An Introduction to Patent Searching

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Take Home Slide (DIY later)

Patent Searching 101 (and 102): A Patent Search Tutorial

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Agenda

- Overview of Patent Searching
- Recipe for Performing a Search
- Sample Searches
- Small Molecule
- Method of Treating a Disease
- Nucleotide Sequence
- Online Demonstration of some simple searches

Why Search Patents

- Discovery
  - Learn what others are doing but not publishing
- Planning
  - Patentability
  - Freedom to Operate (FTO)
- Development
  - Patentability
  - Work Arounds
- Pre Launch
  - FTO
- Post Launch
  - Enforcement
  - New Products or Services

Planning and Conducting Searches

1. Determine purpose of search
2. Gather the necessary data to conduct the search
3. Determine which databases need to be searched
4. Develop a search strategy
5. Perform a search
6. Evaluate the results
7. Modify the strategy
8. Repeat the search
9. Analyze and Summarize
10. Report the results

1. Determine Purpose of Search

- What kind of search do you need to perform?
- What is the purpose of the search?
- What will the results be used for?
- Who will get the results?
- How much time, effort, and money should be allocated to the effort?

Categories of Patent Searches

- Landscape Search
- Patentability or Novelty Search
- Prior Art Search
- Validity Search
- FTO or Clearance Search
- Infringement Search
- Miscellaneous

Landscape Search

- To identify business opportunities for products and services
  - General State-of-the-Art
  - Comprehensive Patent Landscape
- Data sources include patent literature and non-patent literature databases
- Information for the search is derived from business development and scientific leadership
- Results are used to support development of business plan and are not intended for an opinion on patentability

Patentability or Novelty Search

- Search to determine whether or not an inventive concept is known
  - Novelty and Obviousness
- Data sources include patent and non-patent literature
  - Expired and unexpired
  - Anywhere in the world
- Information for search is derived from inventors and from invention disclosures
- Results are used to decide whether a patent application should be filed and to help draft claims that avoid the prior art

Prior Art Search

- Search to determine whether any prior art patents or other publications exist that would bar issuance of a valid patent
- Data sources include patent and non-patent literature
- Information for search is derived from proposed draft patent application
- Results are used to draft claims that avoid the prior art and to focus the application on the novel and non-obvious features of the invention

Validity Search

- Search to find invalidating references for a patent
- Data sources include patent and non-patent literature published before the earliest priority date of the patent in question
  - Ideally a year or more before the priority date
- Information for the search is derived from the claims in the patent in question
- Experts in the art are consulted to identify potential references, research groups, or inventors
- Results are used
  - To invalidate patents in infringement cases
  - To prepare for patent enforcement
  - Prior to licensing
  - To draft an FTO opinion

FTO Search

- Search to provide reassurance that you will not infringe the valid IP rights of another
- Data sources include non-expired patents that potentially read on your product or service
  - Only in countries of interest
- Information for your search is derived from an analysis of your product or service
- Results are used to draft an opinion. Often an invalidity search is performed on some of the identified patents

Infringement Search

- Search to determine whether an enforceable patent claims the same subject matter as your concept or unpatented invention
- Data sources include unexpired patents
  - Only in countries of interest
- Information for the search is derived from a draft or actual claim set
- Results are used for an opinion prior to making, using, or selling a product or service

Other Patent-Related Searches

- Legal Status and Expiry Dates
  - To identify the members and status of a patent family
  - To identify proper ownership (Assignments)
  - To calculate when a patent will expire
  - Maintenance Fees
- File Histories
  - To identify limitations on the claims
  - To identify conditions of Terminal Disclaimer
- Court Records
  - Identify any previous or current litigation

2. Gather Data

- Talk to the attorney, client, or inventor requesting the search
- Brainstorm and agree upon appropriate terminology
- Ask for references they already have on the subject
  - Patent and non-patent literature
- Be sure you understand the deliverable
  - Tables, copies of documents, etc.
  - Try to write out the scope and deliverable

3. Database Selection

- Determine which databases should be searched
  - US, WIPO, Other Countries
  - Non-Patent Literature
- How will you access them?
  - Patent Office Sites
  - Free Providers
  - Paid Services
- Do you need to search published applications, issued patents, or both?

4. Develop a Search Strategy

- Identify key features
- Construct one or more possible search strings
  - Parts of patent to search
- Determine the time interval for the search
- How many documents would you like to have in your final set?
  - All searches have limitations
- Search issued patents only or include published applications?

Identifying Key Features

- Features determine the scope of the search and how to evaluate the references
- Patentability and Novelty Searches
  - Features found in invention disclosure, draft claims, and discussions with inventor
- Validity Search
  - Features found in careful reading of the claims
  - Applicant can be his own lexicographer
  - Most relevant references address the greatest number of features
- Infringement and FTO Searches
  - Features are found on the proposed invention or actual product
  - Relevant documents “read on” the proposed or actual features
  - An understanding of claim language is important

Where to Look

- Title
  - Brief, least reliable
- Abstract
  - Should have key terms but often does not reveal what patent covers
- Specification
  - Longest part of patent
  - Description of Invention
  - Important for everything it discloses or enables
- Drawings
  - Can “read” them faster than words to eliminate irrelevant documents
  - Drawings may not disclose every variation of the invention
- Claims
  - Must cover novel features
  - May be limited to certain embodiments
  - Important for infringement, FTO, and validity searches

5 - 8. Lather, Rinse, Repeat

- Search
- Evaluate
- Modify
- Repeat

It's good to have a few target references, if possible, that you will look for in the search results. This can confirm the construction of your search strings.

9. Analyze & Summarize Results

- Be objective
- Avoid legal opinions but be sure to rank the documents according to their relevancy
- Do not rely on the search engine ranking of relevance
- Review the results with the attorney and possibly the inventor

10. Report Results

- Landscape Searches
  - Histogram analysis by assignee and by inventor
  - Graph of patents and applications by year
  - Pie chart of patents by country
  - Forward and backward analysis of citations
  - Grouping of subject matter of claims
  - Discussion of technology
- Patentability, Prior Art, and Validity Searches
  - Table of patents, applications or references and features
  - References that disclose all subject features of the claimed invention (35USC §102) "anticipation" or "novelty"
  - References that disclose one or more of the claimed features (but not necessarily all of them) (35USC §103) "obviousness"
- Infringement and FTO Searches
  - Claim charts
  - Comparison to actual or proposed claims

Documentation: Search

Project:	Requestor:
Searcher:	Date: Due:

Purpose of Search	
Search terms	
Classes / Subclasses	
Search Interval	
Database(s)	
Notes	

Documentation: Results

Project:	Searcher:	Date:
Requester:	Database:	

Set	String	Results	Notes

Documentation: Results

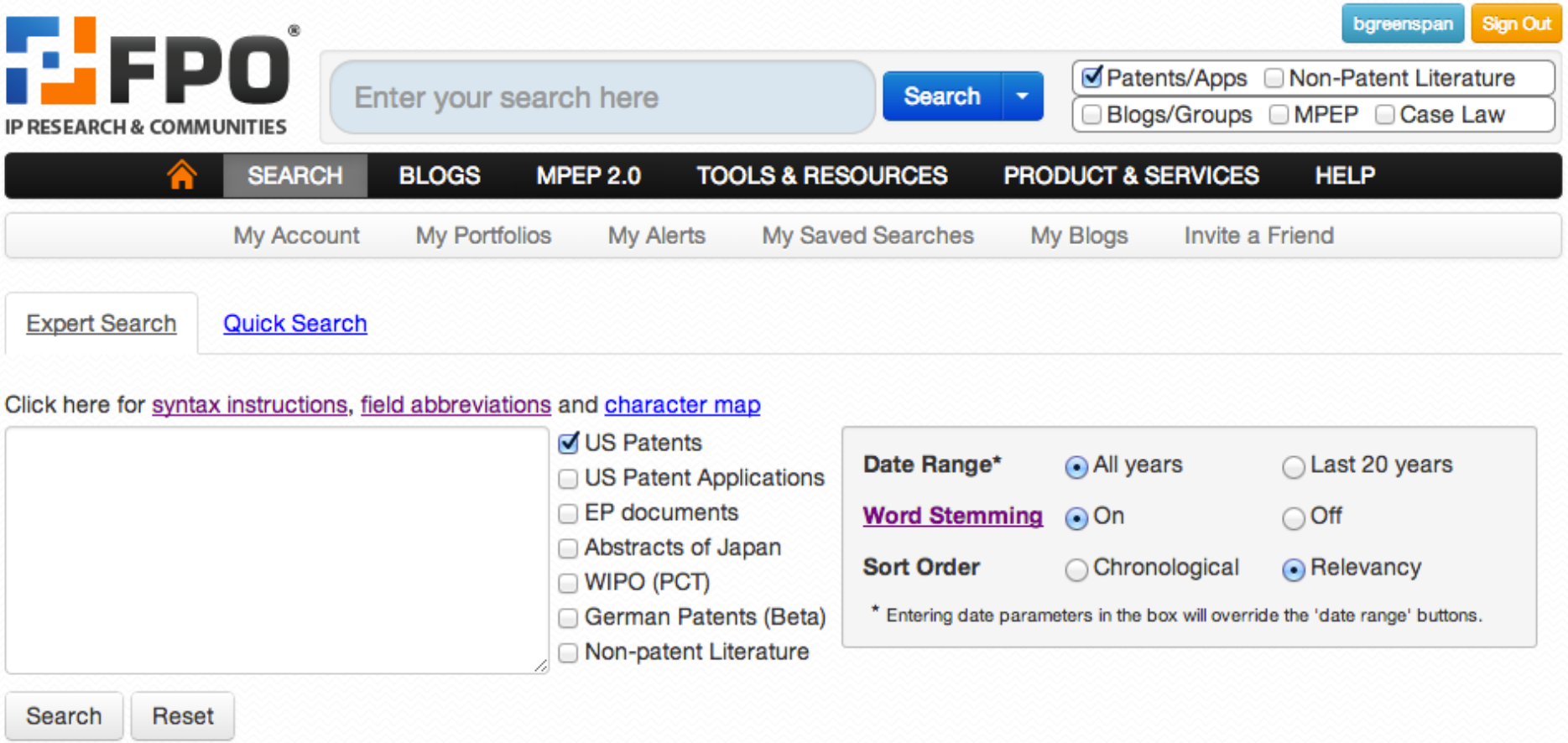
Project:	Searcher:	Date:
Requester:	Database:	

Patent Number	Feature A	Feature B	Feature D	Feature C	Notes

Which Database to Search?

Patent Searching

- http://www.freepatentsonline.com/search.html



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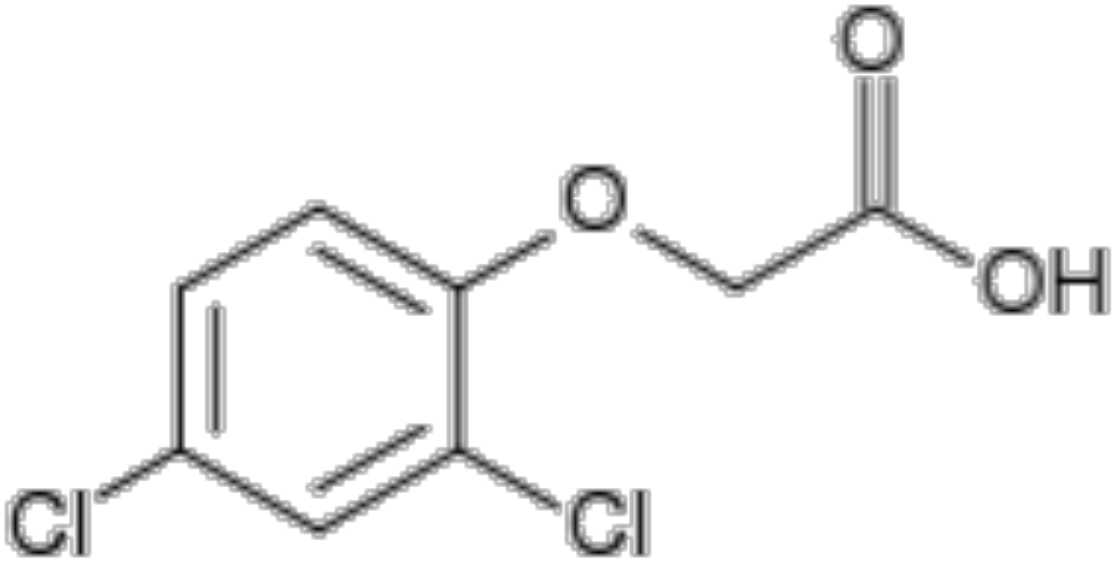
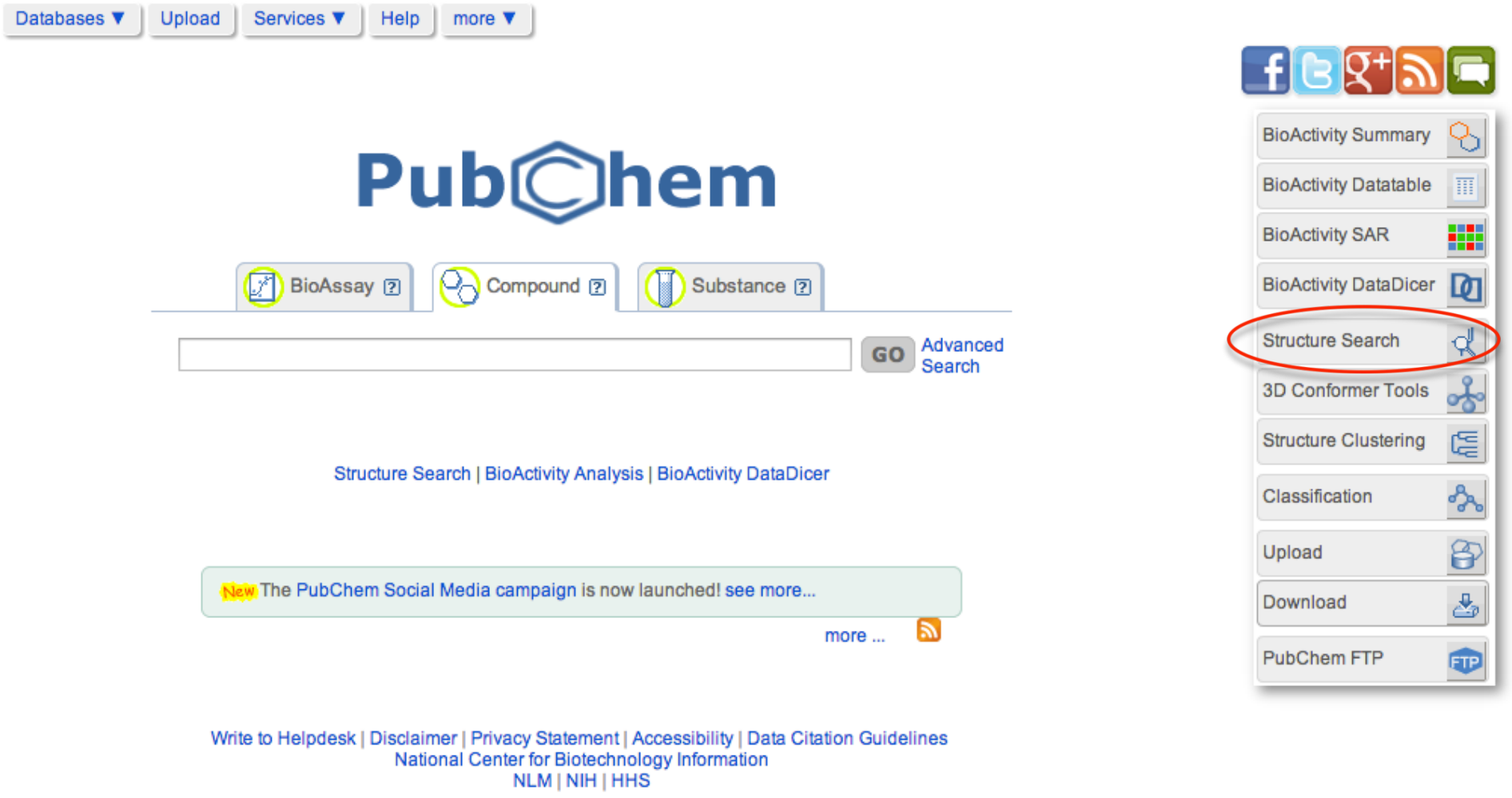
Small Molecule



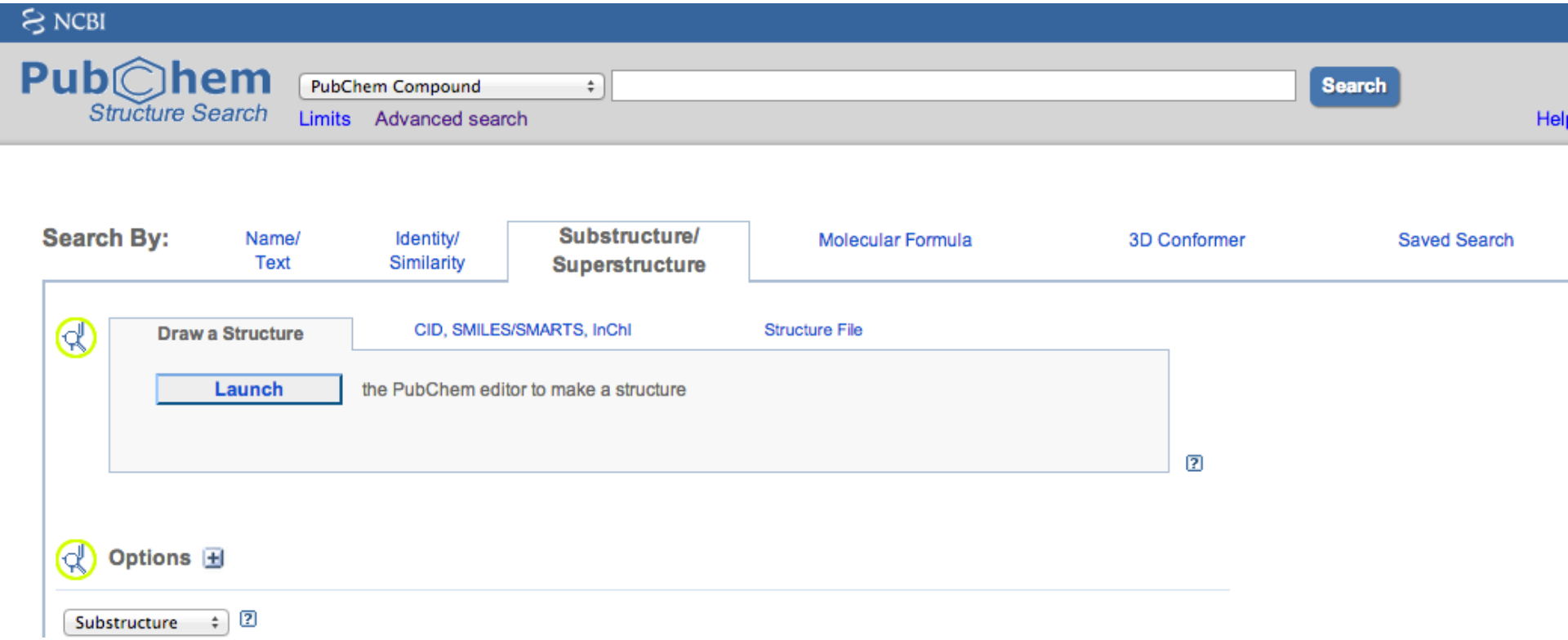
$C_8H_6Cl_2O_3$

PubChem

- http://pubchem.ncbi.nlm.nih.gov/



PubChem Structure Search



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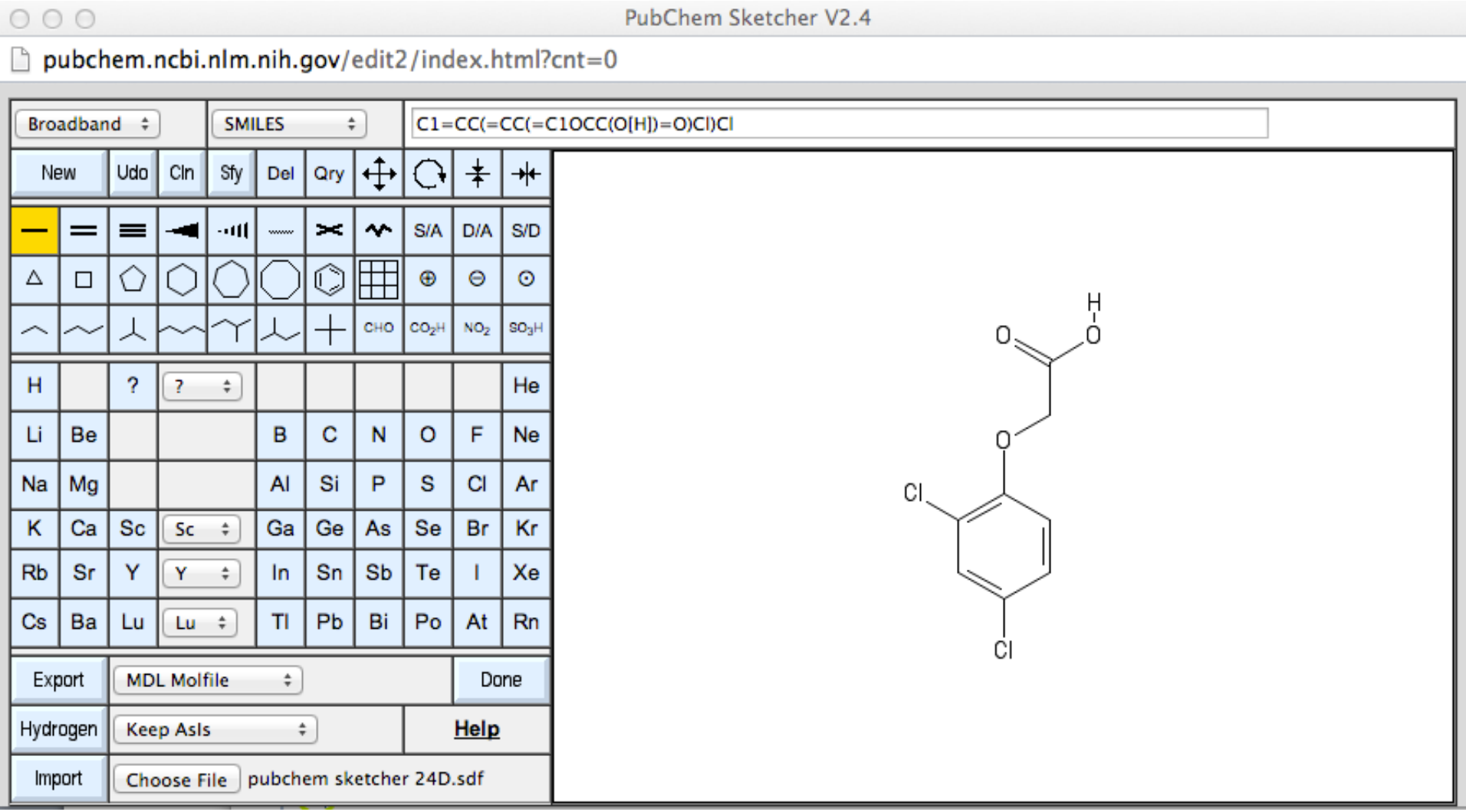
PubChem Structure Search



NCBI

PubChem Compound

PubChem Compound

Limits Advanced search

SHARE

2,4-Dichlorophenoxyacetic Acid - Compound Summary (CID 1486)

ASN.1 XML SDF

Also known as: 2,4-D, Hedonal, (2,4-Dichlorophenoxy)acetic acid, 94-75-7, Agrotect, Fernesta, Fernimine, Netagrone, Tributon

Molecular Formula: $C_8H_6Cl_2O_3$ **Molecular Weight:** 221.03744 **InChIKey:** OVSKIKFHRZPJSS-UHFFFAOYSA-N

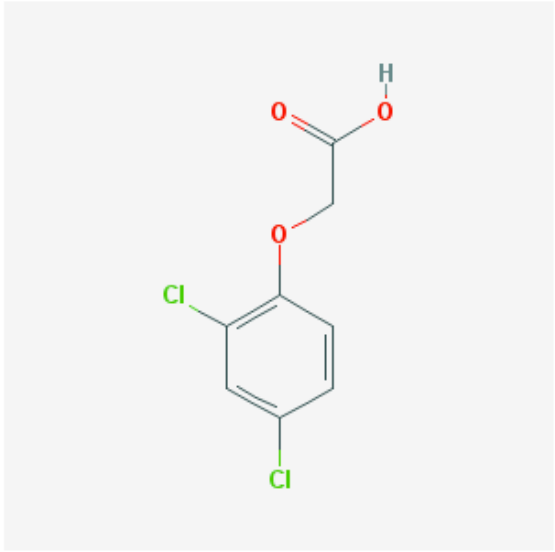
An herbicide with irritant effects on the eye and the gastrointestinal system. *From: MeSH*

Table of Contents Show subcontent titles

- Identification
- Related Records
- Use and Manufacturing
- Pharmacology
- Biomedical Effects and Toxicity
- Safety and Handling
- Environmental Fate and Exposure Potential
- Exposure Standards and Regulations
- Monitoring and Analysis Methods
- Literature
- Patents
- Biomolecular Interactions and Pathways
- Biological Test Results
- Classification
- Chemical and Physical Properties

Expand all sub-sections

2D Structure | 3D Conformer



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PubChem

Patents

Patent	Date	Title
EP1037523	10-5-2011	Genetically engineered duckweed
US2011203017	8-18-2011	Novel Herbicide Resistance Genes
US2011124503	5-26-2011	NOVEL HERBICIDE RESISTANCE GENES
US7838733	11-23-2010	Herbicide resistance genes
EP0577088	10-20-2010	Displacement information detection apparatus Displacement information detection apparatus
EP1022786	10-13-2010	Semiconductor device and process for production thereof
EP0942971	10-13-2010	METHOD FOR ALTERING THE NUTRITIONAL CONTENT OF PLANT SEED
US2010251432		rbicide Resistance Genes
US2010205696	8-12-2010	NOVEL HERBICIDE RESISTANCE GENE
US7723425	5-25-2010	Pigment compositions with modified ATRP copolymer dispersants

External Link to Patent: EP1022786

Page 1 of 784

Displaying 1 - 10 of 7837

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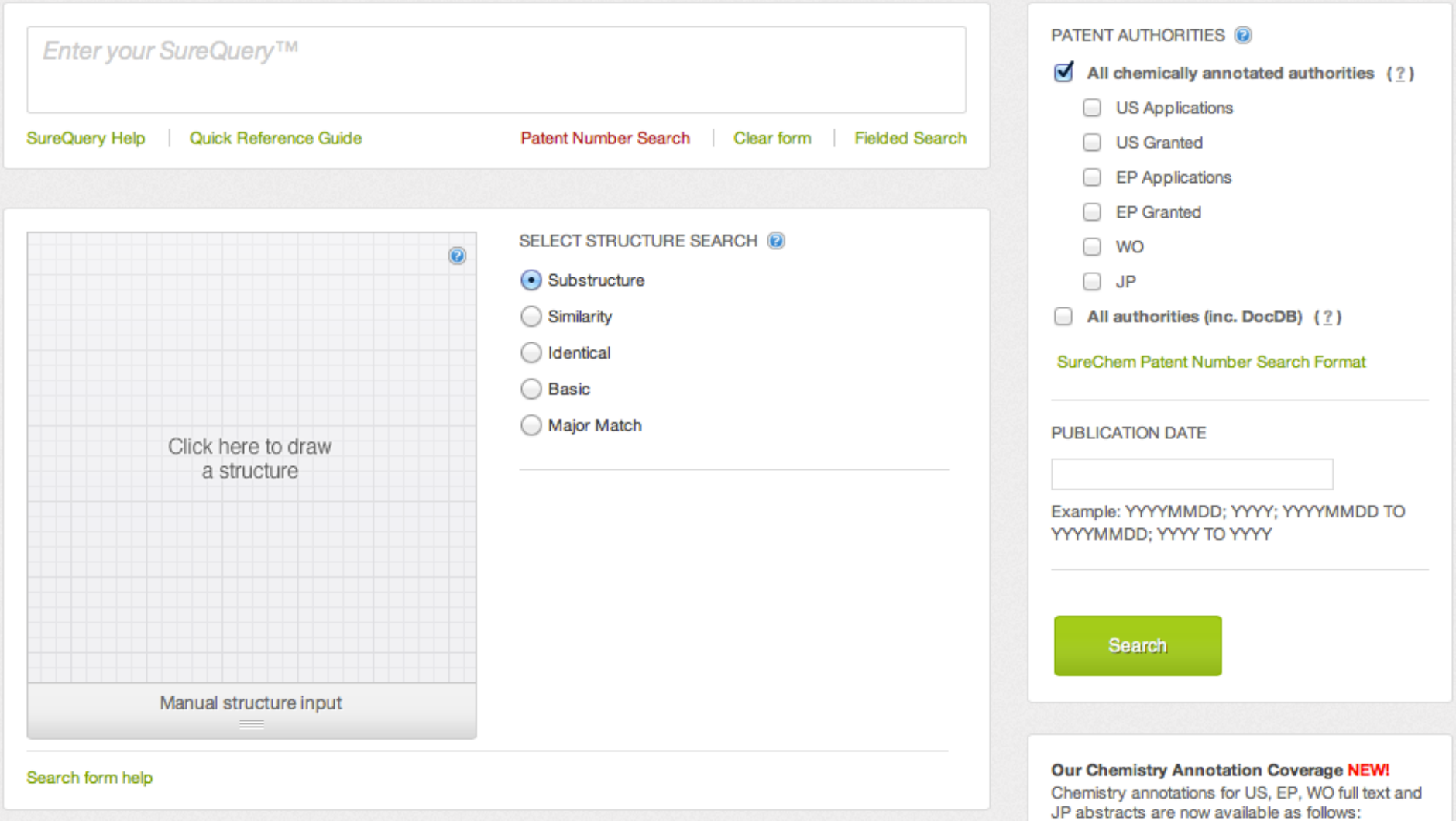
SureChem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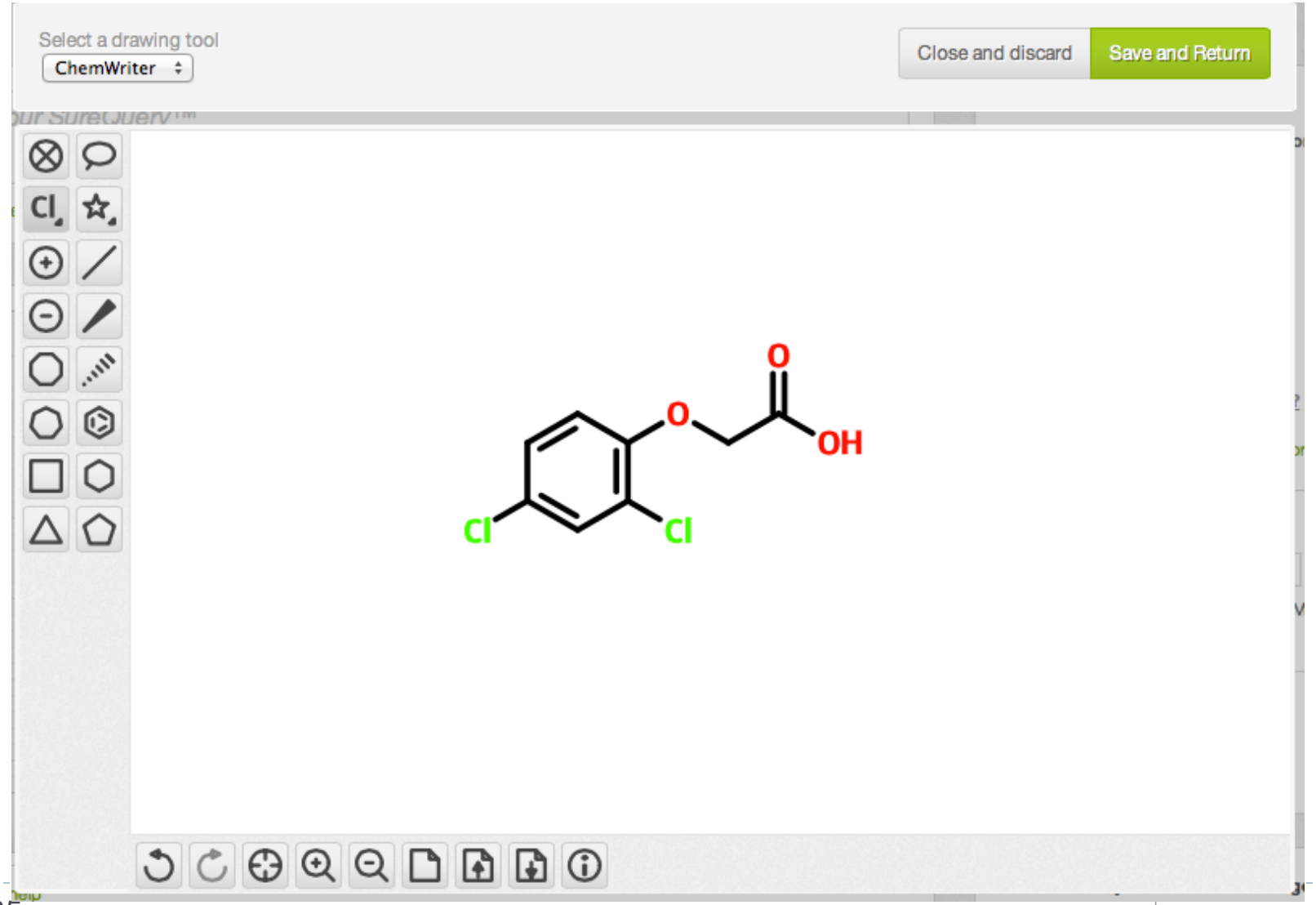
Manual structure input
SELECT STRUCTURE SEARCH
Substructure
Similarity
Identical
Basic
Major Match
Search form help
PATENT AUTHORITIES
All chemically annotated authorities (?)
US Applications
US Granted
EP Applications
EP Granted
WO
JP
All authorities (inc. DocDB) (?)
SureChem Patent Number Search Format
PUBLICATION DATE
Example: YYYYMMDD; YYYY; YYYYMMDD TO YYYYMMDD; YYYY TO YYYY
Search
Our Chemistry Annotation Coverage NEW!
Chemistry annotations for US, EP, WO full text and JP abstracts are now available as follows:

SureChem



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SEARCH FOR KEYWORD(S)

IN DOC SECTIONS
- [x] All
- [ ] Title or Abstract
- [ ] Claims
- [ ] Description

BIBLIOGRAPHIC FIELDS

Select bibliographic field... AND
Select bibliographic field... AND
Select bibliographic field... AND
Select bibliographic field... AND
Select bibliographic field...

Fielded form help

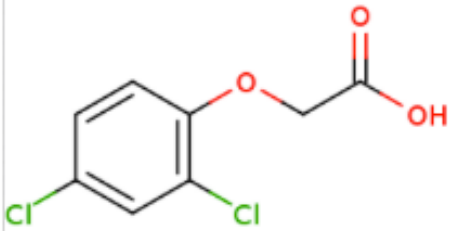
PATENT AUTHORITIES
- [x] All chemically annotated authorities (?)
  - [ ] US Applications
  - [ ] US Granted
  - [ ] EP Applications
  - [ ] EP Granted
  - [ ] WO
  - [ ] JP
- [ ] All authorities (inc. DocDB) (?)

SureChem Patent Number Search Format

PUBLICATION DATE

Example: YYYYMMDD; YYYY; YYYYMMDD TO YYYYMMDD; YYYY TO YYYY

Search



Manual structure input

SELECT STRUCTURE SEARCH
- (•) Substructure
- ( ) Similarity
- ( ) Identical
- ( ) Basic
- ( ) Major Match

Our Chemistry Annotation Coverage NEW!

Chemistry annotations for US, EP, WO full text and JP abstracts are now available as follows:

Structures from **text** annotations:	from Jan 1, 1976 to date
Structures from **images**:	from **Jan 1, 2007** to date

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Nucleotide Sequence

- Salmonella contamination poses a serious threat to public health and safety.
- There is a need to rapidly test and identify salmonella contamination in the food supply.
- You are developing a test kit to detect a genetic signature.
- You'd like to use real-time detection of Salmonella with a PCR reaction using gene specific primers and a cleavable chimeric fluorescent probe.
- One of the proposed probes is 20 nucleotides long
- TCGTCATTCCATTACCTACC

Planning and Conducting Searches

1. Determine purpose of search
2. Gather the necessary data to conduct the search
3. Determine which databases need to be searched
4. Develop a search strategy
5. Perform a search
6. Evaluate the results
7. Modify the strategy
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9. Analyze and Summarize
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Planning and Conducting Searches

1. Determine purpose of search

   Preliminary FTO, Patentability

2. Gather the necessary data to conduct the search

   Proposed sequence of probe

   TCGTCATTCCATTACCTACC

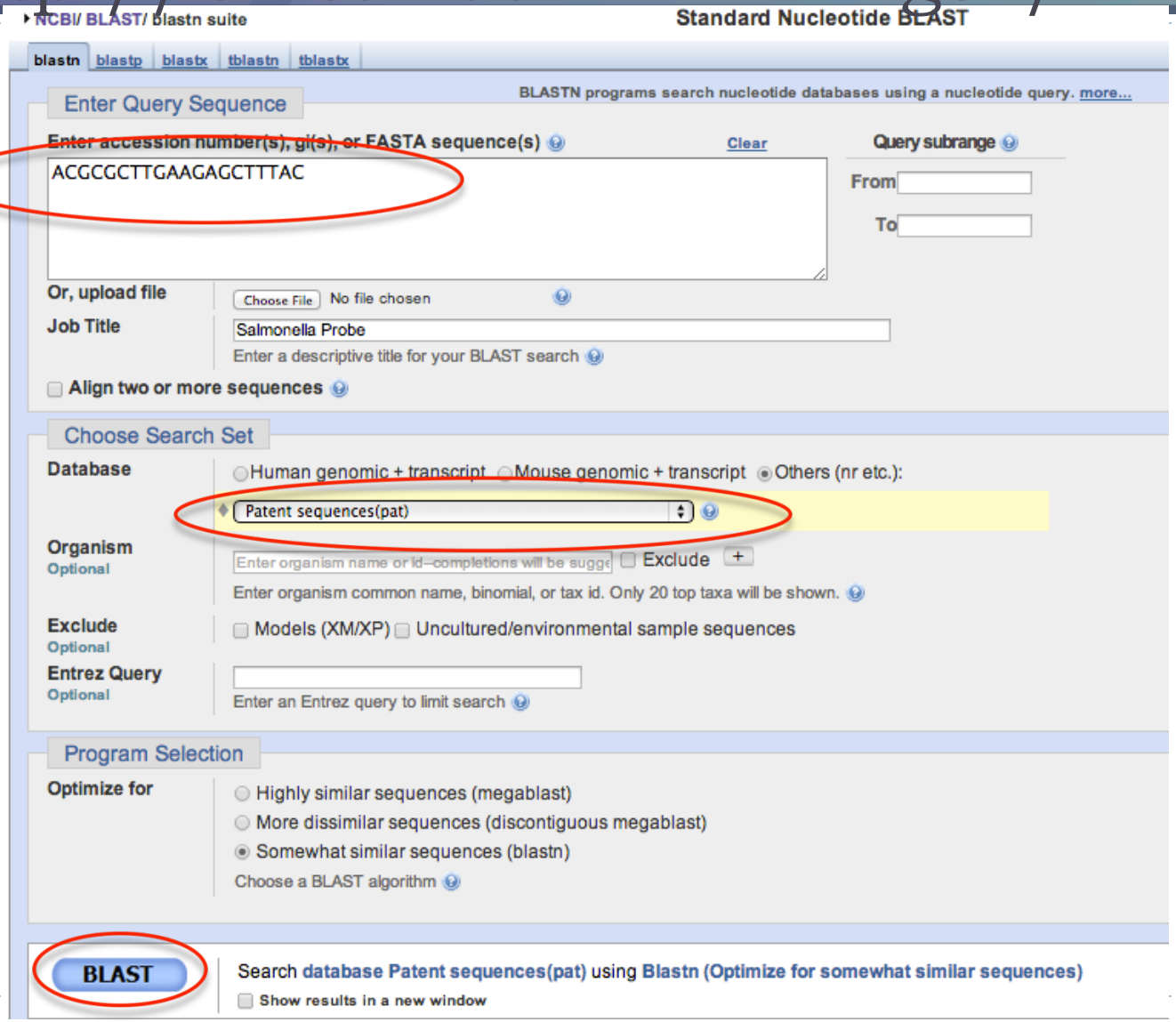
3. Determine which databases need to be searched

   NCBI BLAST® Nucleotide (**B**asic **L**ocal **A**lignment **S**earch **T**ool)

4. Develop a search strategy

   In this case the initial search strategy is quite simple – the sequence of 20 nucleotides

http://blast.ncbi.nlm.nih.gov/



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Patent Databases

- Patent Databases - US
  - USPTO http://patft.uspto.gov/
  - Free Patents On-Line http://www.freepatentsonline.com/
  - Patent Lens http://www.patentlens.net http://www.lens.org
  - Thomson Innovation* http://www.thomsoninnovation.com
  - PatBase* http://www.patbase.com
- Patent Databases - International
  - WIPO PatentScope http://patentscope.wipo.int
  - EPO http://worldwide.espacenet.com/advancedSearch?locale=en_EP
  - Directories of International Offices
    - http://members.pcug.org.au/~arhen/
    - http://www.wipo.int/directory/en/urls.jsp
- Sequence Searching (BLAST)
  - http://blast.ncbi.nlm.nih.gov/

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  - Patent and IP Searching
    - BUSA-40541
- Winter and Summer Quarters