程小燕

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美国化学文摘社北京代表处

SciFinder在医药学科中的应用

2021年3月

CAS
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AMERICAN CHEMICAL SOCIETY

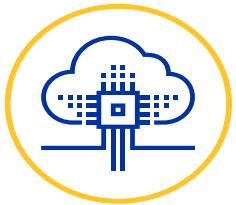
提纲

- 为什么需要美国化学文摘社
- SciFinder简介及检索方式
  - 文献检索（PatentPak及MethodsNow-ANA的应用）
  - 物质检索
  - Markush检索
  - 反应检索（MethodsNow-SYN的应用）
  - SciPlanner
- SciFinder常见问题及解决

美国化学文摘社(CAS)隶属美国化学会(ACS)，致力于追踪、收录、标引科学信息

- 拥有超过110年的经验；创立权威化学索引《化学文摘》(CA)
- 密切追踪、标引和提炼着全球化学相关的文献（包括专利）
- 提供各种科学信息和相关技术产品与服务
- 协助创新和保护创新,助力于解决科研方面的难题与挑战

UNPARALLELED
SCIENTIFIC CONTENT



SPECIALIZED
TECHNOLOGY

UNMATCHED
HUMAN EXPERTISE

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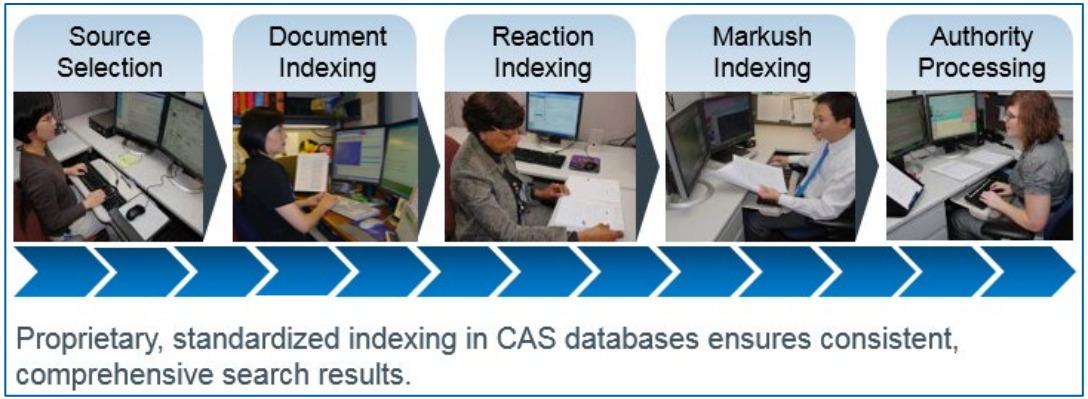
CAS数据覆盖学科

- **生物化学：**
  - 农化产品管控信息、生化遗传学、发酵、免疫化学、药理学
- **有机化学各领域：**
  - 氨基酸、生物分子、碳水化合物、有机金属化合物、类固醇
- **大分子化学各领域：**
  - 纤维素、木质素、造纸；涂料、墨水
  - 染料、有机颜料；合成橡胶；纺织品、纤维
- **应用化学各领域：**
  - 大气污染、陶瓷、精油、化妆品、化石燃料、黑色金属、合金
- **物理、无机、分析化学各领域：**
  - 表面化学、催化剂、相平衡、核现象、电化学

CAS科学家利用人类智慧对公开内容进行揭示，使相关信息更容易被挖掘



- 检索词的同义词拓展：解决不同科研人员由于教育背景、语言、表达习惯不同导致的对同一个技术术语描述的差异。
- 用名称、分子式等检索化合物，会导致检索不全、不准的问题。CAS RN很好地解决了该问题，帮助检索人员实现精准定位化合物的目标。
- 利用SciFinder中的标引信息（Index Term，CAS RN，CAS Role），提高效率，启发思路。

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CAS各类科学信息研究工具

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LIMITLESS POSSIBILITIES 无限可能

定制服务应对挑战.

CONTENT SERVICES 内容服务

- 定制数据集合
  Content licensing
- 数据结构
  Data structure
- 数据平台
  Data platforms

TECHNOLOGY SERVICES 技术服务

- 数据架构
  Data architecture
- 平台整合
  Platform integration
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  Search engines
- 定制解决方案
  Custom solutions

KNOWLEDGE SERVICES 知识服务

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  Outsourced IP search
- 数据分析
  Analytics
- 机会分析
  Opportunity exploration
- 技术评估
  Technical Assessment

PROFESSIONAL SERVICES 专业服务

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  Talent augmentation
- 咨询
  Consulting
- Technical writing
  科技写作
- Scientific analysis
  科研分析

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- SciFinder常见问题及解决

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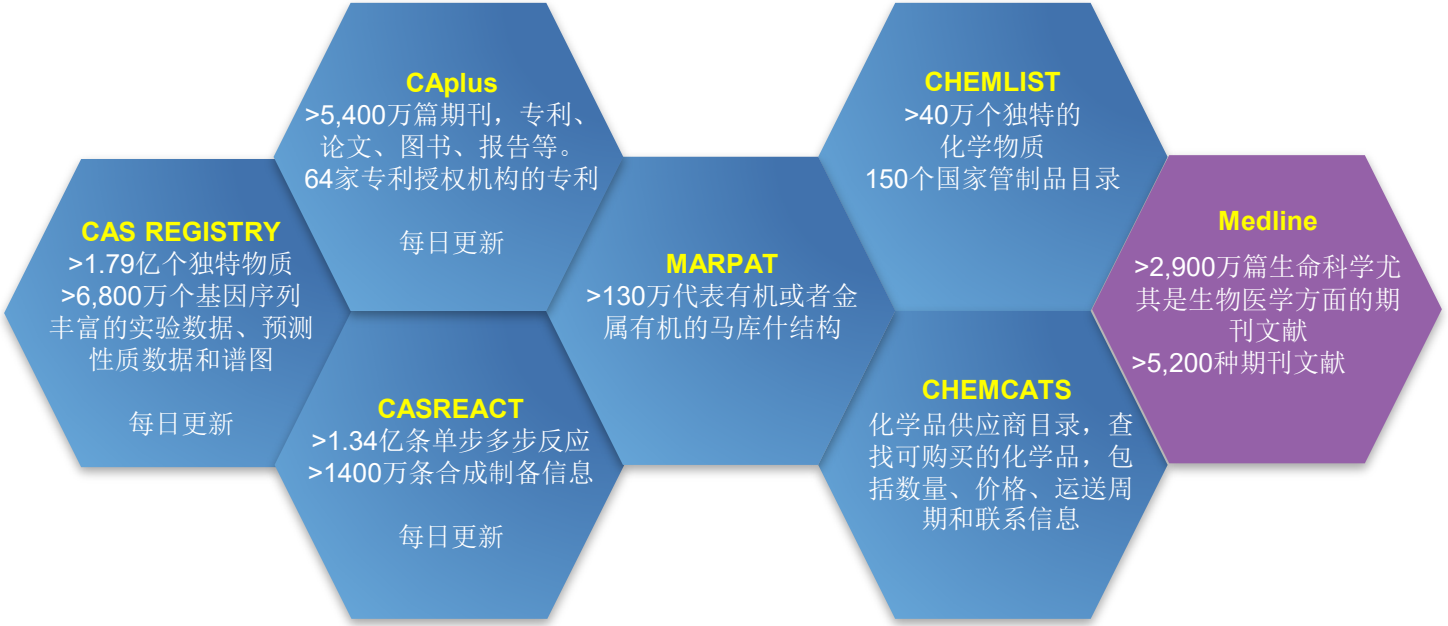
SciFinder覆盖的数据库



SciFinder是提供经CAS科学家人工标引内容的工具型数据库。

Sources: https://www.cas.org/about/cas-content

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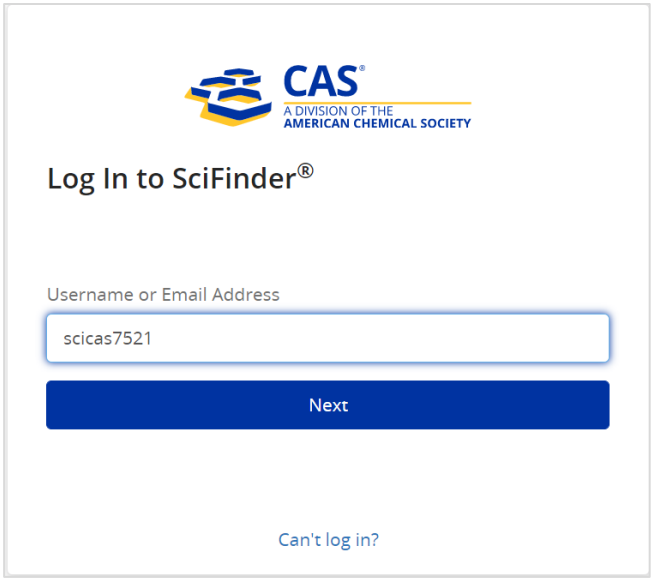
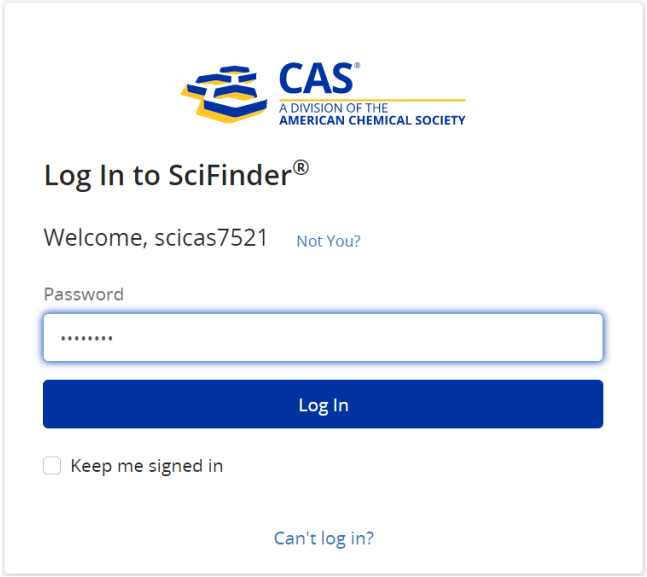
SciFinder登录网址： https://SciFinder.cas.org





每个用户必须注册后才能使用

CAS
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SciFinder主界面

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SciFinder检索——文献检索

- 文献检索方法
  - 主题检索
  - 作者名检索
  - 机构名检索
  - 文献标识符检索
  - 期刊名称和专利信息（公开号，申请号等）
  - 从物质，反应获得文献

- 检索策略推荐
  - 关注某特定领域的文献：主题检索
  - 关注物质有关的文献：先获得物质，再获得文献
  - 关注某科研人员的文献：作者名检索
  - 关注某机构科研进展：机构名检索

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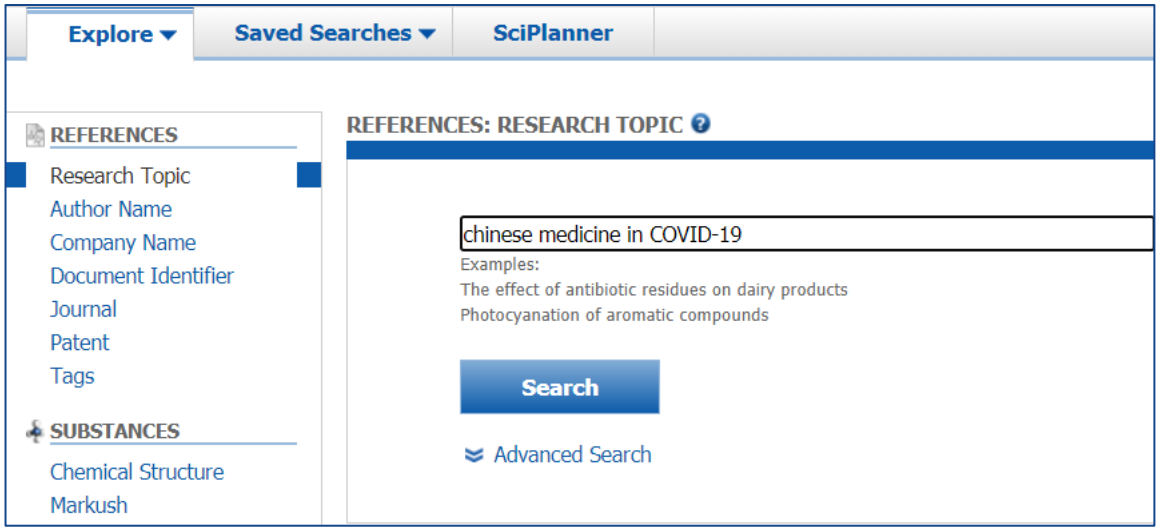
文献检索——主题

主题检索： 中药治疗新冠肺炎

检索式：Chinese Medicine in COVID-19



关键词之间用介词连接：in, with, of...

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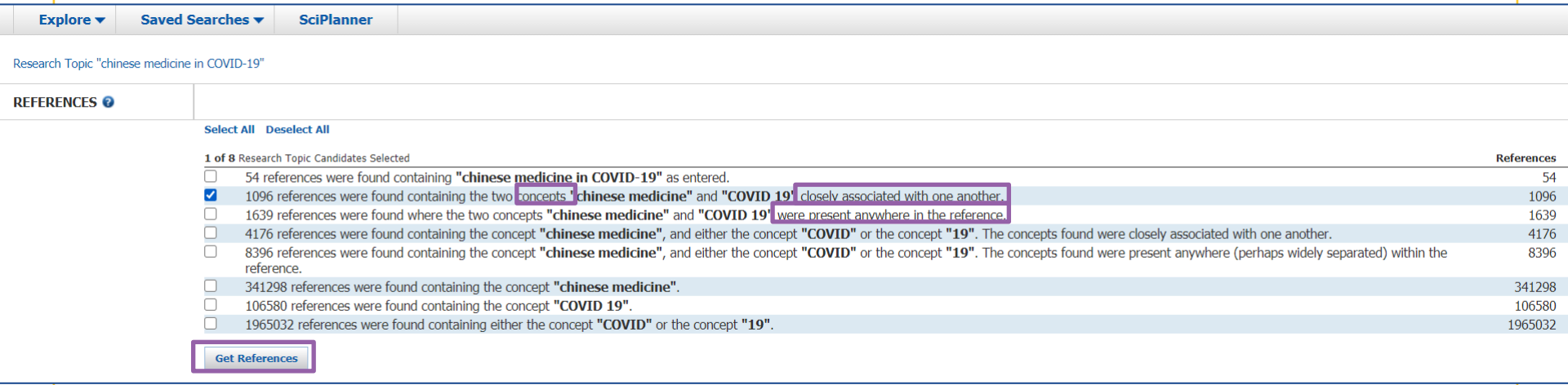
主题检索的候选项



- “Concepts”表示对主题词做了同义词的扩展
- “Closely associated with one another”表示同时出现在一个句子中
- “were present anywhere in the reference”表示同时出现在一篇文献中

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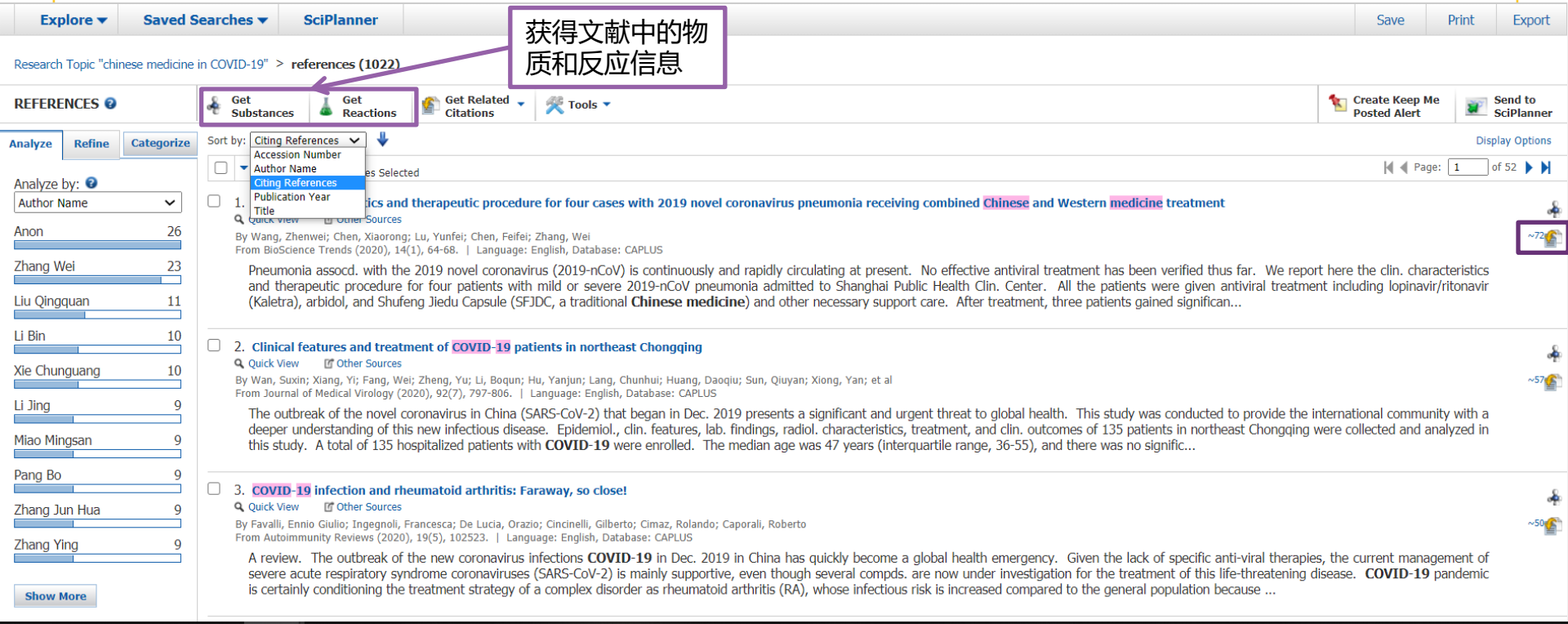
按被引次数排序——Citing References



Citing Reference: 帮助找到最重要的文献

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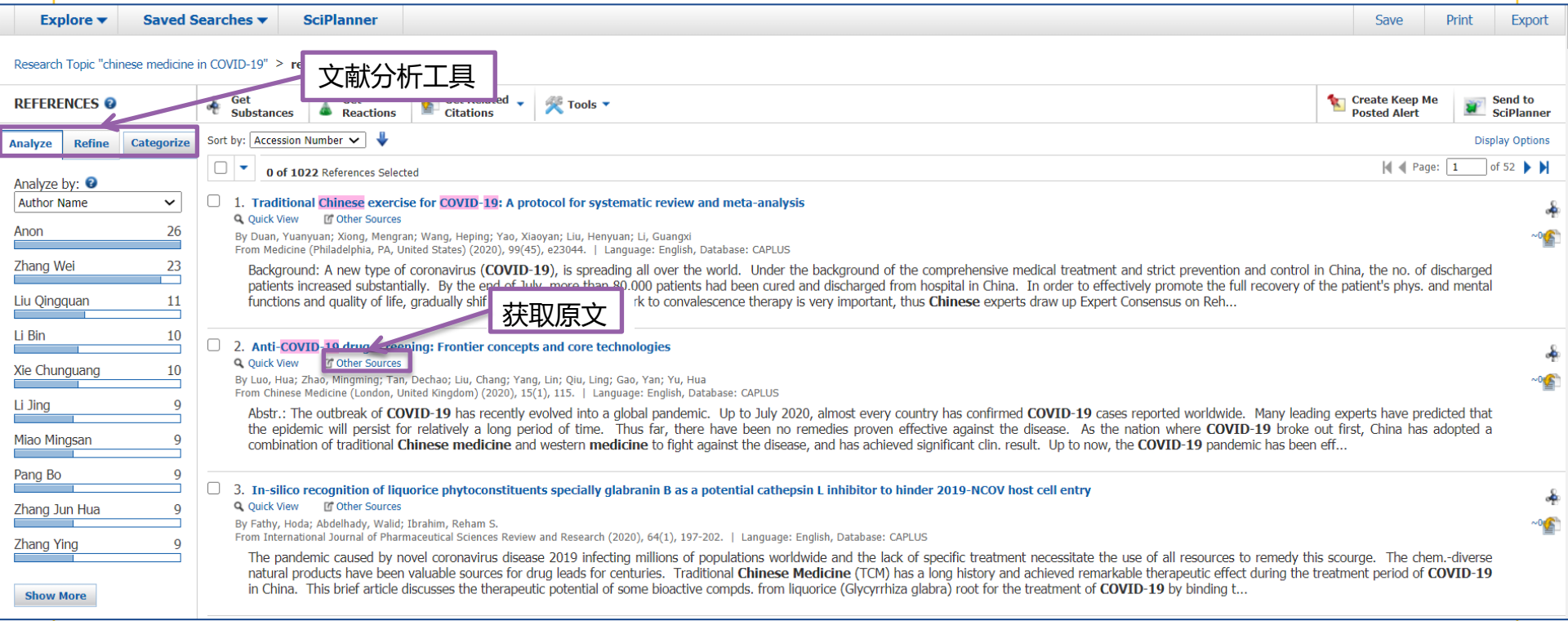
文献结果集



SciFinder提供强大的文献处理工具，帮助处理文献

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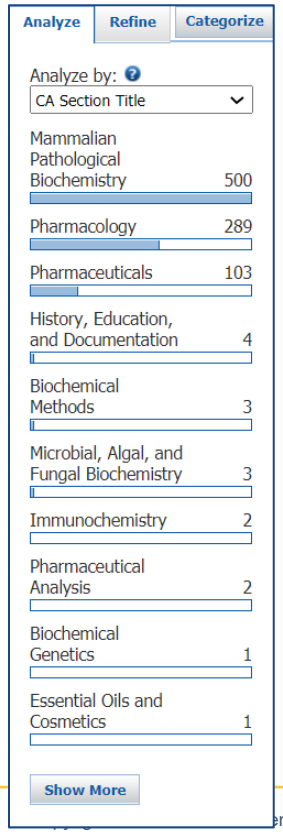
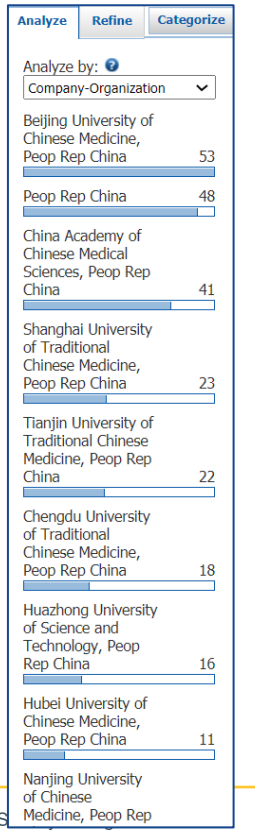
分析文献结果集——Analyze

期刊

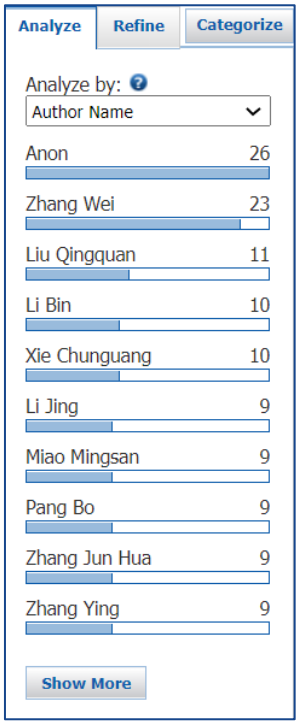
涉及学科领域



本领域研究机构、合作伙伴、竞争对手



本领域研究人员



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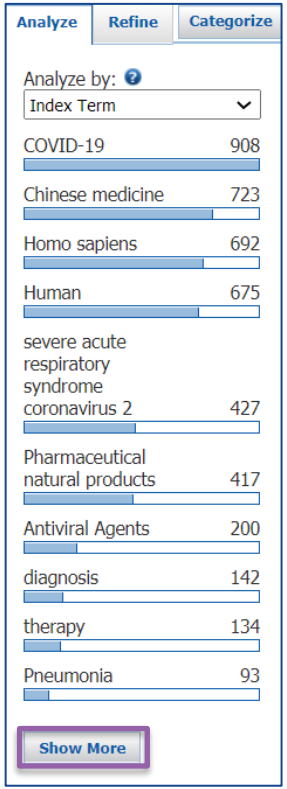
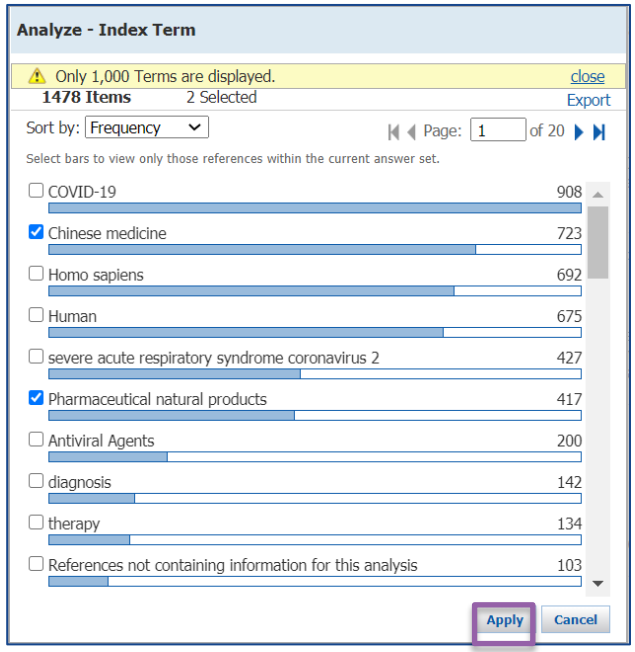
分析文献结果集——Analyze



Index Term：

帮助用户了解涉及到的重要技术术语，并修正检索词



选择感兴趣的内容，点击Apply

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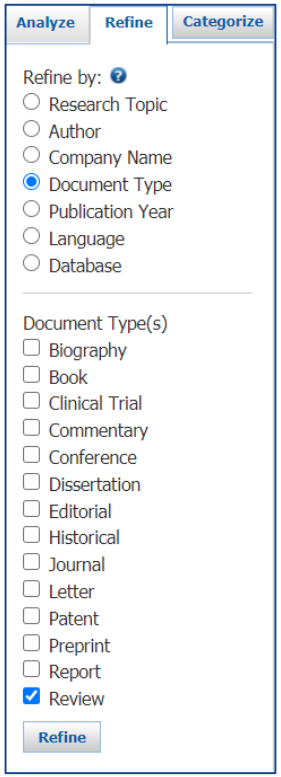
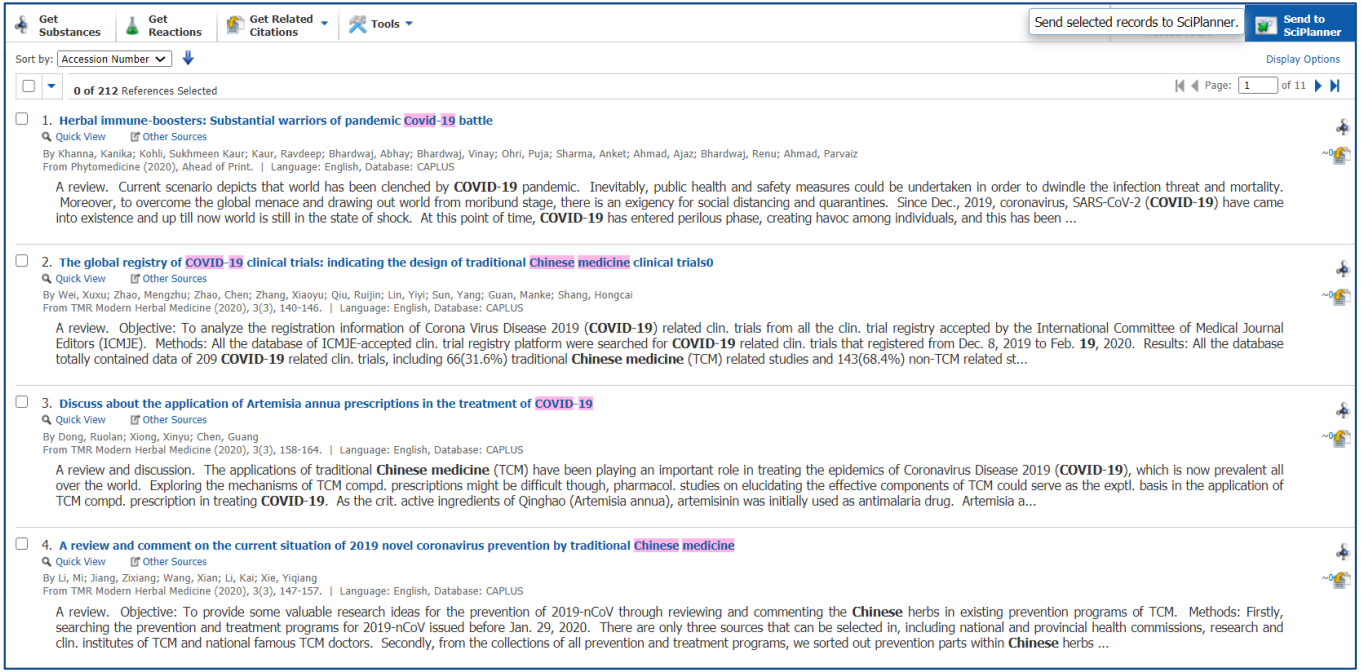
筛选文献结果集——Refine





Refine：帮助用户迅速获得需要的文献

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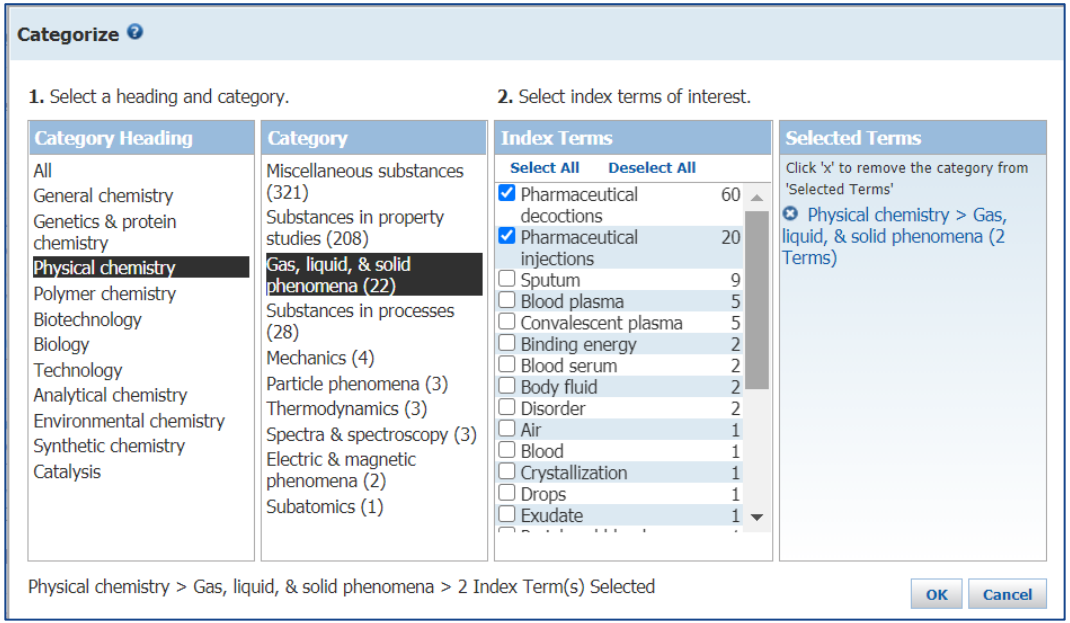
分类文献结果集——Categorize

学科领域主分类　学科领域副分类　Index Term　选中的Index Term



Categorize学科分类功能，基于Index Term，根据大学科方向对文献进行自动分类。

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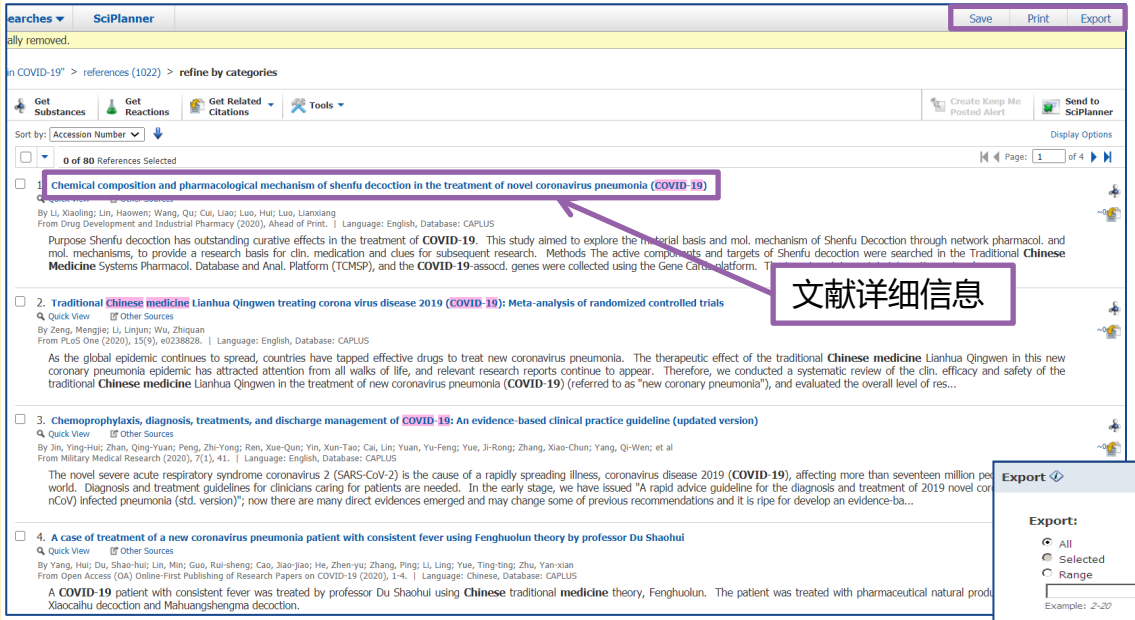
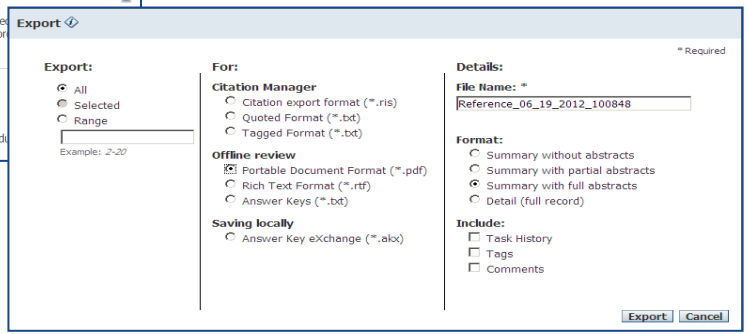
文献结果集的保存——Save, Print, Export



Save：保存在服务器上，方便以后登陆查看，每次可存2万条记录。

Export：导出至本地电脑。

Print：打印成PDF格式



Citation manager：保存成RIS等格式，可导入EndNote 等文献管理工具

Offline Review：保存成PDF，RTF等格式，用于脱机浏览

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文献信息——题录、摘要、索引

文献详情界面包括：

- 标题
- 摘要
- 文献中重要的技术术语
- 文献中重要的物质
- 书目信息
- 获得文献中的物质、反应
- 参考文献
- 链接原文

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- 安全、快捷地获得来自全球46个专利授权机构的PDF格式专利文件
- 通过PatentPak 浏览器，快速定位专利PDF文件中的重要物质页码信息，迅速找到难以查找的化学信息
- 在CAS专利族文献中找到你所熟悉语言的专利

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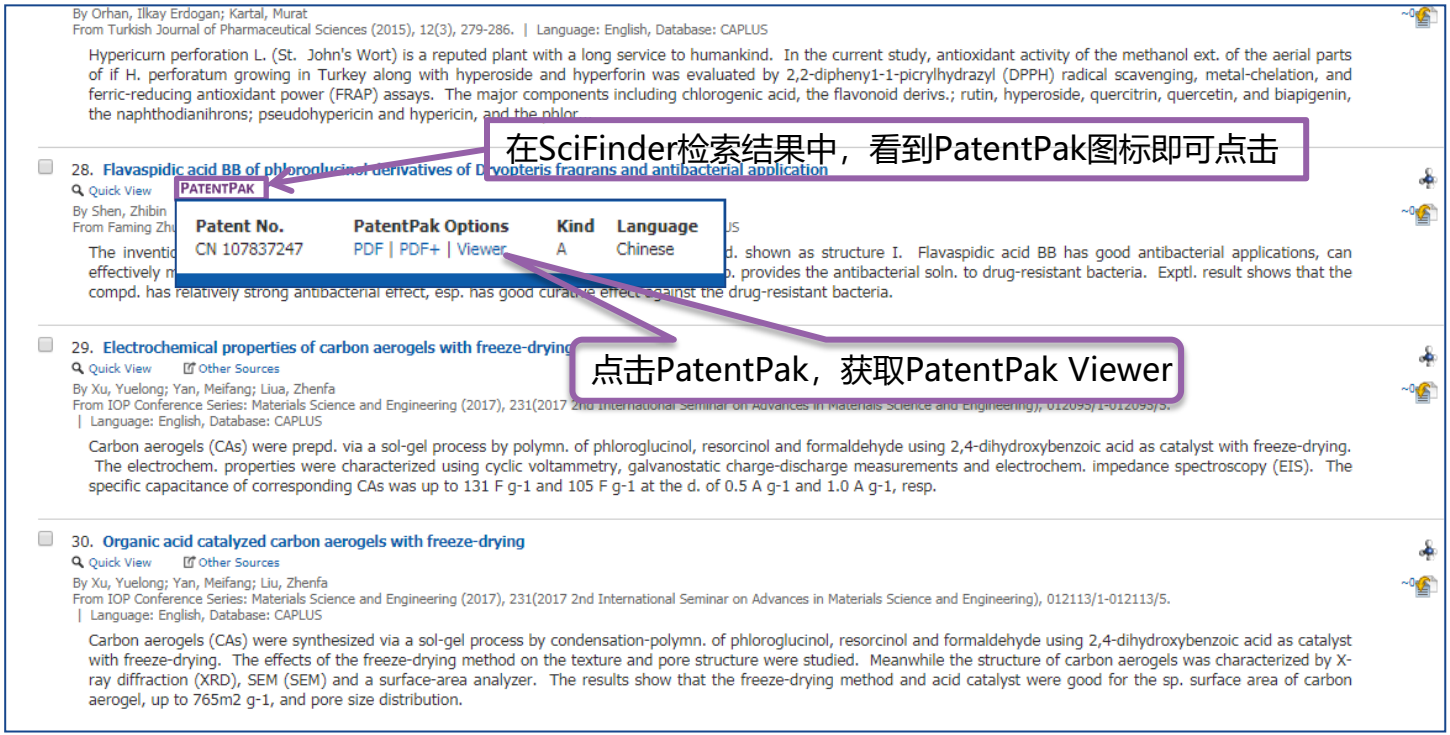
PatentPak——专利工作流程解决方案



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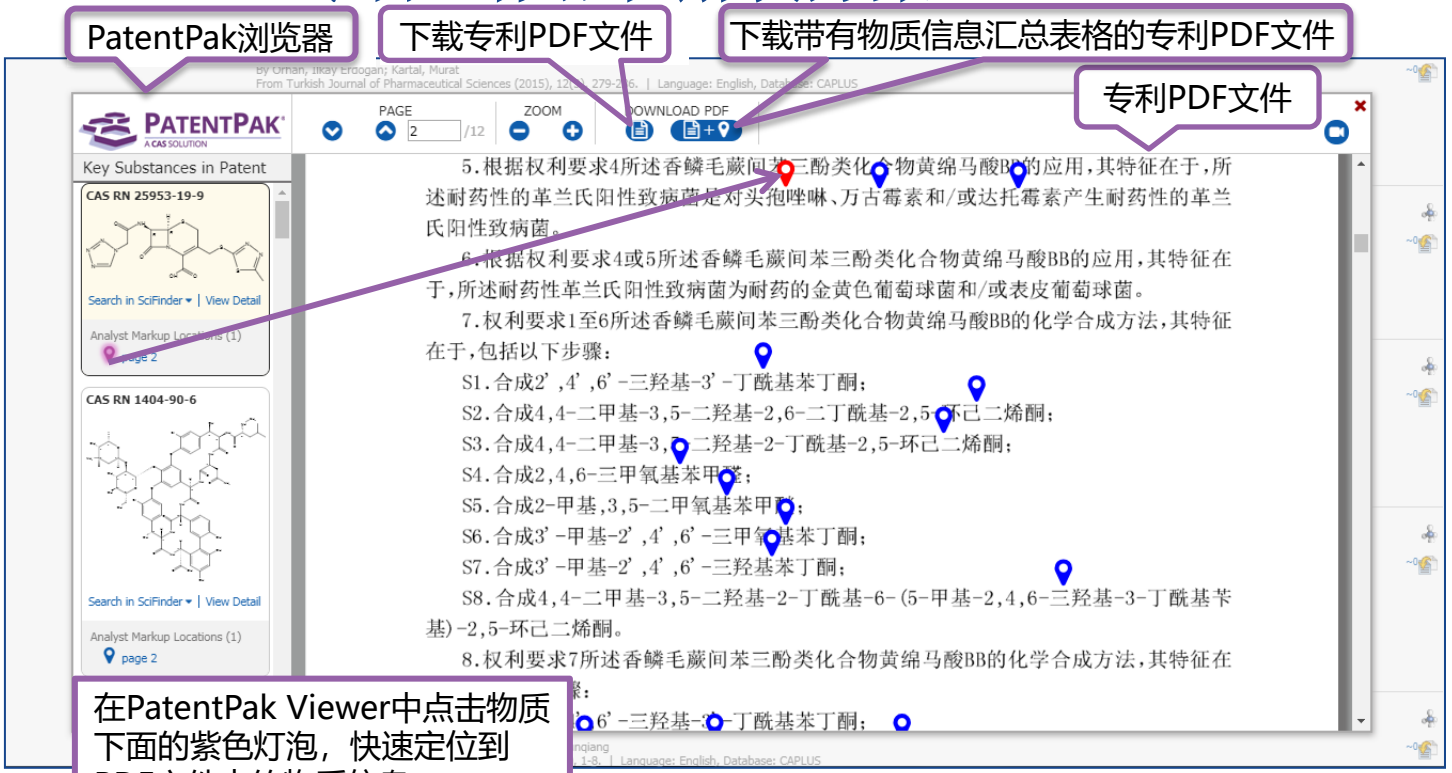
PatentPak——专利工作流程解决方案



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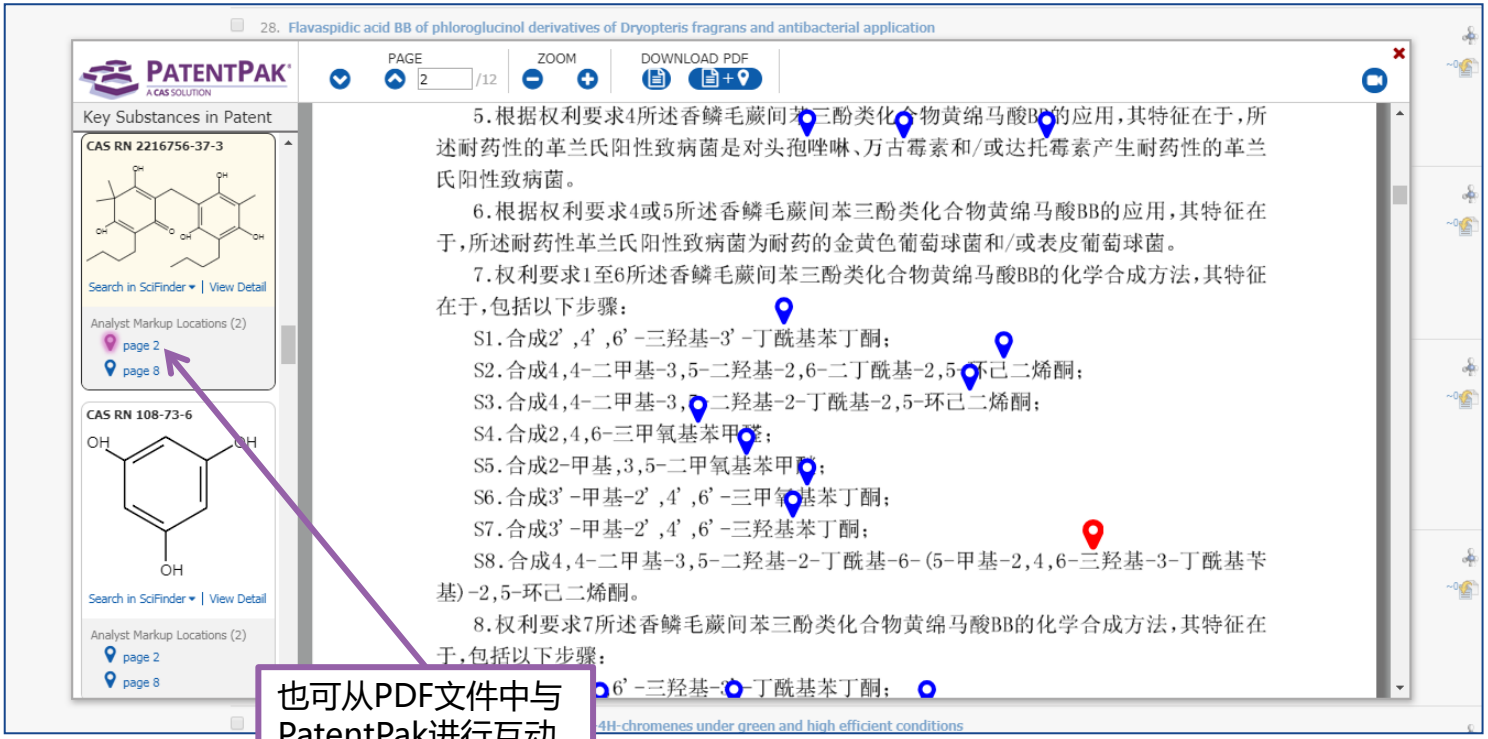

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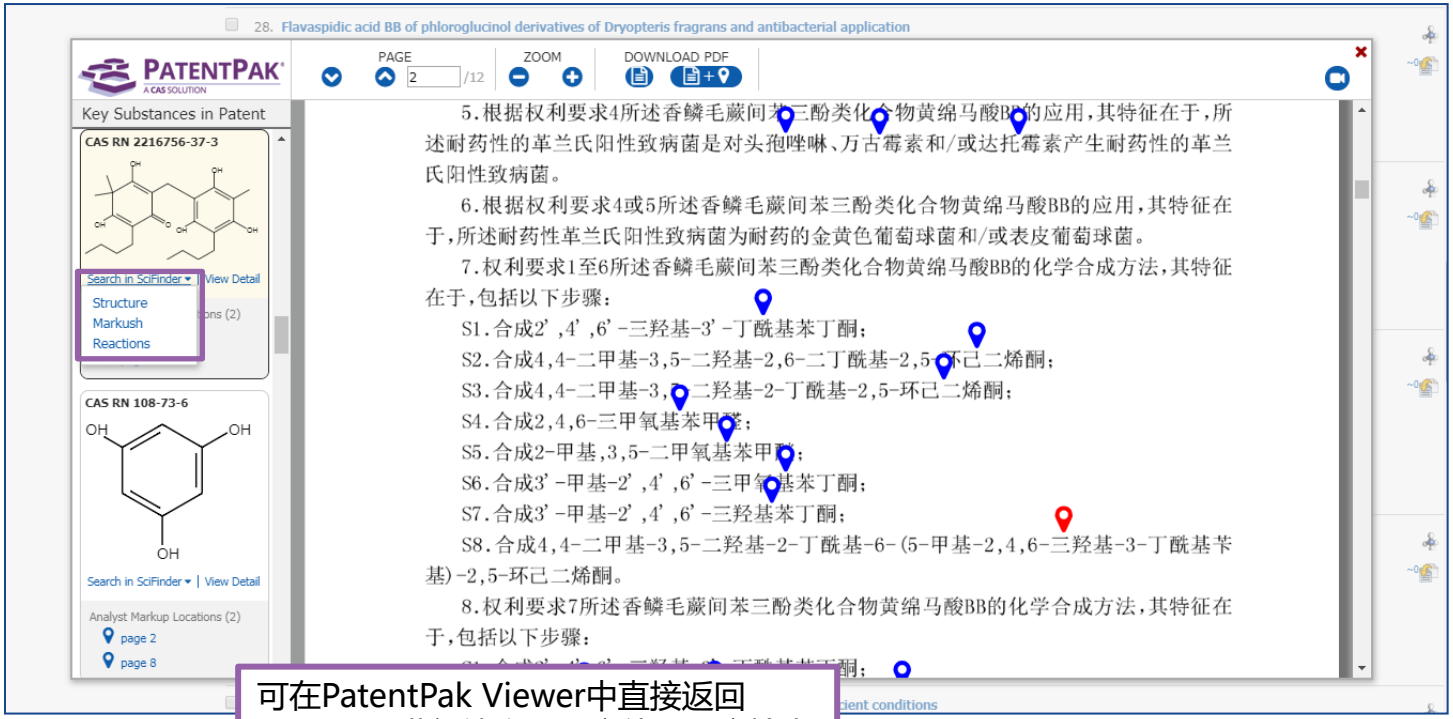

可在PatentPak Viewer中直接返回SciFinder进行结构、马库什和反应检索

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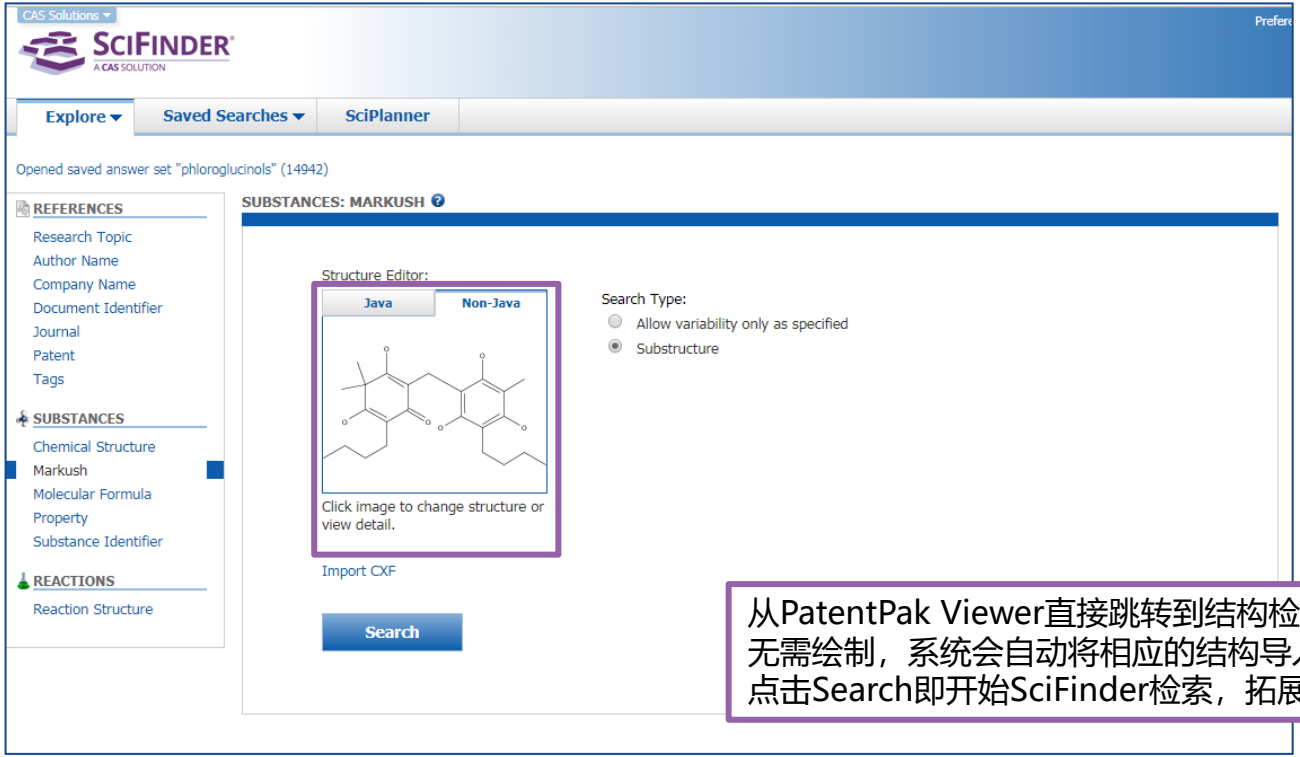

从PatentPak Viewer直接跳转到结构检索界面，
无需绘制，系统会自动将相应的结构导入到绘图面板，
点击Search即开始SciFinder检索，拓展新的研究方向

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利用MethodsNow检索文献——直接获得分析实验方法

MethodsNow – Analysis （www.methodsnow.com）

Organic Compound Analysis: 天然产物分离分析，手性分离，活性药物成分及代谢产物分析…

Organometallics / Inorganics: 地质分析，无机物分析，金属有机化合物分析

Pharmacology / Toxicology: 成瘾药物检测，有毒物检测…

Bioassays: 生物探针，生物标定细胞实验，生物标定药物实验，生物医学材料分析，生物分子/生物组织分离测定…

Water Analysis: 阴阳离子分析，元素测定，痕量元素分析，废水分析，生物标记公共卫生分析…

Historical Analysis / Dating: 考古分析，同位素分析

Environmental Analysis: 土壤/空气/水分析，农药残留分析…

Agricultural Applications / Analysis: 除草剂分析…

Food Analysis: 脂肪酸分析，脂肪酸酯分析，蛋白质分析…

Fuels / Geology / Biofuels: 生物燃料分析，油气分析，石油产品分析，煤炭加工…

Miscellaneous: 化妆品分析，爆炸物分析，纳米材料分析…

Water: 阴阳离子分析、环境分析、废水分析、微量元素分析…

Polymer: 聚合物分析…

目前有13个大类，45个小类。某些子项目属于多种方法分类！

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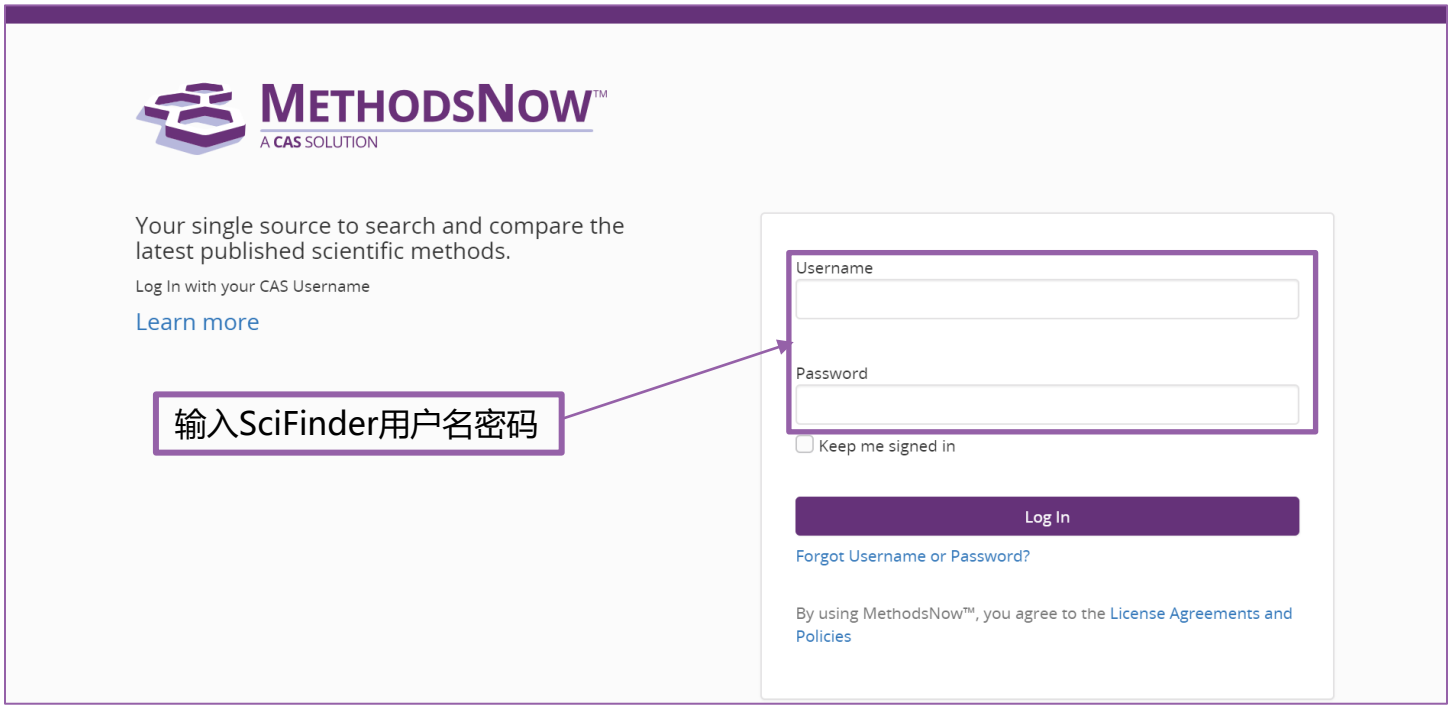
利用MethodsNow检索文献——直接获得分析实验方法



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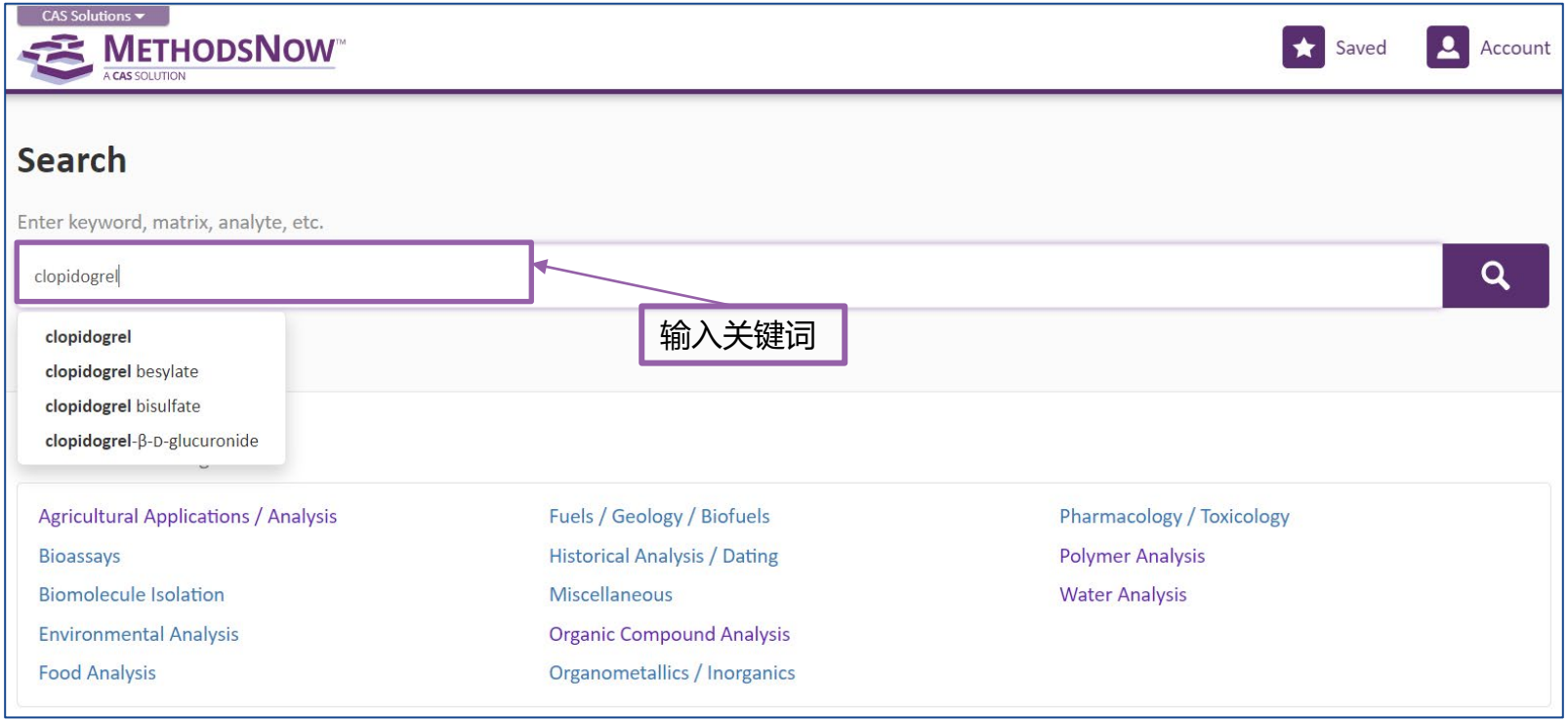

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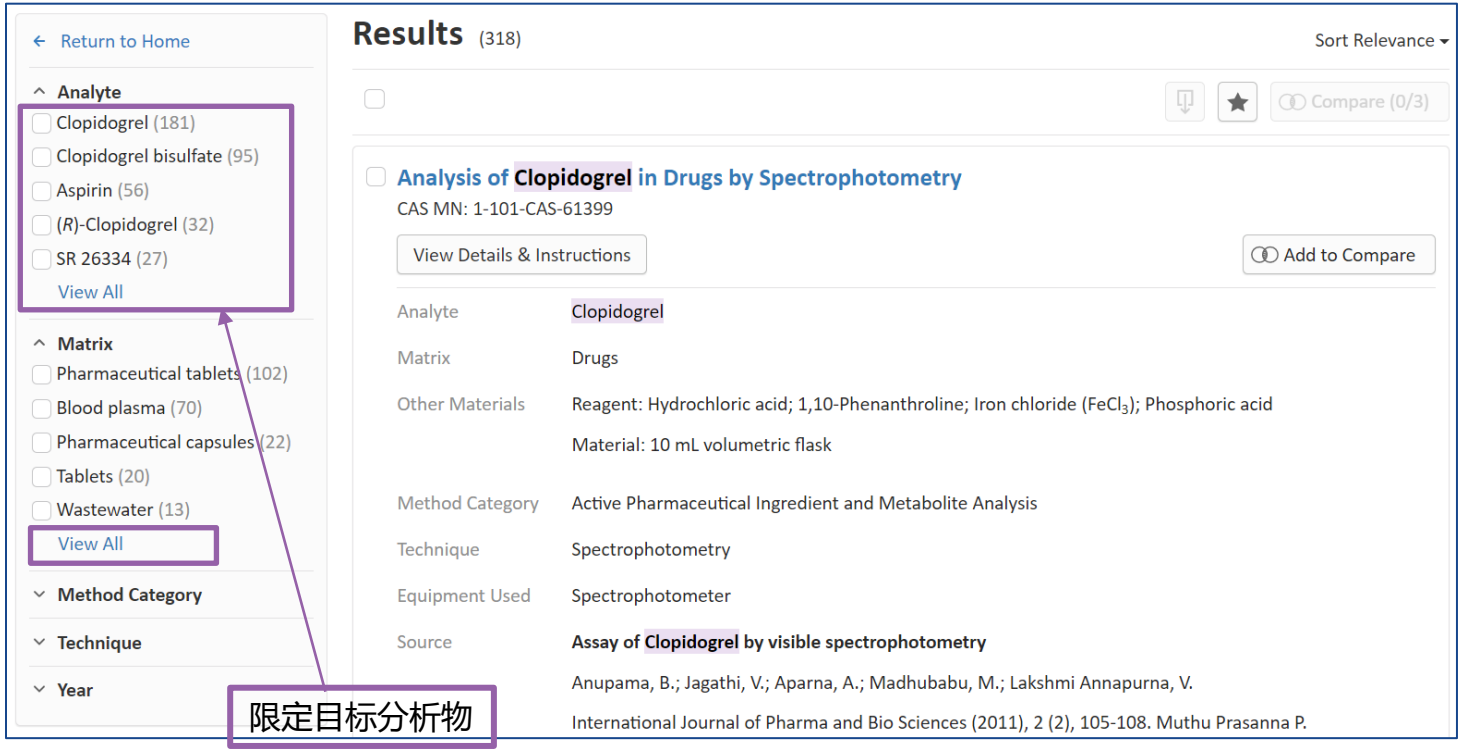
利用MethodsNow检索文献——直接获得分析实验方法



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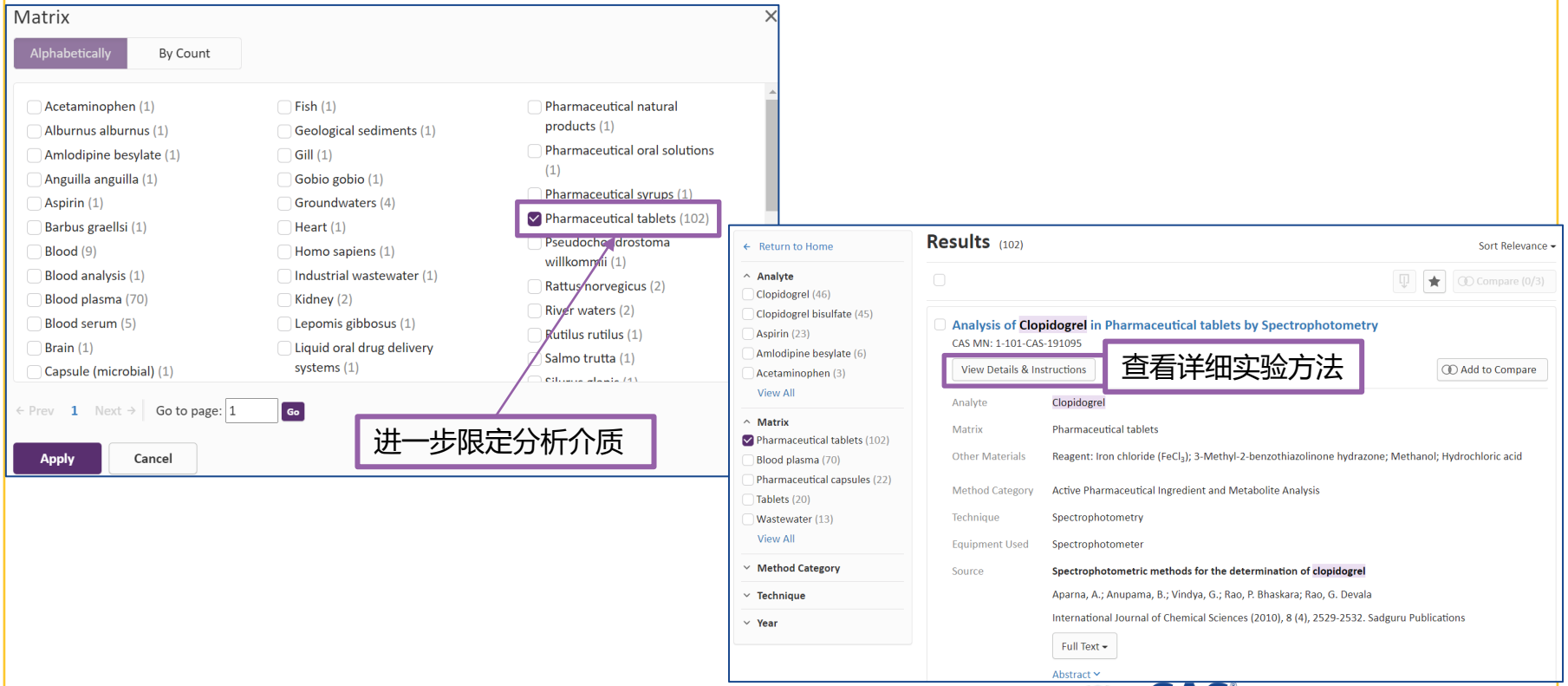

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利用MethodsNow检索文献——直接获得分析实验方法

Method Detail (1 of 102)

← Prev Next →

Analysis of Clopidogrel in Pharmaceutical tablets by Spectrophotometry

CAS MN: 1-101-CAS-191095

Method Category: Active Pharmaceutical Ingredient and Metabolite Analysis
Technique: Spectrophotometry

实验材料

Materials	Role	Image	CAS RN
Clopidogrel	analyte	View Structure	113665-84-2
Pharmaceutical tablets	matrix		
Iron chloride ($FeCl_3$)	reagent	View Structure	7705-08-0
3-Methyl-2-benzothiazolinone hydrazone	reagent	View Structure	1128-67-2
Methanol	reagent	View Structure	67-56-1
Hydrochloric acid	reagent	View Structure	7647-01-0

Source

文献信息

Spectrophotometric methods for the determination of clopidogrel

Aparna, A.; Anupama, B.; Vindya, G.; Rao, P. Bhaskara; Rao, G. Devala

International Journal of Chemical Sciences (2010), 8 (4), 2529 - 2532. Sadguru Publications

CODEN: IJCSIL | ISSN: 0972768X

Full Text

Abstract

Two simple and sensitive spectrophotometric methods have been developed for the estimation of clopidogrel in pure and pharmaceutical dosage forms. Method A is based on the formation of charge transfer complex of the drug with chloranilic acid (λ_{max} 515 nm). Method B is based on oxidative coupling of the drug with 3-Me 2-benzothiazolinone hydrazone (MBTH; λ_{max} 630 nm). The absorbance of the colored species was measured against the reagent blank. These methods have been statistically evaluated and found to be precise and accurate.

Equipment Used

Spectrophotometer

Conditions

Instrument

Detection wavelength: 630 nm

Instructions

详细步骤

Preparation of 3-Methyl 2-benzothiazolinone hydrazone (MBTH)

1. Prepare an aqueous solution of MBTH at 0.2% w/v.

Preparation of ferric chloride solution

1. Prepare a solution of ferric chloride (0.7% w/v) in 0.5 N hydrochloric acid.

Preparation of standard solution of clopidogrel

1. Accurately weigh 100 mg of clopidogrel and dissolve in 100 mL of methanol to obtain a stock solution of 1 mg/mL.
2. Dilute this solution further to get working standard solution of 100 µg/mL.

Spectophotometric analysis for determination of clopidogrel using MBTH reagent

1. Transfer aliquots of working standard solution of clopidogrel ranging from 0.5 - 2.5 mL into a series of 10 mL volumetric flasks.
2. Add 2 mL of ferric chloride to these flasks.
3. Shake the contents and keep aside for 2 minutes.
4. Add 1.5 mL of MBTH reagent and keep for 10 min.
5. Dilute the volume upto 10 mL with distilled water.
6. Measure the absorbance of the green colored chromogen at 630 nm against reagent blank.
7. Calculate the amount of clopidogrel present in the sample solution from its calibration curve.

Validation

数据有效性验证

Linearity Range	5 - 25 µg/mL
Recovery	99.36% from 75 mg label claim pharmaceutical tablets (sample data)
Accuracy	1.496 and 2.214% (range of error) at 0.05 and 0.01 significance level respectively
Precision	1.79% (RSD)

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文献检索小结

1. 使用介词 in, with, of 等作为连接词
2. 跟据检索要求选择合适的候选项
3. 通过Analyze/Refine/Categarize功能来筛选结果
4. 从Related Citations拓展检索，获得更多灵感

提纲

- 美国化学文摘社简介
- SciFinder简介及检索方式
  - 文献检索（PatentPak及MethodsNow-ANA的应用）
  - 物质检索
  - Markush检索
  - 反应检索（MethodsNow-SYN的应用）
  - SciPlanner
- SciFinder常见问题及解决

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SciFinder检索——物质检索

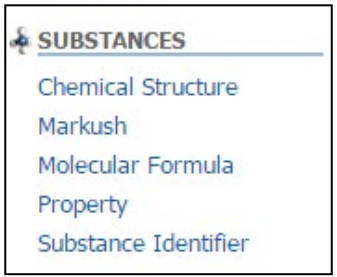
- 物质检索方法

—结构式检索

—分子式检索

—理化性质检索

—物质标识符检索：化学名称，CAS RN



- 物质检索策略推荐

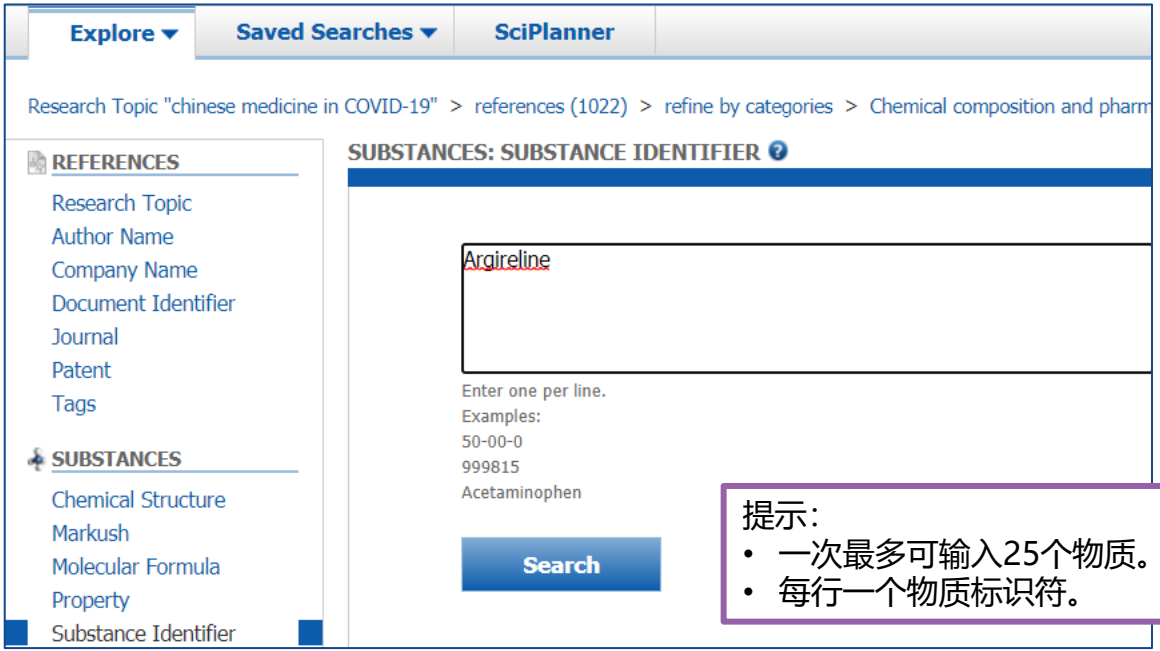
—有机化合物，天然产物：结构检索

—无机物，合金：分子式检索

—高分子化合物：分子式检索和结构检索

物质检索——标识符检索

检索Argireline，类肉毒杆菌、六胜肽



提示：
- 一次最多可输入25个物质。
- 每行一个物质标识符。

物质标识符包括CAS RN和化学名称，化学名称可以是通用名称、商品名、俗名。

CAS
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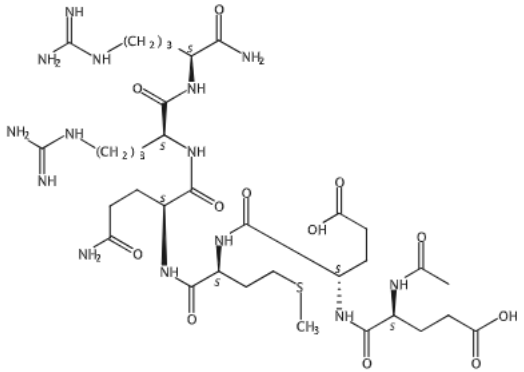
SciFinder中的物质记录

点击CAS RN 获得物质详细信息

1. 616204-22-9

~695 ~62



Absolute stereochemistry.

CAS Registry Number: 616204-22-9

- View Substance Detail
- Explore by Structure
- Synthesize this...
- Get Reactions where Substance is a
- Get Commercial Sources
- Get Regulatory Information
- Get References
- Export as Image
- Export as molfile
- Send to SciPlanner

$C_{34}H_{60}N_{14}O_{12}S$

L-Argininamide, *N*-acetyl-L-α-glutamyl-L-α-glutamyl-L-methionyl-L-glutaminyl-L-arginyl-

Protein Sequence

Sequence Length: 6

▸ **Key Physical Properties**

Regulatory Information

在SciFinder中，鼠标滑过物质，即可打开物质标准菜单，获得与物质相关的所有内容

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SciFinder中的物质记录

SUBSTANCE DETAIL

Get References | Get Reactions | Get Commercial Sources

Return

由物质获得文献，反应，供应商等信息

CAS Registry Number 616204-22-9

~695 ~62

$C_{34}H_{60}N_{14}O_{12}S$

L-Argininamide, *N*-acetyl-L-α-glutamyl-L-α-glutamyl-L-methionyl-L-glutaminyl-L-arginyl-

Molecular Weight
888.99

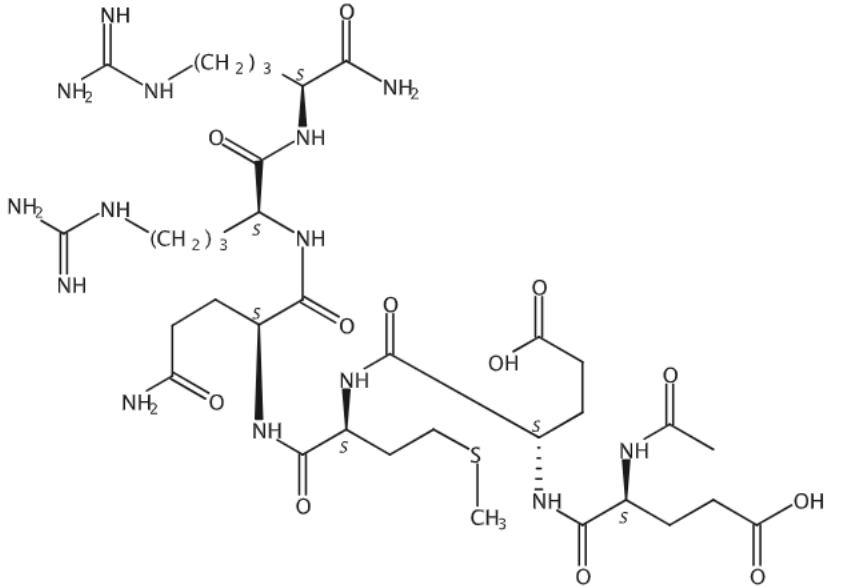
Density (Predicted)
Value: 1.54±0.1 g/cm3 | Condition: Temp: 20 °C Press: 760 Torr

pKa (Predicted)
Value: 4.43±0.10 | Condition: Most Acidic Temp: 25 °C

Other Names
N-Acetyl-L-α-glutamyl-L-α-glutamyl-L-methionyl-L-glutaminyl-L-arginyl-L-argininamide
Acetyl hexapeptide 8
Acetyl hexapeptide-3
Argireline
Argireline NP

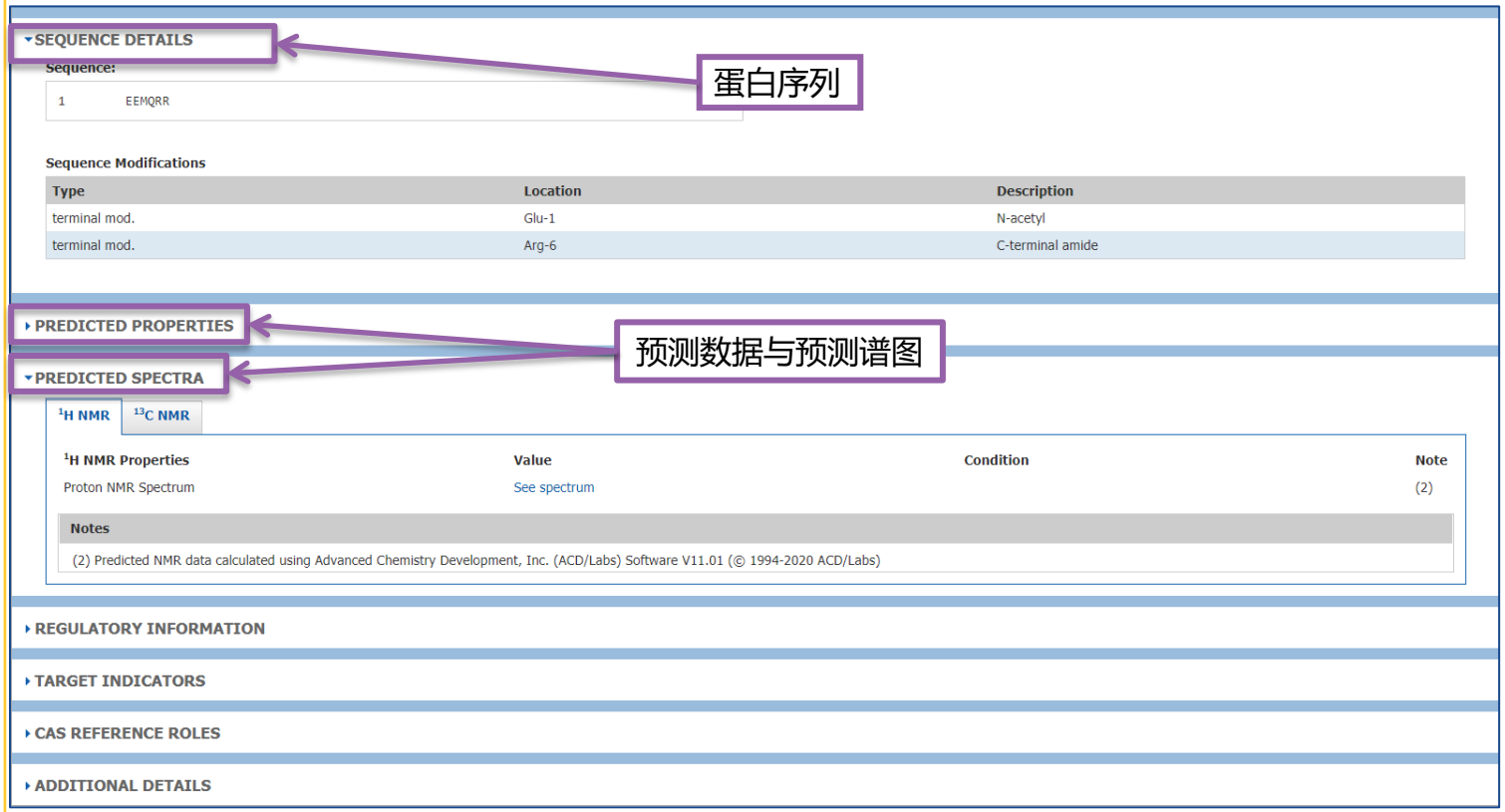
Protein Sequence
Sequence Length: 6
modified

物质详情



Absolute stereochemistry.

SciFinder中的物质记录



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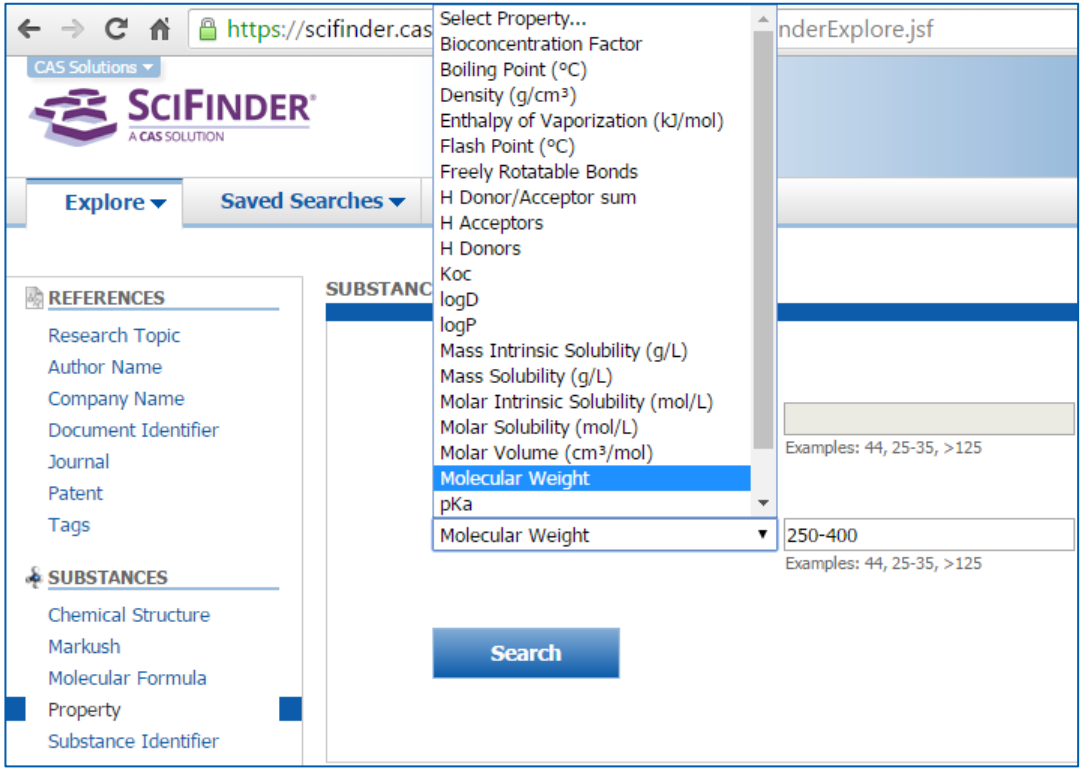
物质检索——Property explore



寻找分子量在250-400之间的物质

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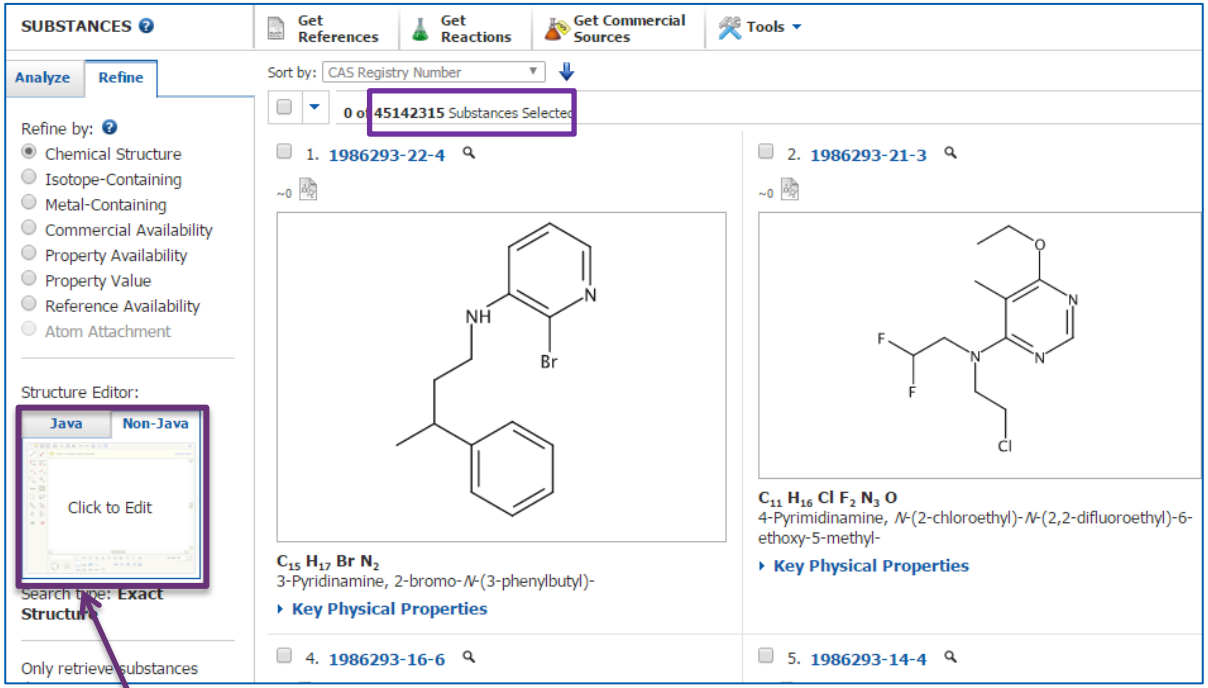
物质结果集的筛选——Refine



4500多万个结构，

如何筛选黄酮类物质?

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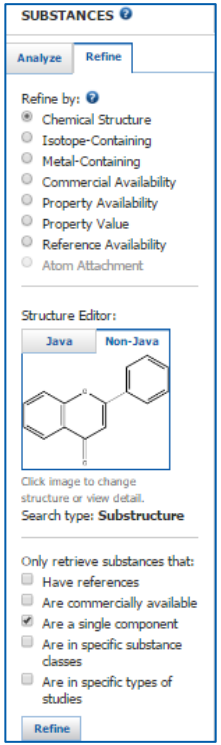
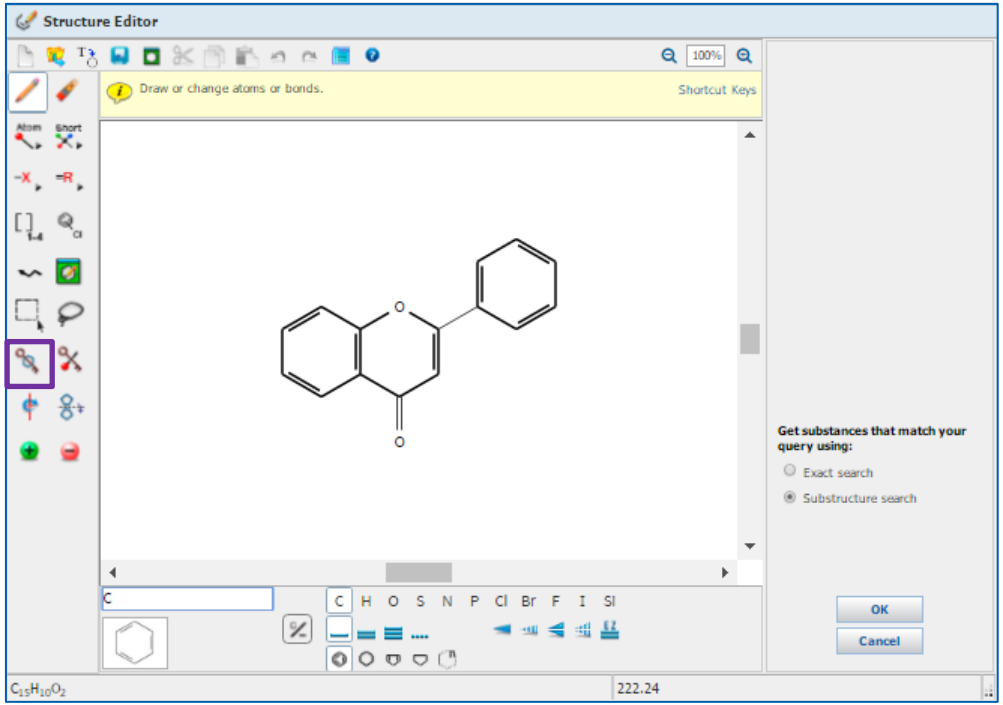
物质结果集的筛选——Refine





锁环工具：避免在被锁定的环结构上出现新的环结构

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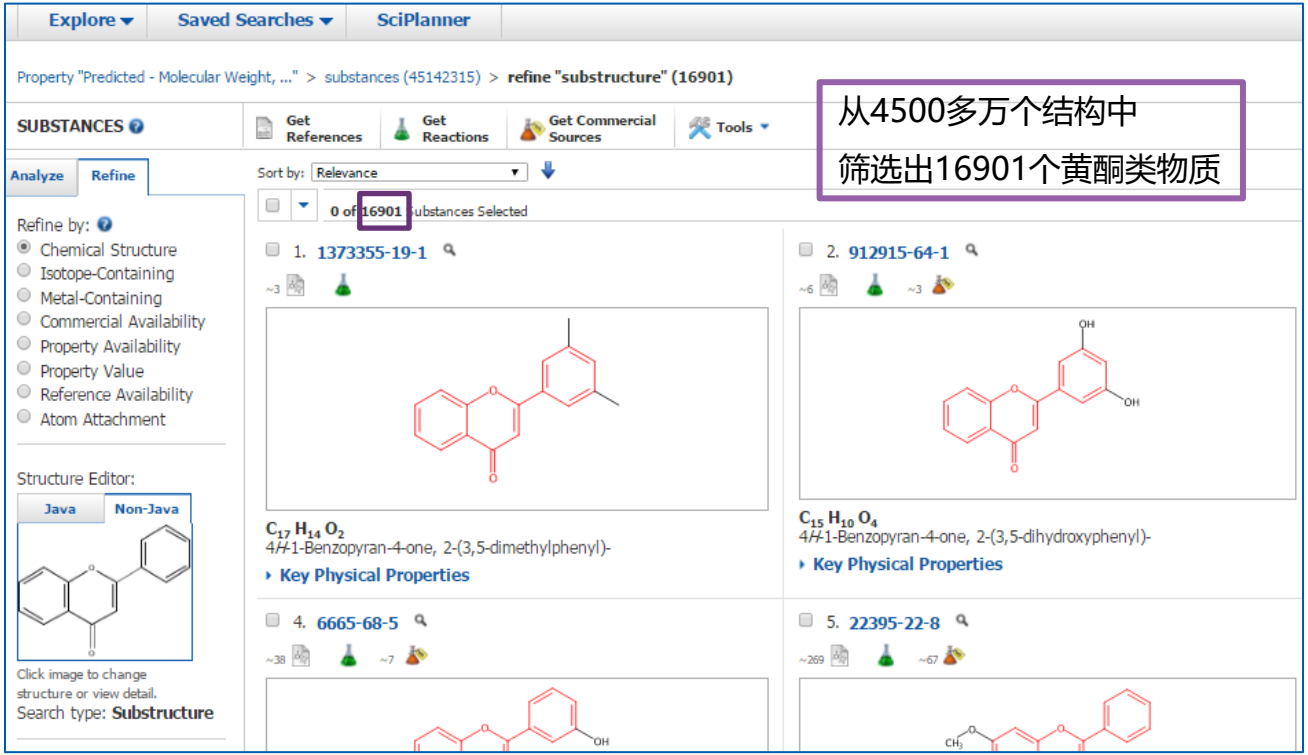
物质检索结果集



从4500多万个结构中

筛选出16901个黄酮类物质

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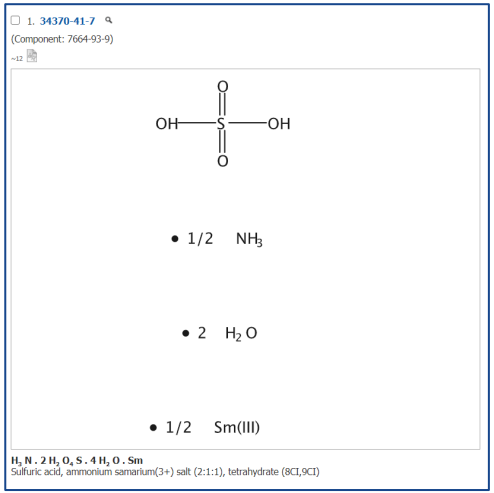
物质检索——分子式

检索(N H4) Sm (S O4)2 (H2 O)4, Ammonium Samarium Bis(sulfate(VI)) Tetrahydrate

1. 金属盐：金属离子和阴离子间用点（.）分开
2. 不同组份之间用点（.）分开



分子式输入需要遵守Hill排序规则：不含碳化合物，按元素符号的字母顺序排列；分子式为含碳化合物时，则“C”在前；如有氢则紧随其后，其它元素符号按字母顺序排在氢的后面

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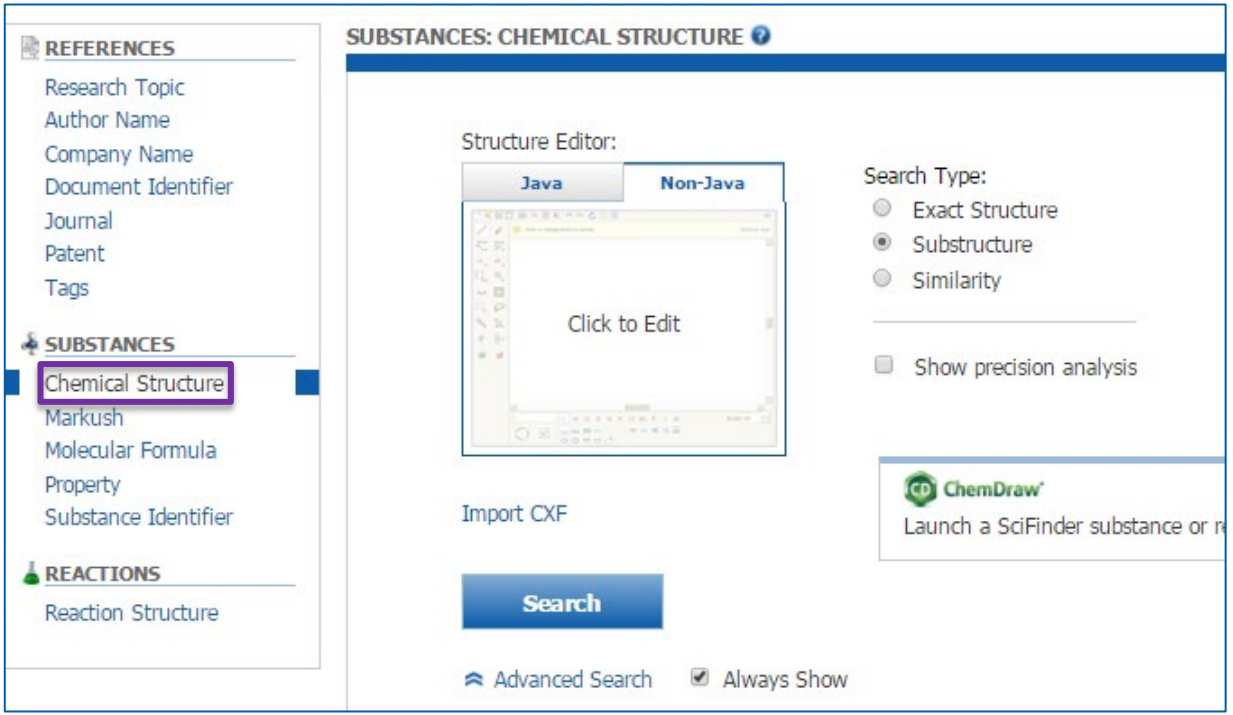
AMERICAN CHEMICAL SOCIETY

物质检索——结构



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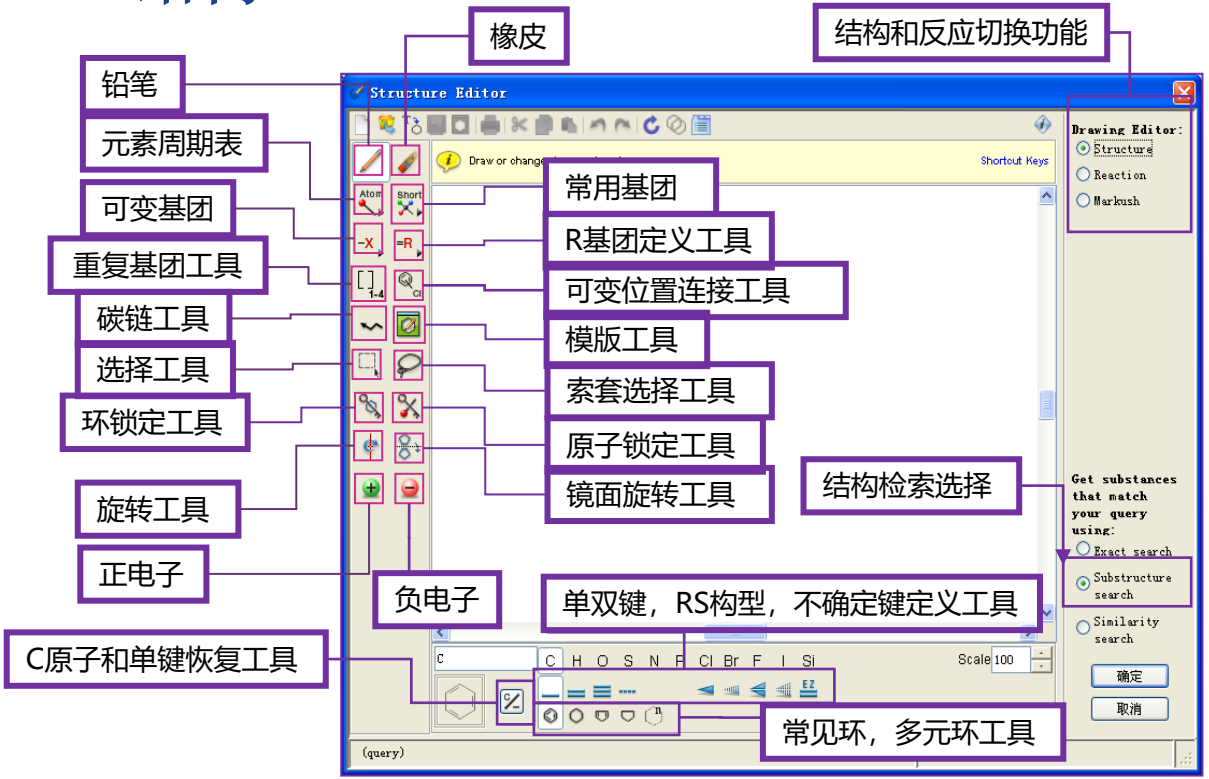
物质检索——结构



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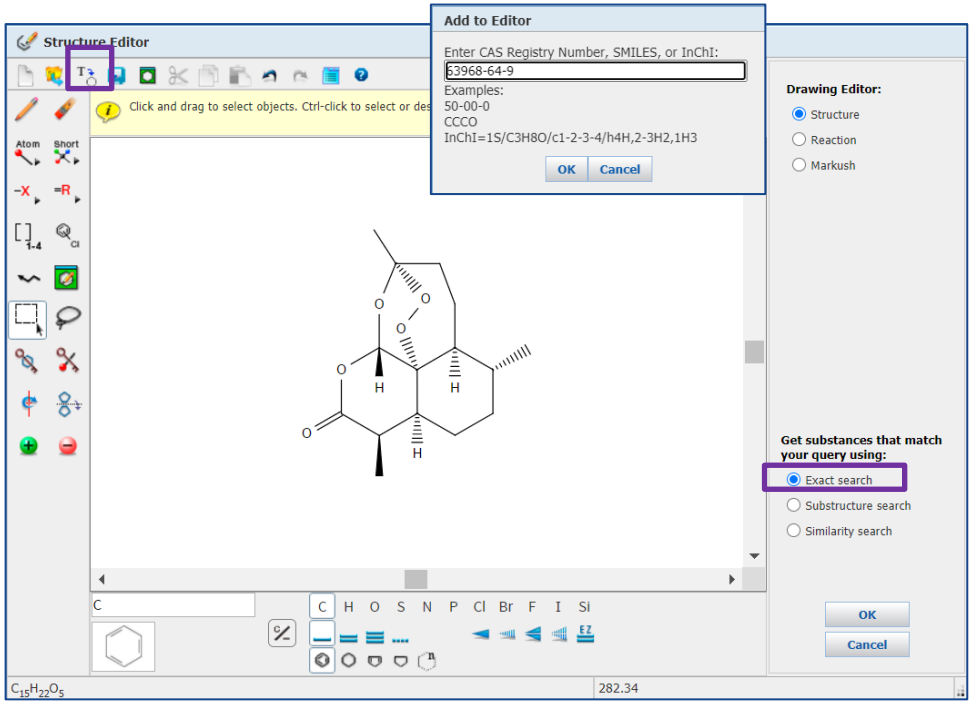
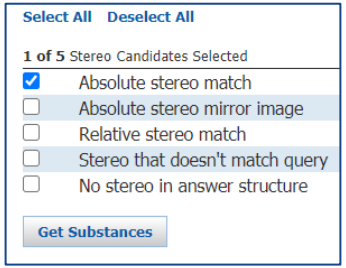
物质检索——精确结构检索

检索青蒿素的组合物





精确结构检索

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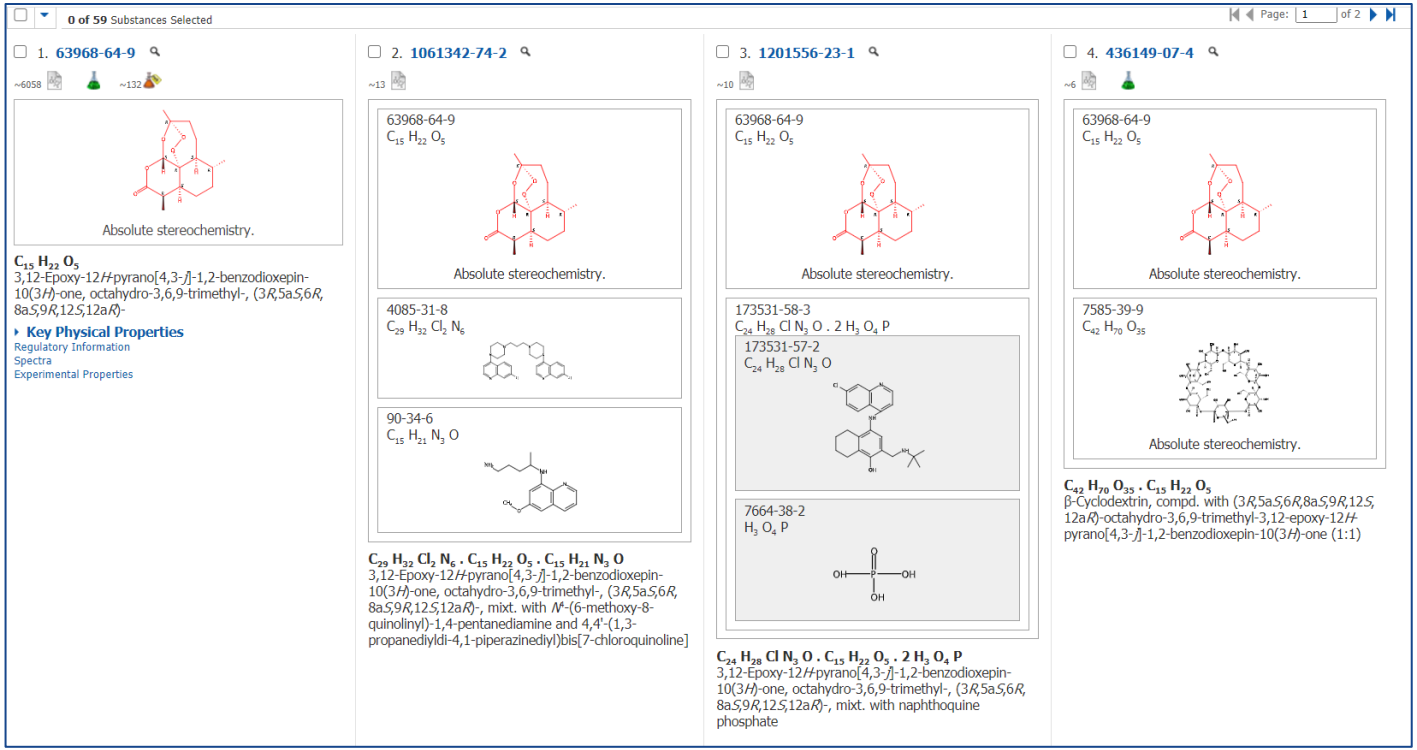
精确结构检索结果集



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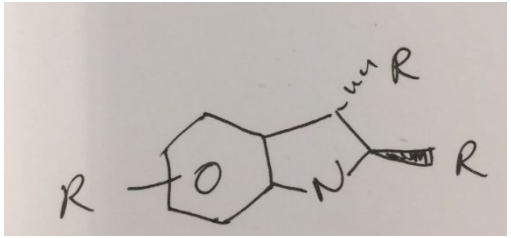
物质检索——精确结构检索

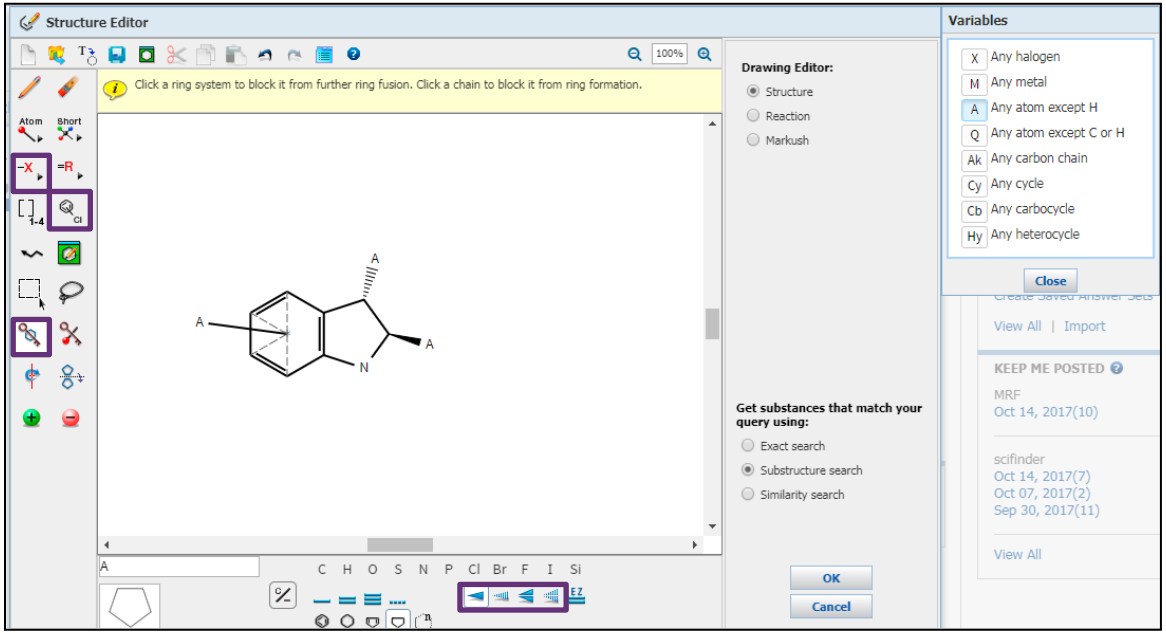
- 精确结构检索：

获得被检索结构的盐、混合物、配合物、聚合物等，被检结构不能被取代

物质检索——亚结构检索

具有下图母核结构的药物分子





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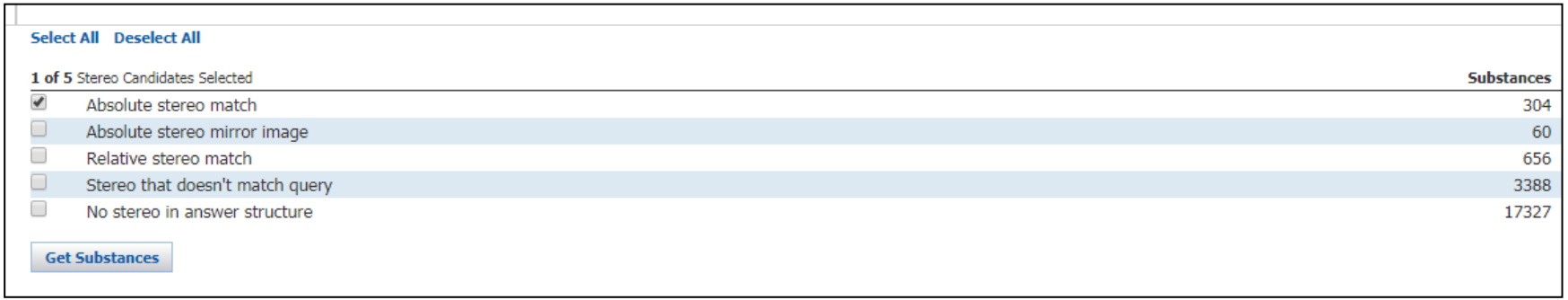
物质检索——亚结构检索



选择绝对立体构型完全匹配的候选项

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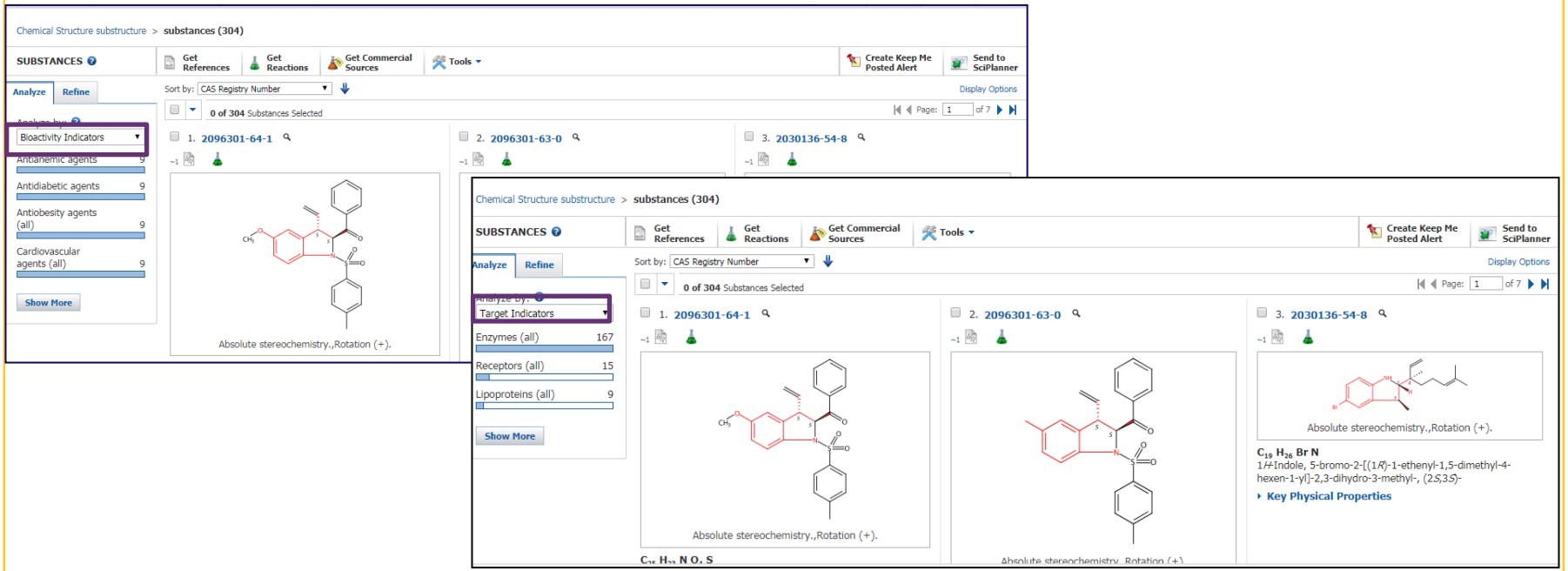
物质检索——亚结构检索

查看结果集，根据适应症或靶点信息选取分子



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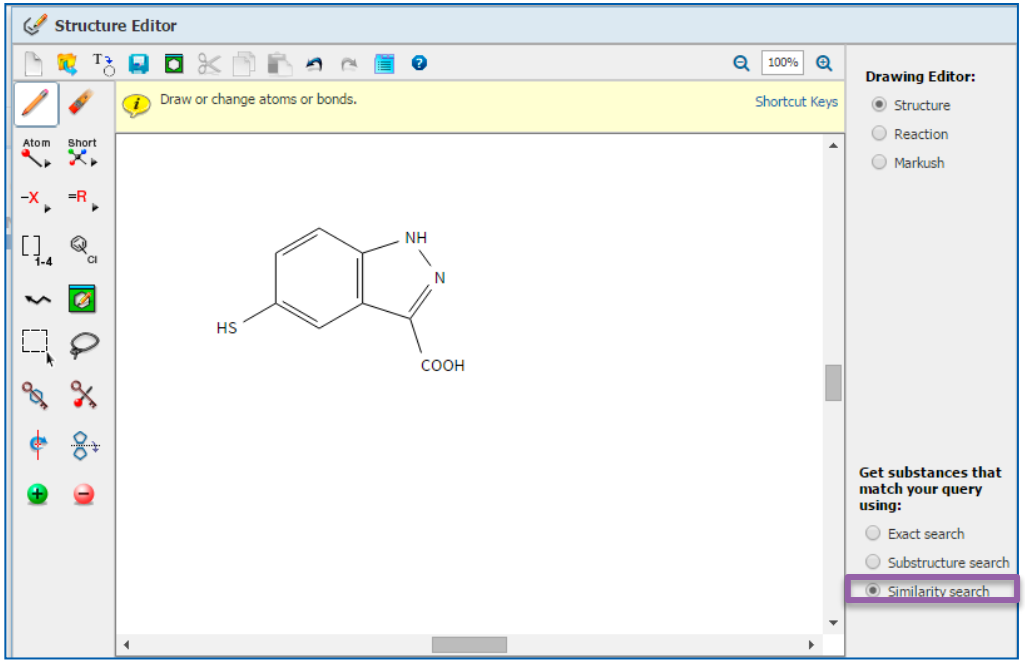
物质检索——亚结构检索

- 亚结构检索：

包括精确结构检索结果，及被检索结构的修饰结构

物质检索——相似结构检索



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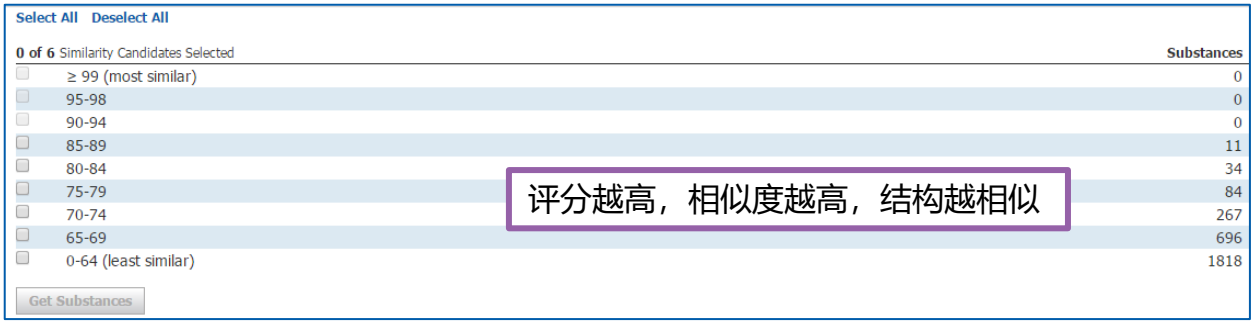
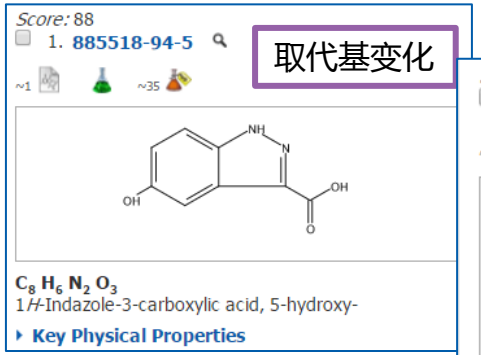
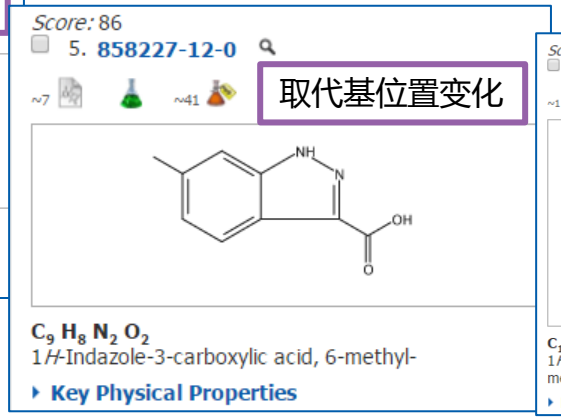
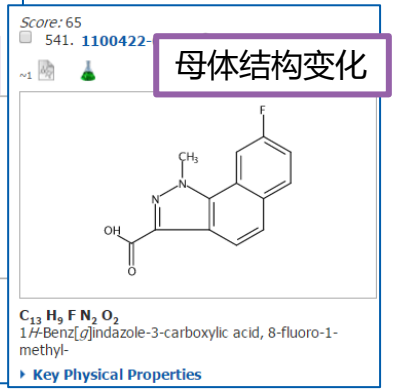
相似结构检索结果









CAS
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物质检索——相似结构检索

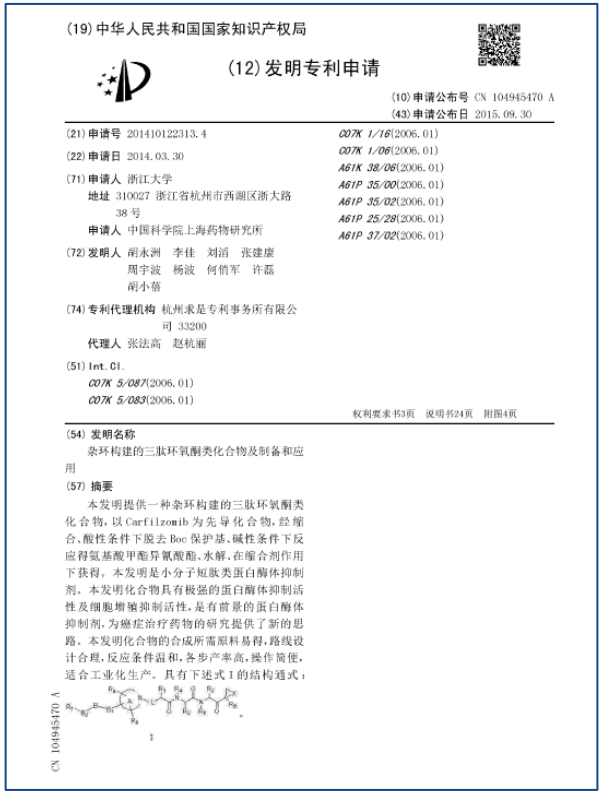
- 相似结构检索：

获得片段或整体结构与被检索结构相似的结果，母体结构可以被取代，也可以被改变

提纲

- 美国化学文摘社简介
- SciFinder简介及检索方式
  - 文献检索（PatentPak及MethodsNow-ANA的应用）
  - 物质检索
  - Markush检索
  - 反应检索（MethodsNow-SYN的应用）
  - SciPlanner
- SciFinder常见问题及解决

Markush检索



(19)中华人民共和国国家知识产权局

(12)发明专利申请

(10)申请公布号 CN 104945470 A
(43)申请公布日 2015.09.30

(21)申请号 201410122313.4
(22)申请日 2014.03.30
(71)申请人 浙江大学
地址 310027 浙江省杭州市西湖区浙大路38号
申请人 中国科学院上海药物研究所
(72)发明人 蒯永洲 李佳 刘涓 张建康 周宇波 杨波 何俏军 许磊 蒯小蓓
(74)专利代理机构 杭州求是专利事务所有限公司 33200
代理人 张法高 赵杭丽
(51)Int.Cl.
C07K 5/087(2006.01)
C07K 5/083(2006.01)
C07K 1/16(2006.01)
C07K 1/06(2006.01)
A61K 38/06(2006.01)
A61P 35/00(2006.01)
A61P 35/02(2006.01)
A61P 25/28(2006.01)
A61P 37/02(2006.01)

权利要求书3页 说明书24页 附图4页

(54)发明名称

杂环构建的三肽环氧酮类化合物及制备和应用

(57)摘要

本发明提供一种杂环构建的三肽环氧酮类化合物，以Carfilzomib为先导化合物，经缩合、酸性条件下脱去Boc保护基、碱性条件下反应得氨基酸甲酯异氰酸酯、水解、在缩合剂作用下获得。本发明是小分子短肽类蛋白酶体抑制剂。本发明化合物具有极强的蛋白酶体抑制活性及细胞增殖抑制活性，是有前景的蛋白酶体抑制剂，为癌症治疗药物的研究提供了新的思路。本发明化合物的合成所需原料易得，路线设计合理，反应条件温和，各步产率高，操作简便，适合工业化生产。具有下述式I的结构通式：

I

CN 104945470 A

具体实施方式

[0026] 本发明结合附图和实施例作进一步的说明，以下实施例仅是说明本发明，而不是以任何方式限制本发明。

[0027] 制备实施例1、4-(吡嗪-2-基氨甲酰基)哌啶-1-甲酸叔丁酯(1a,1b)

将1-(叔丁氧羰基)哌啶-4-甲酸(2.75g,12mmol)置于50mL三颈瓶中，N_2保护下加入25mL无水CH_2Cl_2，然后缓缓滴入吡啶(2.5mL,30mmol)和三氯亚砜(1.1mL,14mmol)，该反应液置于室温反应半小时。随后，2-氨基吡嗪(0.95g,10mmol)和三乙胺(5.7mL,40mmol)溶于15mL CH_2Cl_2后缓缓滴入上述反应液，室温反应6小时。反应液加30mL饱和食盐水稀释，分出有机层，水层CH_2Cl_2提取(15mL×3)，合并有机层，无水硫酸钠干燥后减压除去溶剂，柱层析分离得白色固体2.3g，收率74%。m.p.：134-136℃；^1H NMR (500MHz, $CDCl_3$)：δ = 9.55 (s, 1H, pyrazine-H), 8.35 (d, 1H, J=2.0Hz, pyrazine-H), 8.23 (s, 1H, pyrazine-H), 7.97 (s, 1H, NH), 4.20 (m, 2H, CH_2), 2.81 (m, 2H, CH_2), 2.48 (m, 1H, CH), 1.93 (d, 2H, J=12.5Hz, CH_2), 1.76 (m, 2H, CH_2), 1.47 (s, 9H, CH_3) ppm; ESI-MS: m/z = 307$[M+H]^+$。

[0028] 制备实施例2、4-(吡嗪-2-酰基)哌嗪-1-甲酸叔丁酯(1c,1d)

吡嗪-2-羧酸(1.5g,12mmol)置于50ml反应瓶中，加入35mL无水CH_2Cl_2溶解，随即加入1-羟基苯并三氮唑(1.6g,12mmol)和N-(3-二甲氨基丙基)-N'-乙基碳二亚胺盐酸盐(3.5g,18mmol)，室温反应半小时。随后，哌嗪-1-甲酸叔丁酯(1.9g,10mmol)加入反应液中，室温反应3小时。反应液加入30mL饱和碳酸氢钠水溶液稀释，分出有机层，饱和食盐

具体物质[Specific Substance]：

以具体化学结构陈述的特定物质，会被分配CAS RN

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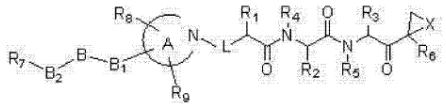
Markush检索

1. 一种杂环构建的三肽环氧酮类化合物，具有下述结构通式 I：



I

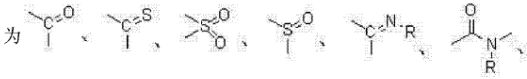
其中：

R_1，R_2，R_3 各自独立选自 H、C_{1-6} 烷基 -D、卤代的 C_{1-6} 烷基 -D、C_{1-6} 羟基烷基、C_{1-6} 巯基烷基、C_{1-6} 烷氧基烷基、芳基、芳烷基、杂芳基或杂芳烷基；其中：D 为 $N(R_a)(R_b)$ 或缺失，R_a，R_b 各自独立选自 H、OH、C_{1-6} 烷基、卤代的 C_{1-6} 烷基或 N 末端保护基；

R_4，R_5 各自独立选自 H、OH、C_{1-6} 烷基、卤代的 C_{1-6} 烷基或芳烷基；

R_6 选自 H，C_{1-6} 烷基，卤代的 C_{1-6} 烷基，C_{1-6} 羟基烷基，C_{1-6} 烷氧基，卤代的 C_{1-6} 烷氧基，C(O)O-C_{1-6} 烷基，C(O)NH-C_{1-6} 烷基，芳烷基；

X 为 O、S、NH、N-C_{1-6} 烷基或 N- 卤代的 C_{1-6} 烷基；

L 为  或者缺失，

其中 R 选自 H、C_{1-6} 烷基或卤代的 C_{1-6} 烷基；

环 A 选自 5 ～ 7 元的饱和脂肪杂环、不饱和杂环、或者有取代的 5 ～ 7 元的饱和脂肪杂环、不饱和杂环，所述的杂环包含 0 ～ 3 个选自 O 、N 和 S 的杂原子并任选地被 R_8、R_9 和 B_1 基团取代；

R_8，R_9 分别独立选自 H、OH，C_{1-6} 烷基，C_{1-6} 烷氧基，C_{1-6} 羟基烷基，C_{1-6} 巯基烷基，C_{1-6} 烷基 -D，芳基，杂环芳基，环烷基和杂环基，这些基团可以被卤素、硝基、氨基、CN、C_{1-6} 烷基、卤代的 C_{1-6} 烷基，C_{1-6} 烷氧基或卤代的 C_{1-6} 烷氧基取代，每个基团可与一个或多个芳基或杂环

预测性物质[Prophetic Substance]：

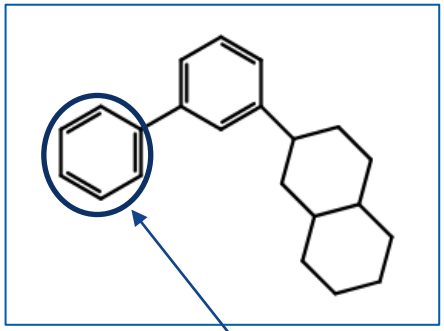
— 使用Markush结构陈述的预测物质，一个Markush可以陈述上百或上千个化学物质

— 被Markush结构包含，但未被实施或呈现在表格、权利要求书或说明书中的结构，不会被CAS分配CAS Registry Number

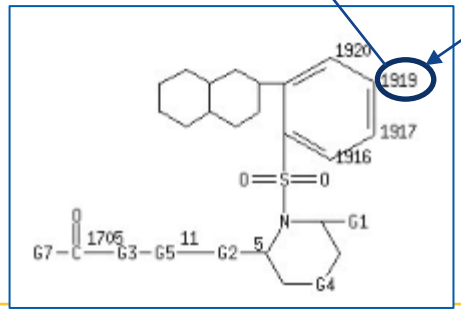
— Markush检索，能检索到通过结构检索检不到的专利

Markush检索

检索式



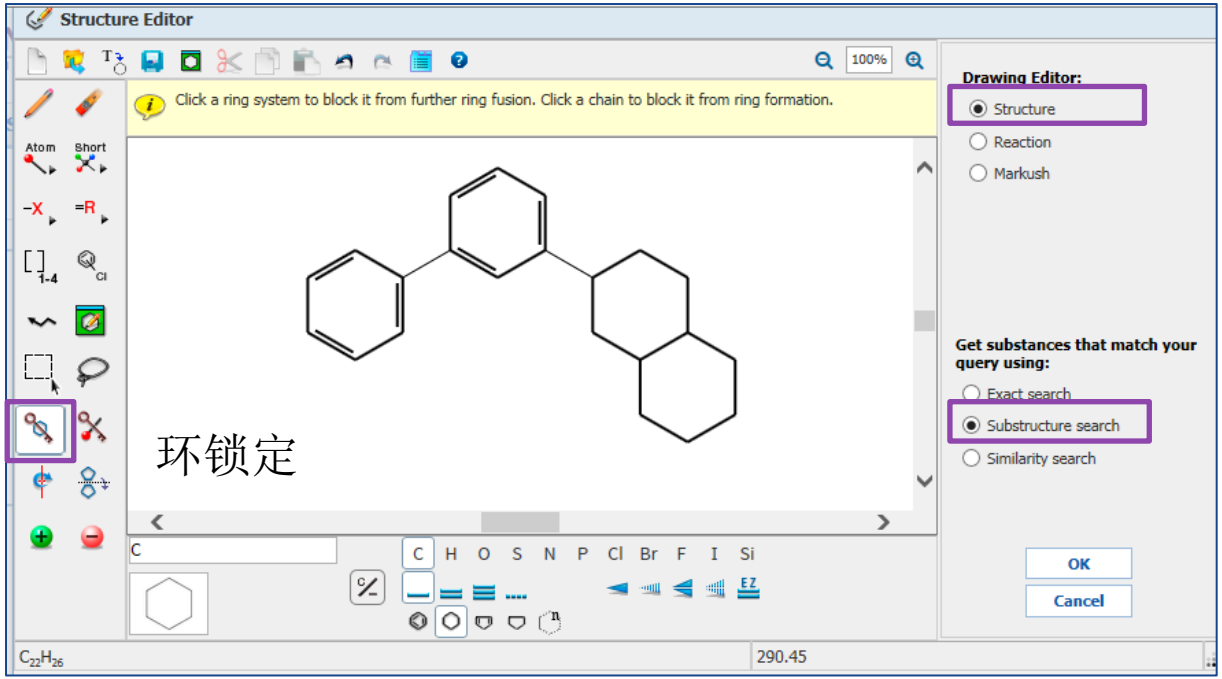
专利文献中匹配的Markush结构



1916, 1917, 1919, 1920: opt. substd. by Ph

Patent location:	claim 1
Note:	or pharmaceutically acceptable salts, prodrugs, or metabolites
Note:	additional oxo-substitution also disclosed
Note:	also incorporates claim 35

Markush检索



结构检索

亚结构检索

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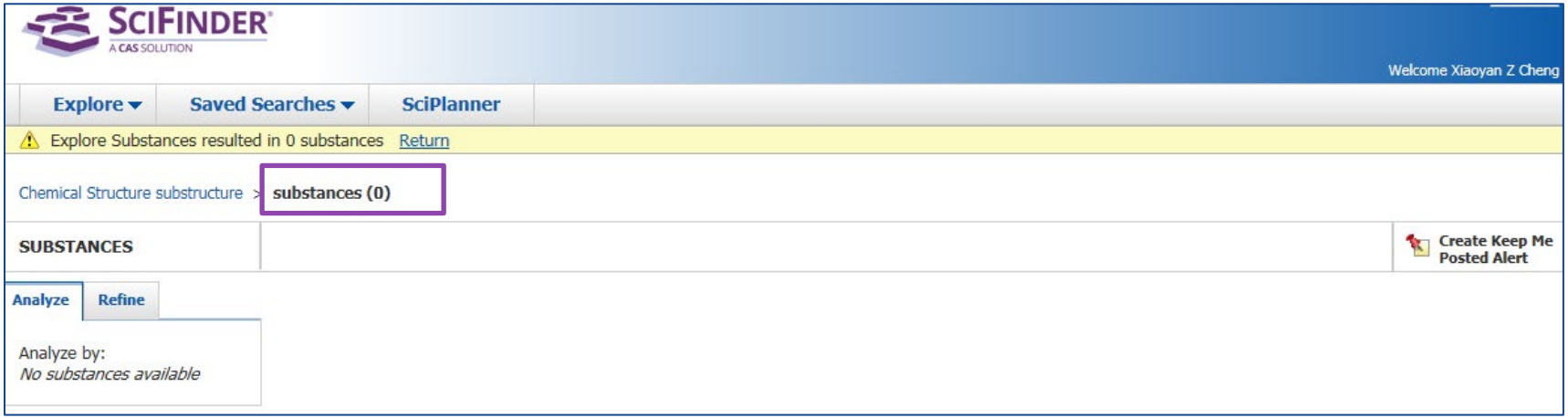
Markush检索



物质亚结构检索结果集：零！

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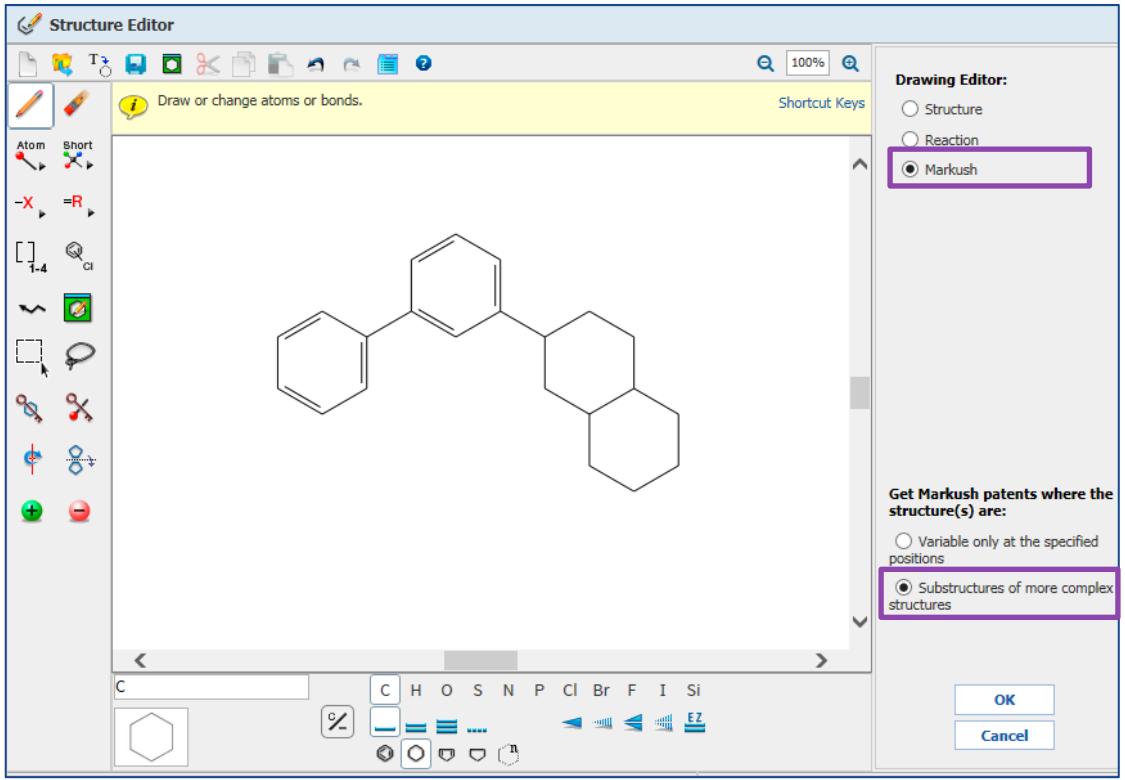
Markush检索



Markush检索

亚结构检索

CAS
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Markush检索

0 of 24 References Selected

1. **Compounds for the modulation of proprotein convertase subtilisin/kexin type 9 (PCSK9)**
Quick View PATENTPAK
By Bowers, Simeon; Karbarz, Mark; Zhu, Jiang; Barta, Thomas E.; Bourne, Jonathan William; Pandey, Anjali
From PCT Int. Appl. (2020), WO 2020252383 A2 20201217. | Language: English, Database: CAPLUS

The present disclosure relates to novel compds. capable of binding to PCSK9, thereby modulating PCSK9 biol. activity. Also provided are compns. comprising these compds., methods of prepg. the compds., and methods for use of the compds. in the treatment of PCSK9-related conditions and diseases.

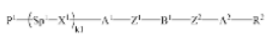
2. **Preparation of hole transport material for OLED**
Quick View PATENTPAK
By Wang, Yalong; Li, Hongyan; Xue, Zhen; Wang, Jinping; Chen, Zhiwei; Li, Lingang; Yan, Shan; Wang, Weijun; Ren, Zenggang
From Faming Zhuanli Shenqing (2019), CN 110156746 A 20190823. | Language: Chinese, Database: CAPLUS

The title hole transport material with general formula of R^1Ar^1-$N(Ar^2R^3)$-Ar^3R^2, wherein, Ar^1-Ar^3 are independently selected from substituted or unsubstituted C6-30 arylene, including phenylene, bis-phenylene, heteroarylene, etc.; R^1-R^3 are independently selected from H, substituted or unsubstituted C8-30 alkyl, substituted or unsubstituted C8-30 alkenyl, substituted or unsubstituted C8-30 alkynyl, etc. The inventive hole transport material is not only suitable for solar cells, but also suitable for org. semiconductor and other photoelec. fields.

3. **Process for the reduction of the NOx emissions with combustion engines by fuel additives.**
Quick View PATENTPAK
By Kantlehner, Willi
From Ger. Offen. (2019), DE 102018001260 A1 20190822. | Language: German, Database: CAPLUS

Processes are claimed, with which the nitrogen oxide contents in the exhaust gas of fuel-powered piston engines can be reduced, as additives - fed together or sep. - are supplied to the combustion chamber, in addn. to fuel, and the additives are preferably nitriles or org., nitrogen-contg. nitrile precursors, from which thermolysis products develop in the combustion chamber, which react with nitrogen oxides to form carbon dioxide and nitrogen.

4. **Polymerizable compound with good storage stability for optically anisotropic article**
Quick View PATENTPAK
By Horiguchi, Masahiro; Aoki, Yoshio; Hayashi, Takuo; Tsuruta, Toru
From Jpn. Kokai Tokkyo Koho (2017), JP 2017218391 A 20171214. | Language: Japanese, Database: CAPLUS



(I) The present invention relates to a monomer of P^1-$(Sp^1$-$X^1)_{k1}$-A^1-Z^1-B^1-Z^2-A^2-R^2, wherein P^1 = radical, cationic, or anionic polymerizable group; Sp^1 = independently spacer or direct bond; X^1 = independently O, S, OCH_2, CH_2O, CO, COO, etc.; k1 = 1-10 integer; A^1, A^2, B^1 = independently aliph. or arom.-aliph. fused ring optionally contg. O in the ring; Z^1, Z^2 = independently O, S, OCH_2, CH_2O, etc.; and R^2 = H, F, Cl, F, I, etc.

Markush检索结果集：24项专利!

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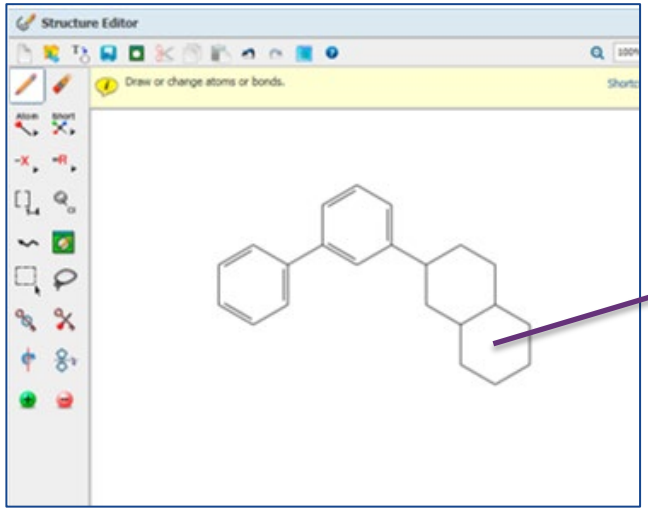
Markush检索

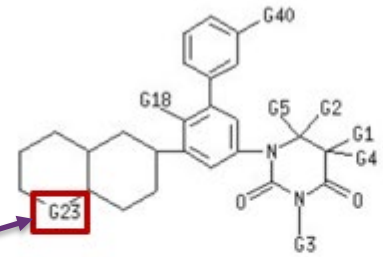
1. **Preparation of anti-infective pyrimidines for treating hepatitis C**

Quick View PATENTPAK

By Flentge, Charles A.; Hutchinson, Douglas K.; Betebenner, David A.; Degoey, David A.; Donner, Pamela L.; Kati, Warren M.; Krueger, Allan C.; Liu, Dachun; Liu, Yaya; Longenecker, Kenton L.; et al
From PCT Int. Appl. (2009), **WO 2009039134 A1** 20090326. | Language: English, Database: CAPLUS

This invention relates to: (a) compds. and salts thereof that, inter alia, inhibit HCV; (b) intermediates useful for the prepn. of such compds. and salts; (c) compns. comprising such compds. and salts; (d) methods for prepg. such intermediates, compds., salts, and compns.; (e) methods of use of such compds., salts, and compns.; and (f) kits comprising such compds., salts, and compns. The compds. of the invention have general formula I (wherein the dotted bond is either a single or double bond; R^1 is H, Me, and nitrogen-protecting group; R^2 is H, halo, OH, Me, cyclopropyl, and cyclobutyl; R^3 i...





G23 = (0-1) CH2
Patent location: claim 1
Note: or salts
Note: also incorporates claim 15

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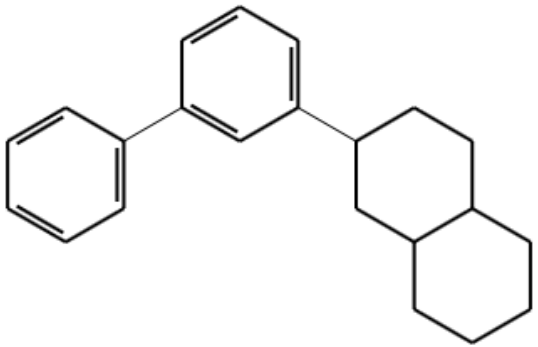
Markush检索



亚结构检索结果集：0

Markush检索结果集：24项专利

确定设计的物质新不新，有必要同时进行结构检索和Markush检索

提纲

- 美国化学文摘社简介
- SciFinder简介及检索方式
  - 文献检索（PatentPak及MethodsNow-ANA的应用）
  - 物质检索
  - Markush检索
  - 反应检索（MethodsNow-SYN的应用）
  - SciPlanner
- SciFinder常见问题及解决

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SciFinder检索——反应检索

- 反应检索方法

  结构式

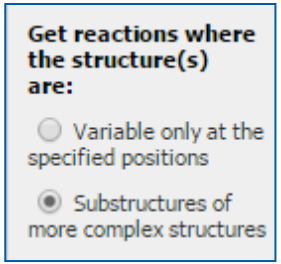
- 常用获取方法

  已知物质：由物质获取反应

  已知文献：从文献中获取反应

  精确结构反应检索

  亚结构反应检索



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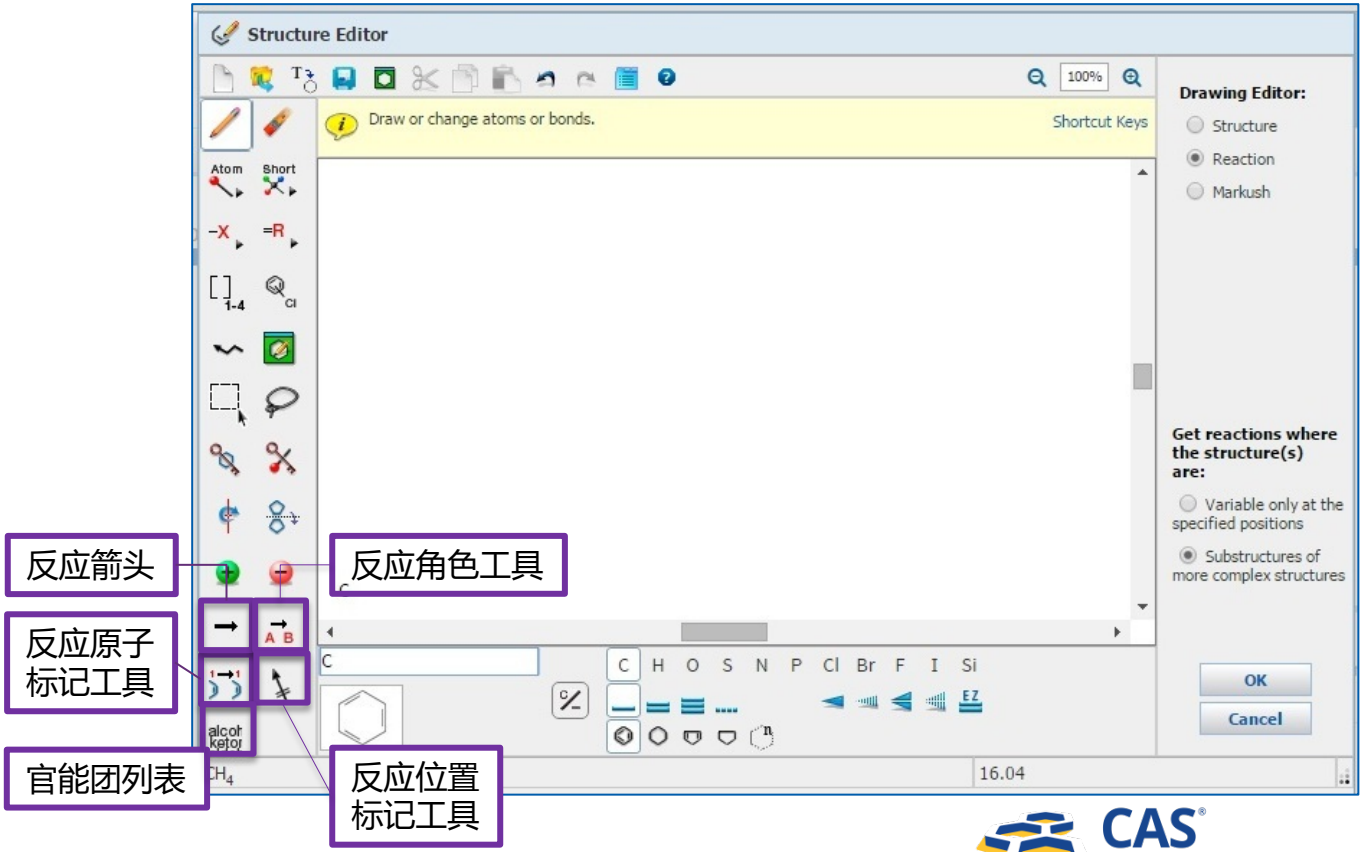
反应绘制工具



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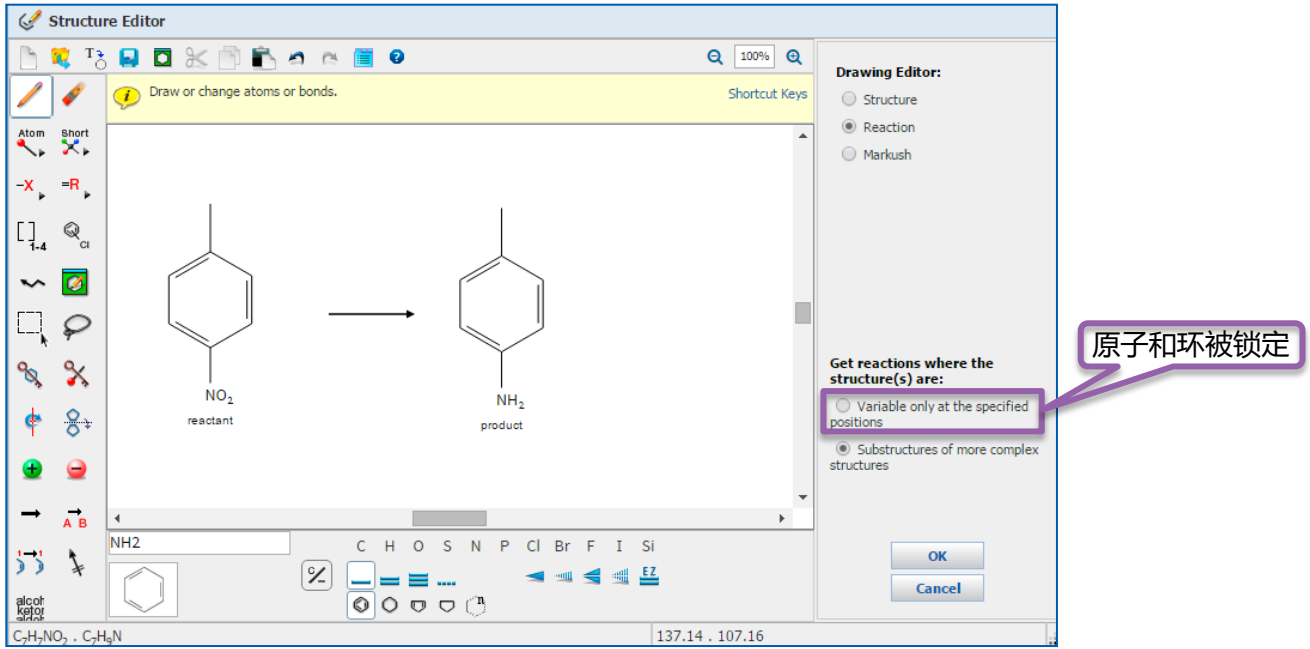
SciFinder反应检索——原子和环被锁定



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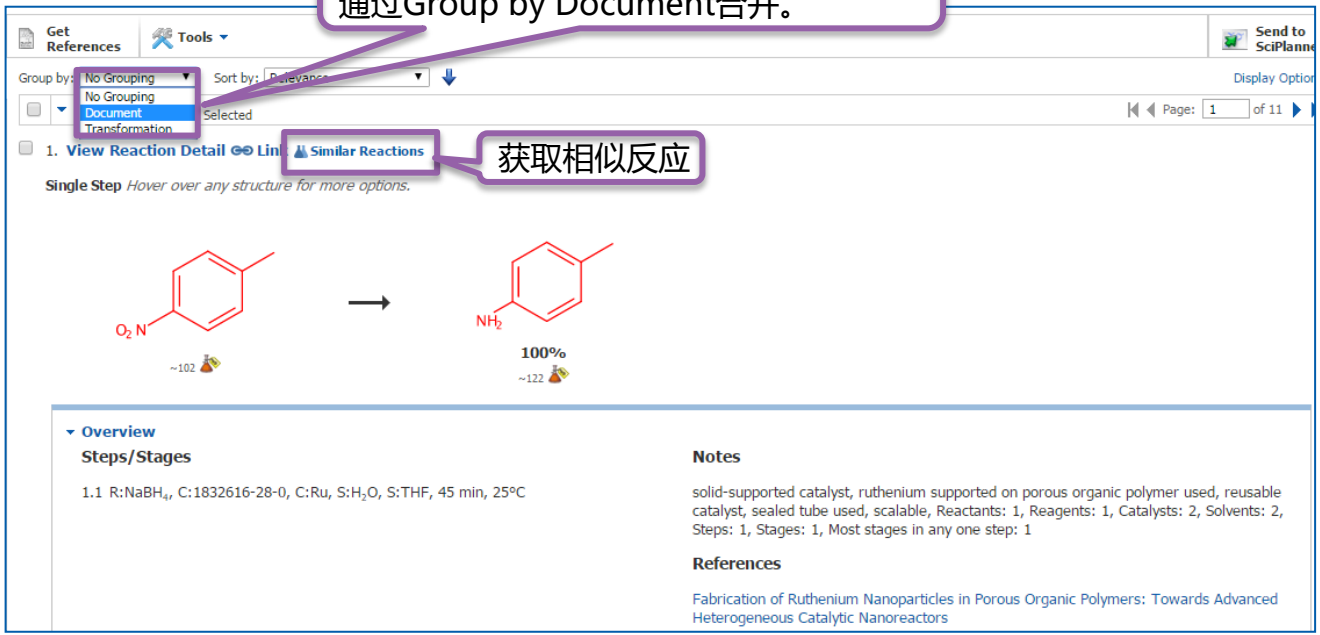
反应检索结果

浏览记录，发现很多反应来自同一篇文献，通过Group by Document合并。



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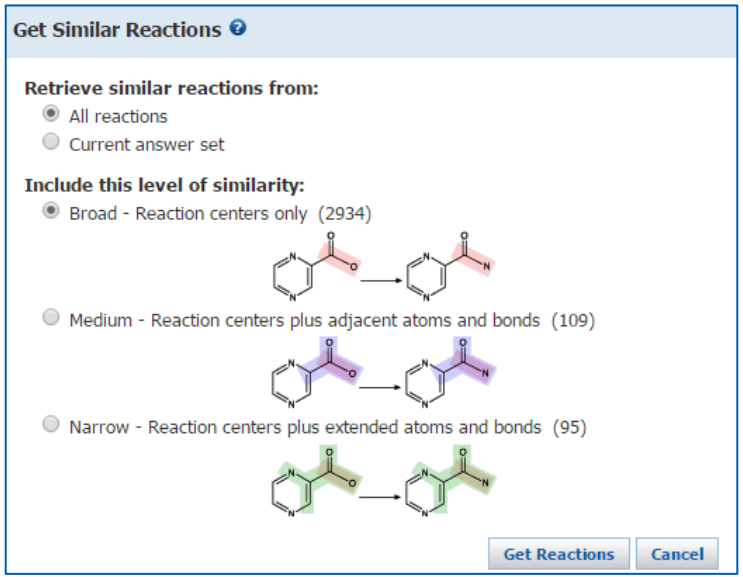
获取相似反应

选择相似反应的相似限制：

Broad：仅反应中心相似

Miedum：反应中心及附属原子和键

Narrow：反应中心及扩展的原子和键



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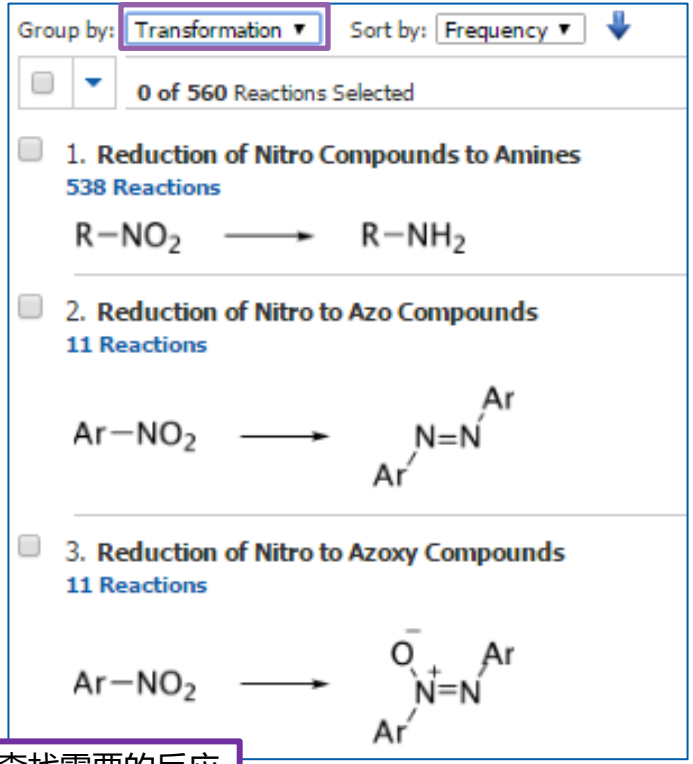
按照反应类型排序



更精确的查找需要的反应

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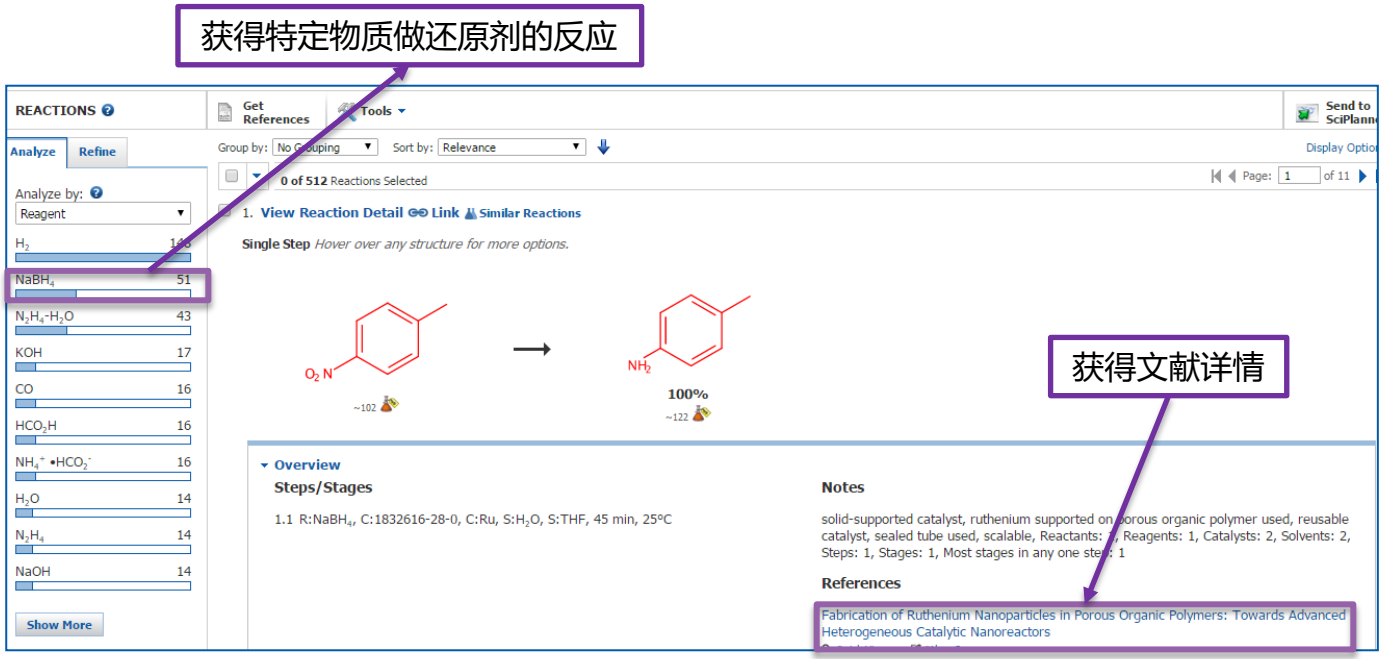
反应检索结果的筛选



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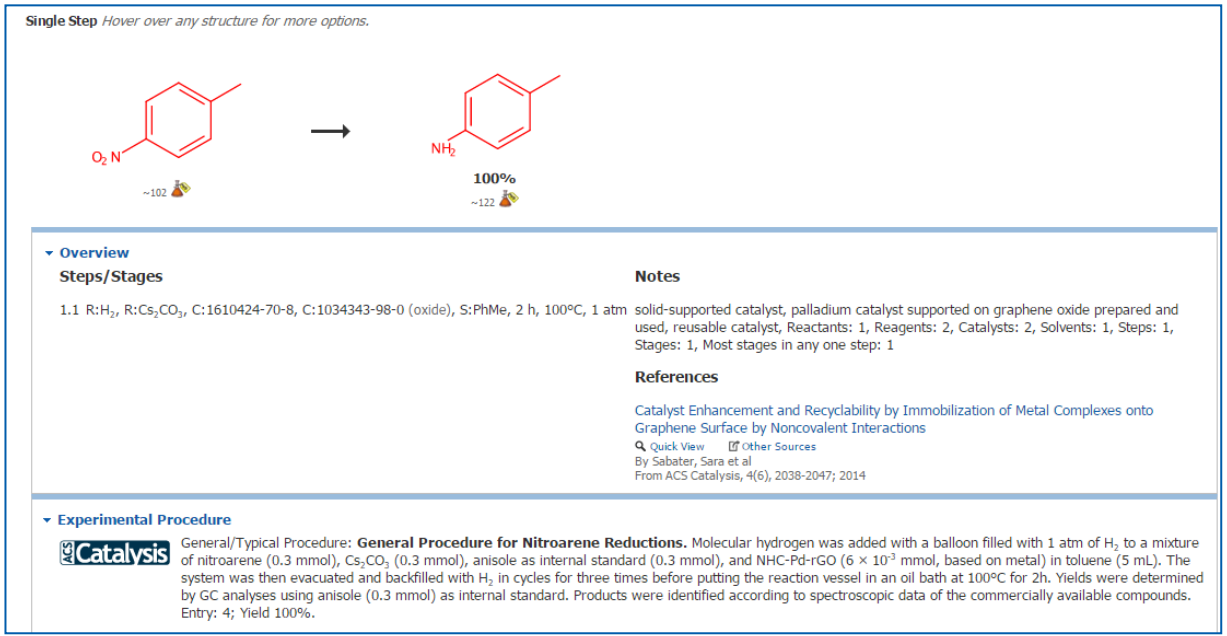
SciFinder囊括全球最大的反应实验过程合集



不用阅读全文，直接获得包含实验过程的反应记录

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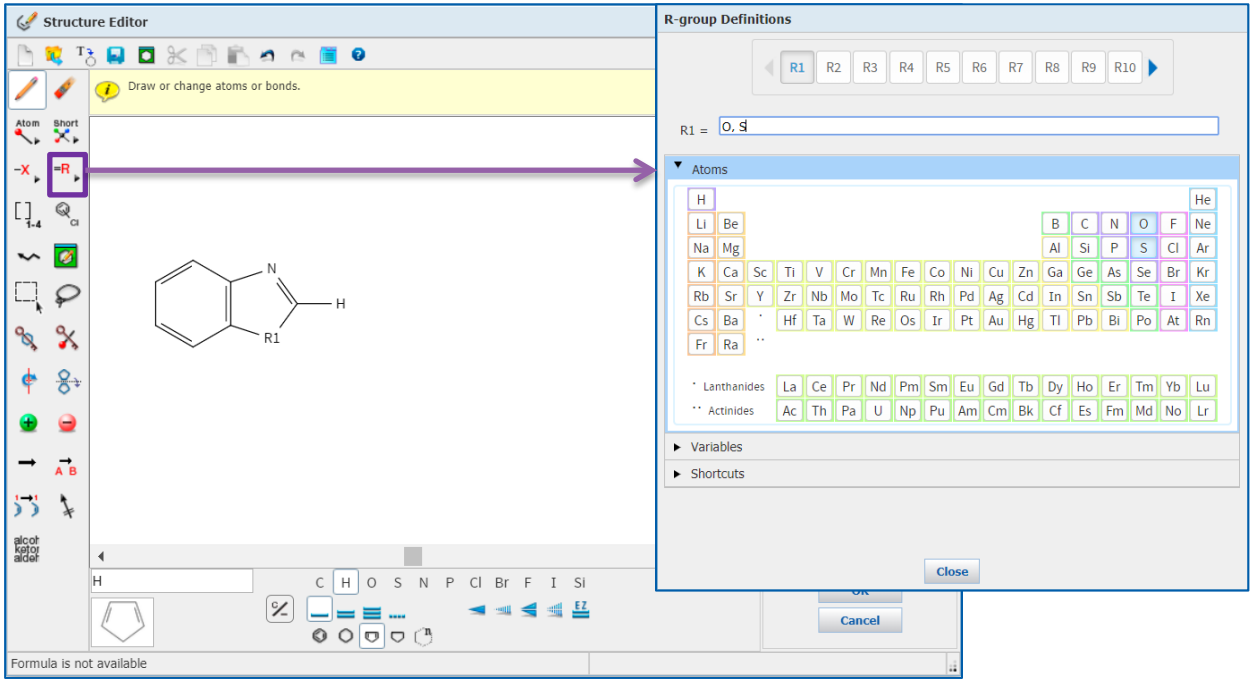
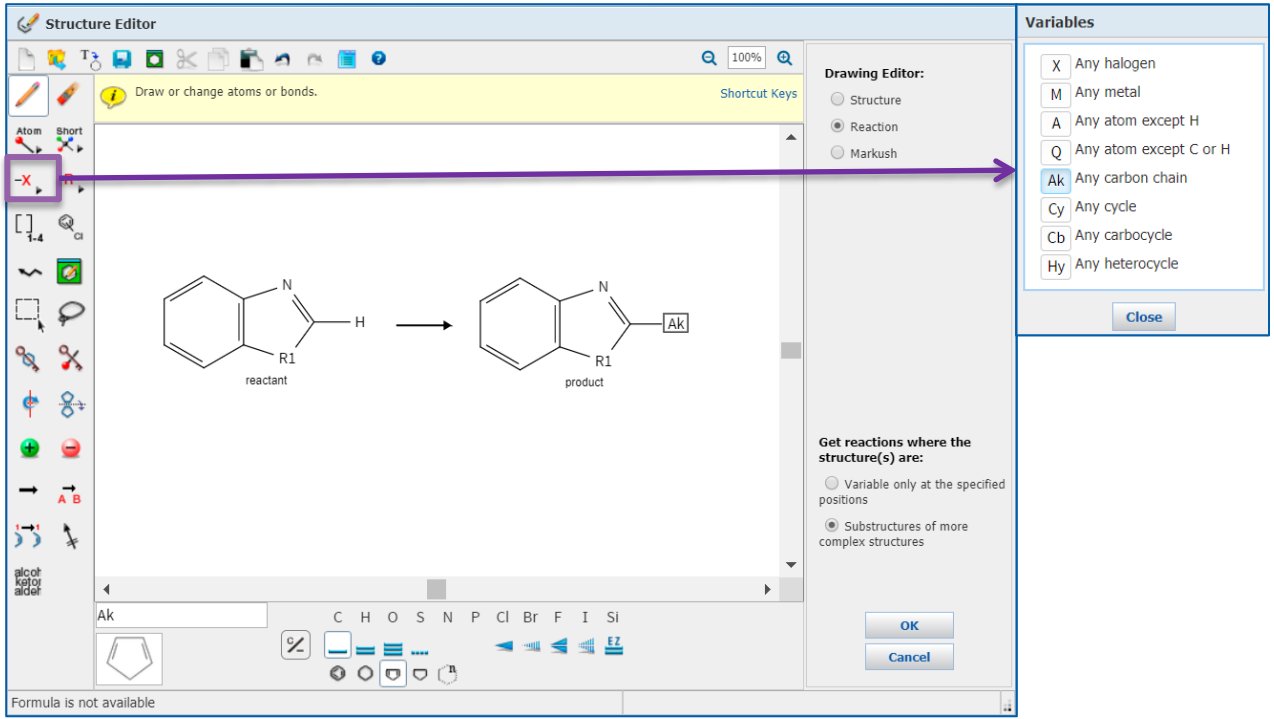
亚结构反应检索

通过C-H活化对苯并噻唑或者恶唑进行烷基化

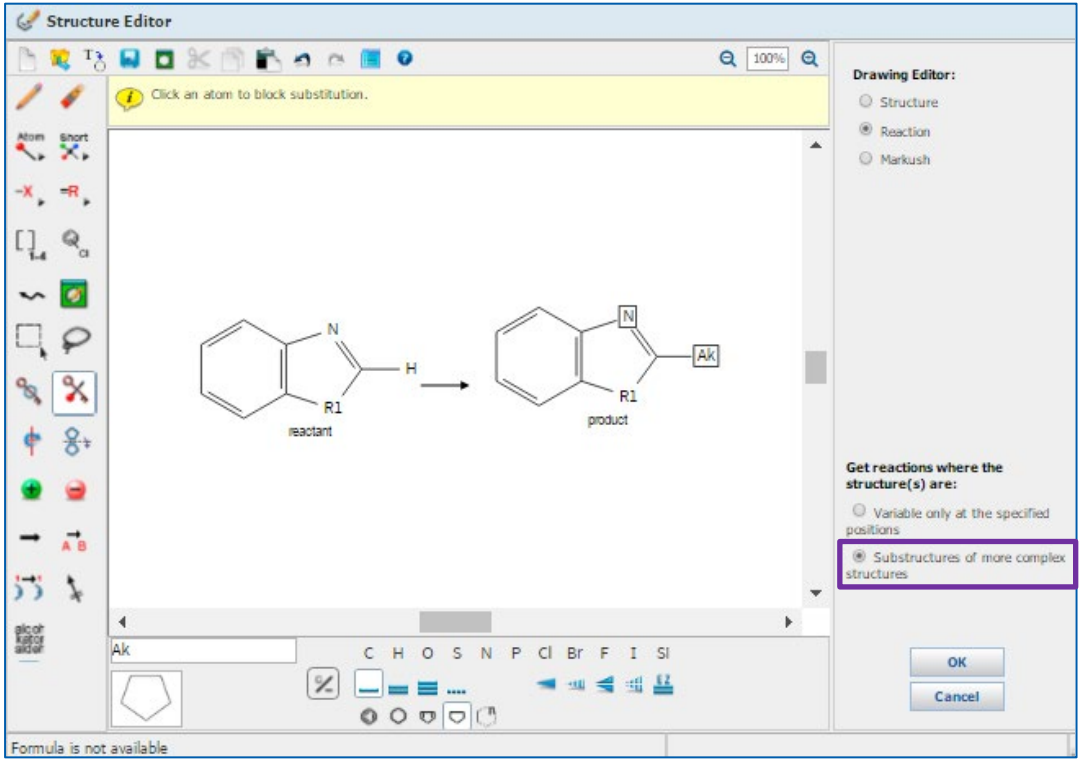


亚结构反应检索

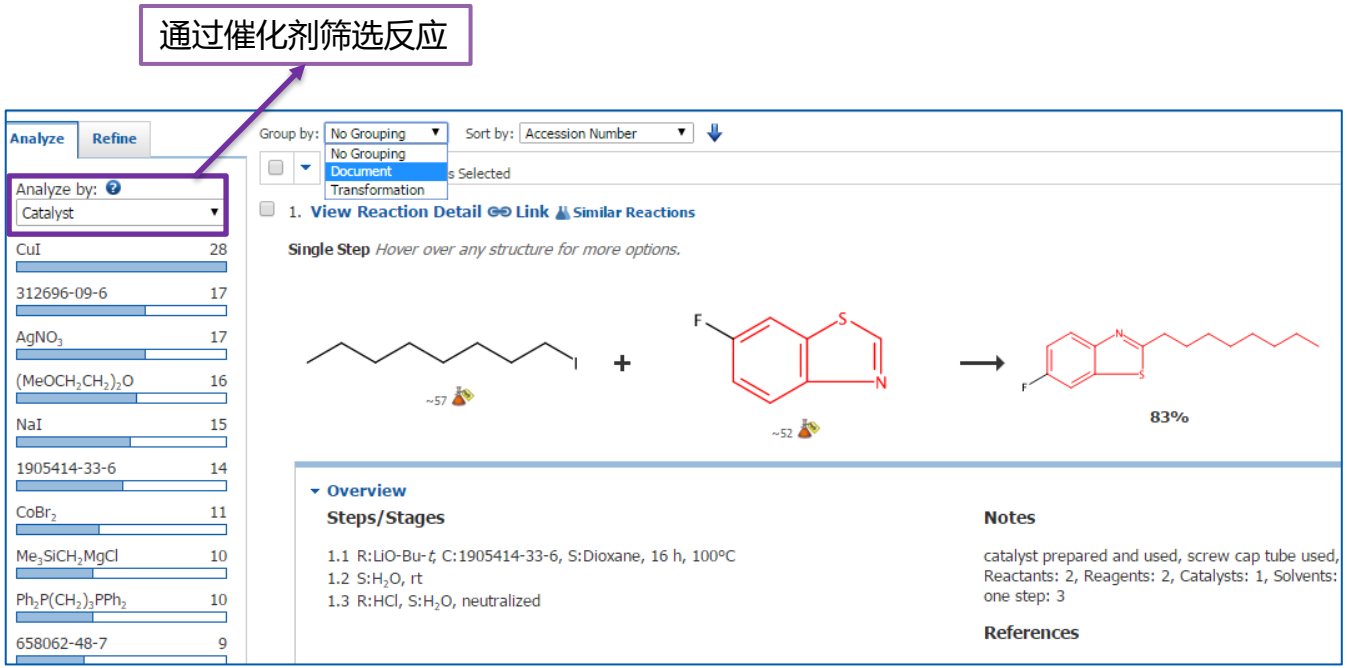


CAS
A DIVISION OF THE AMERICAN CHEMICAL SOCIETY

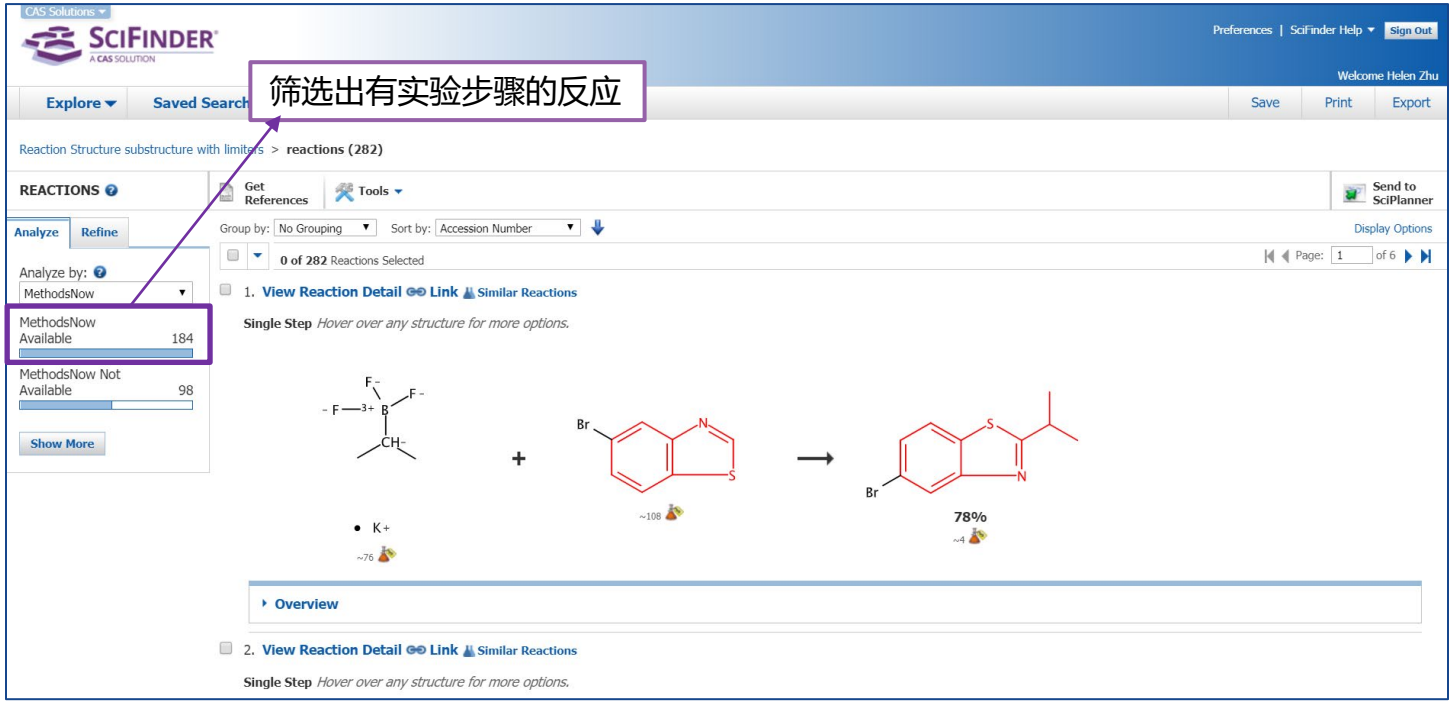
亚结构反应检索



通过后处理工具筛选反应——Analyze



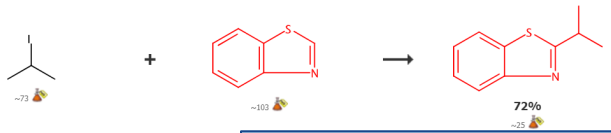
通过后处理工具筛选反应--Analyze



通过后处理工具筛选反应--Analyze

39. View Reaction Detail Link Similar Reactions

Single Step *Hover over any structure for more options.*



Overview

METHODSNOW™

Procedure

1. Add one equivalent of indole, 3 equivalents of benzothi
   Chemglass vial.
2. Purge the vial for 5 minutes under vacuum.

View more...

Available Experimental Data

^{1}H NMR, ^{13}C NMR, HRMS

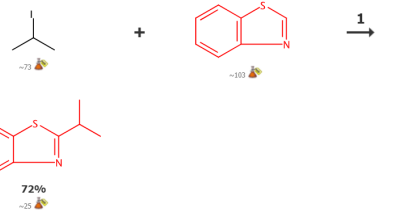
View with MethodsNow

re relief cap

MethodsNow

C-H Functionalization of Heteroarenes Using Unactivated Alkyl Halides through Visible-Light Photoredox Catalysis under Basic Conditions

By Bissonnette, Noah B.; Boyd, Michael J.; May, Gregory D.; Giroux, Simon; Nuhant, Philippe
From Journal of Organic Chemistry, 83(18), 10933-10940; 2018
Published by American Chemical Society



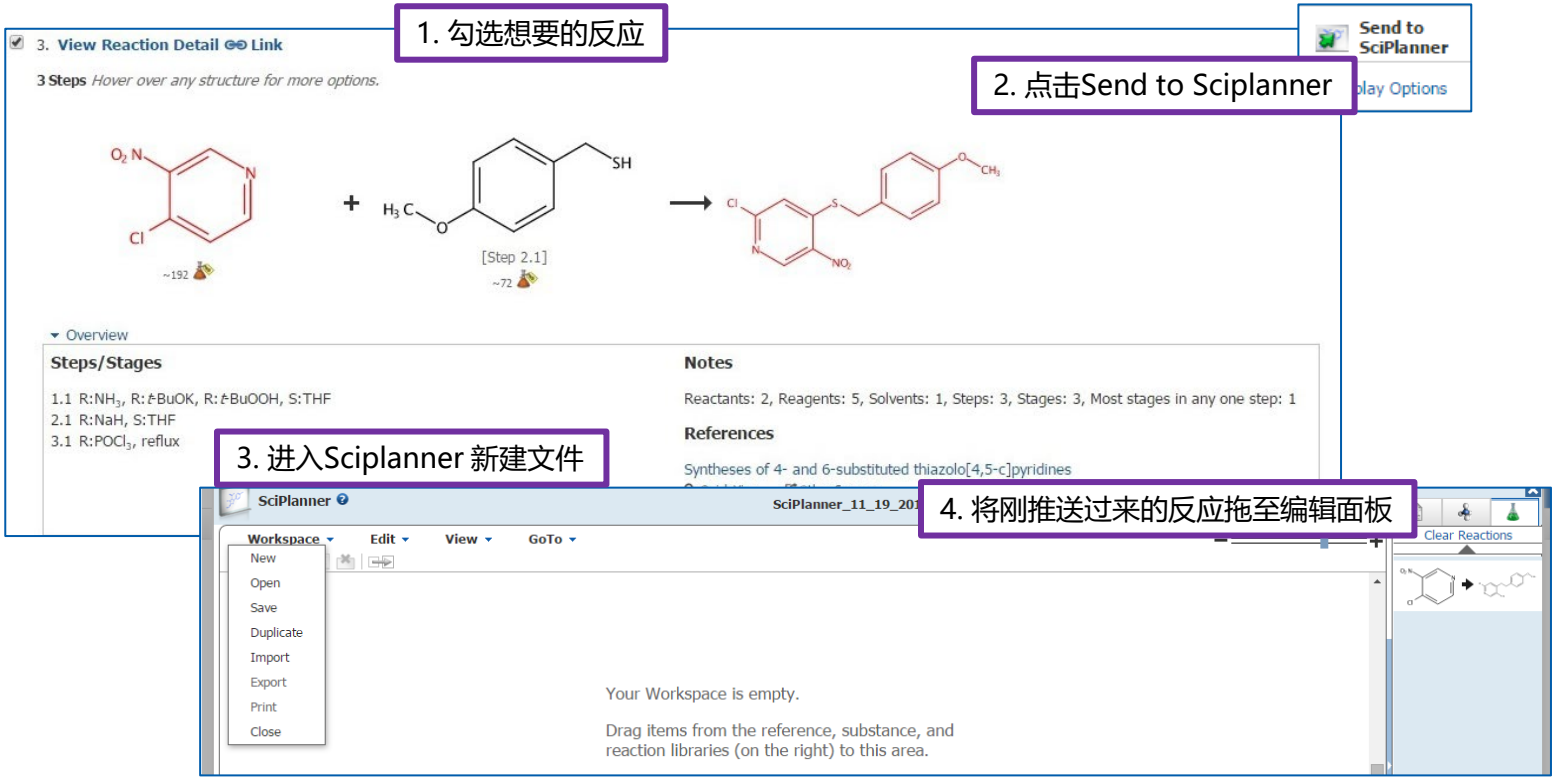
Products	2-(1-Methylethyl)benzothiazole, 72%, CAS RN: 17626-86-7
Reactants	Isopropyl iodide, CAS RN: 75-30-9 Benzothiazole, CAS RN: 95-16-9
Reagents	2,2,6,6-Tetramethylpiperidine, CAS RN: 768-66-1
Catalysts	Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κN^1]bis[2-(2-pyridinyl-κN)pher 33)-, hexafluorophosphate(1-) (1:1), CAS RN: 676525-77-2

Solvents	Methanol, CAS RN: 67-56-1
Procedure	1. Add one equivalent of indole, 3 equivalents of benzothiazole and 2.5 mol % of $[Ir(ppy)_2(dtbbpy)]PF_6$ to a vial (1 dram, ~3.7 mL), 15 × 45 mm, 13-425 thread with red pressure relief cap Chemglass vial. 2. Purge the vial for 5 minutes under vacuum. 3. Fill the vial with nitrogen gas. 4. Add MeOH (0.5 mL), 3.1 equivalents of Et_3N and 1 equivalent of indole to the reaction mixture under N_2 atmosphere. 5. Remove the nitrogen line. 6. Add 3 equivalents of benzothiazole to the reaction mixture. 7. Irradiate the vial under blue LED light. 8. Stir the reaction mixture overnight at room temperature at 1000 rpm with a small cooling fan (approximately 16 hours). 9. After the completion of the reaction, add 0.25 equivalent of 1,4-dinitrobenzene to the vial. 10. Evaporate the volatiles using a V10 Biotage system. 11. Load the crude mixture onto a 40 g gold ISCO column using hexane/ethyl acetate (100:0 to 0:100) as eluents.
Transformation	Friedel-Crafts Alkylation
^{1}H NMR	(400 MHz, chloroform-d) δ 7.98 (dd, J = 8.2, 1.2 Hz, 1H), 7.85 (dd, J = 8.0, 1.3 Hz, 1H), 7.45 (ddd, J = 8.3, 7.2, 1.3 Hz, 1H), 7.34 (ddd, J = 8.3, 7.3, 1.2 Hz, 1H), 3.43 (hept, J = 6.9 Hz, 1H), 1.48 (d, J = 6.9 Hz, 6H).
^{13}C NMR	(101 MHz, chloroform-d) δ 178.7, 153.3, 134.8, 126.0, 124.7, 122.7, 121.7, 34.2, 23.1 (2C).
HRMS	(ESI), m/z: calcd for $C_{10}H_{12}NS[M + H]^+$: 178.0690, found: 178.0687.
CAS Method Number	3-085-CAS-19169886

提纲

- 美国化学文摘社简介
- SciFinder简介及检索方式
  - 文献检索（PatentPak及MethodsNow-ANA的应用）
  - 物质检索
  - Markush检索
  - 反应检索（MethodsNow-SYN的应用）
  - SciPlanner
- SciFinder常见问题及解决

SciPlanner使用简介



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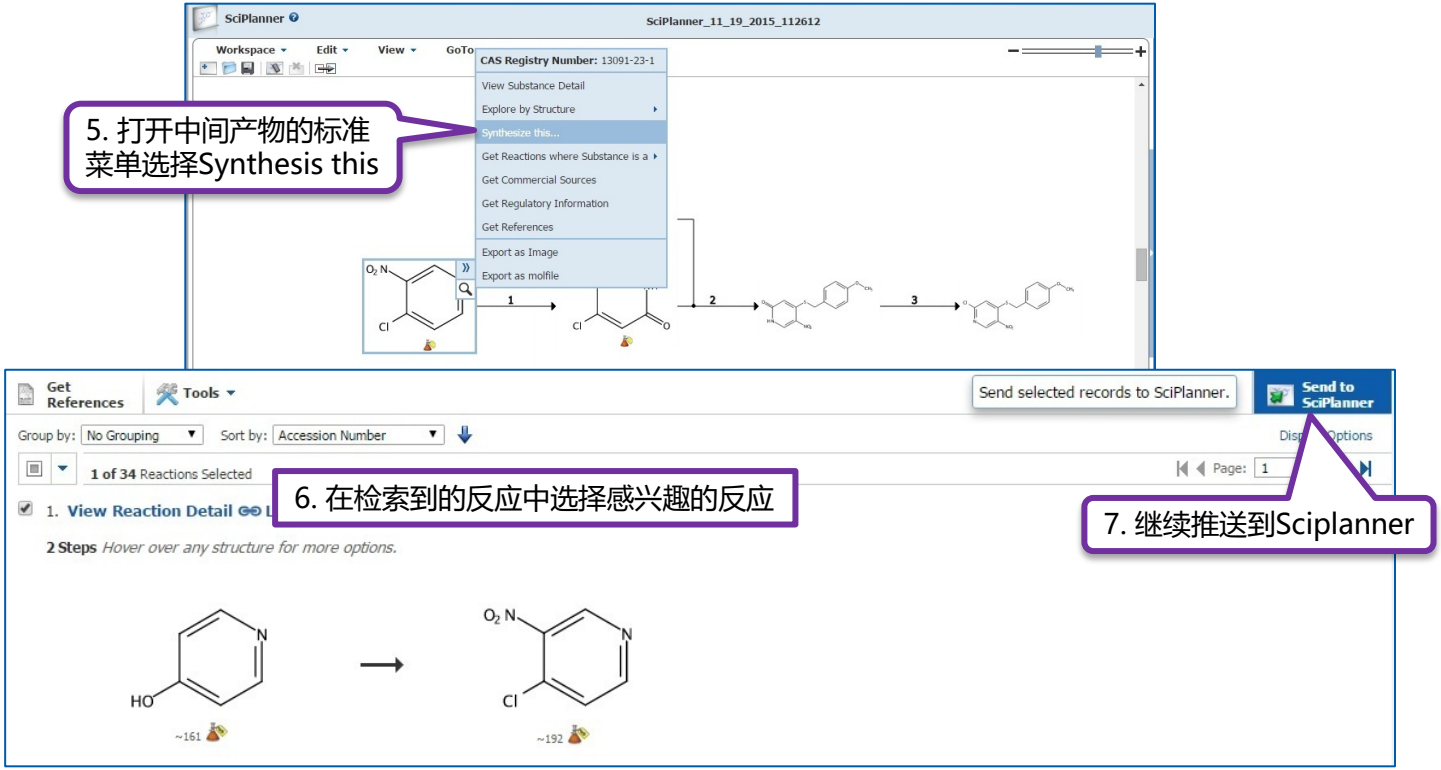

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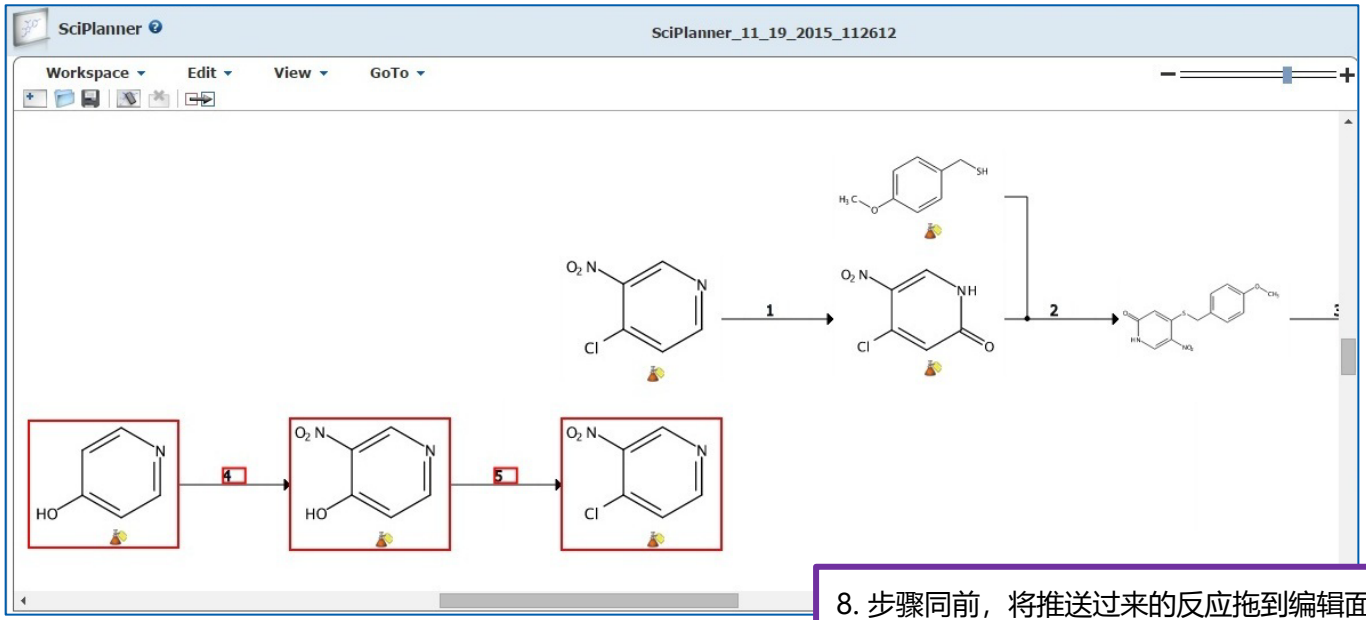

8. 步骤同前，将推送过来的反应拖到编辑面板中，可以看到两条反应中存在同样的结构

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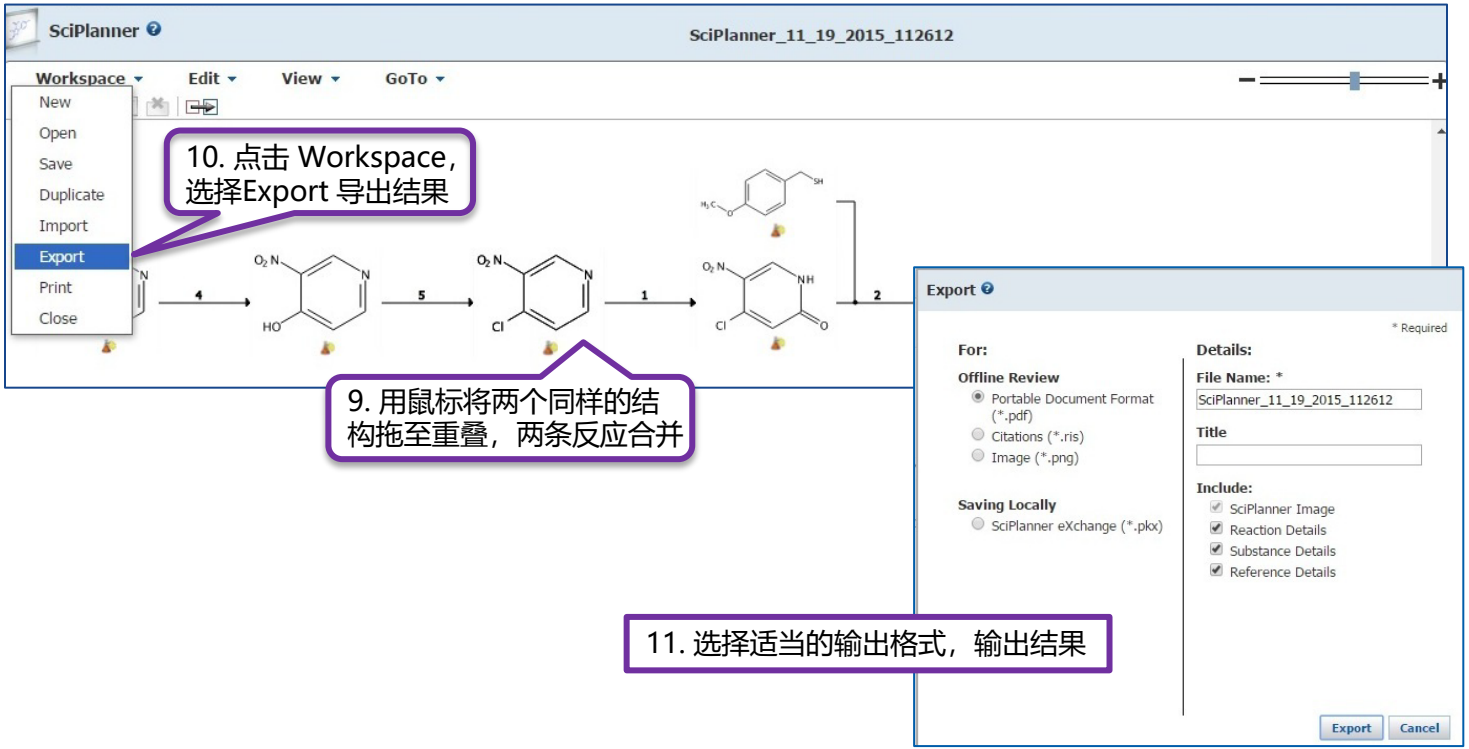
SciPlanner使用简介



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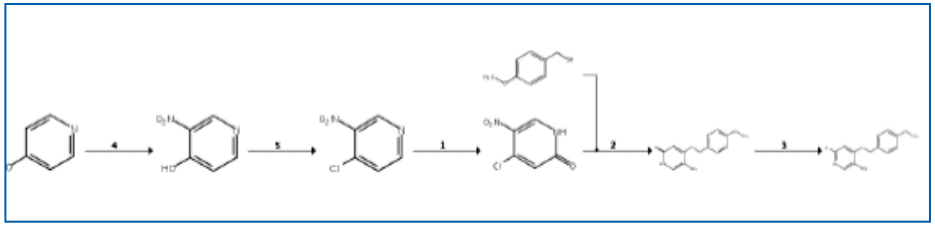
SciPlanner导出结果



Reaction	Stages		Notes	Yield
5	1.1	R:$POCl_3$, S:PhMe, 0°C → rt; 16 h, rt → 110°C	Reactants: 1, Reagents: 2, Solvents: 2, Steps: 1, Stages: 2	90%
	1.2	R:K_2CO_3, S:H_2O, cooled, pH 10	**Transformation:** 1. Formation of Alkyl Halides from Alcohols	

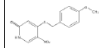
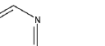
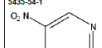
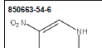
References

High color rendering index and color stable hybrid white efficient OLEDs with a double emitting layer structure using a single phosphorescence dopant of heteroleptic platinum complexes

By Poloek, Anurach et al

From Journal of Materials Chemistry C: Materials for Optical and Electronic Devices, 2(48), 10343-10356; 2014

Substance Information

1228150-22-8  $C_{13}H_{12}N_2O_4S$ 2(1*H*)-Pyridinone, 4-[[[4-methoxyphenyl]methyl]thio]-5-nitro- **Related Info:** ~ 2 References Reactions	**1228150-23-9**  $C_{13}H_{11}ClN_2O_3S$ Pyridine, 2-chloro-4-[[[4-methoxyphenyl]methyl]thio]-5-nitro- **Related Info:** ~ 2 References Reactions	**13091-23-1**  $C_5H_3ClN_2O_2$ Pyridine, 4-chloro-3-nitro- **Related Info:** ~ 391 References Reactions ~ 190 Commercial Sources Regulatory Information
5435-54-1  $C_5H_4N_2O_3$ 4-Pyridinol, 3-nitro- **Related Info:** ~ 113 References Reactions ~ 197 Commercial Sources Regulatory Information	**6258-60-2** $C_6H_{10}OS$ Benzenemethanethiol, 4-methoxy- **Related Info:** ~ 749 References Reactions ~ 71 Commercial Sources Regulatory Information	**626-64-2**  C_5H_5NO 4-Pyridinol **Related Info:** ~ 1351 References Reactions ~ 160 Commercial Sources Regulatory Information
850663-54-6  $C_5H_3ClN_2O_3$ 2(1*H*)-Pyridinone, 4-chloro-5-nitro- **Related Info:** ~ 22 References Reactions ~ 136 Commercial Sources		

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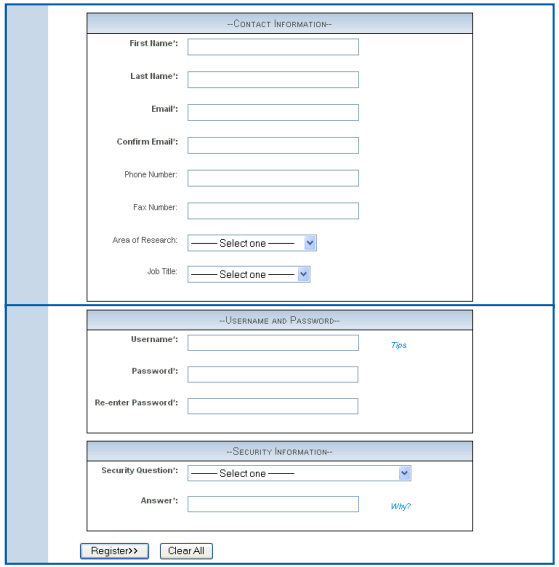
提纲

- 美国化学文摘社简介
- SciFinder简介及检索方式
  - 文献检索
  - 物质检索
  - Markush检索
  - 反应检索
  - SciPlanner
- SciFinder常见问题及解决

SciFinder浏览器选择建议

- Windows 7以上用户建议升级IE到10以上，不支持IE7、IE8
- Chrome和FireFox浏览器在所有系统上的表现都优于IE浏览器
- 不建议使用360浏览器检索SciFinder，会被自动拦截相关功能或插件

如何获取SciFinder账号



请注意：
1.必须输入真实姓名和学校邮箱。
2.用户名必须是唯一的，且包含 5-15 个字符。它可以只包含字母或字母组合、数字和/或以下特殊字符：
- -（破折号）
- _（下划线）
- .(句点)
- @（表示“at”的符号）

3.密码必须包含 7-15 个字符，并且至少包含三种以下字符：
- 字母
- 混合的大小写字母
- 数字
- 非字母数字的字符（例如 @、#、%、&、*）

例：abc@123
4.从下拉列表中选择一个密码提示问题并给出答案。
单击 Register（注册）。

- 登录学校图书馆网站找到SciFinder数据库说明页，按照提示进行注册

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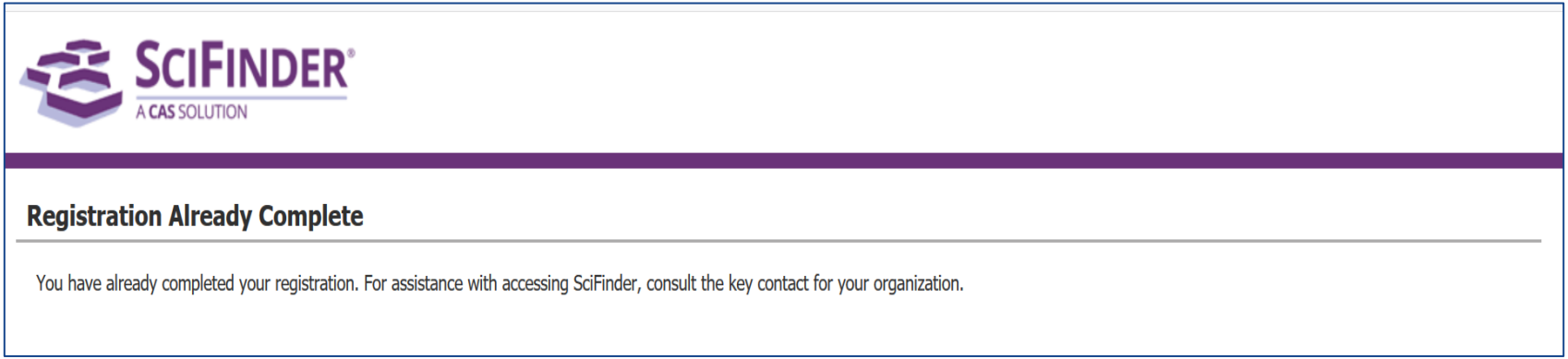
如何获取SciFinder账号



点击激活链接后注册成功。

之后直接点击https://SciFinder.cas.org即可访问SciFinder数据库。

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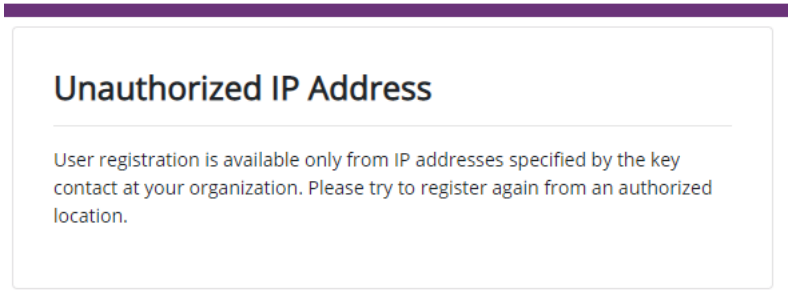
SciFinder使用注意事项

- 一人注册一个帐号，在校内完成注册
- 实名注册，请提供真实姓名信息（中文名用汉语拼音全拼）
- 严禁过量下载（以电子形式存储不超过5,000条记录）
- 严禁账号分享
- 严禁将账号用于非学术研究

SciFinder常见问题



- 检查注册链接是否正确
- 确认连入校园网，且不是通过VPN连接
- 如果链接正确，且在校园网内，请联系图书馆或china@acs-i.org

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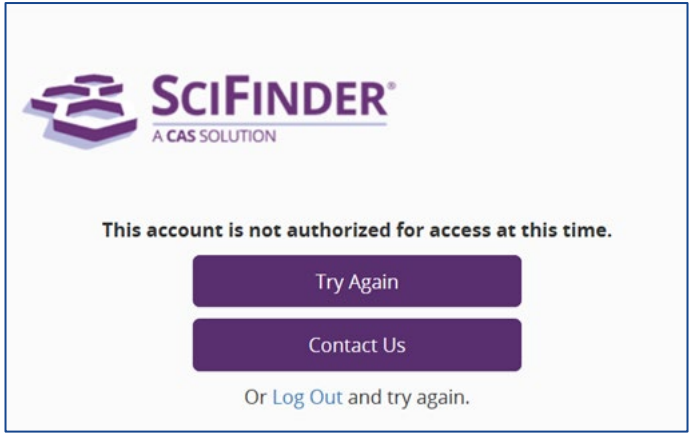

- 确认账号密码是否正确
- 如果账号密码正确，请填好问题报告后联系图书馆或china@acs-i.org

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更多培训资料请访问

https://www.cas.org/support/training/scifinder

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谢 谢!

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