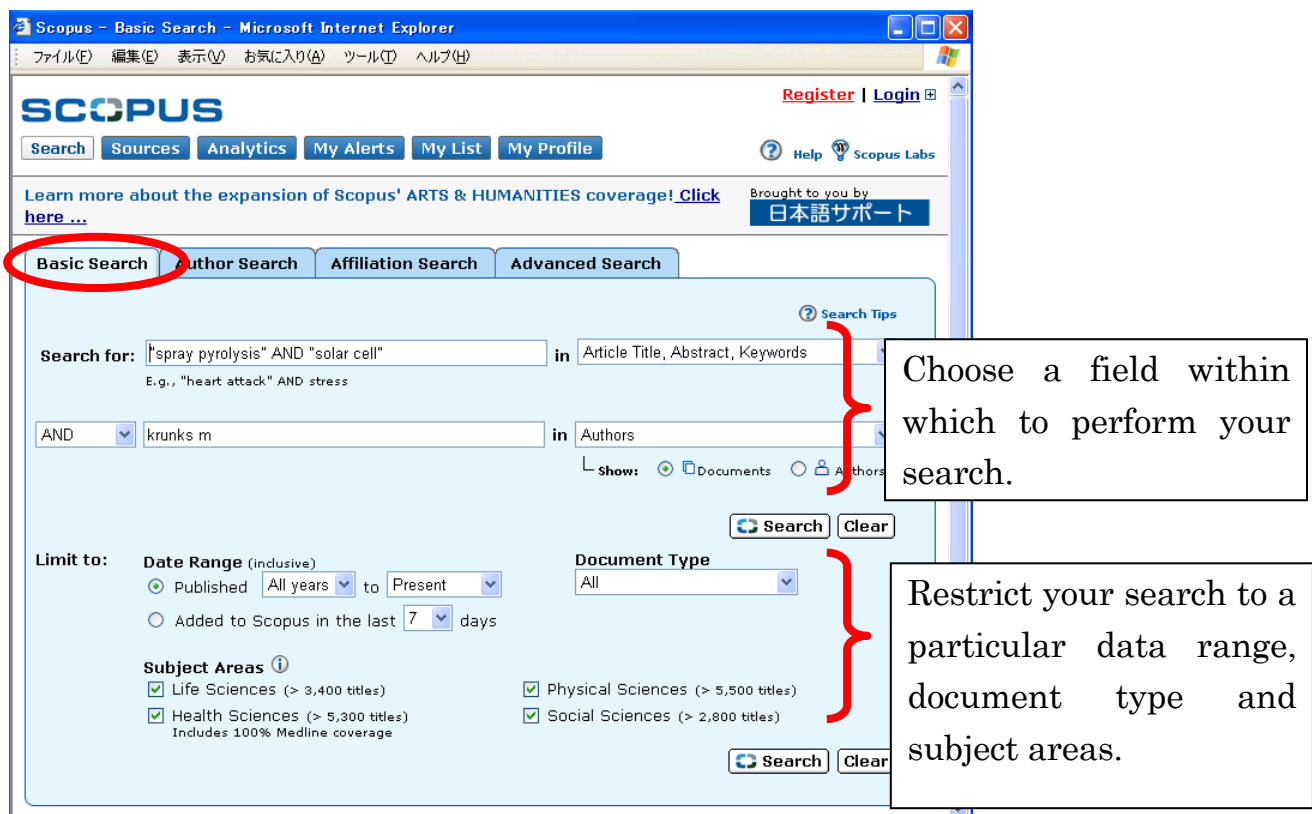
### 4.7.2 Features

- Covers all subjects.
- Contains citation references going back to 1996.
- View results from the web search engine, Scirus.

## 4.7.3 Operation

e.g. To search for an article written by Krunk. M, which has “spray pyrolysis” and “solar cell” as the keywords.

### 1) Basic Search



The screenshot shows the Scopus Basic Search interface in Microsoft Internet Explorer. The browser title is "Scopus - Basic Search - Microsoft Internet Explorer". The page features the Scopus logo and navigation tabs: Search, Sources, Analytics, My Alerts, My List, and My Profile. A red circle highlights the "Basic Search" tab. The search form contains two input fields: "Search for:" with the text "spray pyrolysis" AND "solar cell" and "in" with the text "Article Title, Abstract, Keywords"; and "AND" with the text "krunk. m" and "in" with the text "Authors". Below the search form are sections for "Limit to:" (Date Range, Document Type) and "Subject Areas" (Life Sciences, Health Sciences, Physical Sciences, Social Sciences). Two red brackets point to the search form and the "Limit to:" section, with callout boxes providing instructions.

Choose a field within which to perform your search.

Restrict your search to a particular data range, document type and subject areas.

## 2) Viewing your search results

The screenshot shows the Scopus search results page for the query: (TITLE-ABS-KEY("spray pyrolysis" AND "solar cell") AND AUTHOR-NAME(krunksm)). The page includes a search bar, navigation tabs, and a list of results. Red callouts provide instructions on how to view results from Scopus, Web (Scirus), and Patents; how to refine results by source title, author name, year, document type, and subject area; and how to view the list of results, including links to abstracts and publisher sites.

**View results from Scopus, Web (Scirus), Patents.**

**Refine your search as to Source Title, Author Name, Year, Document Type and Subject Area.**

**The list of results.**

**Link to the abstract, the publisher site.**

Source Title	Author Name	Year	Document Type	Subject Area
<input type="checkbox"/> Thin Solid Films (6)	<input type="checkbox"/> Krunk, M. (11)	<input type="checkbox"/> 2009 (1)	<input type="checkbox"/> Article (7)	<input type="checkbox"/> Materials Science (11)
<input type="checkbox"/> Solar Energy Materials and Solar Cells (3)	<input type="checkbox"/> Mere, A. (5)	<input type="checkbox"/> 2008 (2)	<input type="checkbox"/> Conference Paper (5)	<input type="checkbox"/> Physics and Astronomy (8)
<input type="checkbox"/> Comptes Rendus Chimie (1)	<input type="checkbox"/> Mellikov, E. (3)	<input type="checkbox"/> 2006 (1)		<input type="checkbox"/> Energy (3)

Document (sort by relevance)	Author(s)	Date	Source Title	Cited By
1. <input type="checkbox"/> Nanostructured solar cell by spray pyrolysis: Effect of titania barrier layer on the cell performance <a href="#">Abstract + Refs</a> <a href="#">View at Publisher</a> <a href="#">Show Abstract</a>	Oja Acik, I., Katerski, A., Mere, A., Aarik, J., Aidla, A., Dedova, T., Krunk, M.	2009	Thin Solid Films 517 (7), pp. 2443-2447	0
2. <input type="checkbox"/> Nanostructured solar cell based on spray pyrolysis deposited ZnO nanoprod array <a href="#">Abstract + Refs</a> <a href="#">View at Publisher</a> <a href="#">Show Abstract</a>	Krunk, M., Katerski, A., Dedova, T., Oja Acik, I., Mere, A.	2008	Solar Energy Materials and Solar Cells 92 (9), pp. 1016-1019	3
3. <input type="checkbox"/> Surface analysis of spray deposited copper indium disulfide films <a href="#">Abstract + Refs</a> <a href="#">View at Publisher</a> <a href="#">Show Abstract</a>	Katerski, A., Mere, A., Kazlauskienė, V., Miskinis, J., Saar, A., Matisen, L., Kikas, A., Krunk, M.	2008	Thin Solid Films 516 (20), pp. 7110-7115	0

### 3) Reviewing a result in more detail (abstract)

**Print, Export, Email and other output options.**

**If another author has cited this article, the documents will be displayed in this field.**

**Link to the publisher site, Tohoku University OPAC, Scirus, and other customized links.**

**Abstract**

ZnO nanostructured **solar cells** with CuInS<sub>2</sub> absorber layer were prepared by chemical **spray** method. In order to increase chemical stability of ZnO nanorods against dissolution in the next steps of the **cell** preparation, and reduce the electrical shorts between the front and back contacts, an amorphous TiO<sub>2</sub> layer was deposited on ZnO nanorods by ALD or sol-gel **spray** technique. The thicknesses of the layer (≤ 5 nm by **spray** and ≤ 1 nm by ALD), which did not impede the collection of carriers, were determined. TiO<sub>2</sub> thicknesses above causing the

**References (20) view in table layout**

1. Soga, T. (2007) *Nanostructured Materials for Solar Energy Conversion*, p. 600. **Cited 2 times.** Elsevier, Amsterdam

2. Tena-Zaera, R., Katty, A., Bastide, S., Lévy-Clément, C., O'Regan, B., Muñoz-Sanjosé, V. **ZnO/CdTe/CuSCN, a promising heterostructure to act as inorganic eta-solar cell** (2005) *Thin Solid Films*, 483 (1-2), pp. 372-377. **Cited 19 times.** doi: 10.1016/j.tsf.2005.01.010 [Abstract + Refs](#) [View at Publisher](#)

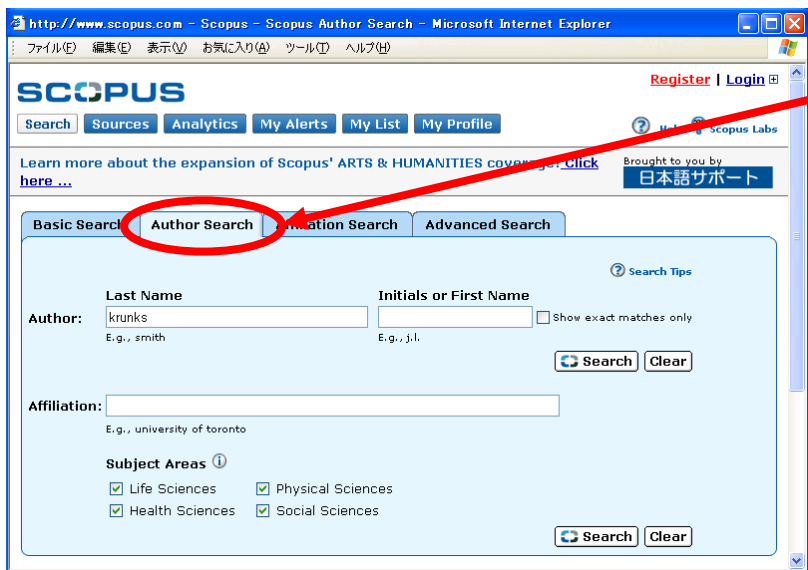
3. Lévy-Clément, C., Tena-Zaera, R., Ryan, M.A., Katty, A., Hodes, G. **CdSe-sensitized p-CuSCN/nanowire n-ZnO heterojunctions** (2005) *Advanced Materials*, 17 (12), pp. 1512-1515. **Cited 71 times.** doi: 10.1002/adma.200401848 [Abstract + Refs](#) [View at Publisher](#)

4. Tena-Zaera, R., Ryan, M.A., Katty, A., Hodes, G., Bastide, S., Lévy-Clément, C. **Fabrication and characterization of ZnO nanowires/CdSe/CuSCN eta-solar cell** (2006) *Comptes Rendus Chimie*, 9 (5-6), pp. 717-729. **Cited 13 times.** doi: 10.1016/j.crci.2005.03.034 [Abstract + Refs](#) [View at Publisher](#)

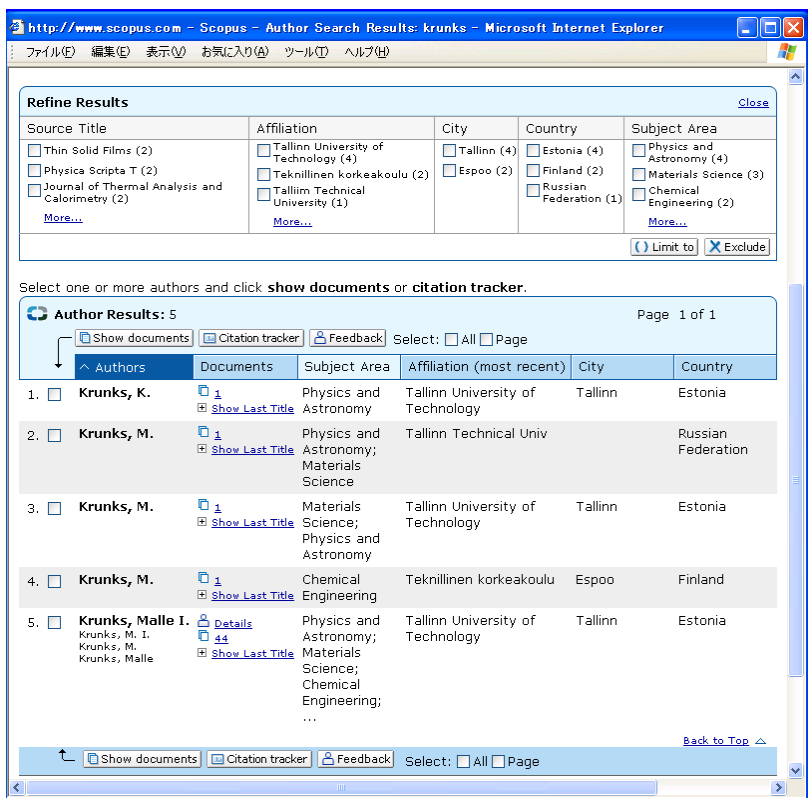
5. Kievan, D., Dittrich, T., Belaidi, A., Tornow, J., Schwarzburg, K., Allsop, N., Lux-Steiner, M. (2008) *Appl. Phys. Lett.*, 92, p. 153107. **Cited 3 times.** [View on Web](#)

**References are the list of documents which are referred to by this author. You can see the abstracts**

### 3) Author Search



You can search for particular authors.



You can refine the results by various categories, such as Source Title, Affiliation, City and so on.

Author Results will display a list of possible matches.