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Reaxys中的化学信息检索

俞靓

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- Reaxys数据库的介绍与更新
- Reaxys数据库与同类数据库的比较
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
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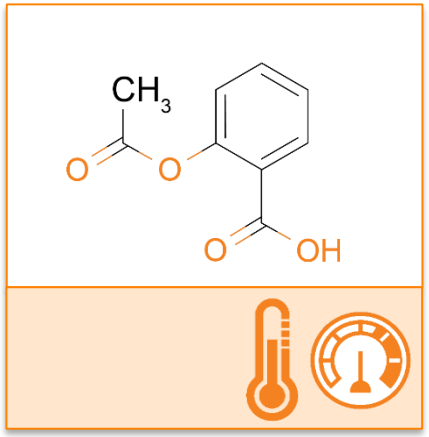
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

什么是Reaxys？



>110 M 物质记录
>500 M 实验数据
物理的，化学的, 光谱数据，生态学, 生物活性数据

>47M 反应记录
以及这些反应的条件，溶剂，催化剂，收率，反应中心，反应类型

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Chemistry fundamentals

Uses across disciplines

Reaxys更新—Auto Suggest自动弹出建议词条

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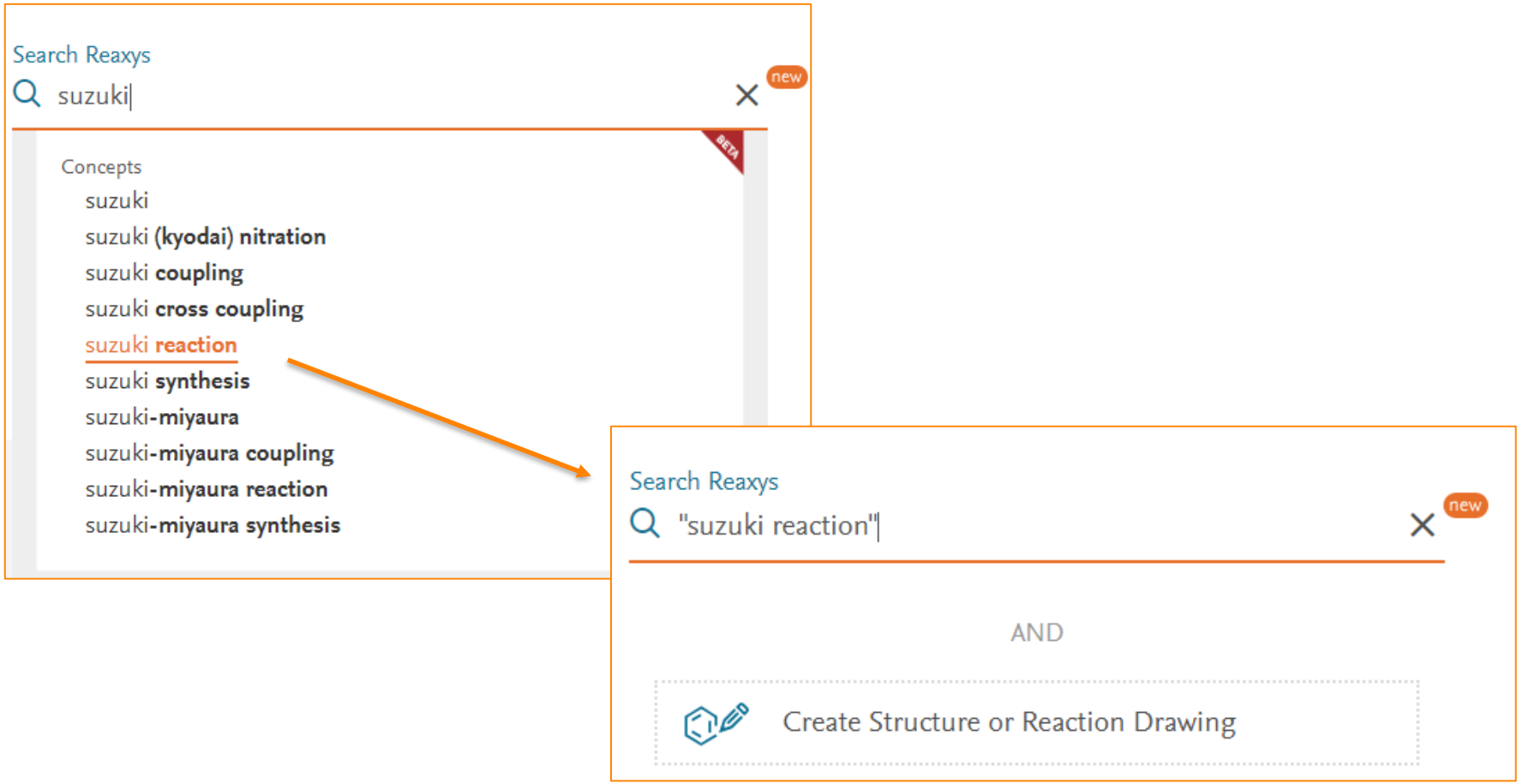
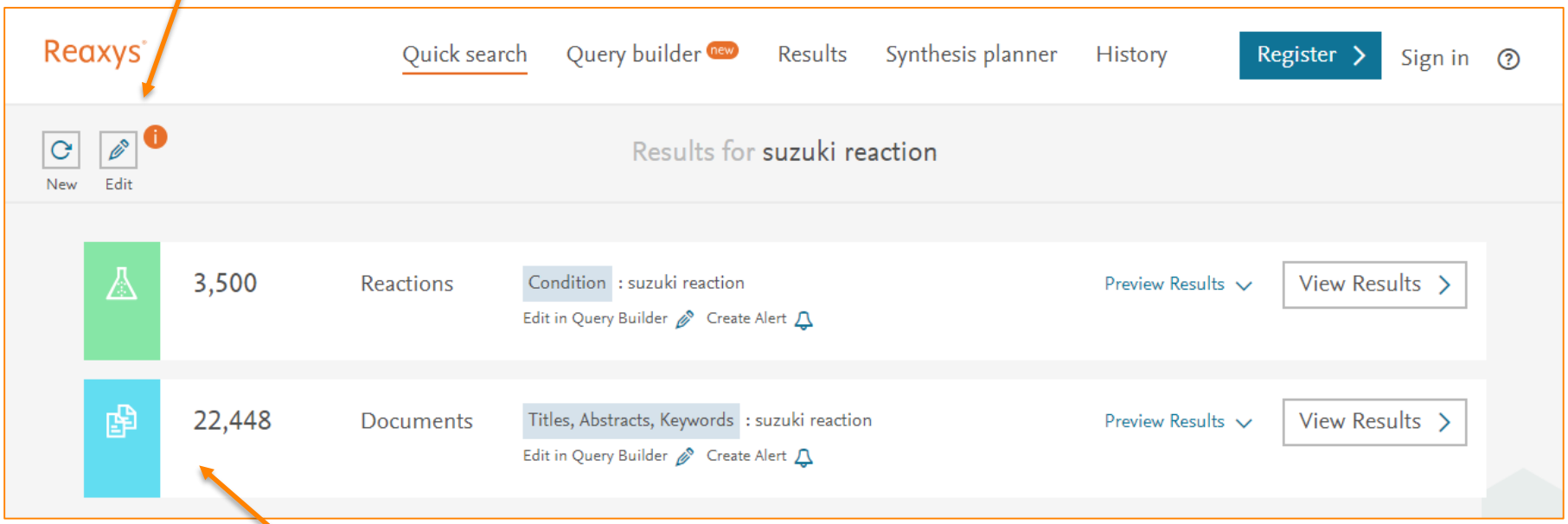
- 使用建议词语检索，可以自动添加一些相关概念，用于获得全面结果



Reaxys更新—优化检索结果集界面

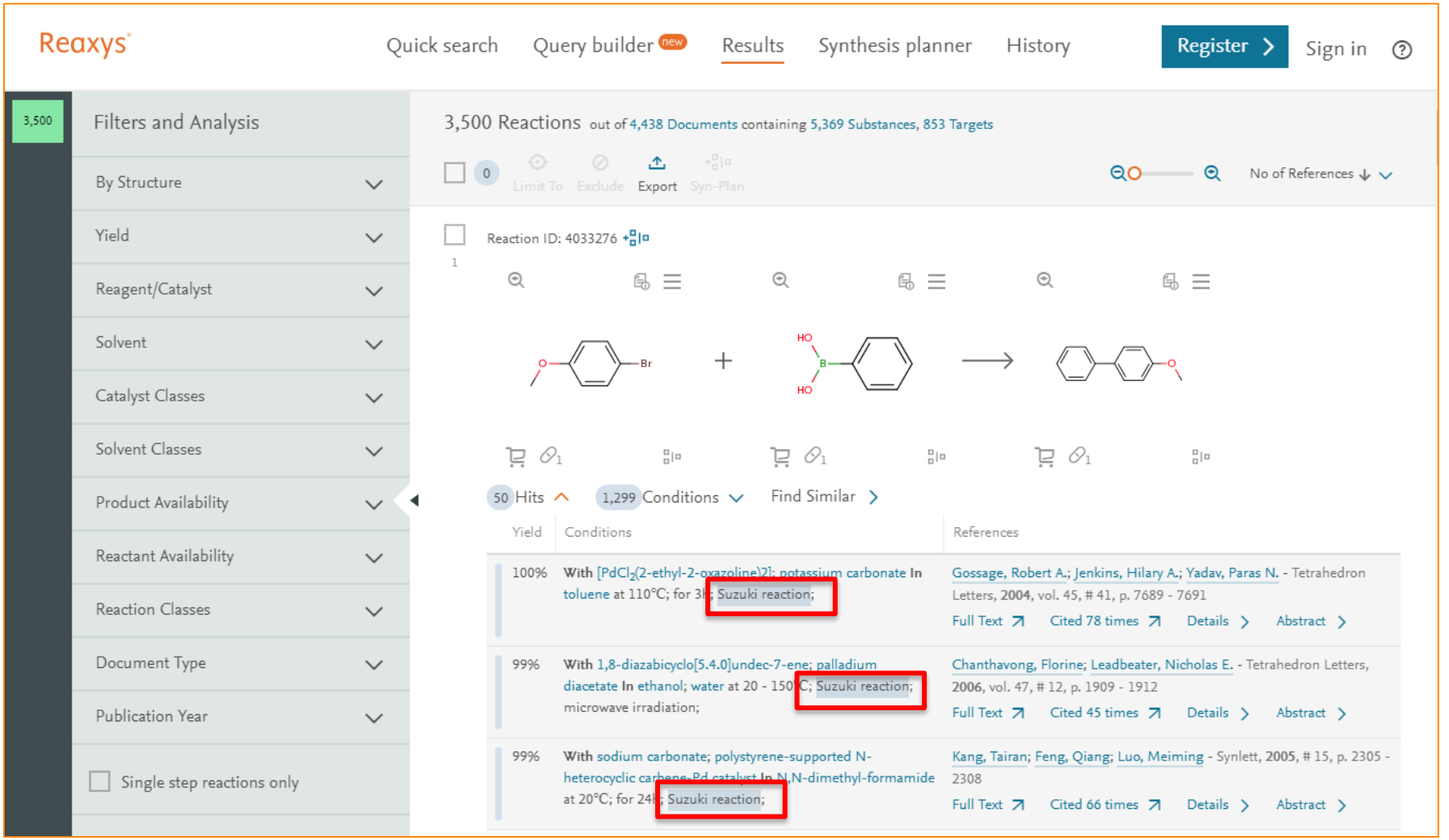
- 预览结果界面优化
- 当前界面可直接返回Quick Search界面，进行检索式修改

直接当前页面返回Quick Search页面进行检索式修改



新增结果类型图标，对结果类型的呈现更为直观

反应结果集检索结果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3,500
Filters and Analysis
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Solvent Classes
Product Availability
Reactant Availability
Reaction Classes
Document Type
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3,500 Reactions out of 4,438 Documents containing 5,369 Substances, 853 Targets
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Exclude
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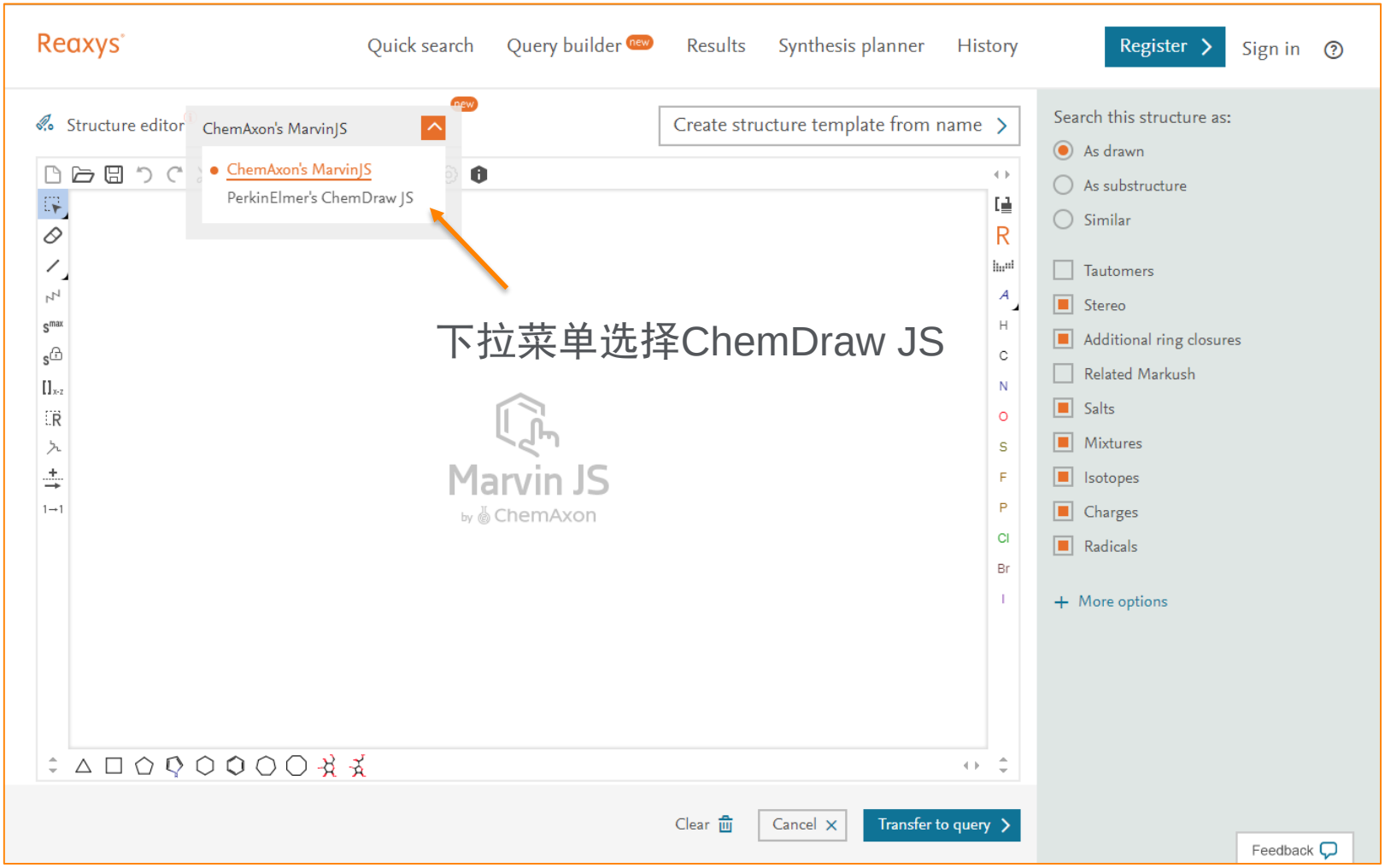
Syn-Plan
No of References
Reaction ID: 4033276
50 Hits
1,299 Conditions
Find Similar
Yield
Conditions
References
100% With [PdCl2(2-ethyl-2-oxazoline)2]; potassium carbonate In toluene at 110°C; for 3h; Suzuki reaction;
Gossage, Robert A.; Jenkins, Hilary A.; Yadav, Paras N. - Tetrahedron Letters, 2004, vol. 45, # 41, p. 7689 - 7691
Full Text
Cited 78 times
Details
Abstract
99% With 1,8-diazabicyclo[5.4.0]undec-7-ene; palladium diacetate In ethanol; water at 20 - 150°C; Suzuki reaction; microwave irradiation;
Chanthavong, Florine; Leadbeater, Nicholas E. - Tetrahedron Letters, 2006, vol. 47, # 12, p. 1909 - 1912
Full Text
Cited 45 times
Details
Abstract
99% With sodium carbonate; polystyrene-supported N-heterocyclic carbene-Pd catalyst In N,N-dimethyl-formamide at 20°C; for 24h; Suzuki reaction;
Kang, Tairan; Feng, Qiang; Luo, Meiming - Synlett, 2005, # 15, p. 2305 - 2308
Full Text
Cited 66 times
Details
Abstract

Reaxys更新—新增Chemdraw JS结构面板

- 结构面板进入后，可以选择Chemdraw JS结构面板



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工具类数据库的核心—数据库索引体系的建立

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Bioorganic & Medicinal Chemistry 16 (2008) 1493–1510
Bioorganic & Medicinal Chemistry

New homocamptothecins: Synthesis, antitumor activity, and molecular modeling

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Abstract—Homocamptothecins (hCPTs) represent a class of new emerging antitumor agents, which contains a seven-membered β-hydroxylactone in place of the conventional six-membered α-hydroxylactone ring (E ring) of camptothecins. Some novel 7-substituted hCPTs were designed and synthesized based on a newly developed synthetic route which couples ring A with ring C, E and D. Most of the synthesized compounds exhibit very high cytotoxic activity on tumor cell line A549. Some compounds, such as **9b**, **9l**, and **9y**, show broad in vitro antitumor spectrum and are more potent than topotecan. Three-dimensional quantitative structure–activity relationship (3D-QSAR) methods, CoMFA and CoMSIA, were applied to explain the structure–activity relationship (SAR) of the synthesized compounds. Furthermore, molecular docking was used to clarify the binding mode of the synthesized compounds to human DNA topoisomerase I. The important hydrophobic, base-pair stacking, and hydrogen-bonding interactions were observed between the hCPT derivatives and their receptor. The results from molecular modeling will guide the design of novel hCPTs with higher antitumor activity.

1. Introduction

Camptothecin (CPT) was first isolated from the Chinese tree *Camptotheca acuminata* by Wall et al. in 1966.[1] The compound exhibits potent antitumor activity and has been evaluated in clinic.[2] However, the therapeutic application of unmodified CPT is hindered due to its poor aqueous solubility and high in vivo hepatotoxicity. Subsequently, the structural modification of natural CPT has generated many new CPT derivatives with improved pharmacological or pharmacokinetic profile.[3–5] Among those, topotecan[6] and irinotecan[7] (Chart 1) have entered clinical use and several drug candidates, such as rubitecan,[8] lurtotecan,[9] and exatecan,[10] are currently in different stages of the clinical trials.

Human DNA topoisomerase I (Topo I) is the molecular target of CPT derivatives.[11] These compounds act by binding to a transient Topo I–DNA covalent complex, leading to an accumulation of DNA strand breaks upon replication, ultimately causing cell death during the S phase of the cell cycle.[12–14] Although CPT analogues remain a promising class of antitumor agents, the intrinsic instability of the highly electrophilic α-hydroxylactone of the E ring undergoes rapid hydrolysis to the biologically inactive carboxylate form under physiological conditions.[15] This chemical feature diminishes efficacy of various CPT derivatives in vivo compared to the spectacular results often obtained from in vitro studies and xenograft models.[16] Thus, extensive efforts have been put to synthesize new CPT analogues with a prolonged biological life maintaining its active lactonic form. In 1997, Lavergne et al. reported the insertion of a methylene spacer between alcohol and carboxyl functions of CPT to obtain homocamptothecin (hCPT).[17] The replacement of the six-membered α-hydroxylactone with a seven-membered β-hydroxylactone reduces considerably the electrophilicity of the lactone and hence decreases the rate of lactone hydrolysis to the

Keywords: Homocamptothecins; Antitumor activity; 3D-QSAR; Molecular docking.
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† These two authors contributed equally to this work.

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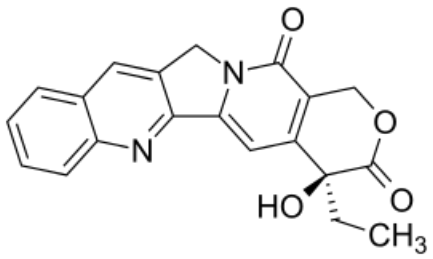
Tips：

这是一篇讲述喜树碱衍生物及其合成，分子模型的文献，我们从全文中的关键内容和检索性便捷性的角度去比较Reaxys和其他数据库的区别

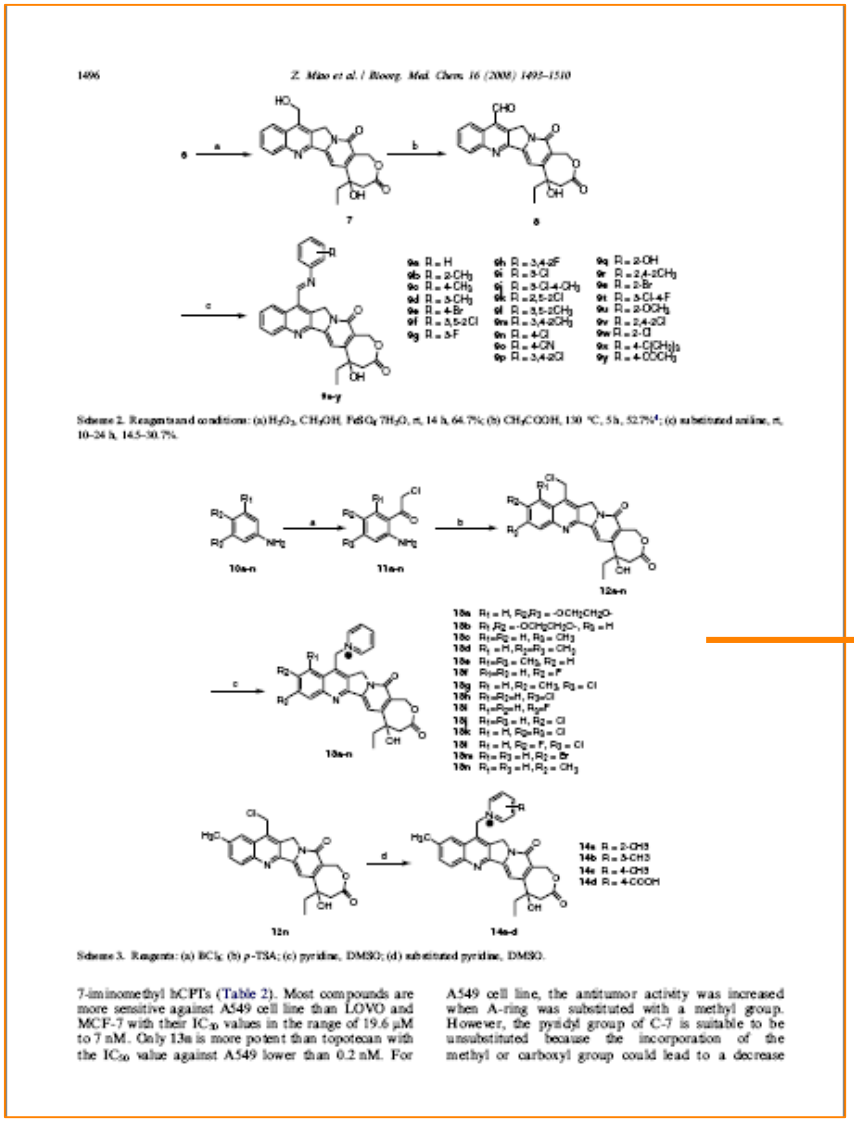
文献中的包含的：

题录，摘要，作者，发表时间，期刊名称……

Camptothecin



一篇全文期刊中的中的内容—与结构有关的内容



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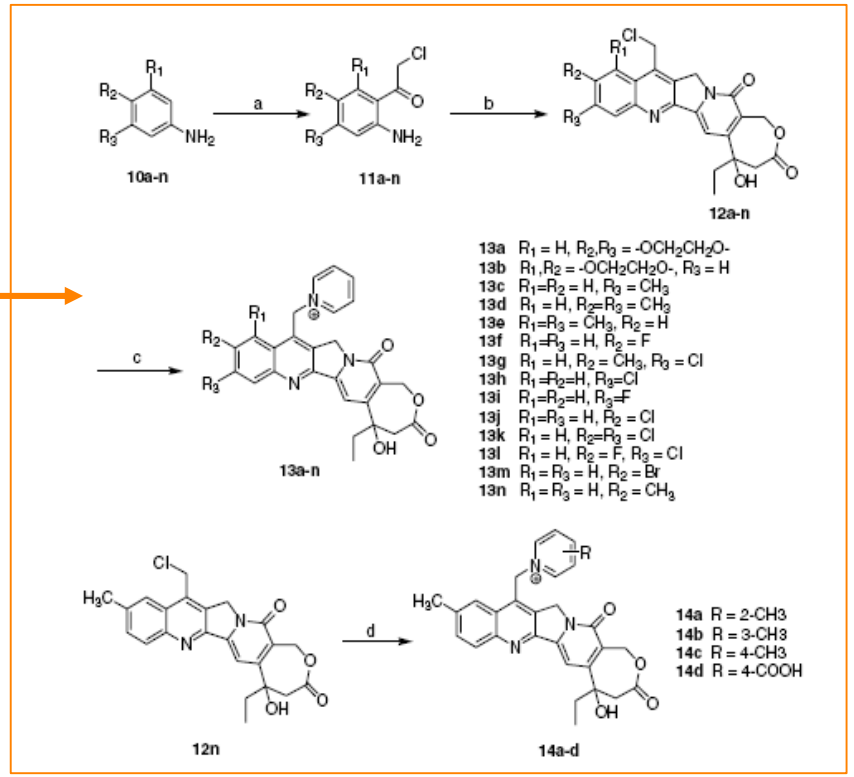
Scheme 2. Reagents and conditions: (a) H_2O_2, CH_3OH, $FeSO_4 \cdot 7H_2O$, rt, 14 h, 64.7%; (b) CH_3COOH, 130 °C, 5 h, 52.7%[4]; (c) substituted aniline, rt, 10–24 h, 14.5–30.7%.

Scheme 3. Reagents: (a) BCl$_3$; (b) p-TSA; (c) pyridine, DMSO; (d) substituted pyridine, DMSO.

7-iminomethyl hCPTs (Table 2). Most compounds are more sensitive against A549 cell line than LOVO and MCF-7 with their IC_{50} values in the range of 19.6 μM to 7 nM. Only 13n is more potent than topotecan with the IC_{50} value against A549 lower than 0.2 nM. For A549 cell line, the antitumor activity was increased when A-ring was substituted with a methyl group. However, the pyridyl group of C-7 is suitable to be unsubstituted because the incorporation of the methyl or carboxyl group could lead to a decrease

文献中包含的内容：

反应，结构，反应条件(溶剂，催化剂，产率，实验过程，时间，温度，压力，反应类型文字描述，机理研究等）



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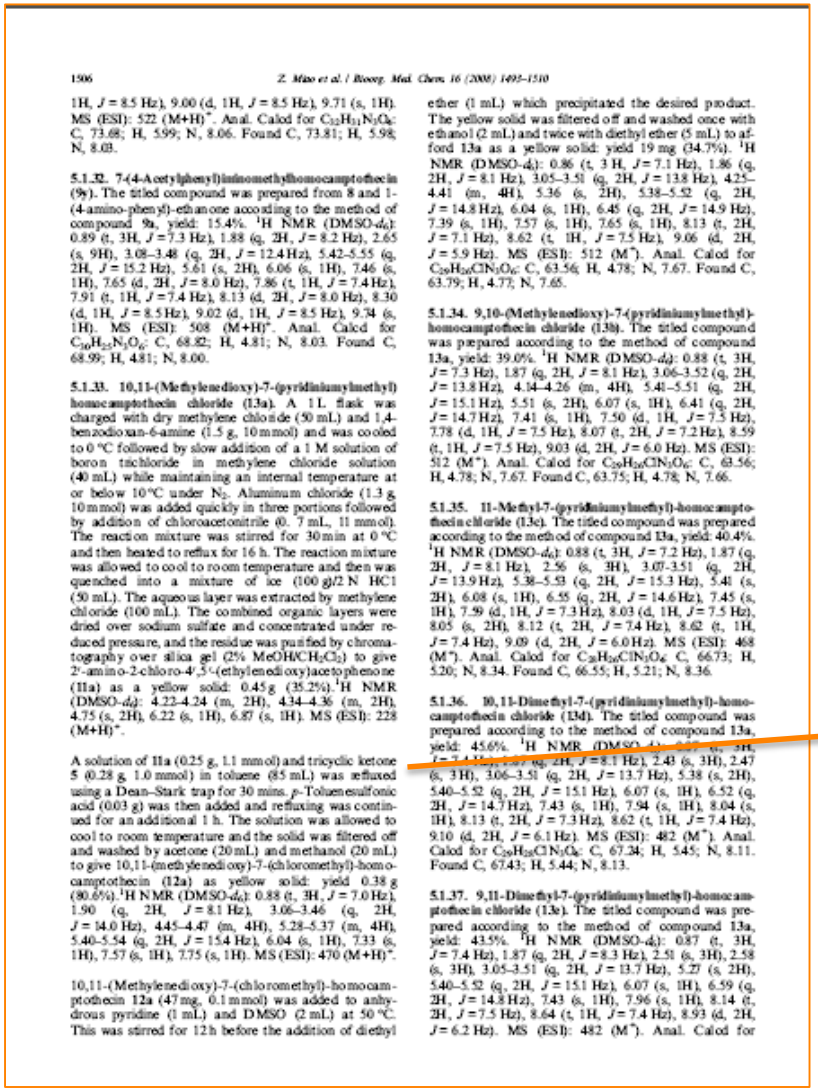

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1H, J = 8.5 Hz), 9.00 (d, 1H, J = 8.5 Hz), 9.71 (s, 1H). MS (ESI): 522 (M+H)$^+$. Anal. Calcd for $C_{32}H_{31}N_3O_6$: C, 73.68; H, 5.99; N, 8.06. Found C, 73.81; H, 5.98; N, 8.03.

5.1.32. 7-(4-Acetylphenyl)iminomethylhomocamptothecin (9s). The titled compound was prepared from 8 and 1-(4-amino-phenyl)-ethanone according to the method of compound 9a, yield: 15.4%. ^{1}H NMR (DMSO-d_6): 0.89 (t, 3H, J = 7.3 Hz), 1.88 (q, 2H, J = 8.2 Hz), 2.65 (s, 9H), 3.08–3.48 (q, 2H, J = 12.4 Hz), 5.42–5.55 (q, 2H, J = 15.2 Hz), 5.61 (s, 2H), 6.06 (s, 1H), 7.46 (s, 1H), 7.65 (d, 2H, J = 8.0 Hz), 7.86 (t, 1H, J = 7.4 Hz), 7.91 (t, 1H, J = 7.4 Hz), 8.13 (d, 2H, J = 8.0 Hz), 8.30 (d, 1H, J = 8.5 Hz), 9.02 (d, 1H, J = 8.5 Hz), 9.34 (s, 1H). MS (ESI): 508 (M+H)$^+$. Anal. Calcd for $C_{30}H_{25}N_3O_5$: C, 68.82; H, 4.81; N, 8.03. Found C, 68.99; H, 4.81; N, 8.00.

5.1.33. 10,11-(Methylenedioxy)-7-(pyridiniumylmethyl) homocamptothecin chloride (13a). A 1 L flask was charged with dry methylene chloride (50 mL) and 1,4-benzodioxan-6-amine (1.5 g, 10 mmol) and was cooled to 0 °C followed by slow addition of a 1 M solution of boron trichloride in methylene chloride solution (40 mL) while maintaining an internal temperature at or below 10 °C under N_2. Aluminum chloride (1.3 g, 10 mmol) was added quickly in three portions followed by addition of chloroacetonitrile (0. 7 mL, 11 mmol). The reaction mixture was stirred for 30 min at 0 °C and then heated to reflux for 16 h. The reaction mixture was allowed to cool to room temperature and then was quenched into a mixture of ice (100 g)/2 N HCl (50 mL). The aqueous layer was extracted by methylene chloride (100 mL). The combined organic layers were dried over sodium sulfate and concentrated under reduced pressure, and the residue was purified by chromatography over silica gel (2% MeOH/CH_2Cl_2) to give 2′-amino-2-chloro-4′,5′-(ethylenedioxy)acetophenone (11a) as a yellow solid: 0.45 g (35.2%). ^{1}H NMR (DMSO-d_6): 4.22–4.24 (m, 2H), 4.34–4.36 (m, 2H), 4.75 (s, 2H), 6.22 (s, 1H), 6.87 (s, 1H). MS (ESI): 228 (M+H)$^+$.

A solution of 11a (0.25 g, 1.1 mmol) and tricyclic ketone 5 (0.28 g, 1.0 mmol) in toluene (85 mL) was refluxed using a Dean–Stark trap for 30 mins. p-Toluenesulfonic acid (0.03 g) was then added and refluxing was continued for an additional 1 h. The solution was allowed to cool to room temperature and the solid was filtered off and washed by acetone (20 mL) and methanol (20 mL) to give 10,11-(methylenedioxy)-7-(chloromethyl)-homocamptothecin (12a) as yellow solid: yield 0.38 g (80.6%). ^{1}H NMR (DMSO-d_6): 0.88 (t, 3H, J = 7.0 Hz), 1.90 (q, 2H, J = 8.1 Hz), 3.06–3.46 (q, 2H, J = 14.0 Hz), 4.45–4.47 (m, 4H), 5.28–5.37 (m, 4H), 5.40–5.54 (q, 2H, J = 15.4 Hz), 6.04 (s, 1H), 7.33 (s, 1H), 7.57 (s, 1H), 7.75 (s, 1H). MS (ESI): 470 (M+H)$^+$.

10,11-(Methylenedioxy)-7-(chloromethyl)-homocamptothecin 12a (47 mg, 0.1 mmol) was added to anhydrous pyridine (1 mL) and DMSO (2 mL) at 50 °C. This was stirred for 12 h before the addition of diethyl ether (1 mL) which precipitated the desired product. The yellow solid was filtered off and washed once with ethanol (2 mL) and twice with diethyl ether (5 mL) to afford 13a as a yellow solid: yield 19 mg (34.7%). ^{1}H NMR (DMSO-d_6): 0.86 (t, 3 H, J = 7.1 Hz), 1.86 (q, 2H, J = 8.1 Hz), 3.05–3.51 (q, 2H, J = 13.8 Hz), 4.25–4.41 (m, 4H), 5.36 (s, 2H), 5.38–5.52 (q, 2H, J = 14.8 Hz), 6.04 (s, 1H), 6.45 (q, 2H, J = 14.9 Hz), 7.39 (s, 1H), 7.57 (s, 1H), 7.65 (s, 1H), 8.13 (t, 2H, J = 7.1 Hz), 8.62 (t, 1H, J = 7.5 Hz), 9.06 (d, 2H, J = 5.9 Hz). MS (ESI): 512 (M$^+$). Anal. Calcd for $C_{29}H_{26}ClN_3O_6$: C, 63.56; H, 4.78; N, 7.67. Found C, 63.79; H, 4.77; N, 7.65.

5.1.34. 9,10-(Methylenedioxy)-7-(pyridiniumylmethyl)-homocamptothecin chloride (13b). The titled compound was prepared according to the method of compound 13a, yield: 39.0%. ^{1}H NMR (DMSO-d_6): 0.88 (t, 3H, J = 7.3 Hz), 1.87 (q, 2H, J = 8.1 Hz), 3.06–3.52 (q, 2H, J = 13.8 Hz), 4.14–4.26 (m, 4H), 5.41–5.51 (q, 2H, J = 15.1 Hz), 5.51 (s, 2H), 6.07 (s, 1H), 6.41 (q, 2H, J = 14.7 Hz), 7.41 (s, 1H), 7.50 (d, 1H, J = 7.5 Hz), 7.78 (d, 1H, J = 7.5 Hz), 8.07 (t, 2H, J = 7.2 Hz), 8.59 (t, 1H, J = 7.5 Hz), 9.03 (d, 2H, J = 6.0 Hz). MS (ESI): 512 (M$^+$). Anal. Calcd for $C_{29}H_{26}ClN_3O_6$: C, 63.56; H, 4.78; N, 7.67. Found C, 63.75; H, 4.78; N, 7.66.

5.1.35. 11-Methyl-7-(pyridiniumylmethyl)-homocamptothecin chloride (13c). The titled compound was prepared according to the method of compound 13a, yield: 40.4%. ^{1}H NMR (DMSO-d_6): 0.88 (t, 3H, J = 7.2 Hz), 1.87 (q, 2H, J = 8.1 Hz), 2.56 (s, 3H), 3.07–3.51 (q, 2H, J = 13.9 Hz), 5.38–5.53 (q, 2H, J = 15.3 Hz), 5.41 (s, 2H), 6.08 (s, 1H), 6.55 (q, 2H, J = 14.6 Hz), 7.45 (s, 1H), 7.59 (d, 1H, J = 7.3 Hz), 8.03 (d, 1H, J = 7.5 Hz), 8.05 (s, 2H), 8.12 (t, 2H, J = 7.4 Hz), 8.62 (t, 1H, J = 7.4 Hz), 9.09 (d, 2H, J = 6.0 Hz). MS (ESI): 468 (M$^+$). Anal. Calcd for $C_{29}H_{26}ClN_3O_4$: C, 66.73; H, 5.20; N, 8.34. Found C, 66.55; H, 5.21; N, 8.36.

5.1.36. 10,11-Dimethyl-7-(pyridiniumylmethyl)-homocamptothecin chloride (13d). The titled compound was prepared according to the method of compound 13a, yield: 45.6%. ^{1}H NMR (DMSO-d_6): [illegible] 2H, J = 8.1 Hz), 2.43 (s, 3H), 2.47 (s, 3H), 3.06–3.51 (q, 2H, J = 13.7 Hz), 5.38 (s, 2H), 5.40–5.52 (q, 2H, J = 15.1 Hz), 6.07 (s, 1H), 6.52 (q, 2H, J = 14.7 Hz), 7.43 (s, 1H), 7.94 (s, 1H), 8.04 (s, 1H), 8.13 (t, 2H, J = 7.3 Hz), 8.62 (t, 1H, J = 7.4 Hz), 9.10 (d, 2H, J = 6.1 Hz). MS (ESI): 482 (M$^+$). Anal. Calcd for $C_{30}H_{28}ClN_3O_4$: C, 67.34; H, 5.45; N, 8.11. Found C, 67.43; H, 5.44; N, 8.13.

5.1.37. 9,11-Dimethyl-7-(pyridiniumylmethyl)-homocamptothecin chloride (13e). The titled compound was prepared according to the method of compound 13a, yield: 43.5%. ^{1}H NMR (DMSO-d_6): 0.87 (t, 3H, J = 7.4 Hz), 1.87 (q, 2H, J = 8.3 Hz), 2.51 (s, 3H), 2.58 (s, 3H), 3.05–3.51 (q, 2H, J = 13.7 Hz), 5.27 (s, 2H), 5.40–5.52 (q, 2H, J = 15.1 Hz), 6.07 (s, 1H), 6.59 (q, 2H, J = 14.8 Hz), 7.43 (s, 1H), 7.96 (s, 1H), 8.14 (t, 2H, J = 7.5 Hz), 8.64 (t, 1H, J = 7.4 Hz), 8.93 (d, 2H, J = 6.2 Hz). MS (ESI): 482 (M$^+$). Anal. Calcd for

文献中包含的内容：

文献中提到了很多化合物以及这些化合物的谱图数据，还有这个化合物的晶型描述，化合物在文献中的标识符

A solution of **11a** (0.25 g, 1.1 mmol) and tricyclic ketone **5** (0.28 g, 1.0 mmol) in toluene (85 mL) was refluxed using a Dean–Stark trap for 30 mins. *p*-Toluenesulfonic acid (0.03 g) was then added and refluxing was continued for an additional 1 h. The solution was allowed to cool to room temperature and the solid was filtered off and washed by acetone (20 mL) and methanol (20 mL) to give 10,11-(methylenedioxy)-7-(chloromethyl)-homocamptothecin (**12a**) as yellow solid: yield 0.38 g (80.6%). ^{1}H NMR (DMSO-d_6): 0.88 (t, 3H, J = 7.0 Hz), 1.90 (q, 2H, J = 8.1 Hz), 3.06–3.46 (q, 2H, J = 14.0 Hz), 4.45–4.47 (m, 4H), 5.28–5.37 (m, 4H), 5.40–5.54 (q, 2H, J = 15.4 Hz), 6.04 (s, 1H), 7.33 (s, 1H), 7.57 (s, 1H), 7.75 (s, 1H). MS (ESI): 470 (M+H)$^+$.

一篇全文期刊中的中的内容—实验数据（生物活性数据）

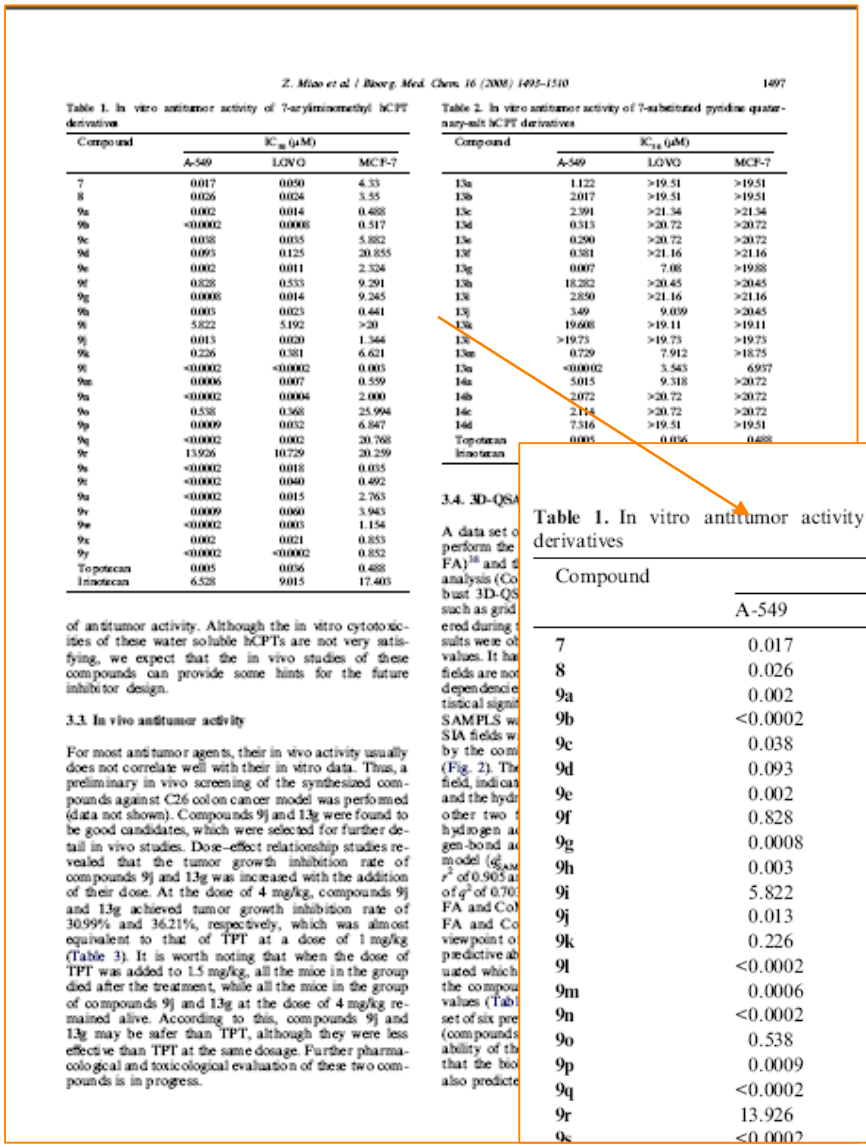

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Table 1. In vitro antitumor activity of 7-aryliminomethyl hCPT derivatives

Compound	IC_{50} (μM)		
	A-549	LOVO	MCF-7
7	0.017	0.050	4.33
8	0.026	0.024	3.55
9a	0.002	0.014	0.488
9b	<0.0002	0.0008	0.517
9c	0.038	0.035	5.882
9d	0.093	0.125	20.855
9e	0.002	0.011	2.324
9f	0.828	0.533	9.291
9g	0.0008	0.014	9.245
9h	0.003	0.023	0.441
9i	5.822	5.192	>20
9j	0.013	0.020	1.344
9k	0.226	0.381	6.621
9l	<0.0002	<0.0002	0.003
9m	0.0006	0.007	0.559
9n	<0.0002	0.0004	2.000
9o	0.538	0.368	25.994
9p	0.0009	0.032	6.847
9q	<0.0002	0.002	20.768
9r	13.926	10.729	20.259
9s	<0.0002	0.018	0.035
9t	<0.0002	0.040	0.492
9u	<0.0002	0.015	2.763
9v	0.0009	0.060	3.943
9w	<0.0002	0.003	1.154
9x	0.002	0.021	0.853
9y	<0.0002	<0.0002	0.852
Topotecan	0.005	0.036	0.488
Irinotecan	6.528	9.015	17.403

Table 2. In vitro antitumor activity of 7-substituted pyridine quaternary-salt hCPT derivatives

Compound	IC_{50} (μM)		
	A-549	LOVO	MCF-7
13a	1.122	>19.51	>19.51
13b	2.017	>19.51	>19.51
13c	2.391	>21.34	>21.34
13d	0.313	>20.72	>20.72
13e	0.290	>20.72	>20.72
13f	0.381	>21.16	>21.16
13g	0.007	7.08	>19.88
13h	18.282	>20.45	>20.45
13i	2.850	>21.16	>21.16
13j	3.49	9.039	>20.45
13k	19.608	>19.11	>19.11
13l	>19.73	>19.73	>19.73
13m	0.729	7.912	>18.75
13n	<0.0002	3.543	6.937
14a	5.015	9.318	>20.72
14b	2.072	>20.72	>20.72
14c	2.114	>20.72	>20.72
14d	7.316	>19.51	>19.51
Topotecan	0.005	0.036	0.488
Irinotecan	6.528	9.015	17.403

of antitumor activity. Although the in vitro cytotoxicities of these water soluble hCPTs are not very satisfying, we expect that the in vivo studies of these compounds can provide some hints for the future inhibitor design.

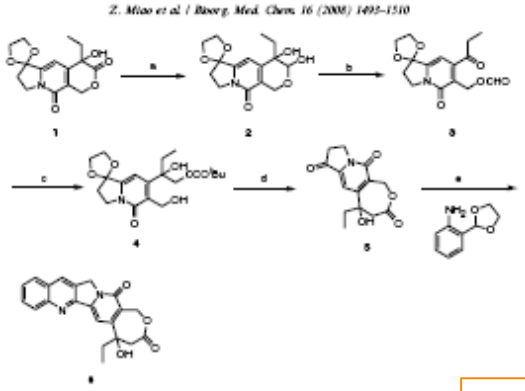
3.3. In vivo antitumor activity

For most antitumor agents, their in vivo activity usually does not correlate well with their in vitro data. Thus, a preliminary in vivo screening of the synthesized compounds against C26 colon cancer model was performed (data not shown). Compounds 9j and 13g were found to be good candidates, which were selected for further detail in vivo studies. Dose–effect relationship studies revealed that the tumor growth inhibition rate of compounds 9j and 13g was increased with the addition of their dose. At the dose of 4 mg/kg, compounds 9j and 13g achieved tumor growth inhibition rate of 30.99% and 36.21%, respectively, which was almost equivalent to that of TPT at a dose of 1 mg/kg (Table 3). It is worth noting that when the dose of TPT was added to 1.5 mg/kg, all the mice in the group died after the treatment, while all the mice in the group of compounds 9j and 13g at the dose of 4 mg/kg remained alive. According to this, compounds 9j and 13g may be safer than TPT, although they were less effective than TPT at the same dosage. Further pharmacological and toxicological evaluation of these two compounds is in progress.

文献中包含的内容：

大量的不同结构对应的实验数据（生物活性数据）

一篇全文期刊中的中的内容—原文中关键概念



Scheme 1. Reagents and conditions: (a) KBH_4, CH_3OH, rt, 20 min, 80%; (b) CH_3COOH, $NaIO_4$, rt, 30 min, 9
75 °C, 5 h, 97%; (d) CF_3COOH, rt, 10 h, 94%; (e) toluene, p-TSA, 130 °C, 1.5 h, 80%.

7-Hydroxymethylhomocamptothecin 7 could be obtained by the reaction of 6 with hydrogen peroxide and methanol. The hydroxymethyl group was oxidized to form 7-formylhomocamptothecin 8, which was allowed to react with different substituted anilines to generate the corresponding derivatives 9a–y (Scheme 2).

Various 1-(2-amino substituted phenyl)-2-chloro-ethanones 11a–s were obtained by reacting substituted anilines 10a–s with chloroacetonitrile under the catalysis of BCl_3, which were treated with the intermediate 5 to give the 7-chloromethylhomocamptothecin A ring substituted derivatives 13a–s (Scheme 3). Compounds 13a–s reacted with the substituted pyridines to afford quaternary-salt derivatives 13a–s and 14a–d.

3. Results and discussion

3.1. 7-Aryliminomethyl hCPT derivatives

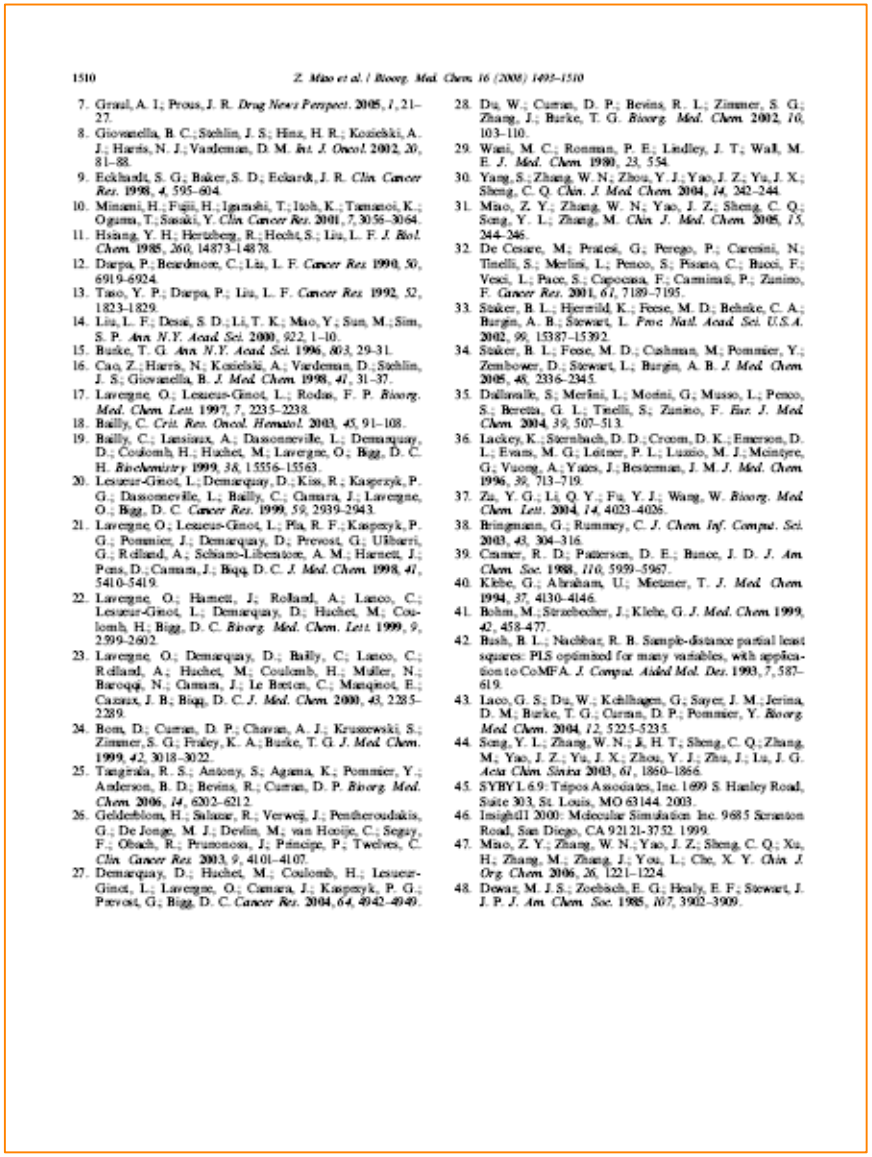
Numerous reports indicated that the CPT derivatives with substitutions at quinoline (A/B) ring,[3] especially at C-7, C-9, and C-10, are of great interest and several good drug candidates (such as exatecan, lurtotecan, and silatecan) are under clinical trials. The importance of the lipophilic groups linked to position 7 of camptothecin has been demonstrated to increase inhibitor intracellular uptake and cytotoxic activities.[32] The crystal structures of Topo I-DNA in complex with topotecan and CPT[33,34] also revealed that the substituents on C-7 were located into the major groove of DNA and they could reinforce the stability of the inhibitor-Topo I–DNA covalent complex. Moreover, some 7-aryliminomethyl CPT analogues have shown good in vitro antitumor activity.[35] Therefore, we designed and synthesized a series of 7-arylminomethyl hCPT derivatives. The so-

lid tumor cell lines, A-549 (for non-small cell lung cancer), LOVO (for colon cancer), and MCF-7 (for breast cancer), were chosen for testing the in vitro antitumor activities of the 7-aryliminomethyl hCPT derivatives. Topotecan and irinotecan were used as the reference compounds. The inhibitory activities suggested that the arylimino-methyl group in the 7-position can promote antitumor activity. These results revealed that the compounds were more sensitive against A-549 and LOVO cell lines than against MCF-7 cell line (Table 1), which is consistent with the clinical behavior of CPT derivatives.[35] For A-549 cell line, most compounds showed high inhibitory activities with the IC_{50} values

文献中包含的内容：

一些关键的概念

一篇全文期刊中的中的内容—引文信息



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引文内容

28. Du, W.; Curran, D. P.; Bevins, R. L.; Zimmer, S. G.; Zhang, J.; Burke, T. G. *Bioorg. Med. Chem.* **2002**, *10*, 103–110.
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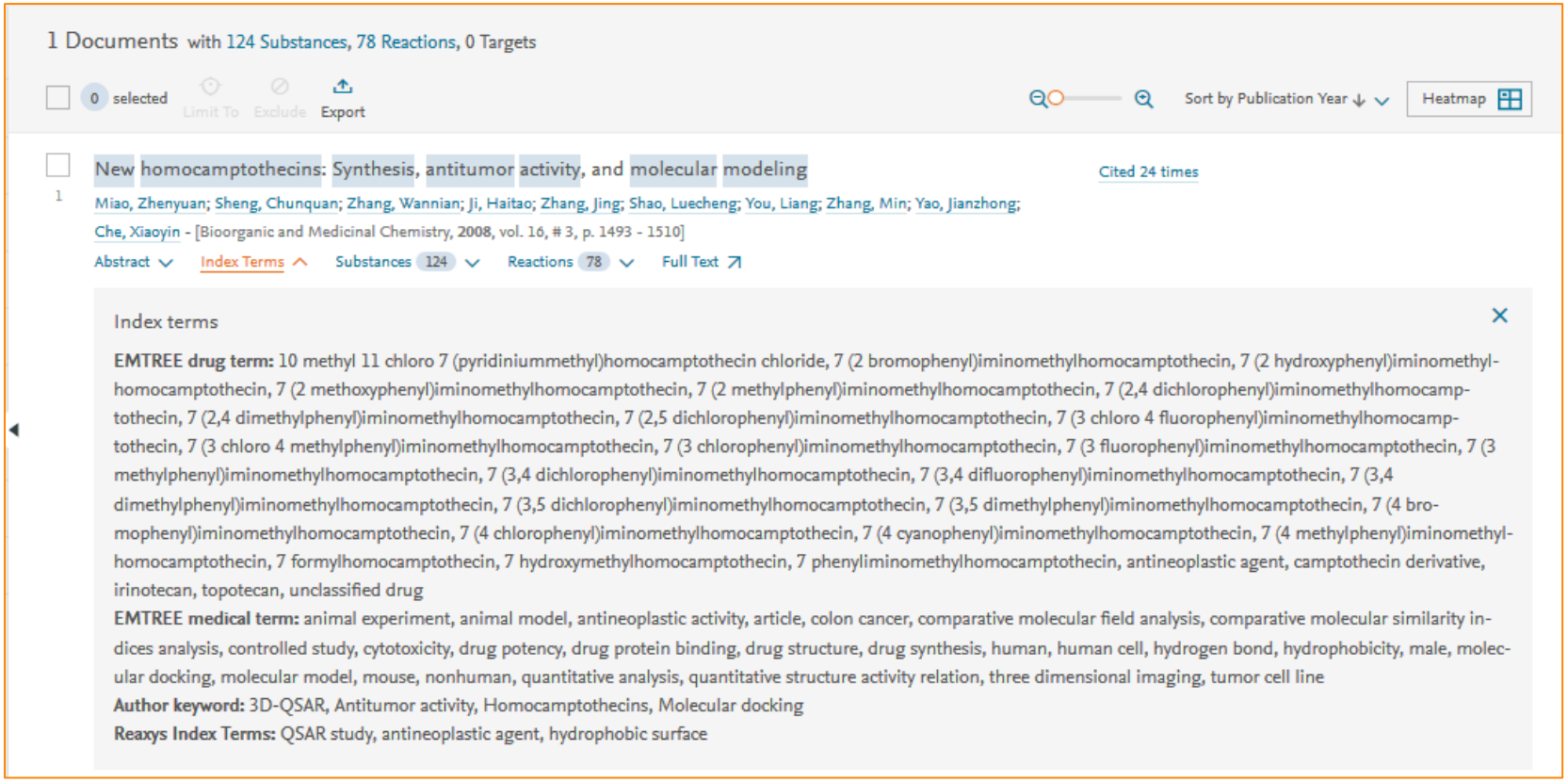

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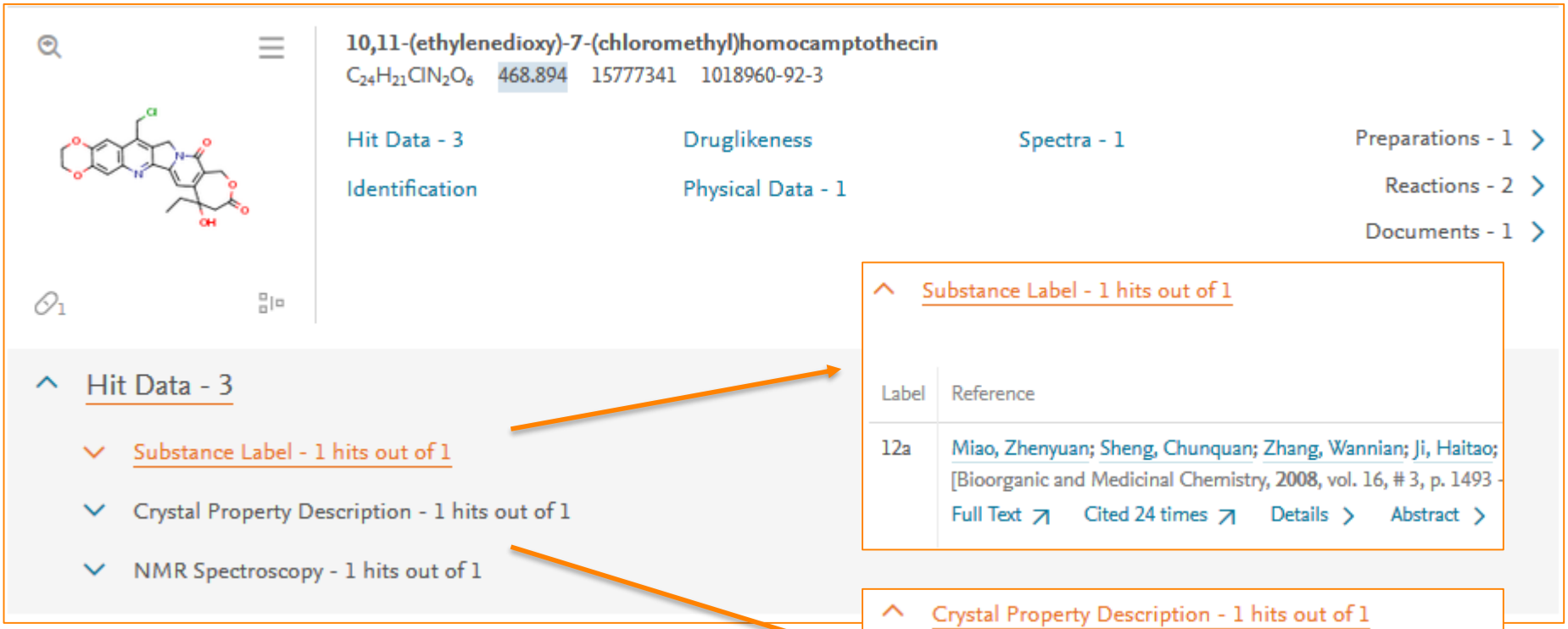

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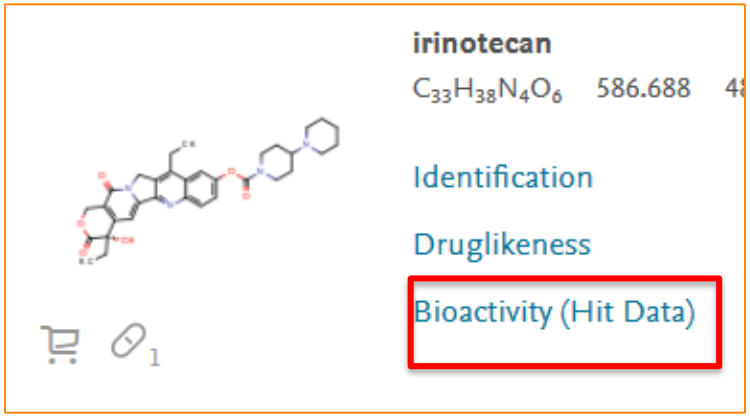

Reaxys抽提了全文中对于这个化合物的生物活性数据，并将这些数据进行了标准化处理

Bioactivity (Hit Data)

In vitro: Efficacy - 3

Quantitative Results

Show/Hide columns

pX	Parameter	Value (qual)	Value (quant)	Unit	Cell	Reference
5.19	IC50	=	6.528	μM	A 549	Miao, Zhenyuan; Sheng, Chunquan; Zhang, Wannian; Ji, Haitao; Zhang, Jing; Shao, Luecheng; You, Liang; Zhang, Min; Yao, Jianzhong; Che, Xiaoyin - Bioorganic and Medicinal Chemistry, **2008**, vol. 16, # 3, p. 1493 - 1510 Full Text Cited 24 times Details Abstract
5.04	IC50	=	9.015	μM	LoVo	Miao, Zhenyuan; Sheng, Chunquan; Zhang, Wannian; Ji, Haitao; Zhang, Jing; Shao, Luecheng; You, Liang; Zhang, Min; Yao, Jianzhong; Che, Xiaoyin - Bioorganic and Medicinal Chemistry, **2008**, vol. 16, # 3, p. 1493 - 1510 Full Text Cited 24 times Details Abstract
4.76	IC50	=	17.403	μM	MCF7	Miao, Zhenyuan; Sheng, Chunquan; Zhang, Wannian; Ji, Haitao; Zhang, Jing; Shao, Luecheng; You, Liang; Zhang, Min; Yao, Jianzhong; Che, Xiaoyin - Bioorganic and Medicinal Chemistry, **2008**, vol. 16, # 3, p. 1493 - 1510 Full Text Cited 24 times Details Abstract

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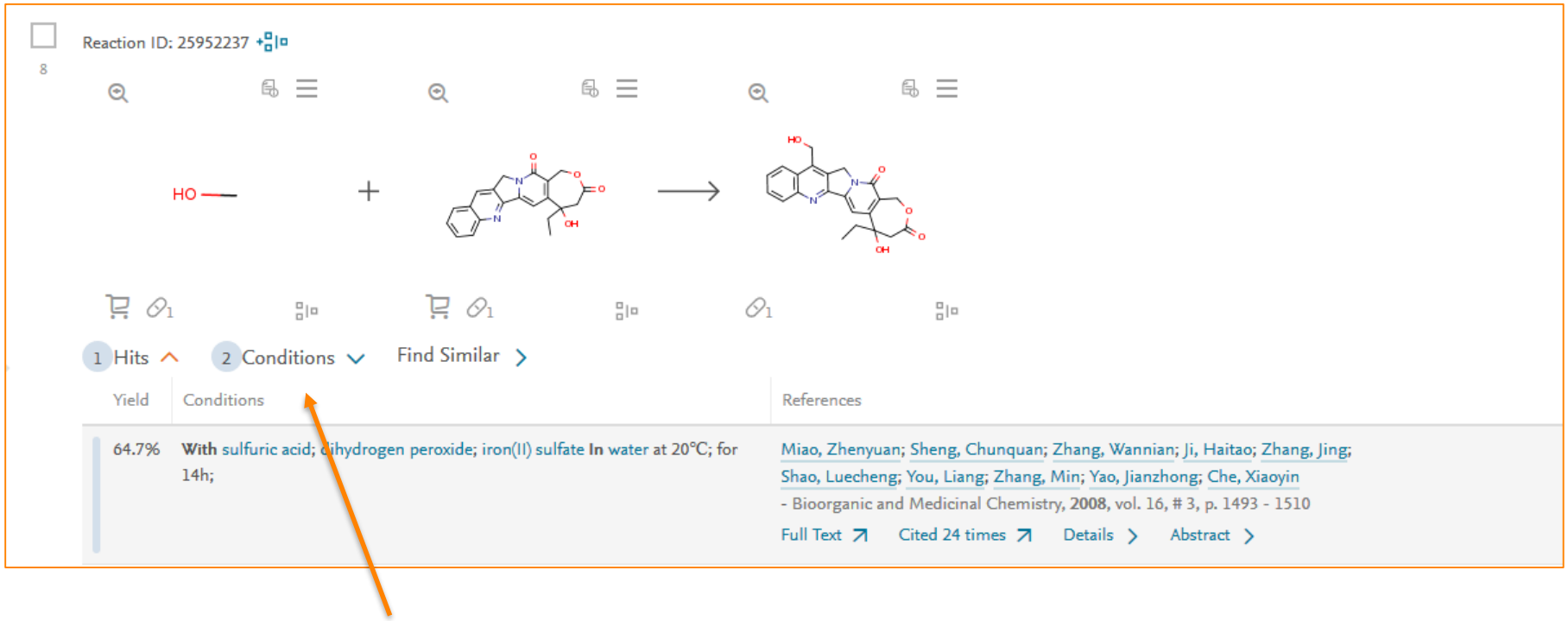
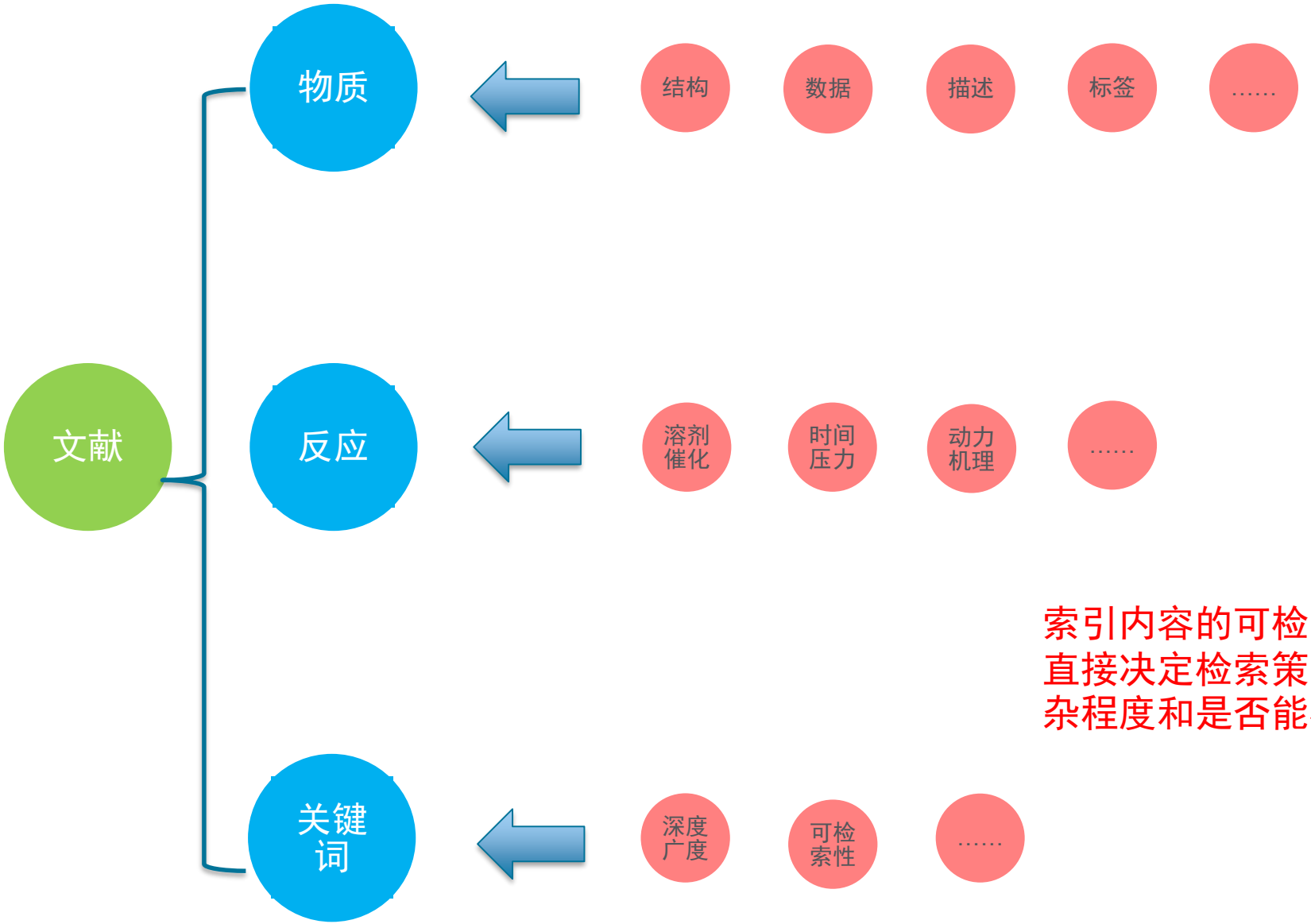


本篇文献中的条件，以及其他文献中报道的条件，用于快速比较，

提纲

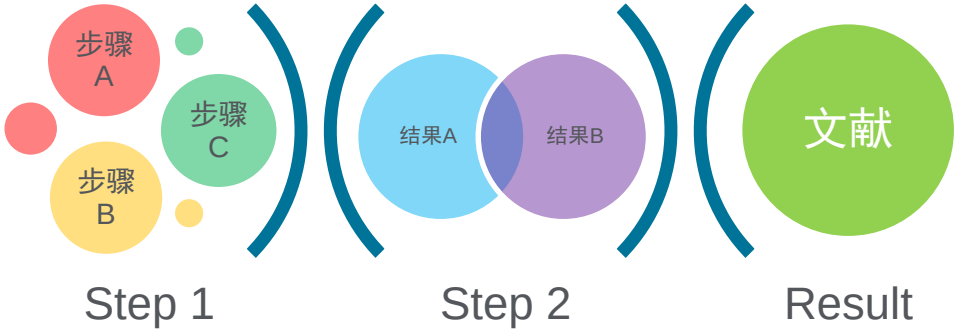
- Reaxys数据库的介绍与更新
- Reaxys数据库与同类数据库的比较
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
  - Reaxys数据库中与物性数据有关的检索
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

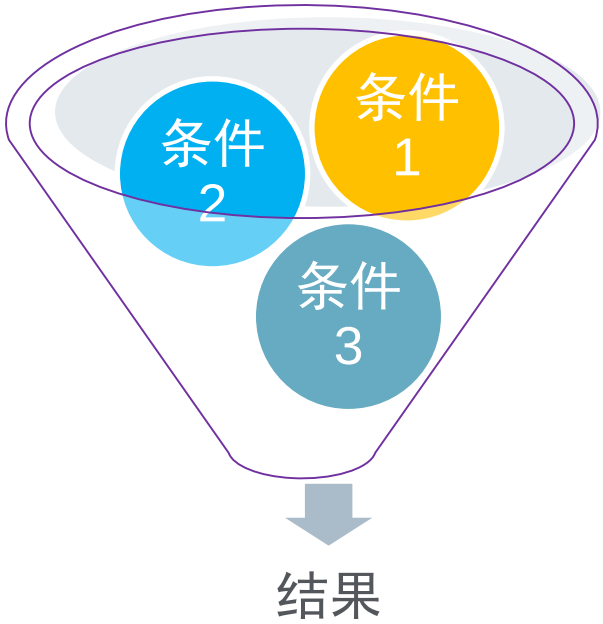
可检索性是一个复杂的问题（一个简单的诠释图）



索引内容的可检索性，直接决定检索策略的复杂程度和是否能检索

可检索性导致的检索策略和检索复杂程度

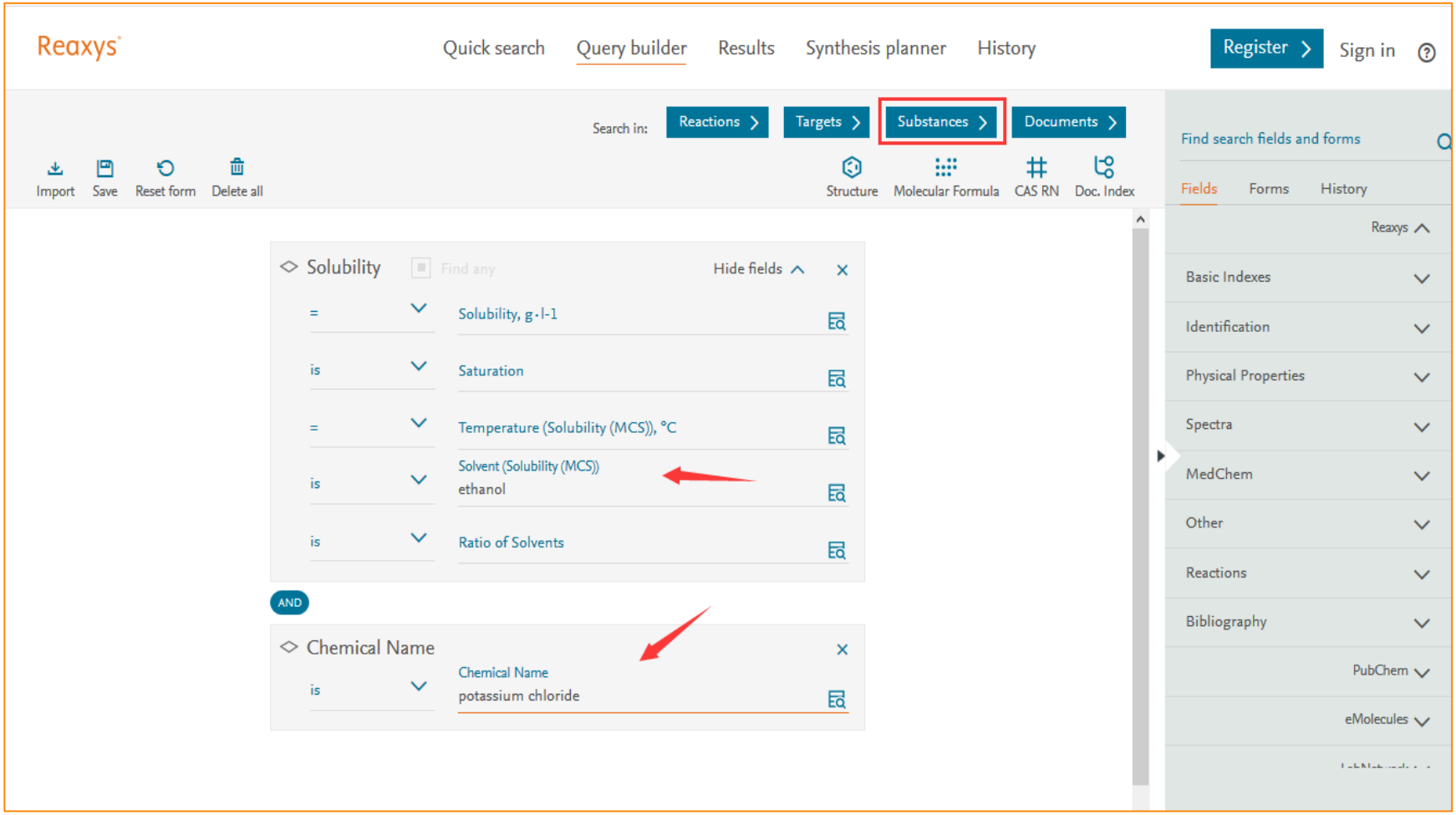




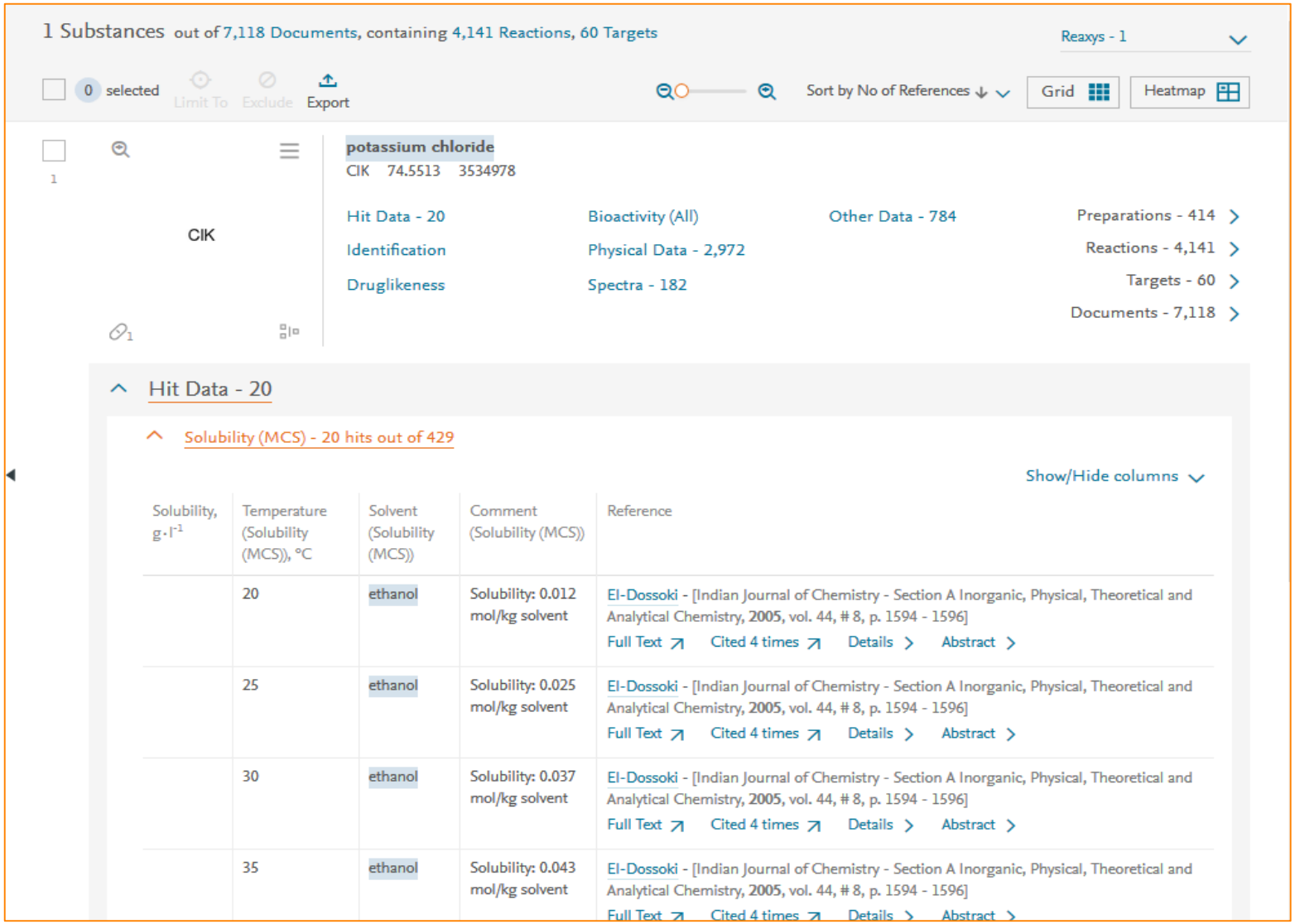
不同的数据库由于数据结构不同，在完成同样的检索需求时，检索策略有很大的区别

Case 1：检索氯化钾在乙醇中的溶解度

- Reaxys中的检索策略

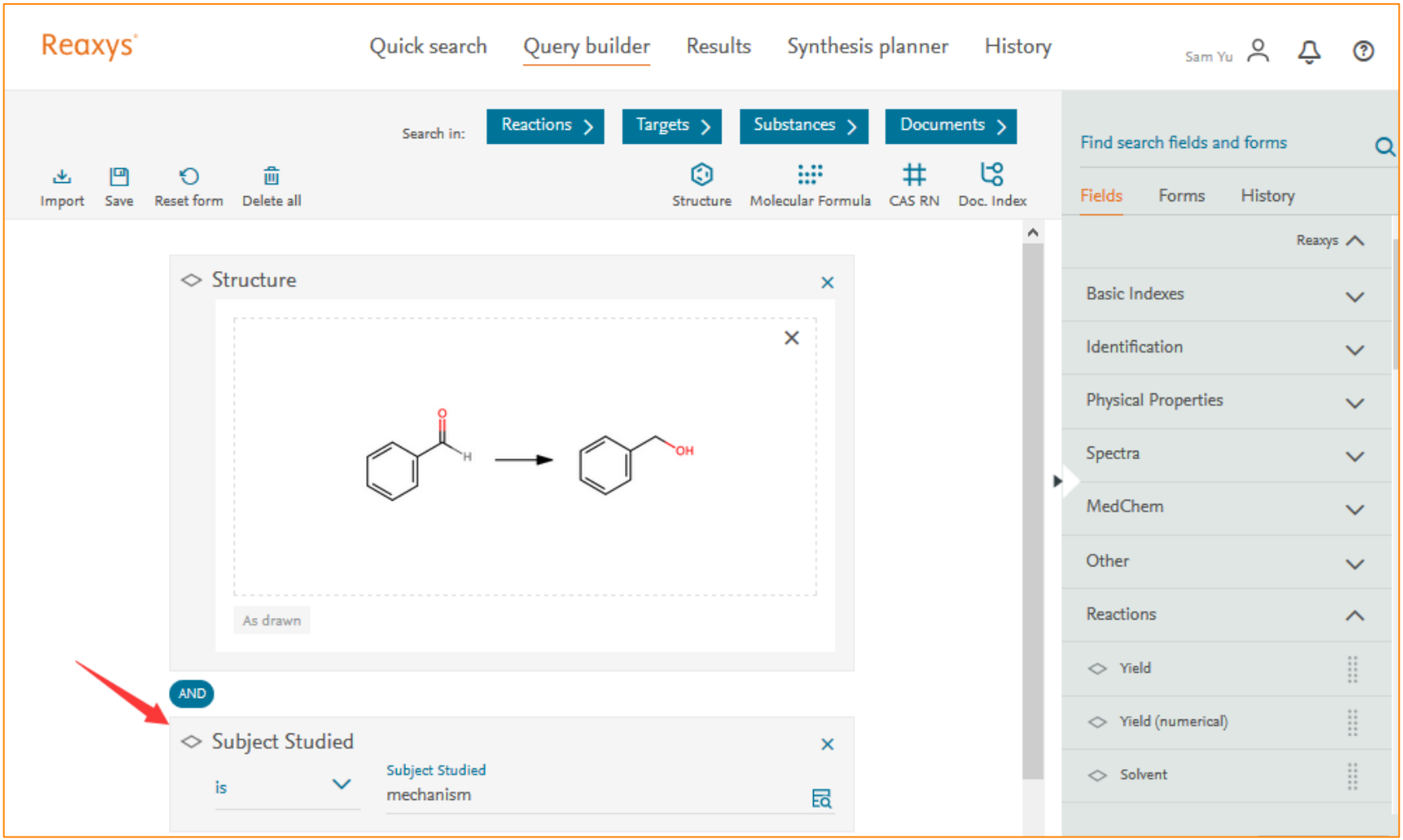


Case 1：检索氯化钾在乙醇中的溶解度（耗时2分钟）



Case 2：检索下面反应的机理性文献

- Reaxys中的检索策略



Case 2：检索下面反应的机理性文献（耗时2分钟）

Reaction ID: 601797

1

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Yield	Conditions	References
95%	**With** cobalt(II) chloride; zinc **In** water; N,N-dimethyl-formamide for 0.5h; Mechanism; Ambient temperature; var. aldehydes and ketones;	Baruah, Robindra N. - Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry, **1994**, vol. 33, # 2, p. 182 - 183 Full Text ↗ Details › Abstract ›
88%	**With** dodecane; Triethoxysilane; hydridoiron(II) (trimethylphosphane)3(benzophenone imine) **In** tetrahydrofuran at 55°C; for 1h; Mechanism; Solvent; Temperature; Time; Reagent/catalyst; Concentration; Schlenk technique; Inert atmosphere;	Zuo, Zhenyu; Sun, Hongjian; Wang, Lin; Li, Xiaoyan - Dalton Transactions, **2014**, vol. 43, # 30, p. 11716 - 11722 Full Text ↗ Cited 22 times ↗ Details › Abstract ›
73%	**Stage #1:** benzaldehyde **With** [Ru^{VI}(N)(N,N'-bis(salicylidene)-o--cyclohexyldiamine dianion)(CH_3OH)][ClO_4]; phenylsilane **In** toluene for 0.666667h; Reflux; **Stage #2: With** hydrogenchloride **In** diethyl ether; water; tolueneMechanism;	Abbina, Srinivas; Bian, Shi; Oian, Casey; Du, Guodong - ACS Catalysis, **2013**, vol. 3, # 4, p. 678 - 684 Full Text ↗ Cited 31 times ↗ Details › Abstract ›

Reaxys与其他数据库在可检索性上的比较

- Reaxys的多角度可检索性，在帮助科研人员节省大量的文献检索时间的同时，还能快速获得最相关结果

Others

You have to Get it → You have to Read it → You have to Compare it → Answer

Reaxys

Reaxys® → Answers

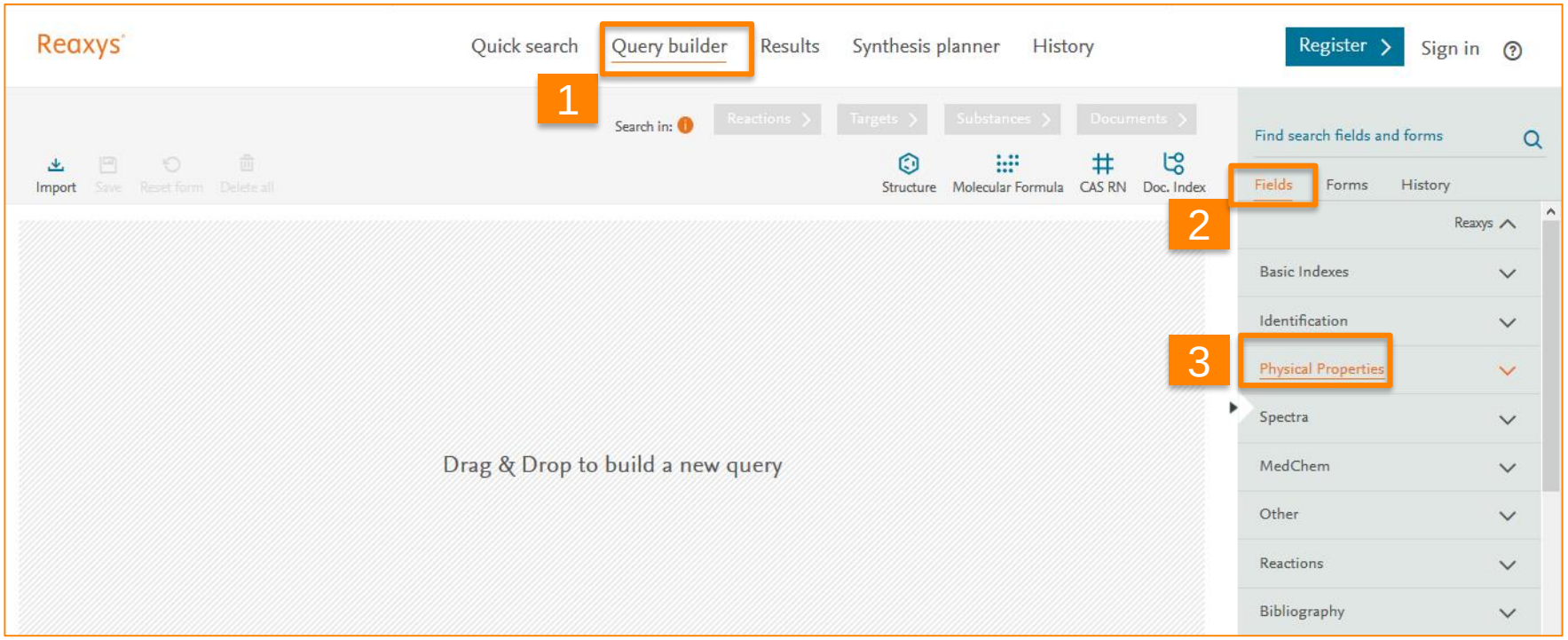
Time saving

提纲

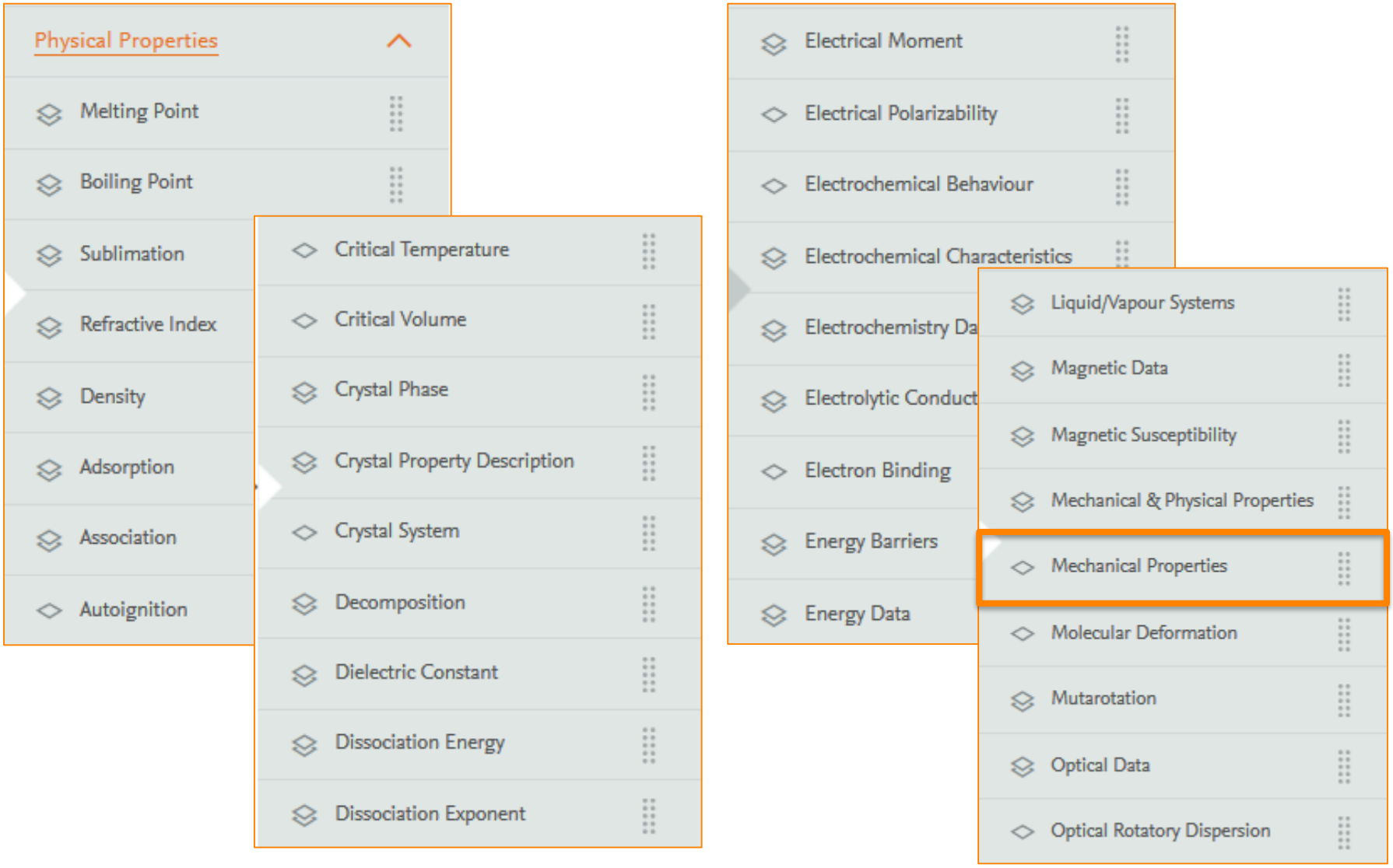
- Reaxys数据库的介绍与更新
- Reaxys数据库与同类数据库的比较
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
  - Reaxys数据库中与物性数据有关的检索
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

Case Study 1：通过理化性质检索物质

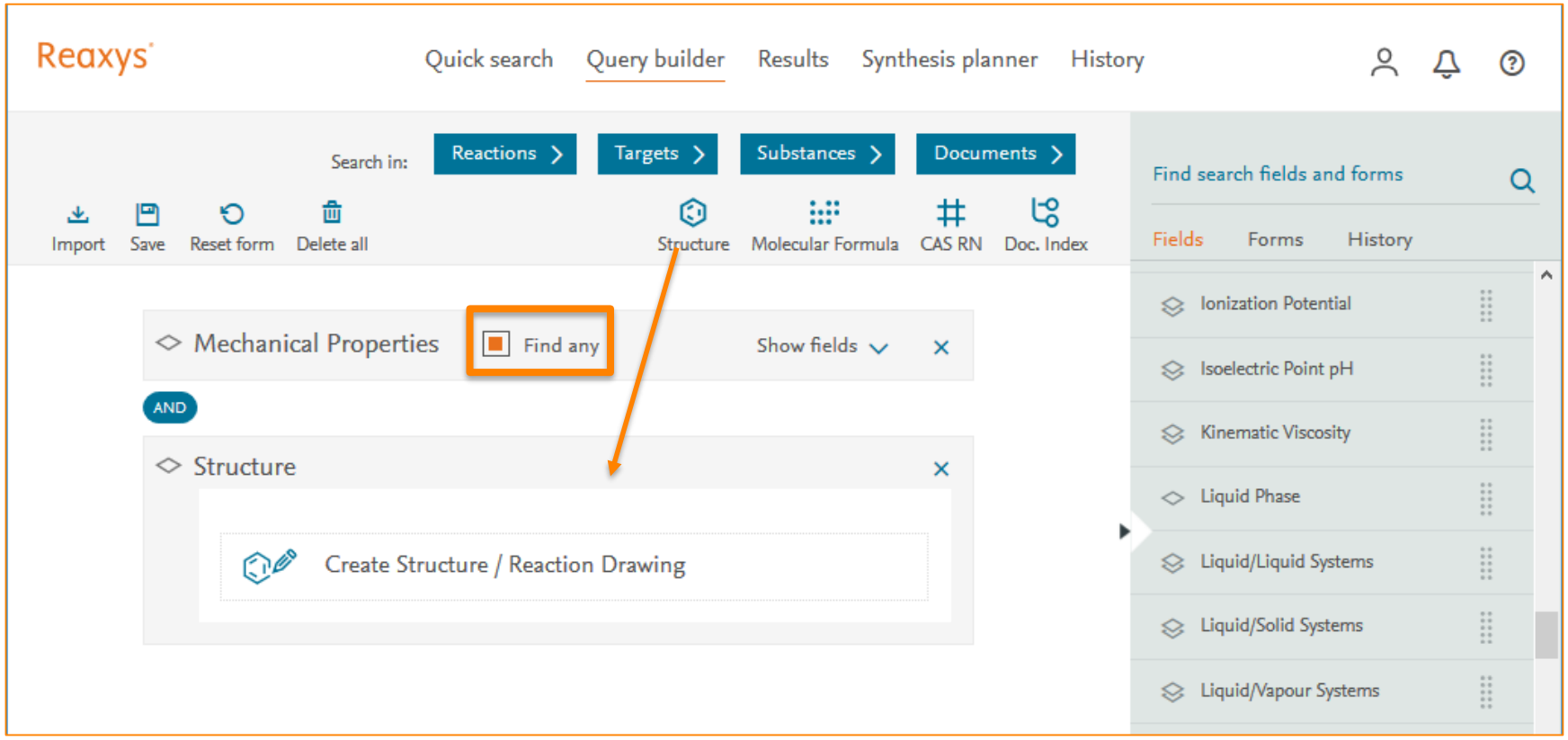
- 检索要求
  - 乙烯衍生物，不能成环
  - 具备“机械性能”报道的化合物
  - 按照以下的标签顺序进行“理化性质”反推的检索



Reaxys的理化性质列表



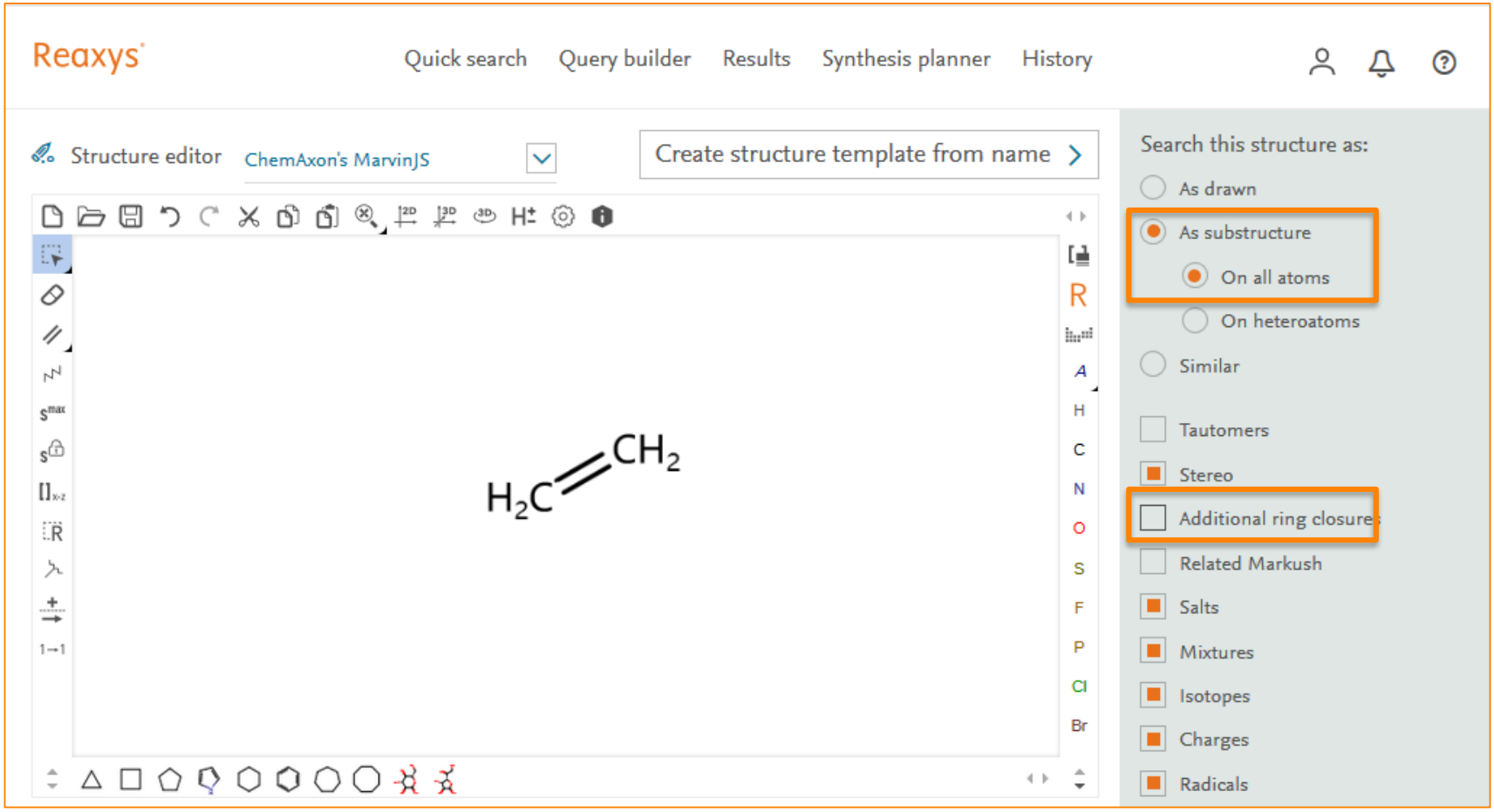
添加“机械属性”列表与结构属性



Tips：

通过Query Builder将结构和“机械属性”联合起来，点击结构添加“乙烯”

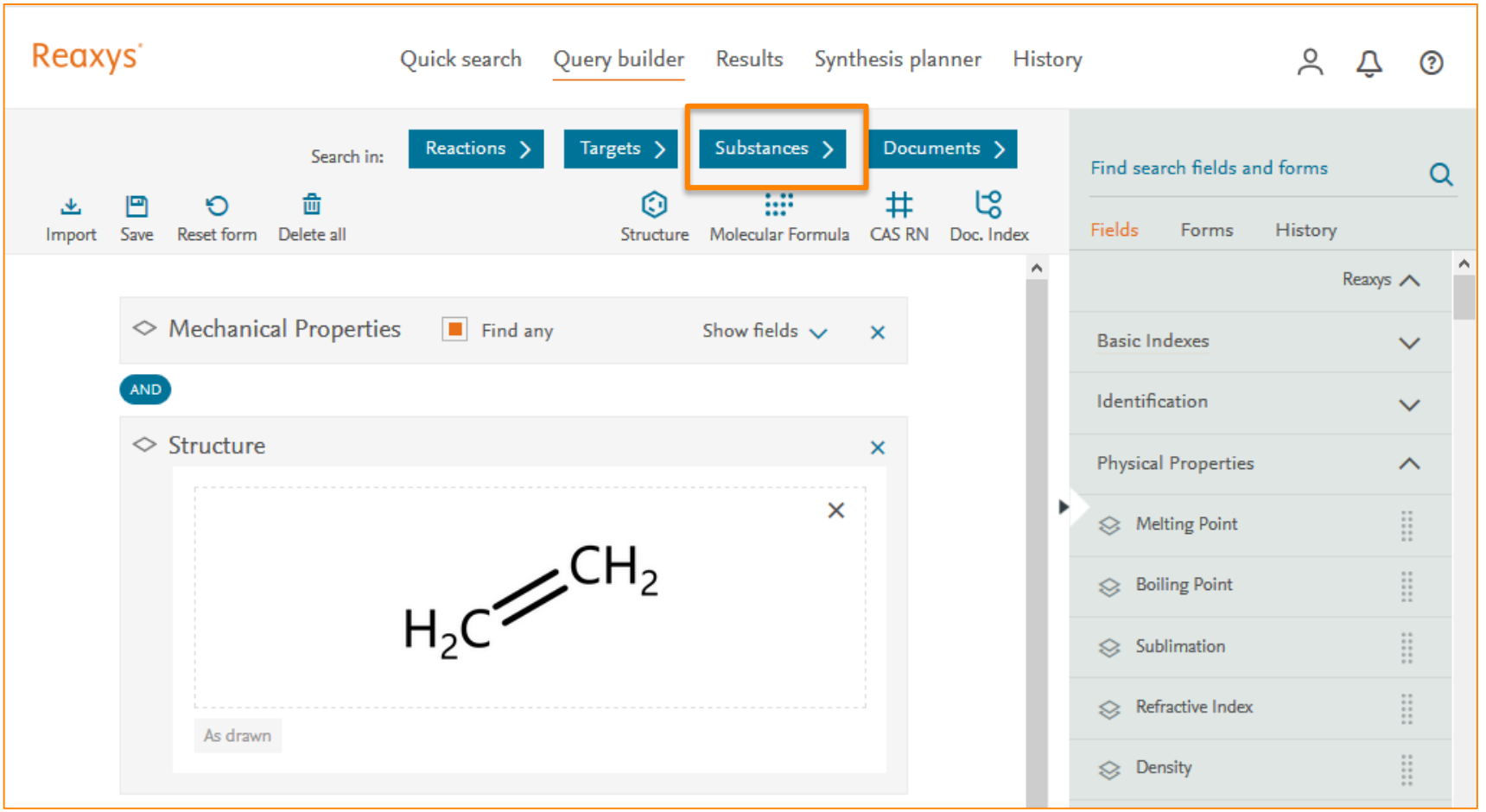
结构的绘制



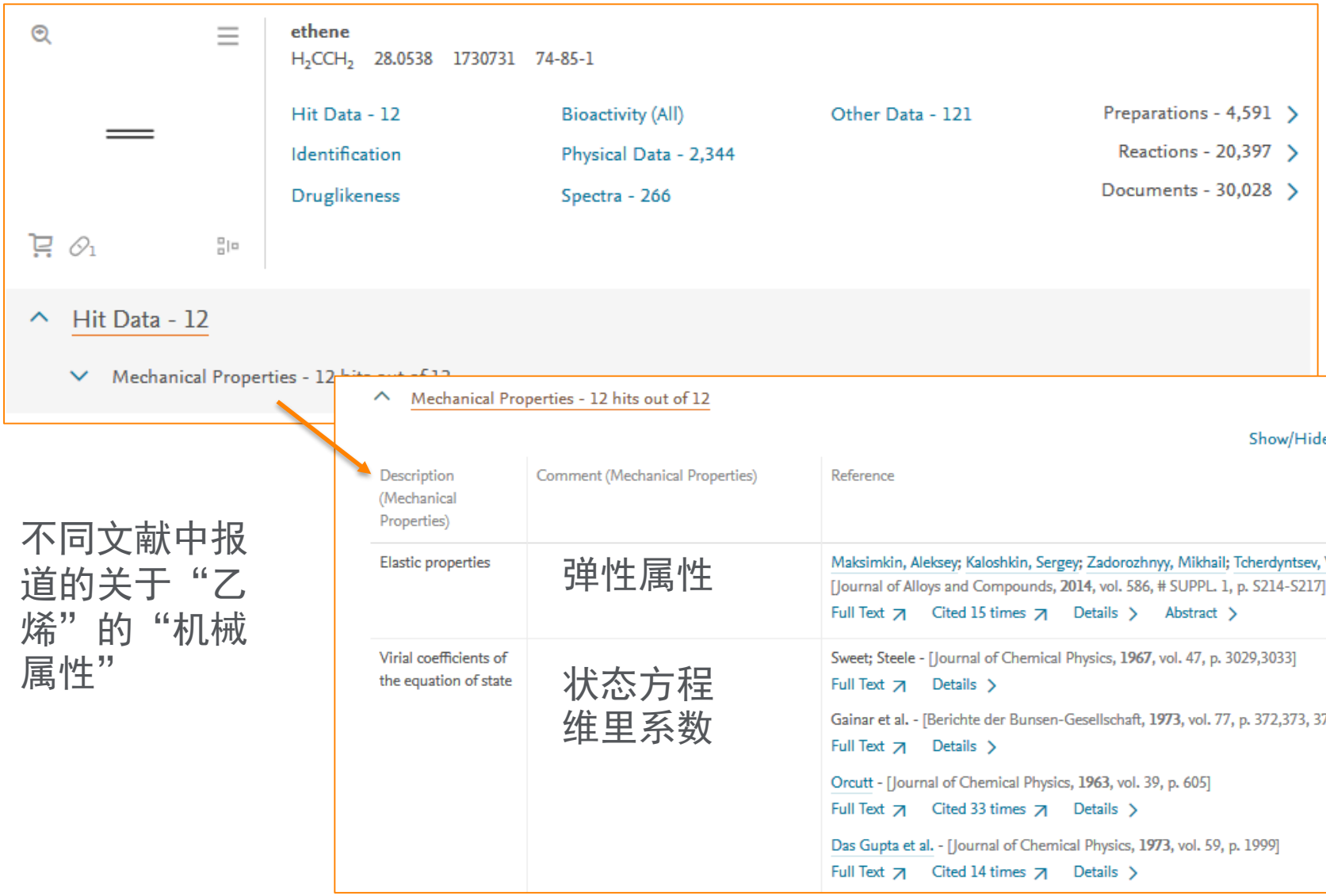
Tips：

亚结构检索确保是乙烯衍生物，Additional Ring Closure去掉确保不成环。

最后的检索式

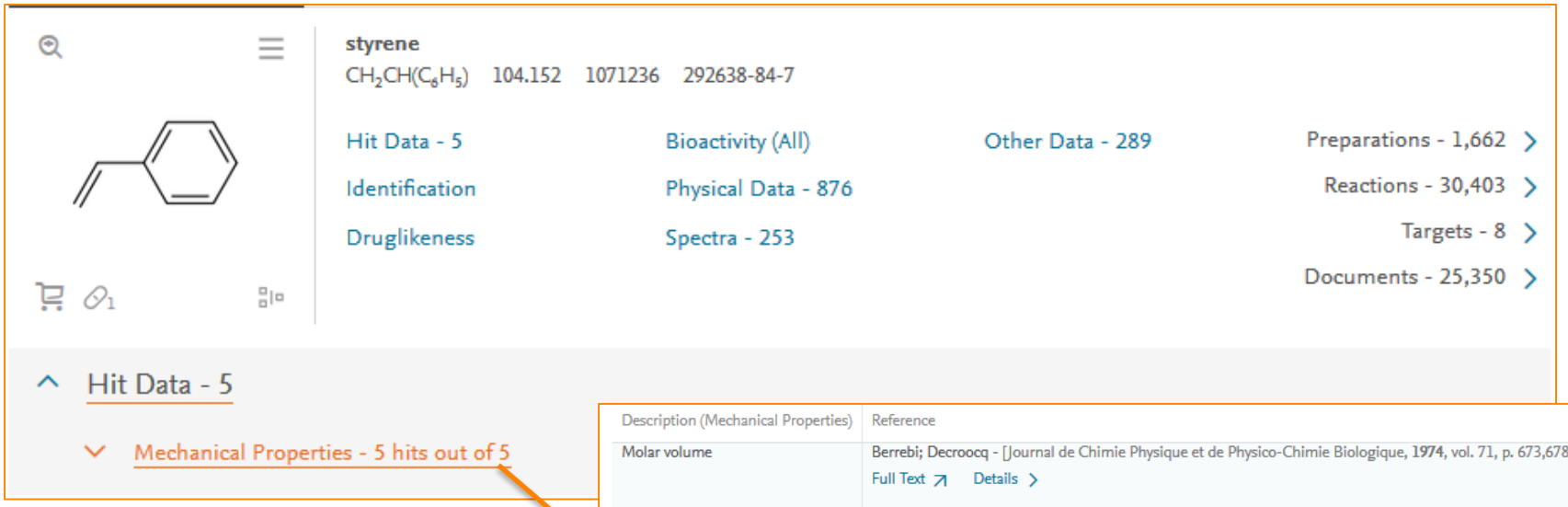

Reaxys
Quick search
Query builder
Results
Synthesis planner
History
Search in:
Reactions
Targets
Substances
Documents
Import
Save
Reset form
Delete all
Structure
Molecular Formula
CAS RN
Doc. Index
Find search fields and forms
Fields
Forms
History
Reaxys
Mechanical Properties
Find any
Show fields
AND
Structure
As drawn
Basic Indexes
Identification
Physical Properties
Melting Point
Boiling Point
Sublimation
Refractive Index
Density

最后的结果—乙烯的数据



不同文献中报道的关于“乙烯”的“机械属性”

最后的结果—衍生物的数据

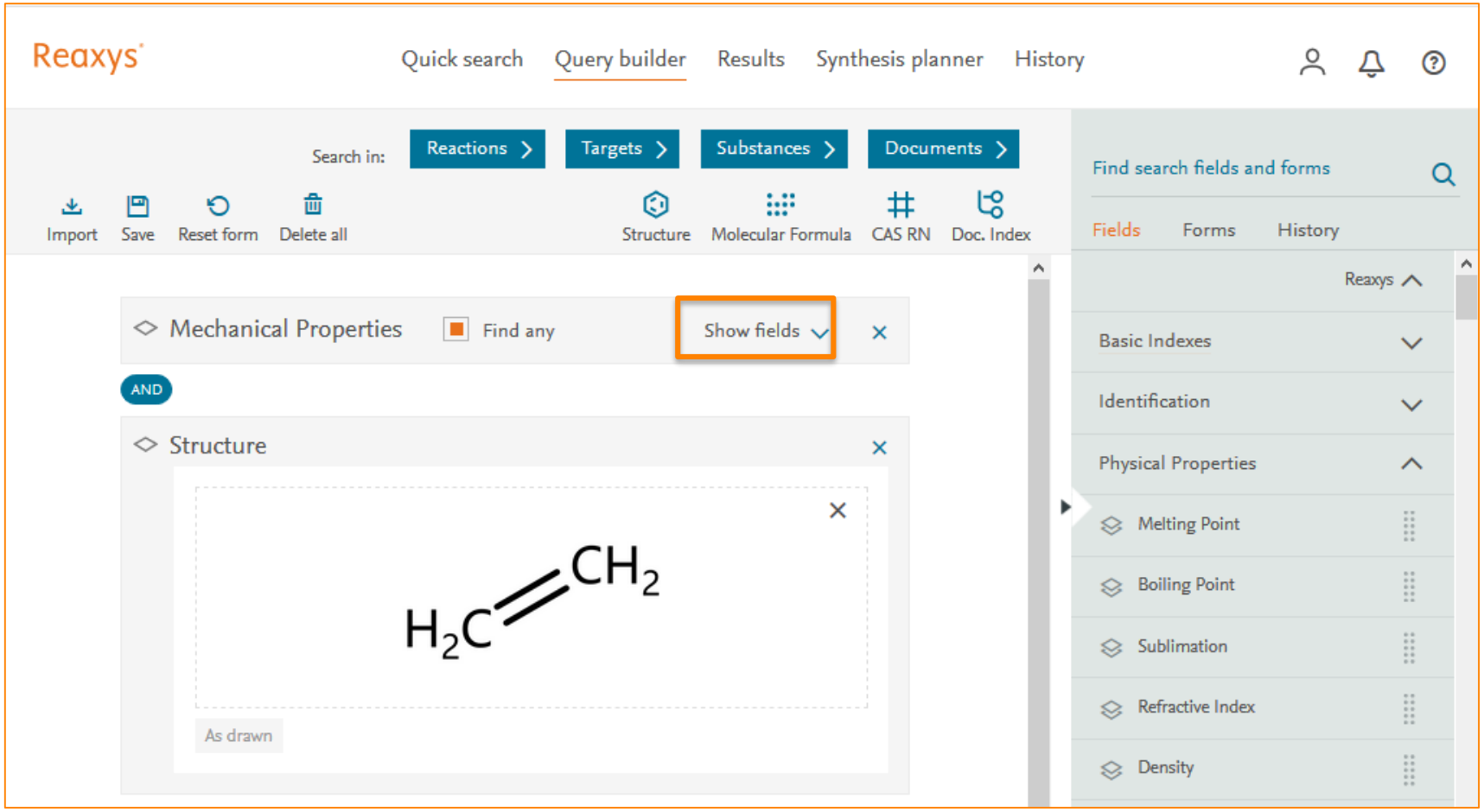


涉及到“苯乙烯”的摩尔体积，可压缩性，维里系数，粘性方面的报道

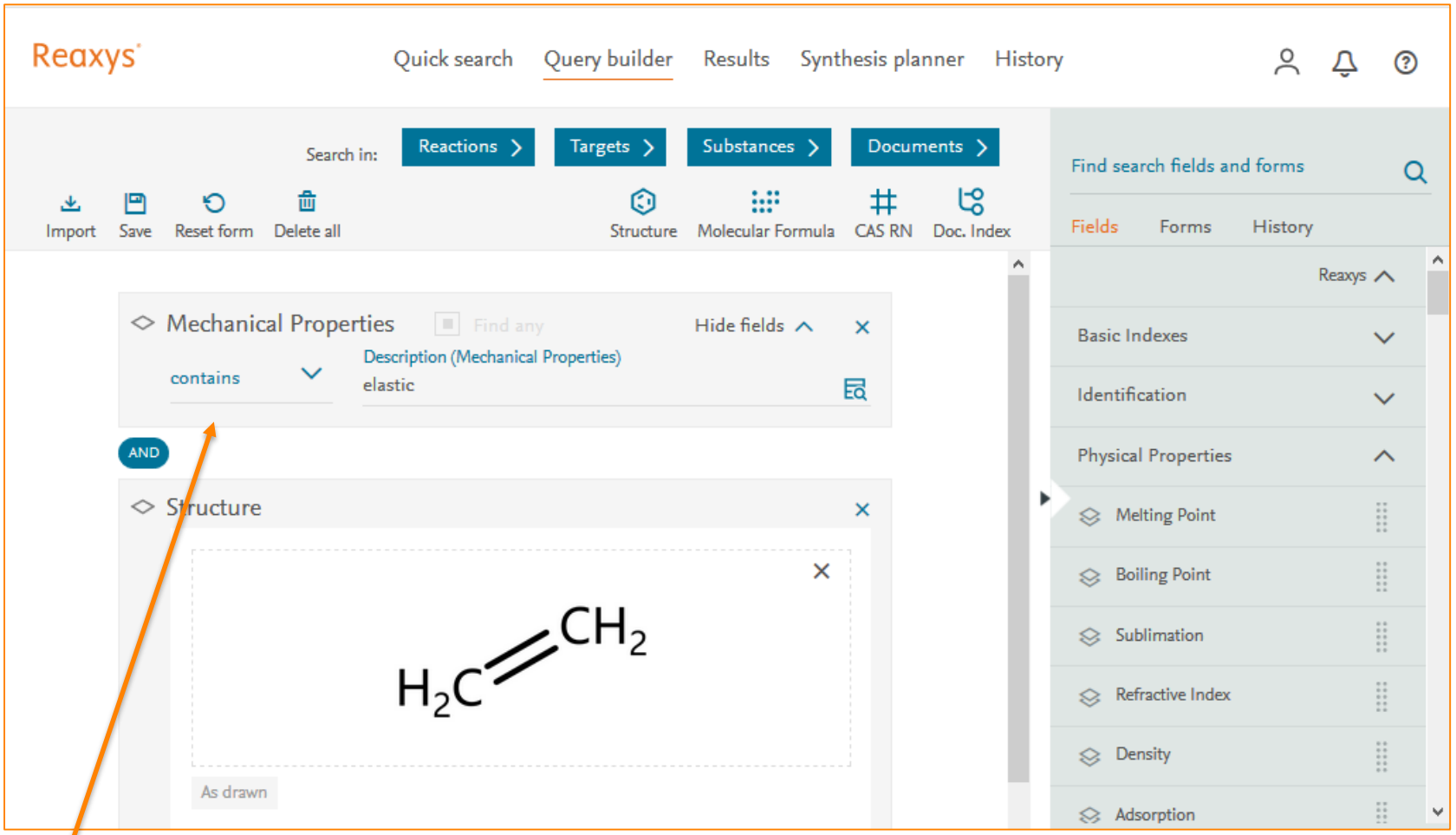
Description (Mechanical Properties)	Reference
Molar volume	Berrebi; Decroocq - [Journal de Chimie Physique et de Physico-Chimie Biologique, **1974**, vol. 71, p. 673,678] Full Text Details Miller et al. - [Journal of Chemical and Engineering Data, **1975**, vol. 20, p. 417,418, 419] Full Text Details Ghosal, Saswati; Samoc, Marek; Prasad, Paras N.; Tufariello, Joseph J. - [Journal of Physical Chemistry, **1990**, vol. 94, # 7, p. 2847 - 2851] Full Text Cited 101 times Details Abstract Hayduk, Walter; Minhas, Bhupender S. - [Journal of Chemical & Engineering Data, **1987**, vol. 32, # 3, p. 285 - 290] Full Text Details Abstract
Virial coefficients of the equation of state	Balashova, I. M.; Mokrushina, L. V.; Morachevskii, A. G. - [J. Appl. Chem. USSR (Engl. Transl.), **1989**, vol. 62, # 12, p. 2744 - 2750,2546 - 2551] Full Text Details Abstract
PVT Relationship	Sasuga et al. - [Journal of Physical Chemistry, **1979**, vol. 83, p. 3290] Full Text Cited 6 times Details
Compressibility	Yakusheva et al. - [Russian Journal of Physical Chemistry, **1977**, vol. 51, p. 973] [p. 1657] Full Text Details
Viscosity	Olaj - [Monatshefte fuer Chemie, **1971**, vol. 102, p. 648] Full Text Cited 3 times Details

案例衍生—如果特指与“弹性”有关的性能报道

- 对于以下的检索，该如何修改

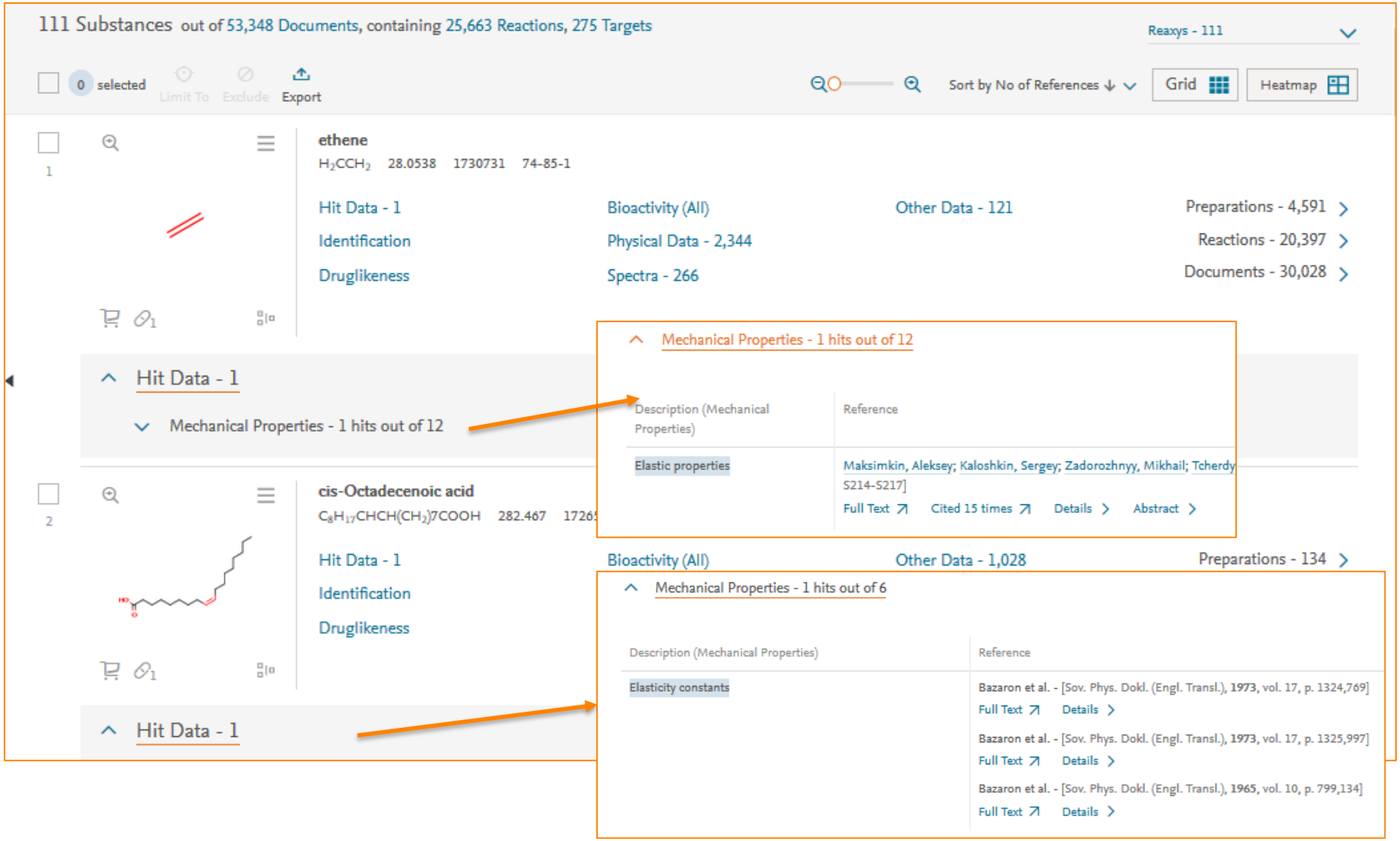


修改检索条件

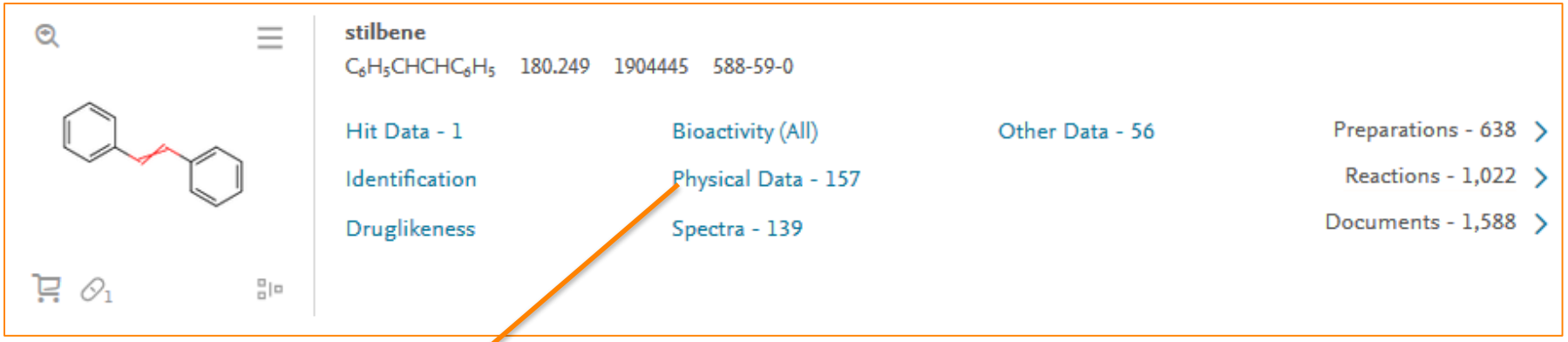


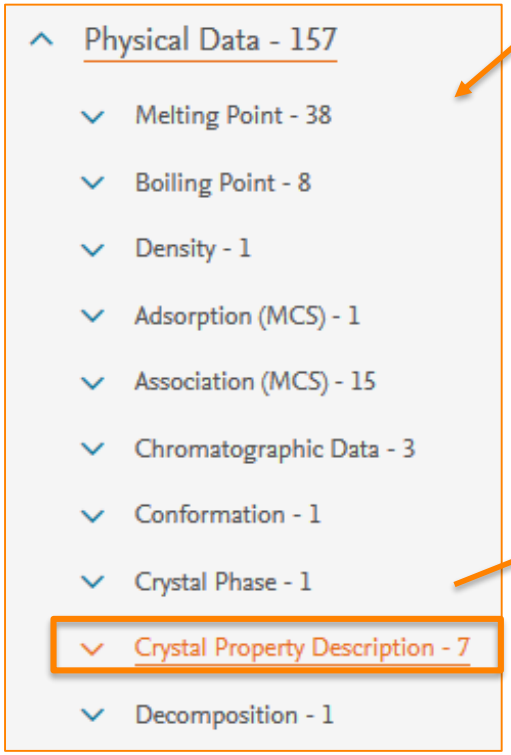
注意修改成Contains, 并添加为“弹性”词条。

最后的结果


111 Substances out of 53,348 Documents, containing 25,663 Reactions, 275 Targets
Reaxys - 111
0 selected
Limit To
Exclude
Export
Sort by No of References
Grid
Heatmap
1
ethene
H2CCH2 28.0538 1730731 74-85-1
Hit Data - 1
Identification
Druglikeness
Bioactivity (All)
Physical Data - 2,344
Spectra - 266
Other Data - 121
Preparations - 4,591
Reactions - 20,397
Documents - 30,028
Hit Data - 1
Mechanical Properties - 1 hits out of 12
Mechanical Properties - 1 hits out of 12
Description (Mechanical Properties)
Reference
Elastic properties
Maksimkin, Aleksey; Kaloshkin, Sergey; Zadorozhnyy, Mikhail; Tcherdy
S214-S217]
Full Text
Cited 15 times
Details
Abstract
2
cis-Octadecenoic acid
C8H17CHCH(CH2)7COOH 282.467
Hit Data - 1
Identification
Druglikeness
Bioactivity (All)
Other Data - 1,028
Preparations - 134
Hit Data - 1
Mechanical Properties - 1 hits out of 6
Description (Mechanical Properties)
Reference
Elasticity constants
Bazaron et al. - [Sov. Phys. Dokl. (Engl. Transl.), 1973, vol. 17, p. 1324,769]
Full Text
Details
Bazaron et al. - [Sov. Phys. Dokl. (Engl. Transl.), 1973, vol. 17, p. 1325,997]
Full Text
Details
Bazaron et al. - [Sov. Phys. Dokl. (Engl. Transl.), 1965, vol. 10, p. 799,134]
Full Text
Details

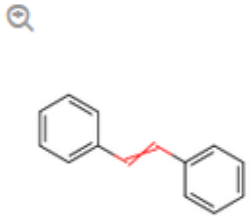
其中一个化合物—理化性质





Colour & Other Properties	Location	Reference
colourless		Potier, Jonathan; Menuel, Stephane; Rousseau, Jolanta; Tumkevicius, Sigitas; Hapiot, Frederic; Monflier, Eric - [Applied Catalysis A: General, **2014**, vol. 479, p. 1 - 8] Full Text Cited 11 times Details Abstract
yellow		Kireenko, Marina M.; Zaitsev, Kirill V.; Oprunenko, Yuri F.; Churakov, Andrei V.; Tafeenko, Viktor A.; Karlov, Sergey S.; Zaitseva, Galina S. - [Dalton Transactions, **2013**, vol. 42, # 22, p. 7901 - 7912] Full Text Cited 18 times Details Abstract
white	supporting information	Yang, Fu-Lai; Ma, Xian-Tao; Tian, Shi-Kai - [Chemistry - A European Journal, **2012**, vol. 18, # 6, p. 1582 - 1585] Full Text Cited 92 times Details Abstract
white		Ren, Gerui; Cui, Xiuling; Yang, Erbing; Yang, Fan; Wu, Yangjie - [Tetrahedron, **2010**, vol. 66, # 23, p. 4022 - 4028] Full Text Cited 48 times Details Abstract Lu, Jian-Mei; Ma, Hui; Li, Sha-Sha; Ma, Dan; Shao, Li-Xiong - [Tetrahedron, **2010**, vol. 66, # 27-28, p. 5185 - 5189] Full Text Cited 32 times Details Abstract Tang, Yi-Qiang; Chu, Chun-Yan; Zhu, Lei; Qian, Bin; Shao, Li-Xiong - [Tetrahedron, **2011**, vol. 67, # 49, p. 9479 - 9483] Full Text Cited 28 times Details Abstract

其中一个化合物—理化性质



stilbene

$C_6H_5CHCHC_6H_5$ 180.249 1904445 588-59-0

Hit Data - 1

Identification

Druglikeness

Bioactivity (All)

Physical Data - 157

Spectra - 139

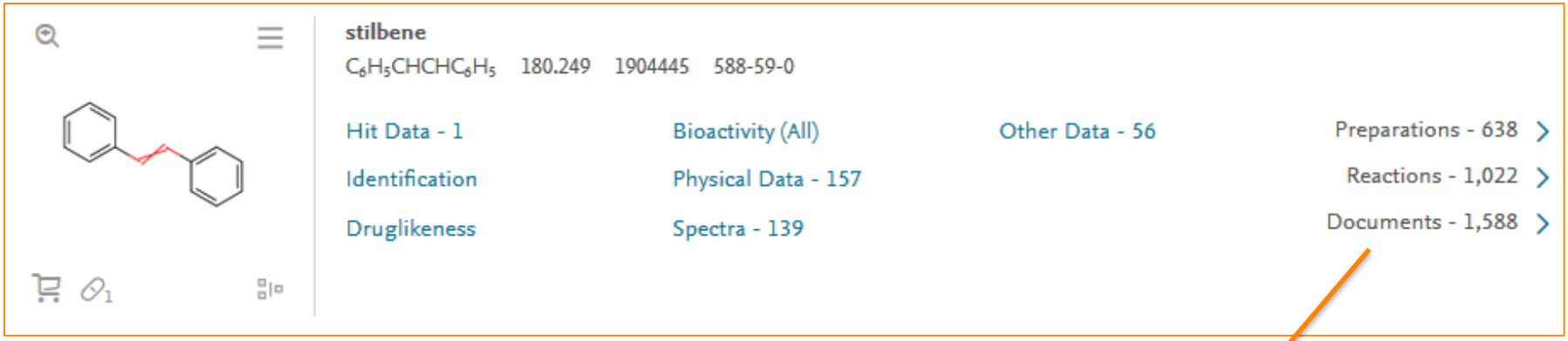
Other Data -

Spectra - 139

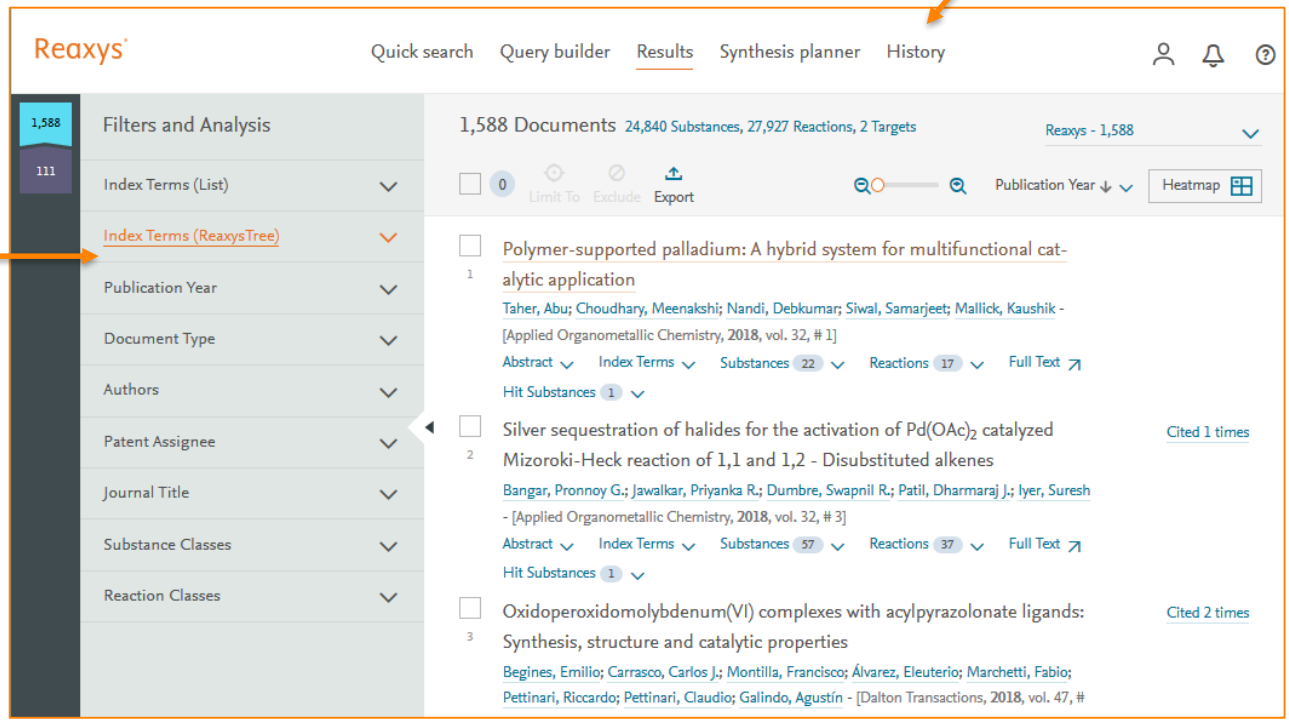
- NMR Spectroscopy - 67
- IR Spectroscopy - 8
- Mass Spectrometry - 17
- UV/VIS Spectroscopy - 17
- ESR Spectroscopy - 2

Description (NMR Spectroscopy)	Nucleus (NMR Spectroscopy)	Coupling Nuclei	Solvents (NMR Spectroscopy)	Temperature (NMR Spectroscopy), °C	Frequency (NMR Spectroscopy), MHz	Original Text (NMR Spectroscopy)	Location	Comment (NMR Spectroscopy)	Signals, ppm	Kind of signal	Reference
shifts, Spectrum						MHz, $CDCl_3$) δ: 7.12 (s, 2H), 7.27 (t, J = 7.4 Hz, 2H), 7.37 (t, J = 7.4 Hz, 4H), 7.53 (dd, J = 1.4 and 8.4 Hz, 3H)	information				- [Tetrahedron, **2017**, vol. 73, # 27-28, p. Full Text Details Abstract
Chemical shifts, Spectrum	13C		chloroform-d1		125	^{13}C NMR (125 MHz, $CDCl_3$) δ: 127.4, 128.5, 129.5, 138.22	supporting information		127.4, 128.5, 129.5, 138.22		Tanaka, Chihiro; Nakamura, Kimiaki; Ni - [Tetrahedron, **2017**, vol. 73, # 27-28, p. Full Text Details Abstract

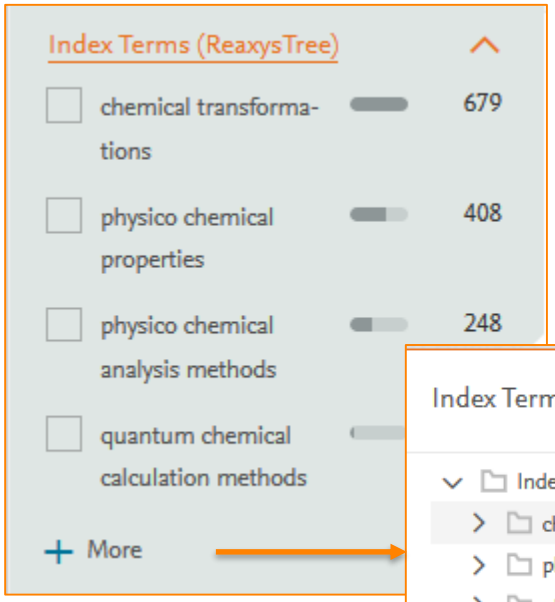
其中一个化合物—分析文献获取



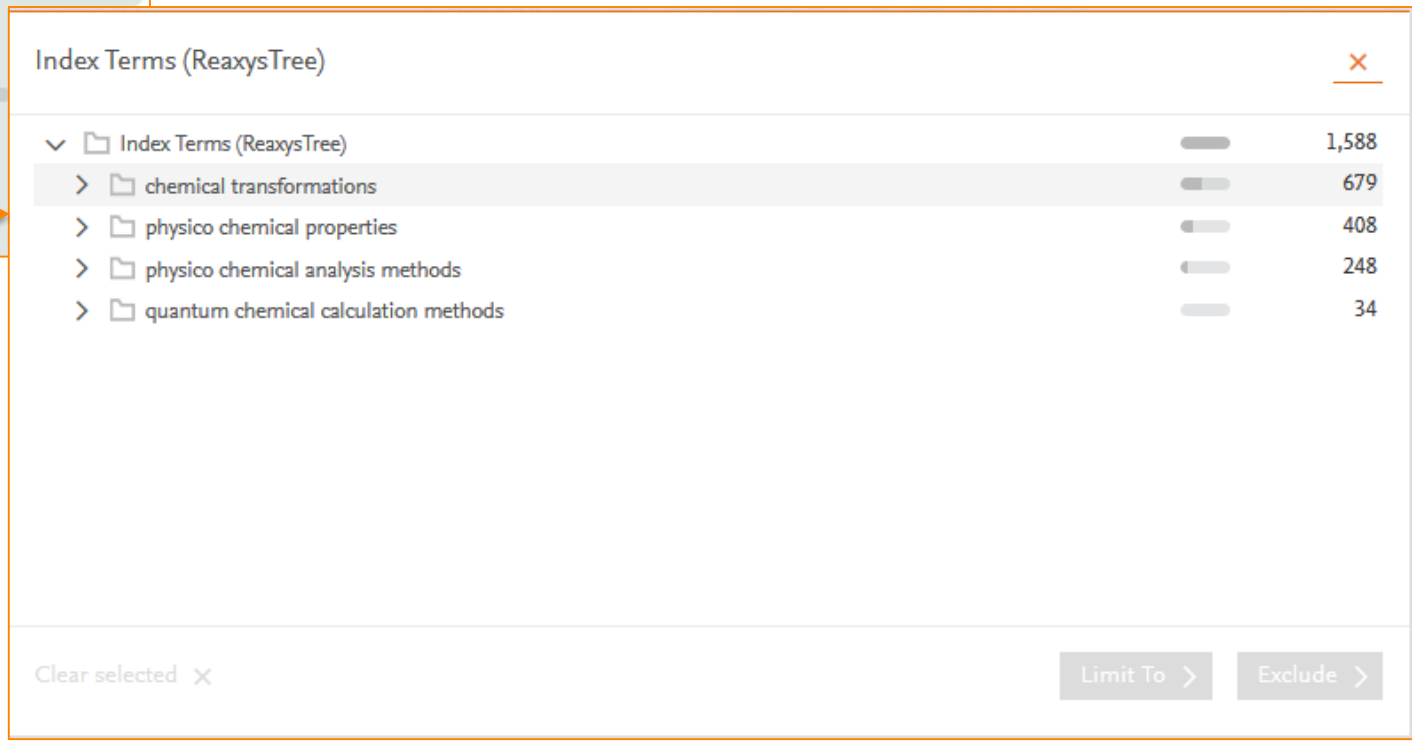
Index Term（Reaxys Tree）分析获取分析方面的分类



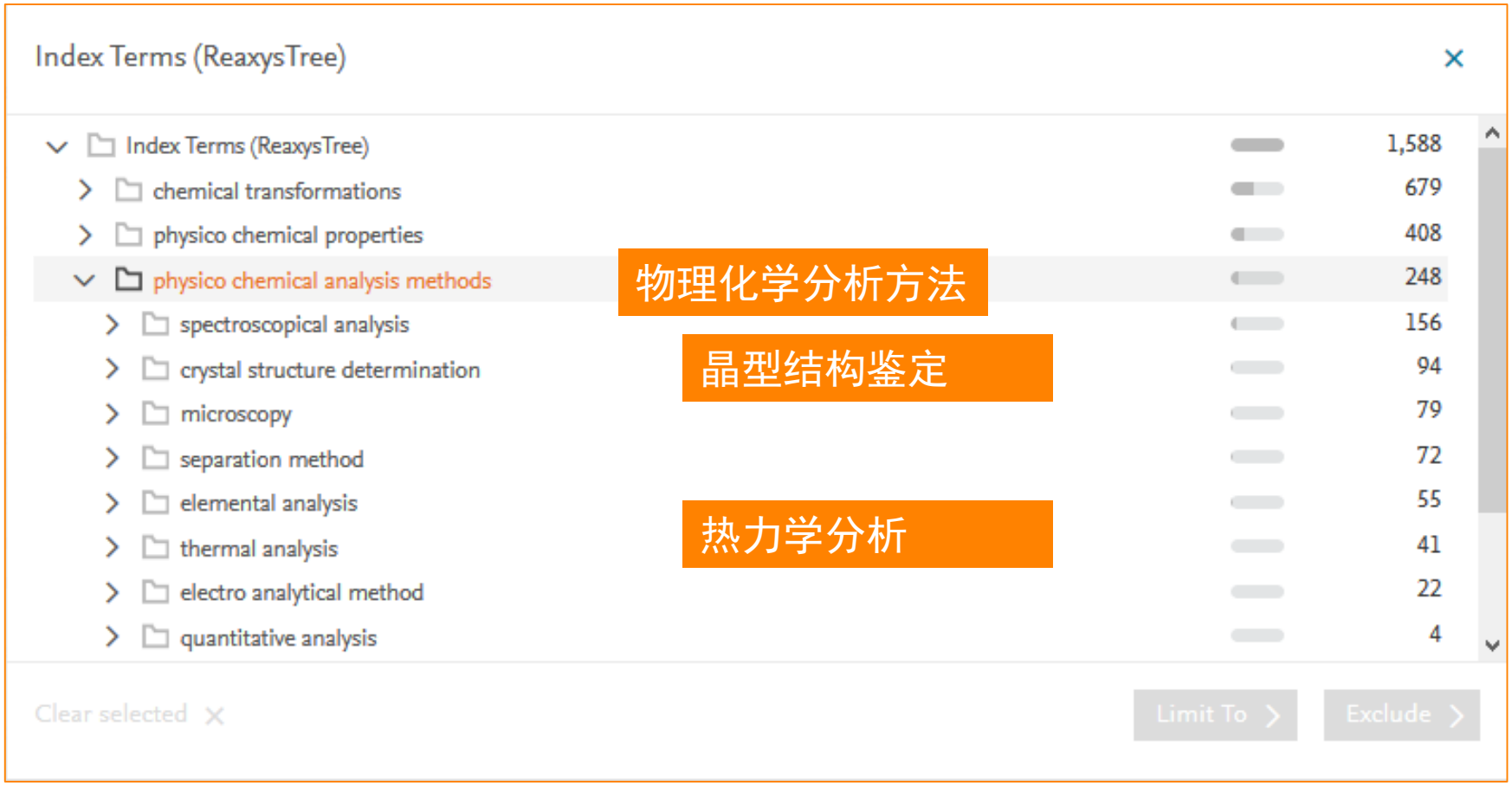
Index Term Reaxys Tree的应用



Index Term Reaxys Tree帮助快速获得文献方面的分类



Index Term Reaxys Tree中的分析文献获取



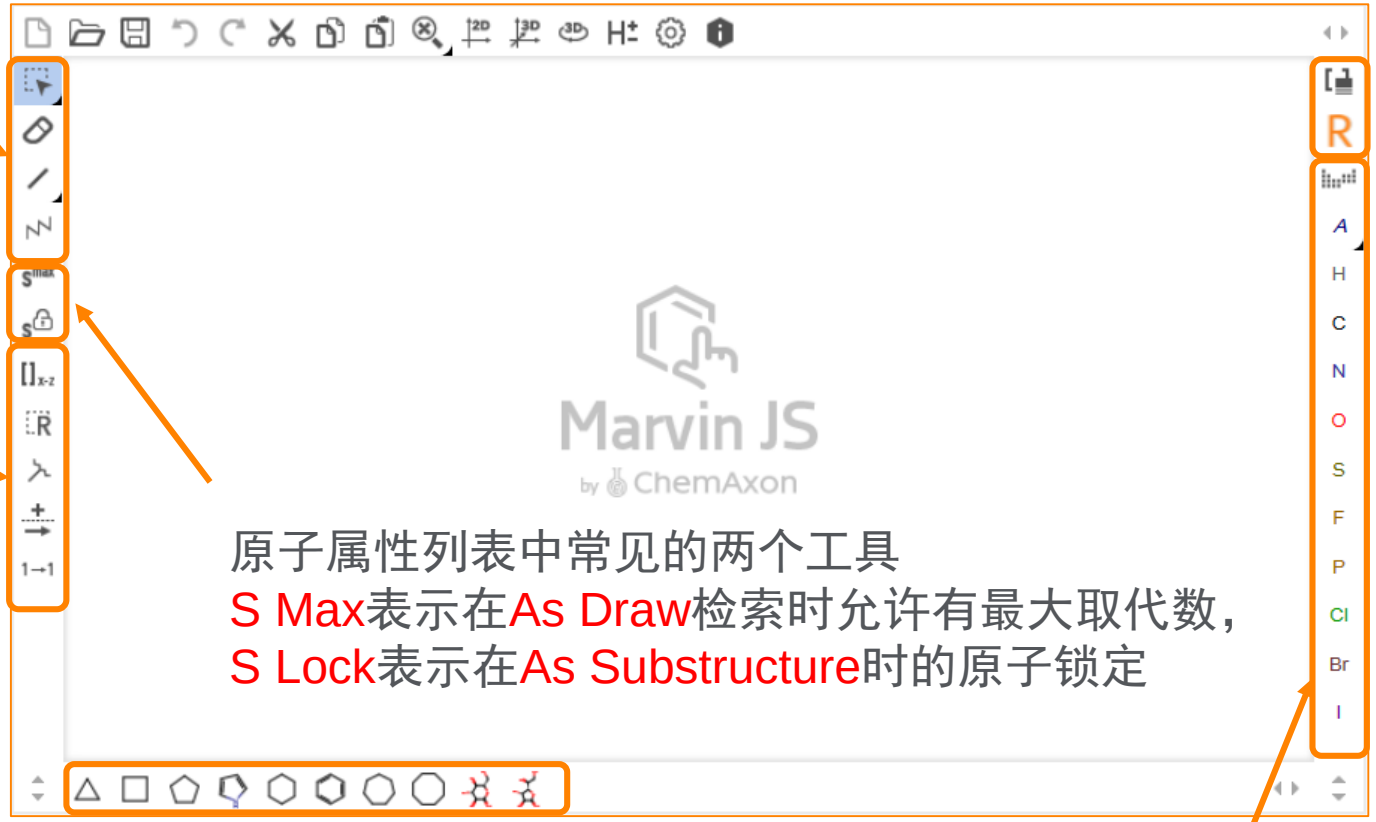
提纲

- Reaxys数据库的介绍与更新
- Reaxys数据库与同类数据库的比较
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
  - Reaxys数据库中与物性数据有关的检索
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

Reaxys中Marvin JS结构编辑器使用

选择工具，橡皮，键定义，链，

重复基团，R基团，R基团链接端，反应定义工具，原子匹配工具



原子属性列表中常见的两个工具
S Max表示在As Draw检索时允许有最大取代数，
S Lock表示在As Substructure时的原子锁定

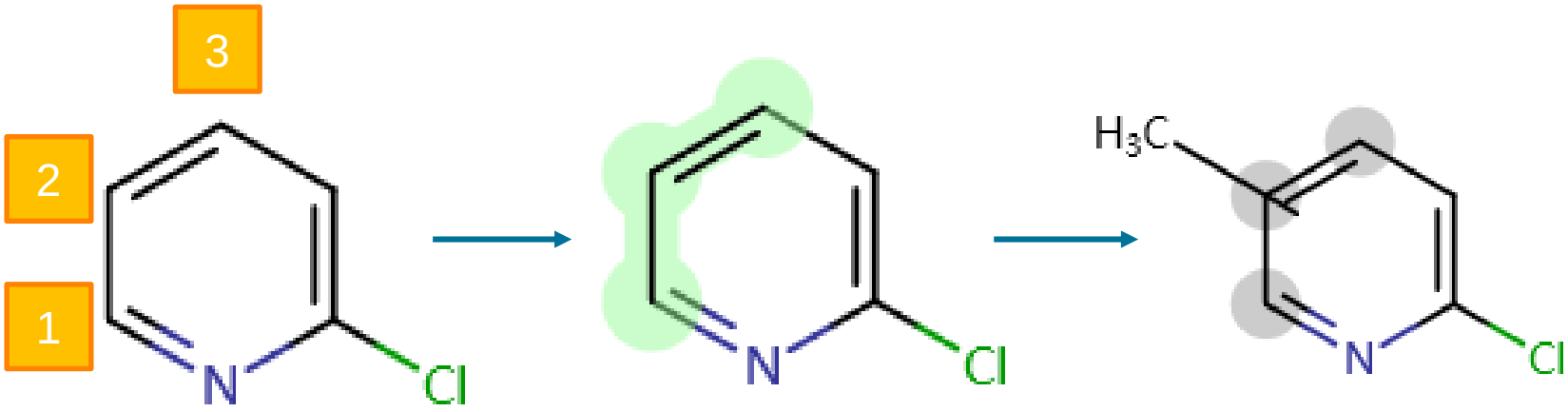
缩写官能团，通用官能团定义，

常见的环，常见的糖分子模板

元素周期表以及常用原子，
A:原子属性定义工具

不定位取代键的使用

- 不定位取代键：
  - 在选定的原子上进行基团的链接
  - 可以使用在链上，也可以使用在环上



绘制要求：

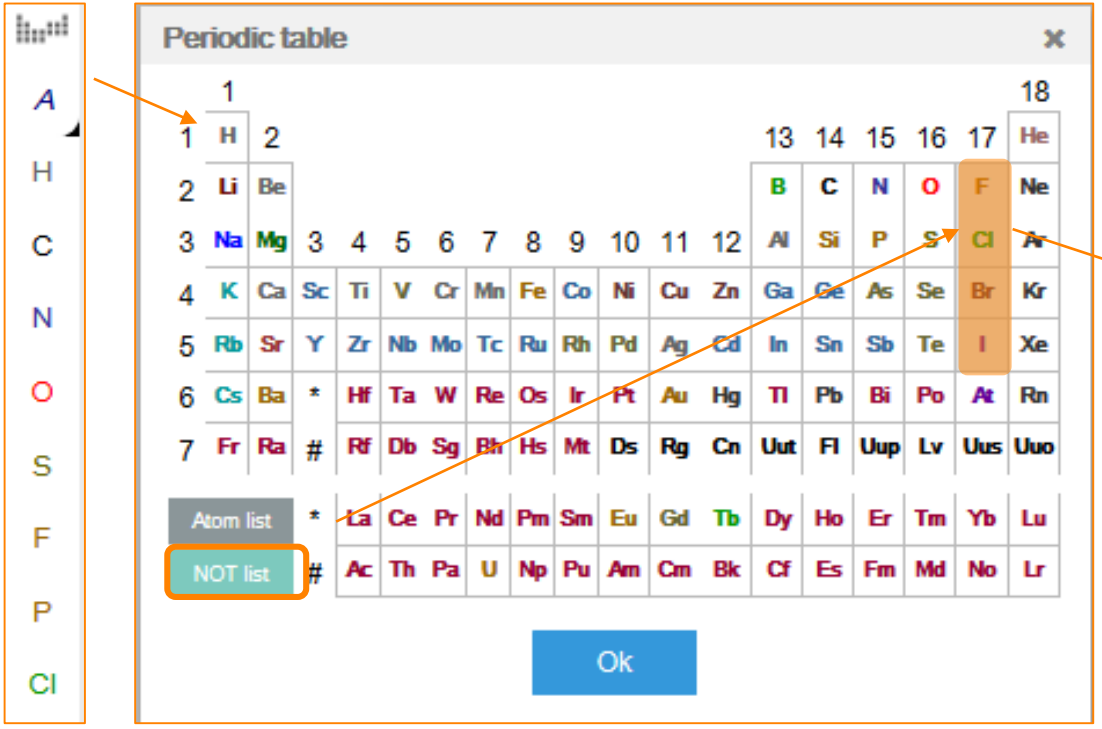
希望1，2，3C上存在一个NH2

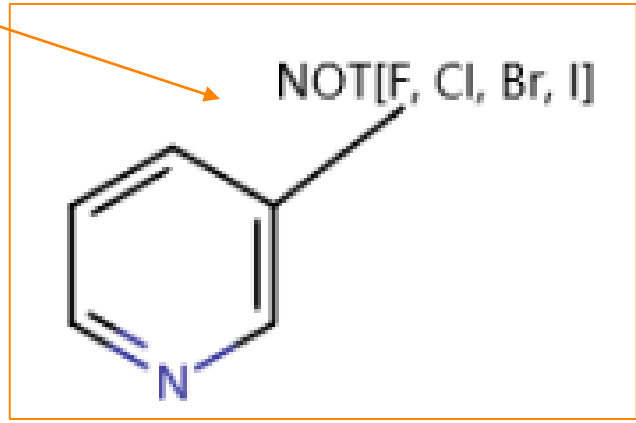
绘制步骤：

1. 用选择工具选择1，2，3号C原子，
2. 添加不定位取代，系统默认添加CH3
3. 将CH3换成NH2

Not List的应用

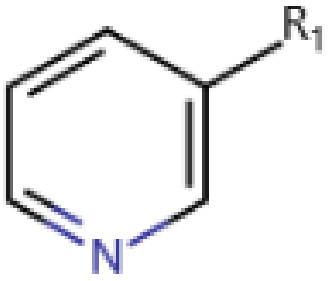
- 案例:
  - 定义某位点上不能发生F, Cl, Br, I取代



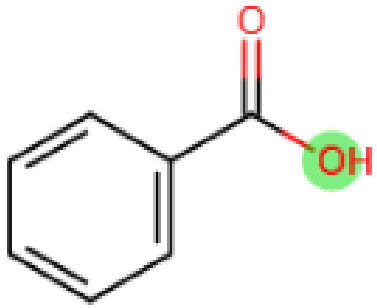


自定义R基团

- 案例
  - 定义一个结构A
  - R1分别是下面的这些结构，结构中绿色原子与A结构相连接

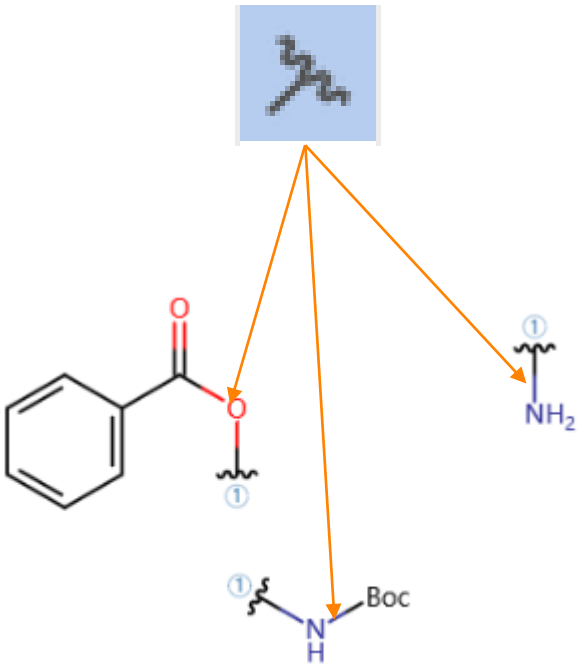


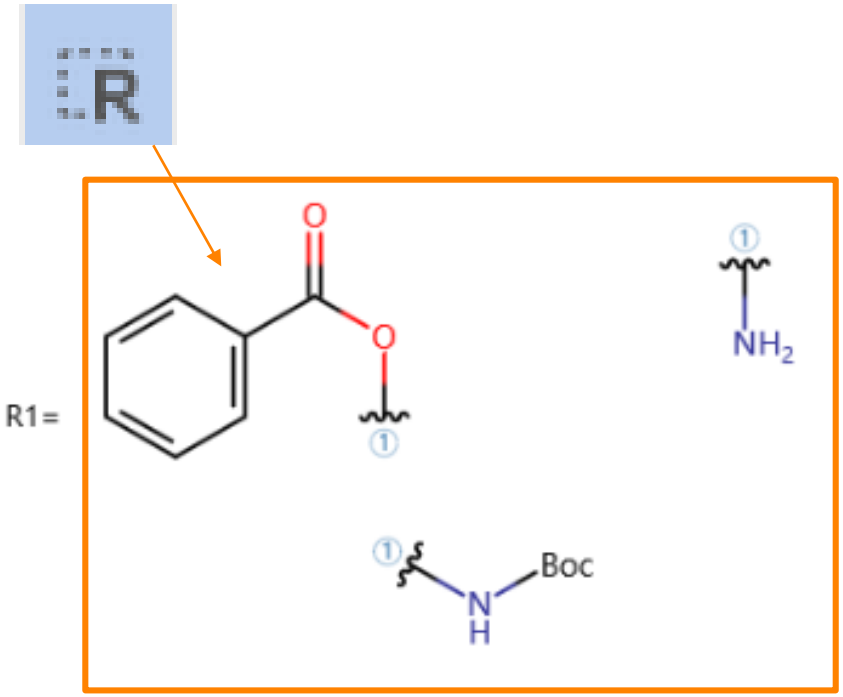
A



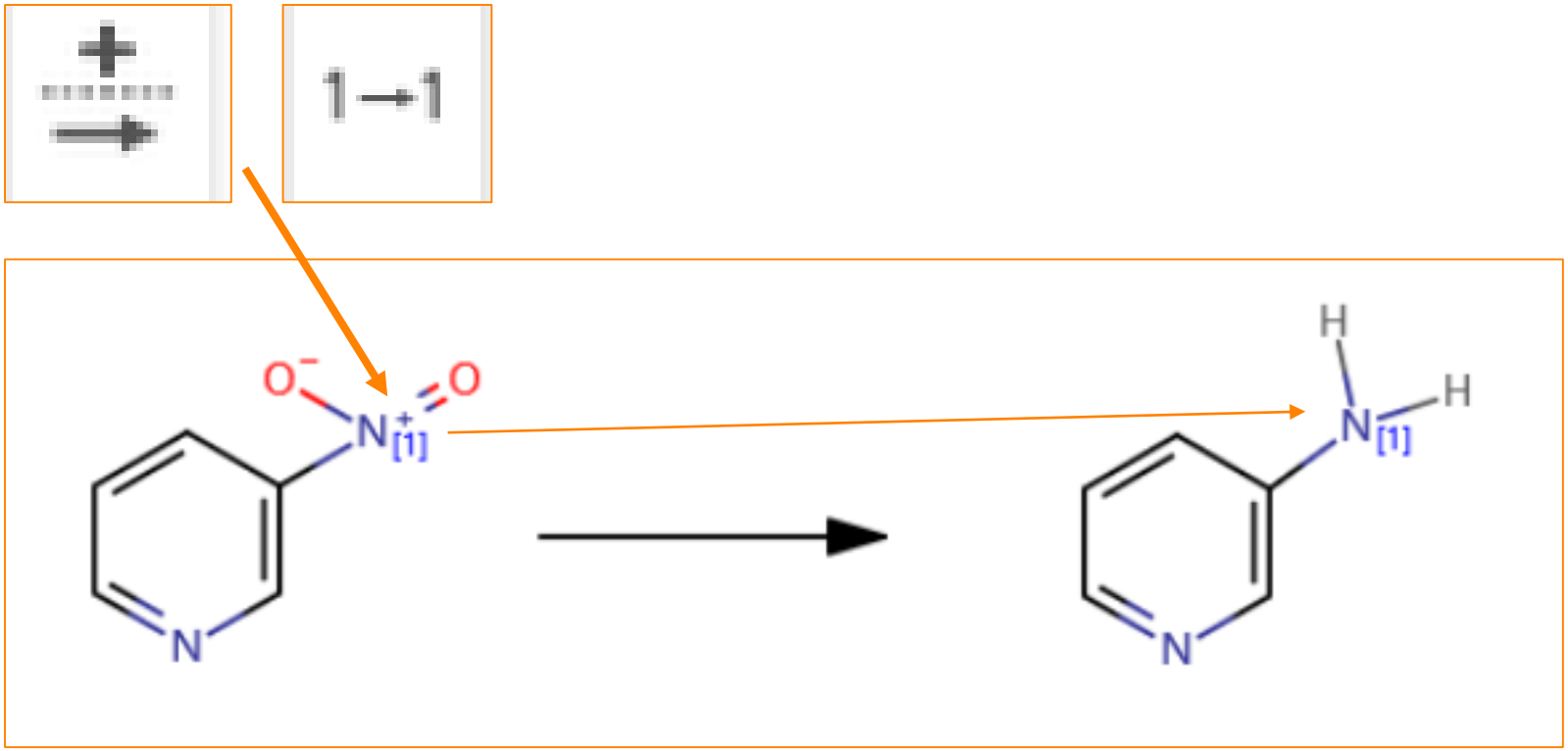
绘制方法

- 定义步骤：
  - 使用R基团末端定义工具定义绿色原子
  - 使用R基团定义工具，选择全部片段，即可完成R1的定义





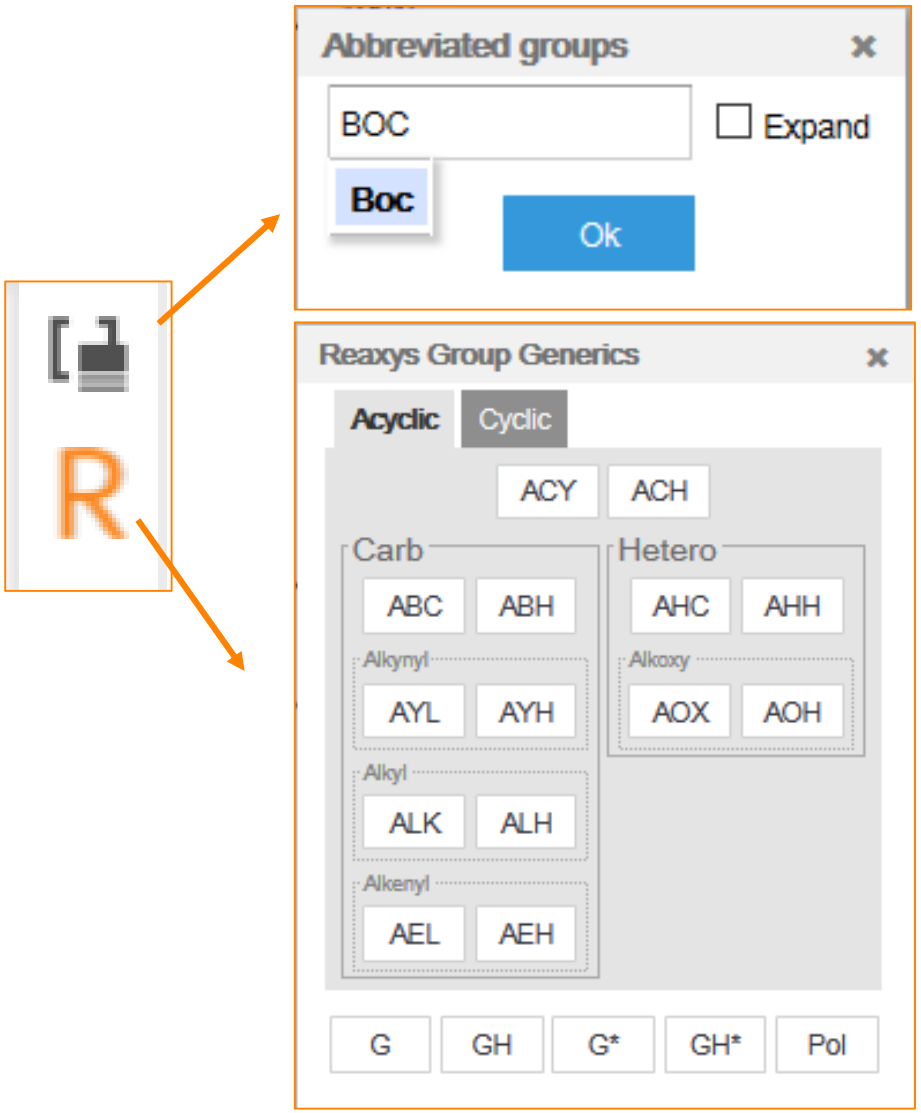
反应原子标记工具



Tips：

1. 定义反应前后必须匹配的原子
2. 建议将官能团展开后进行匹配
3. 在定义原子匹配时，两工具等效。

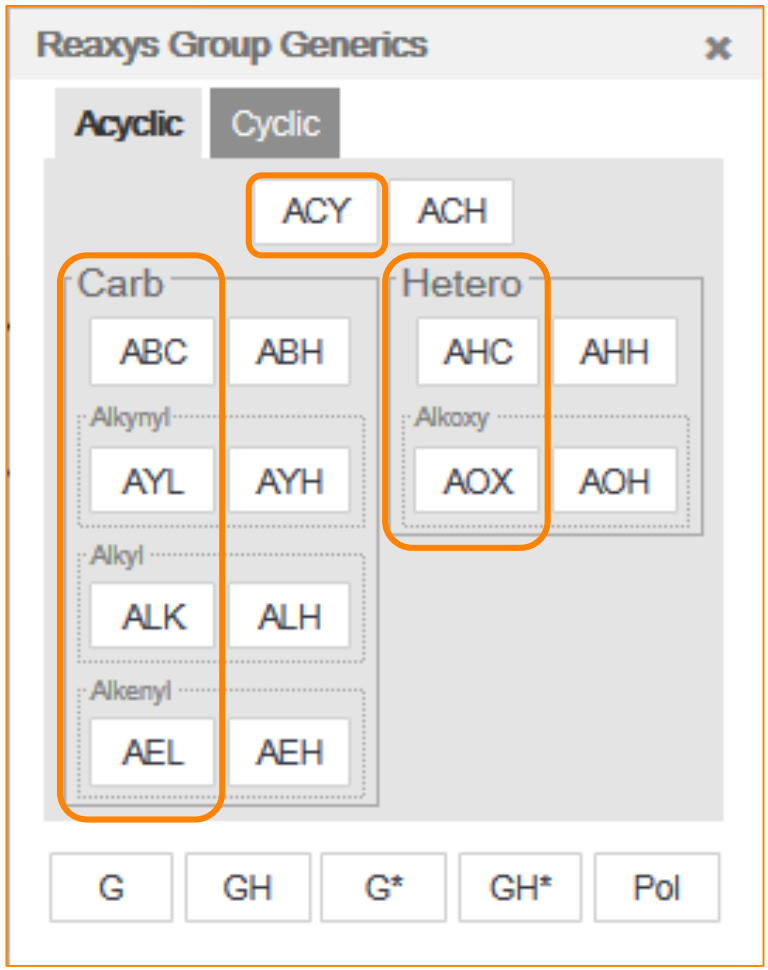
缩写官能团，Reaxys的Generic Group定义



Tips:

1. Abbreviated Group:提供一些缩写的基团，直接键盘输入即可
2. Reaxys Generic Group：提供一些通用官能团

Generic Group定义—链的定义



Tips:

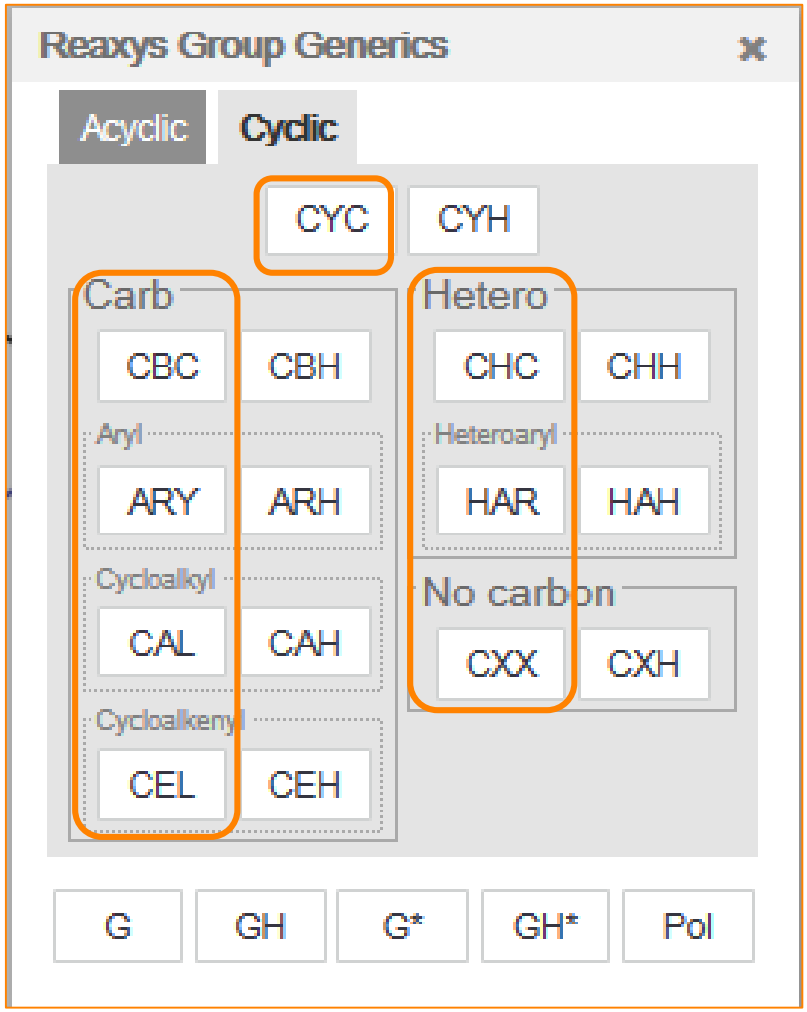
ACY： 任意的链

ABC： 任意C链（只含C原子）
AYL： 含有炔基取代的链
ALK: 含有烷基取代的链（饱和链）
AEL: 含有烯基取代的链

AHC: 含有杂原子的链
AOX: 烷氧基

其他带H的分别是，前面对应基团或H

Generic Group定义—环的定义



Tips:

CYC： 任意的环

CBC： 任意C环（只含C原子）
ARY： 芳香基（只含C原子）
CAL: 环烷基（饱和C环）
CEL: 环烯基（不饱和C环）

CHC: 任意杂环
HAR: 含杂原子的芳香环
CXX： 不含C原子的环

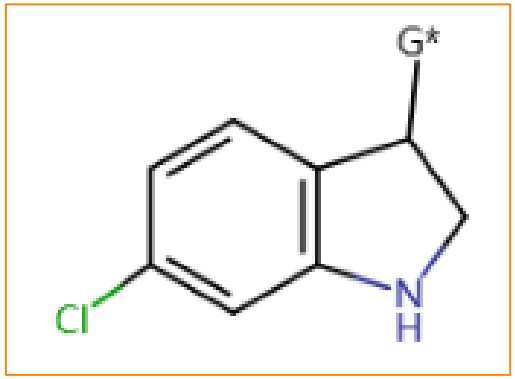
其他带H的分别是，前面对应基团或H

Generic Group定义—G Group定义

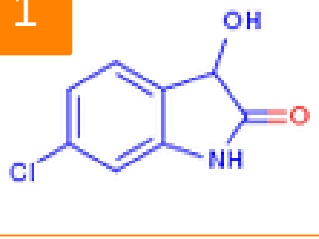
G	GH	G*	GH*

Tips：

1. G代表的是任意基团，GH表示的是任意基团或H
2. G*和G的区别是，G*所连接的基团允许和母体成环，G不允许成环



1



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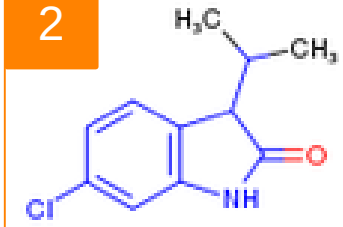

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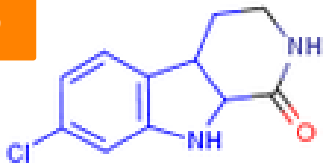

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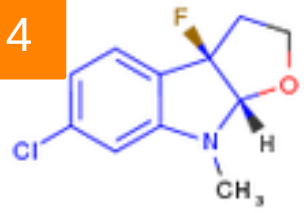
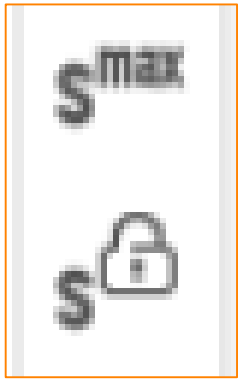


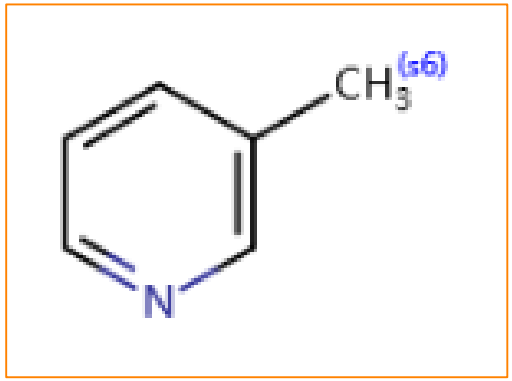
思考：

As Substructure检索这个结构，哪些结构可以被检索出来，如果不是G*，而是G呢？

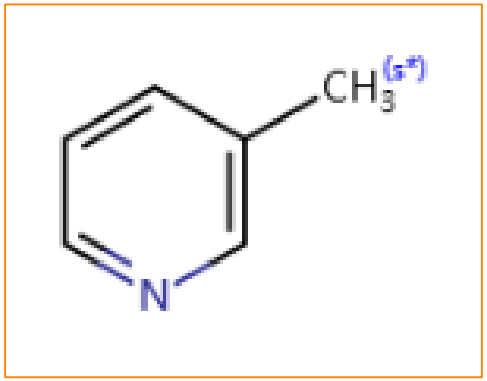
S Max和S Lock

- S Max: As Draw检索时有效
  - As Draw时，所有的原子不允许有取代
  - 标记上，S Max，等同于在As Draw时将这个位点全部开放
- S Lock： As Substructure检索时有效
  - As Substructure时，所有没有画出来的H，以及没有延展出来的H都可以随意取代
  - 标记上，S Lock， 等同于该位点上只能是H，起到锁定作用





As Draw



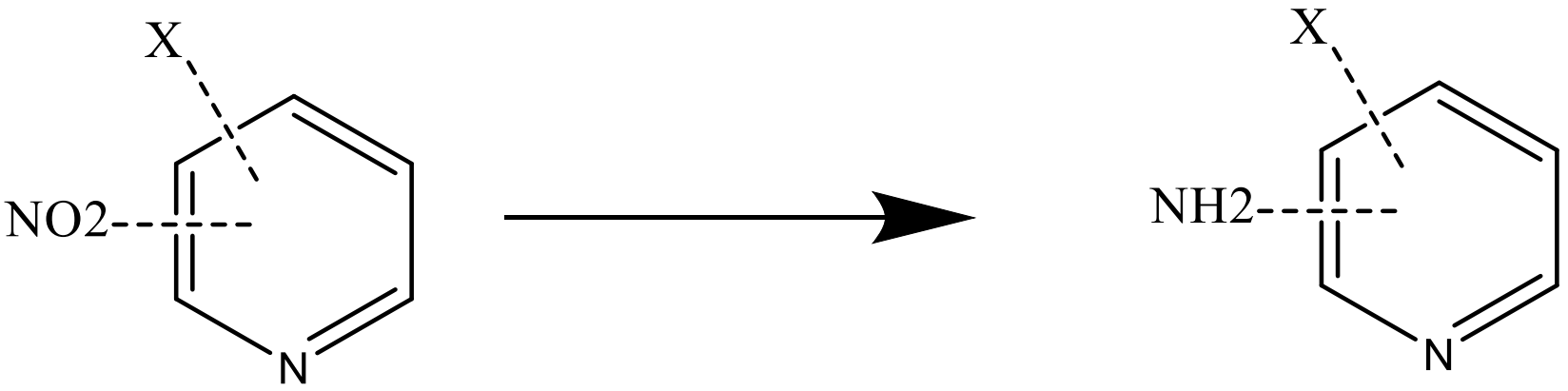
As Substructure

提纲

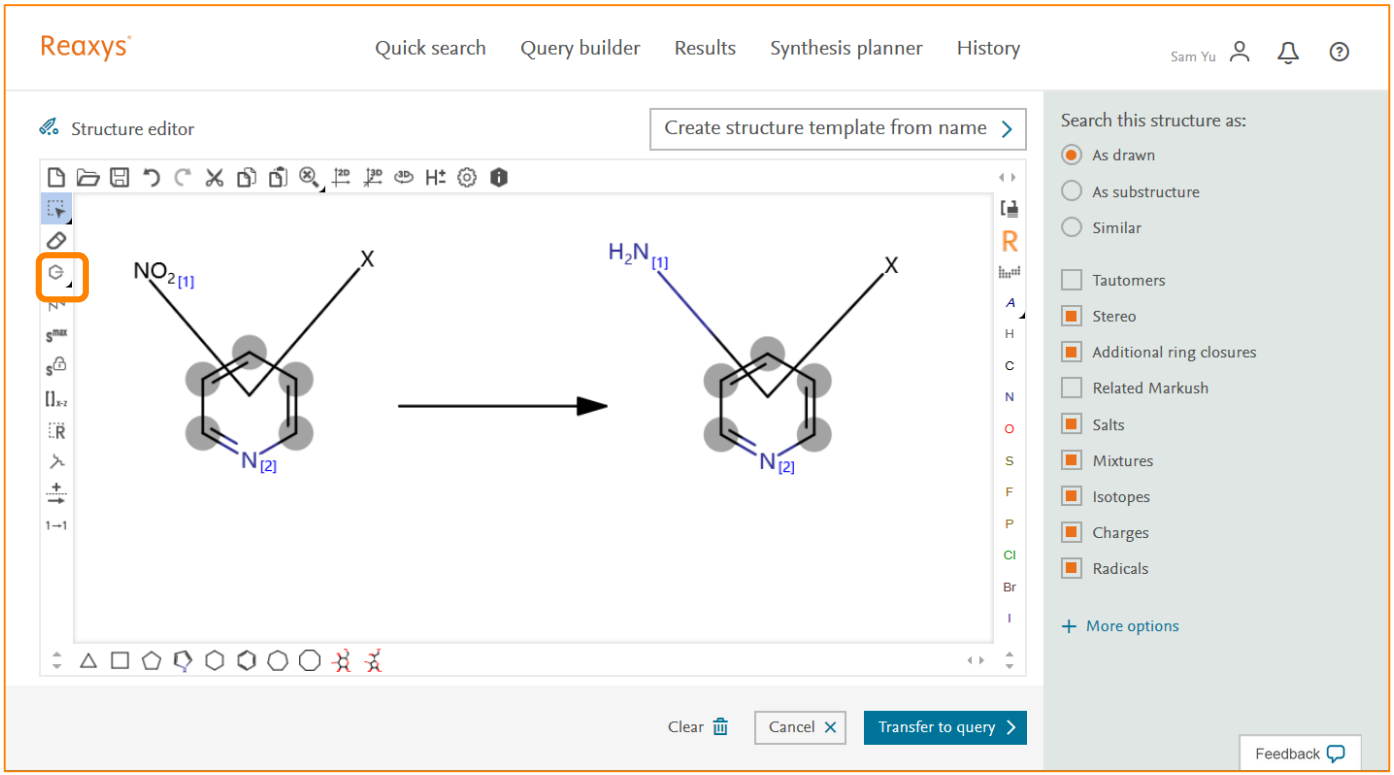
- Reaxys数据库的介绍与更新
- Reaxys数据库与同类数据库的比较
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
  - Reaxys数据库中与物性数据有关的检索
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

Case Study 1

- 检索以下反应
  - 吡啶环上存在一个硝基，一个卤素，且这两个官能团处于邻位
  - 反应过后硝基还原成氨基
  - 定义难点：如果确保NO2和卤素处于邻位



Reaxys中的结构定义



结构定义：

1：使用两次不定位取代，将NO2和X定义在吡啶环上

2：使用原子映射功能，将反应前后的原子标记出来

3：As Draw检索

不定位取代的定义

1：选择需要链接基团的原子，用不定位取代健和不同的基团相连

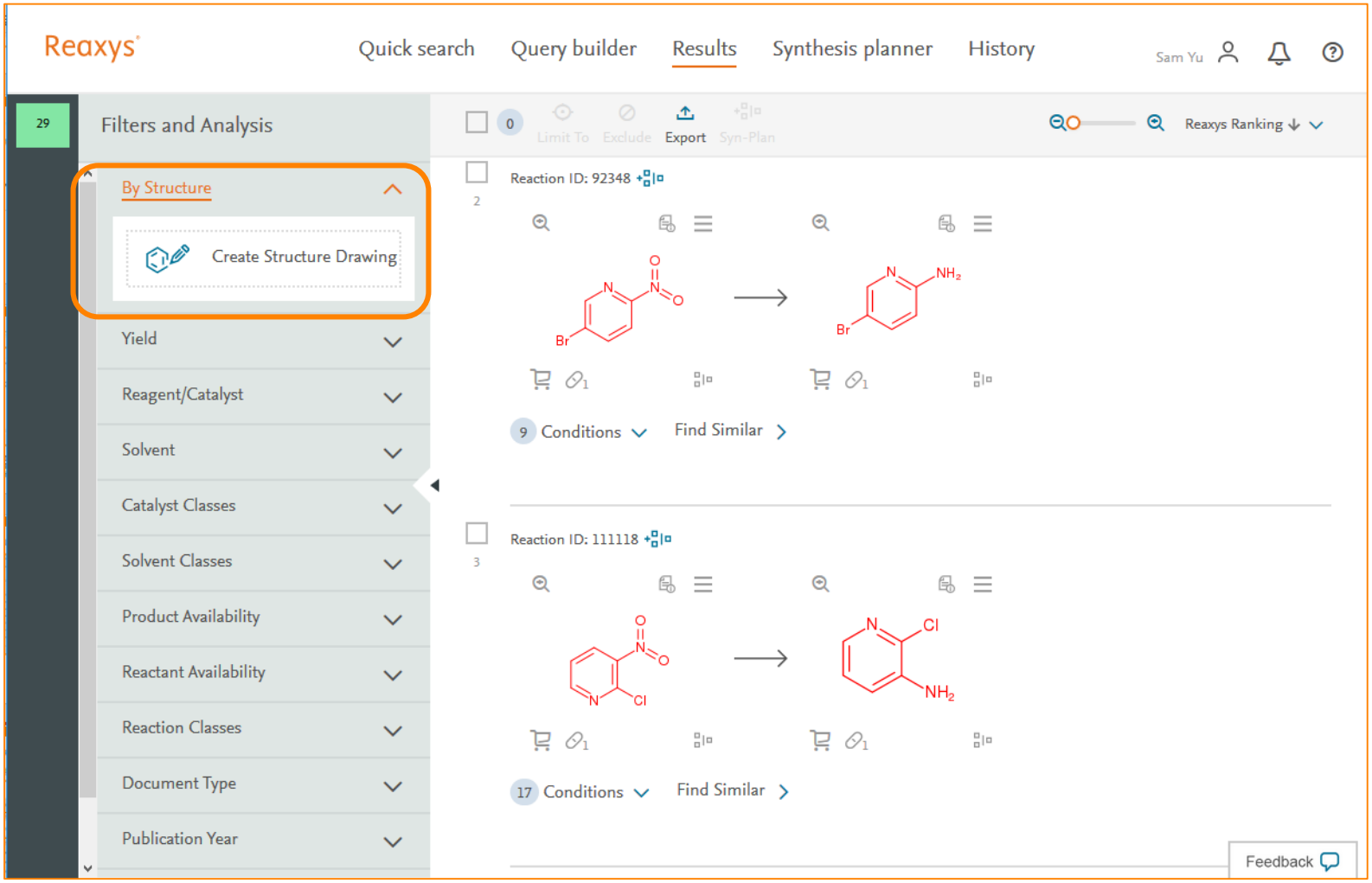
2：吡啶环上的5个C原子需要使用两次不定位取代，一次链接X，一次链接NO2

检索到的结果

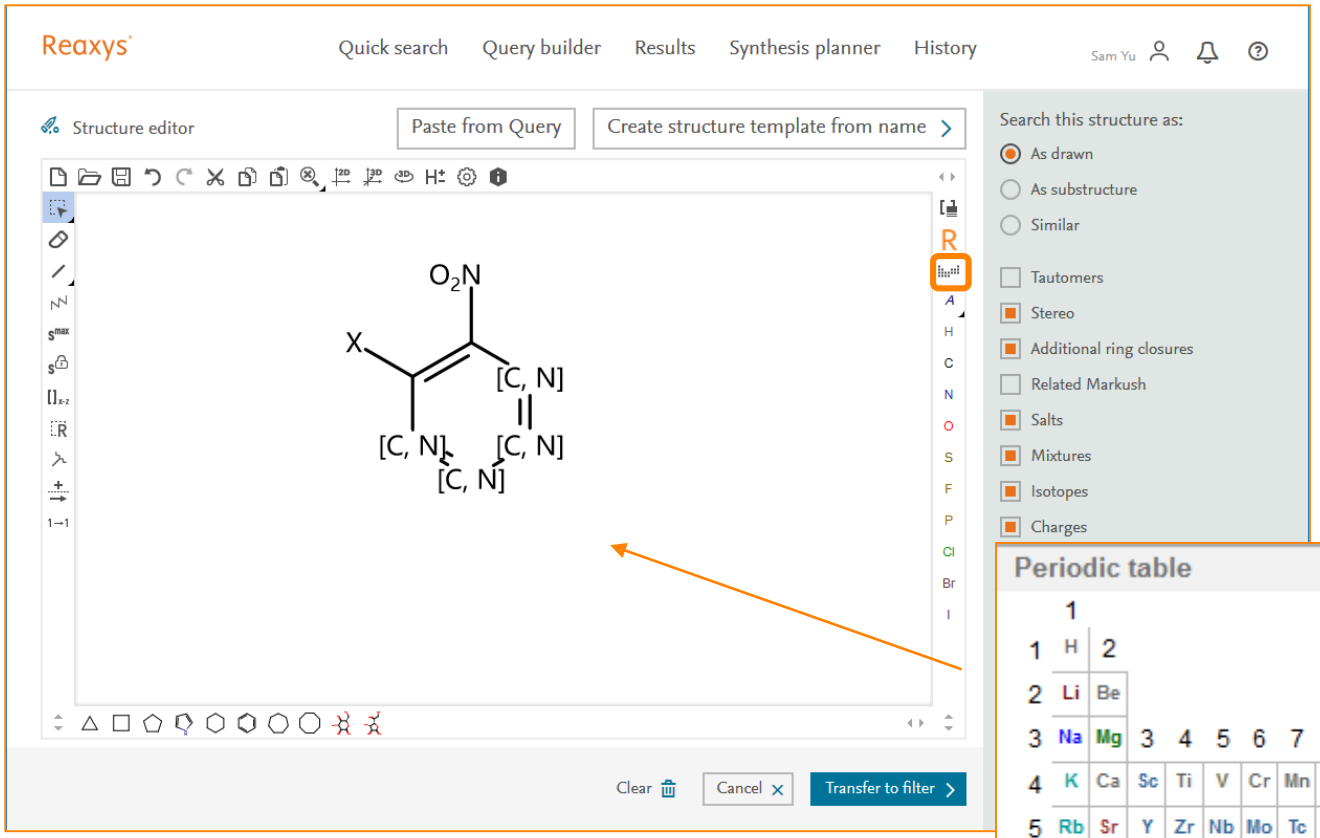
检索到的反应，存在NO2和X在邻位的，也存在对位的反应

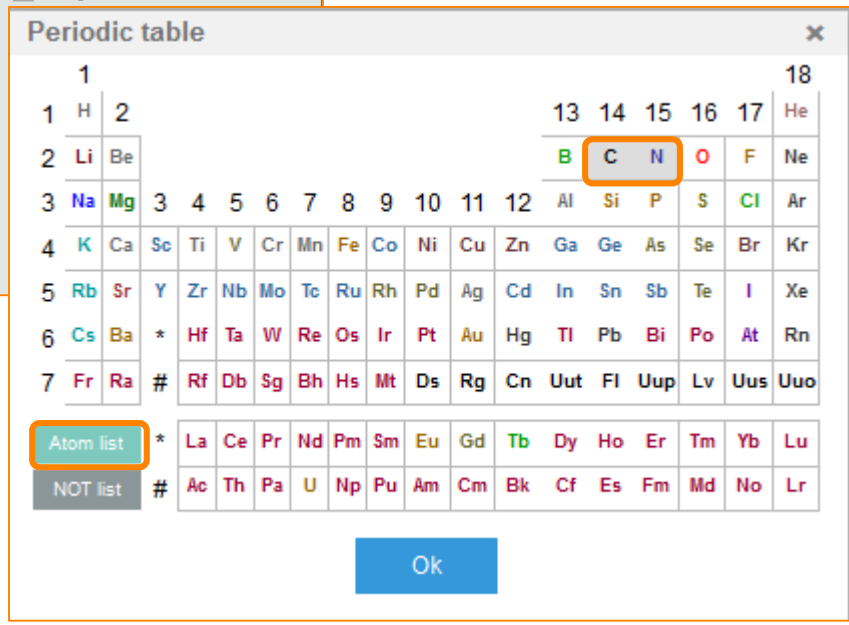
如何对反应进行筛选

- 想要的一定属于这个结果集的子集，可以直接使用过滤工具



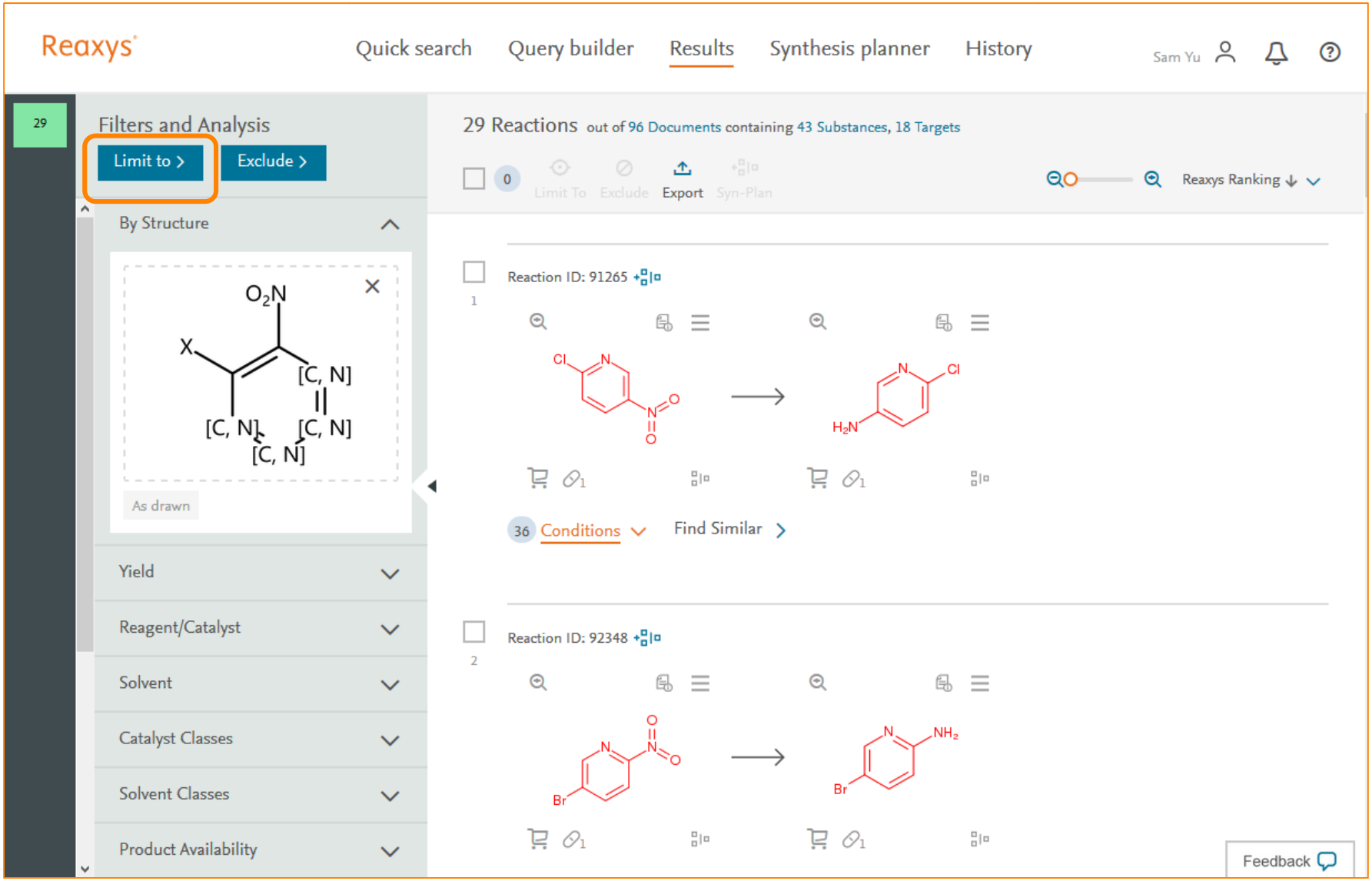
输入限定的结构



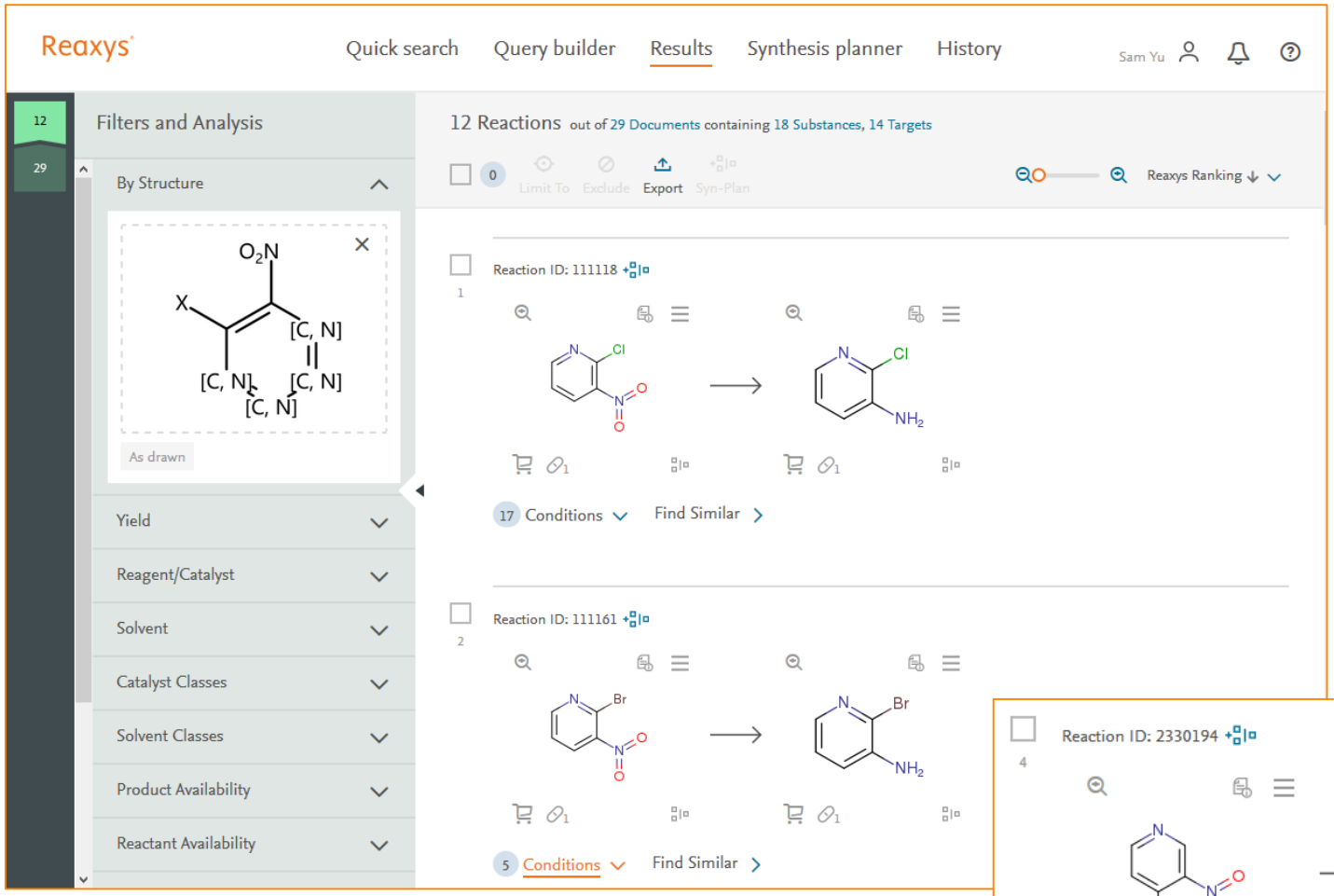


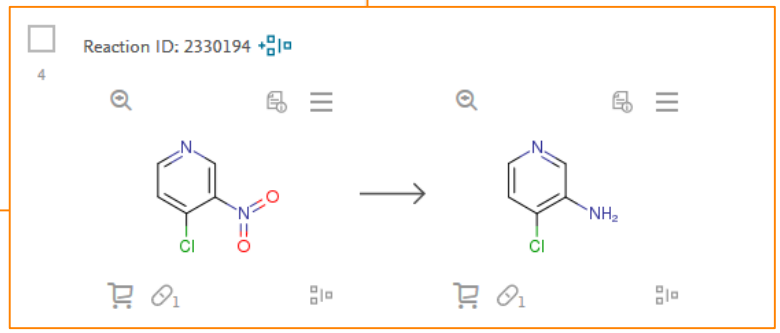
1，打开元素周期表，选择Atom List定义C，N
2：在6元环上，将其余4个C全部换成List

添加结构后的界面


Reaxys
Quick search
Query builder
Results
Synthesis planner
History
Sam Yu
29
Filters and Analysis
Limit to >
Exclude >
By Structure
As drawn
Yield
Reagent/Catalyst
Solvent
Catalyst Classes
Solvent Classes
Product Availability
29 Reactions out of 96 Documents containing 43 Substances, 18 Targets
0
Limit To
Exclude
Export
Syn-Plan
Reaxys Ranking
Reaction ID: 91265
1
36 Conditions
Find Similar
Reaction ID: 92348
2
Feedback

最后的结果

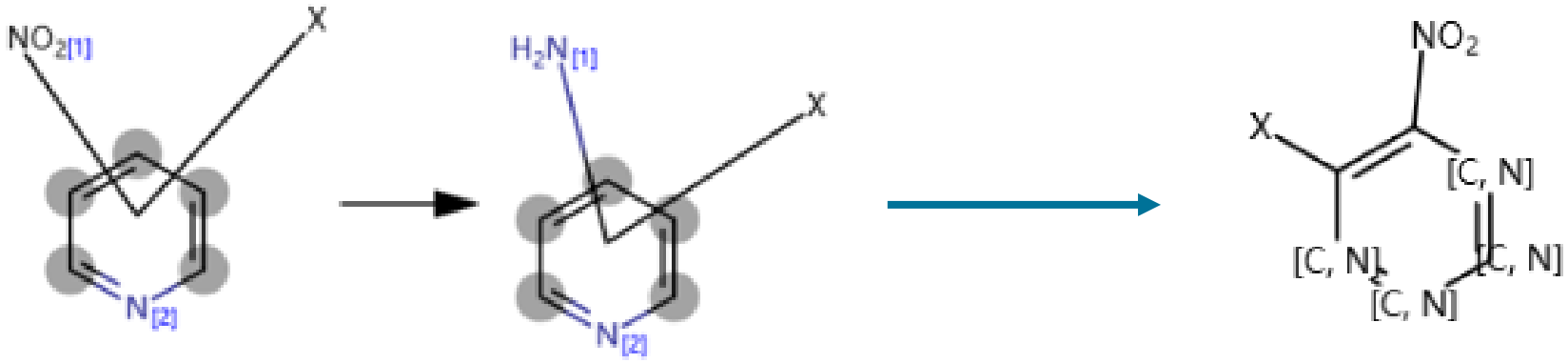




这种检索，出来的NO2和X都处于邻位

案例小结

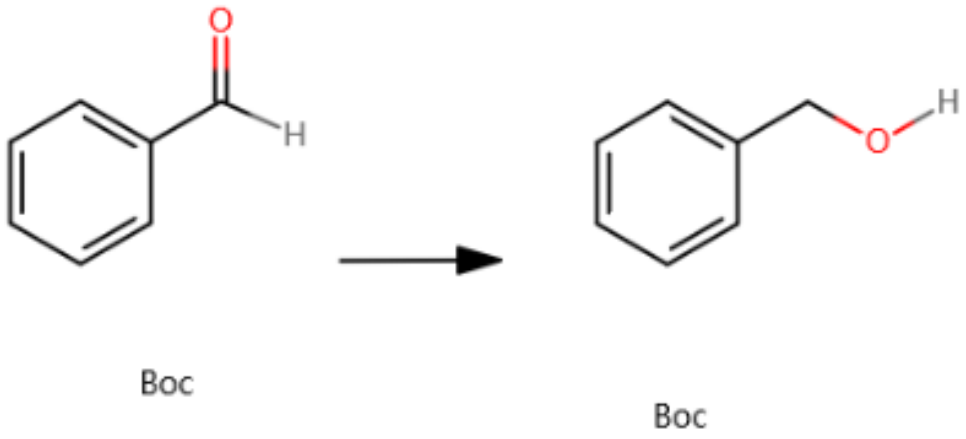
- 当结构中存在一些特定要求，无法一次定义完全的时候，可以采用分次定义的方式
- 两次定义的结构，并不存在包容关系，这和通常意义上的限定不太一样
- 采用这种限定拿到的结果，是单独检索这两个结构的交集
- 采用这种限定策略，限定结构时必须将原有结构删除



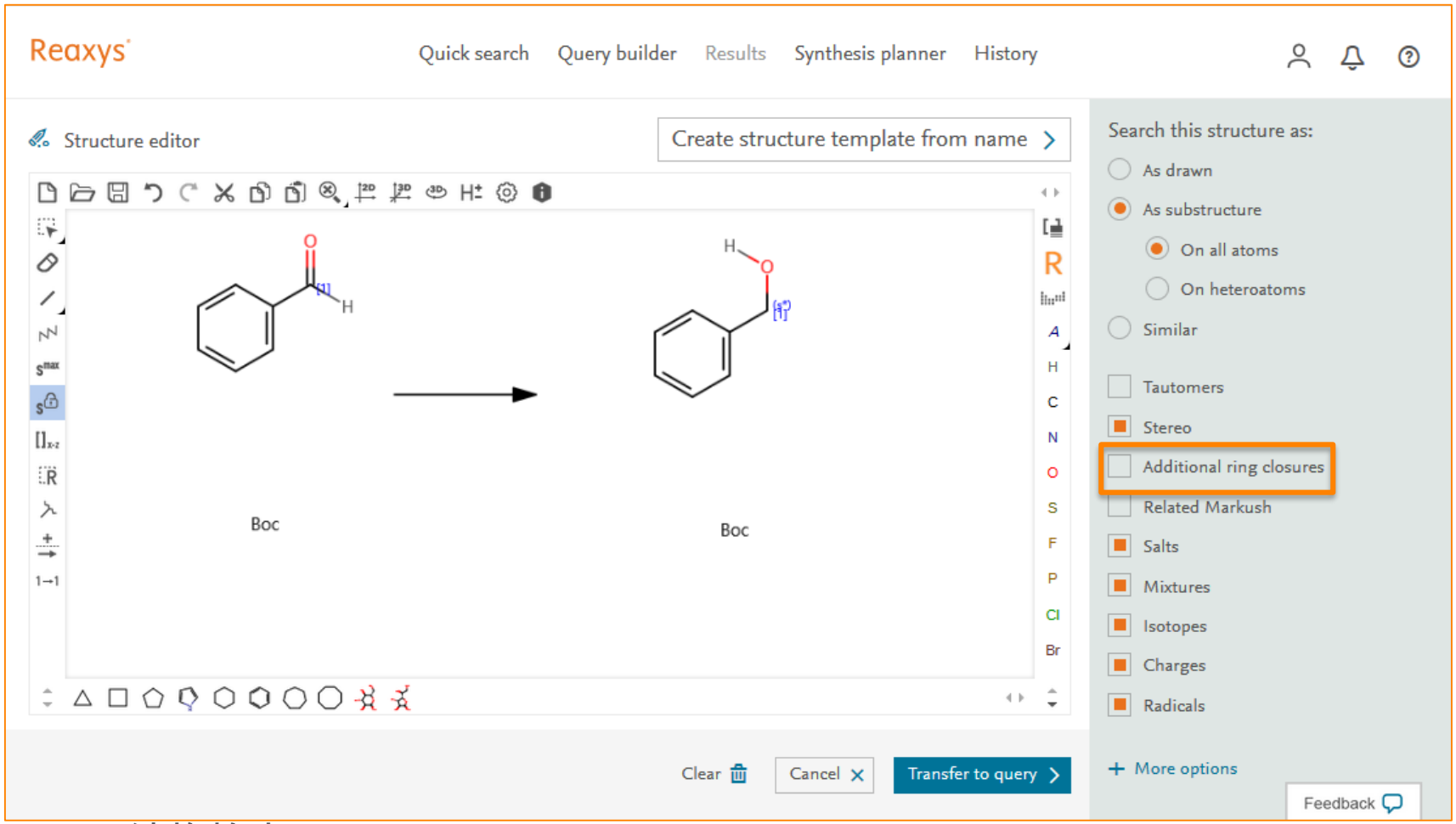
Case Study 2

- 复杂结构中的常见问题
  - 反应中心，只是一个简单的化学变化
  - 反应物/产物，结构复杂或者新颖
  - 需要选择性的氧化，还原，脱保护等

- 检索符合以下条件的反应
  - 结构中存在Boc和苯甲醛
  - 反应后苯甲醛变成苯甲醇

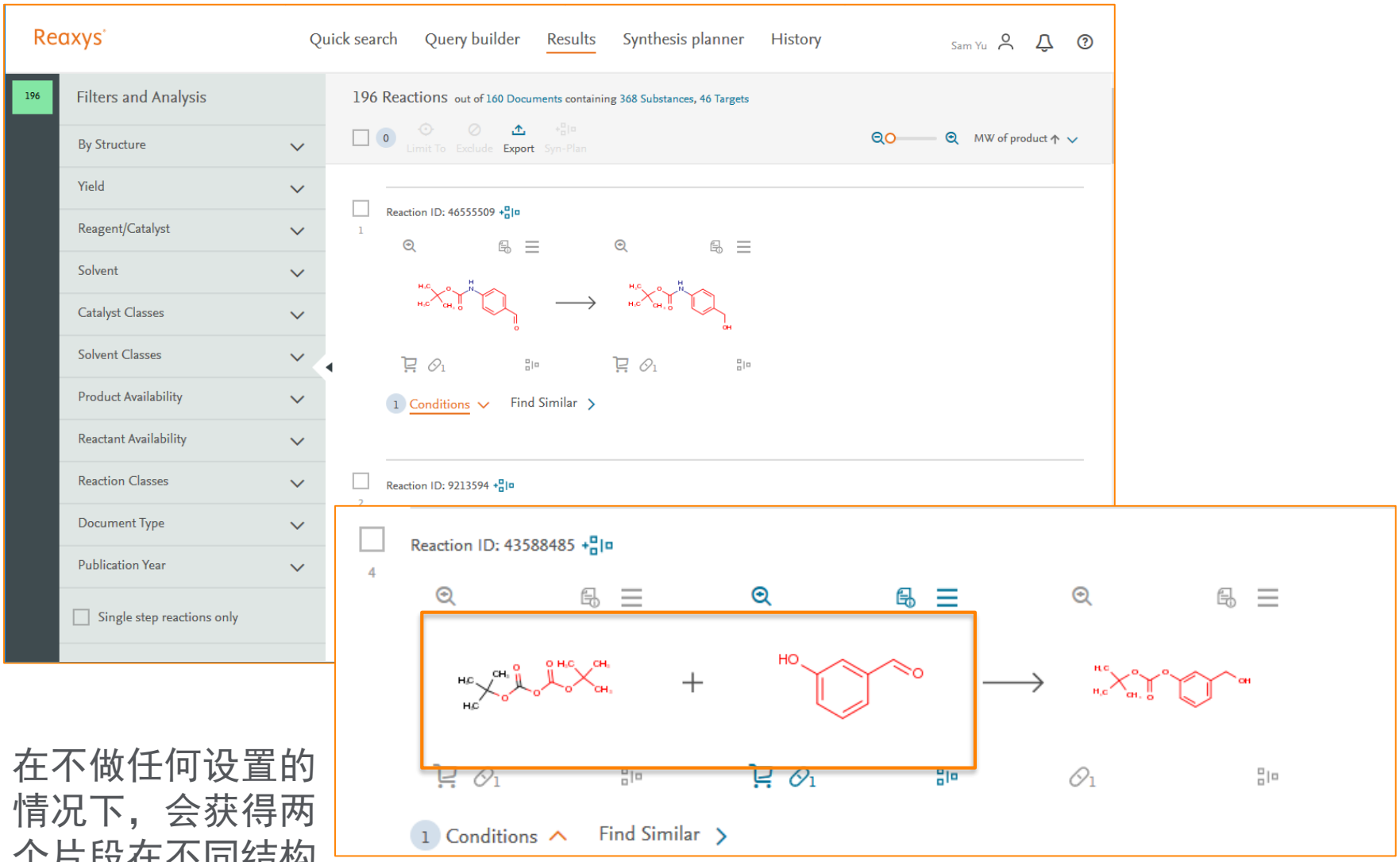


Reaxys中的定义



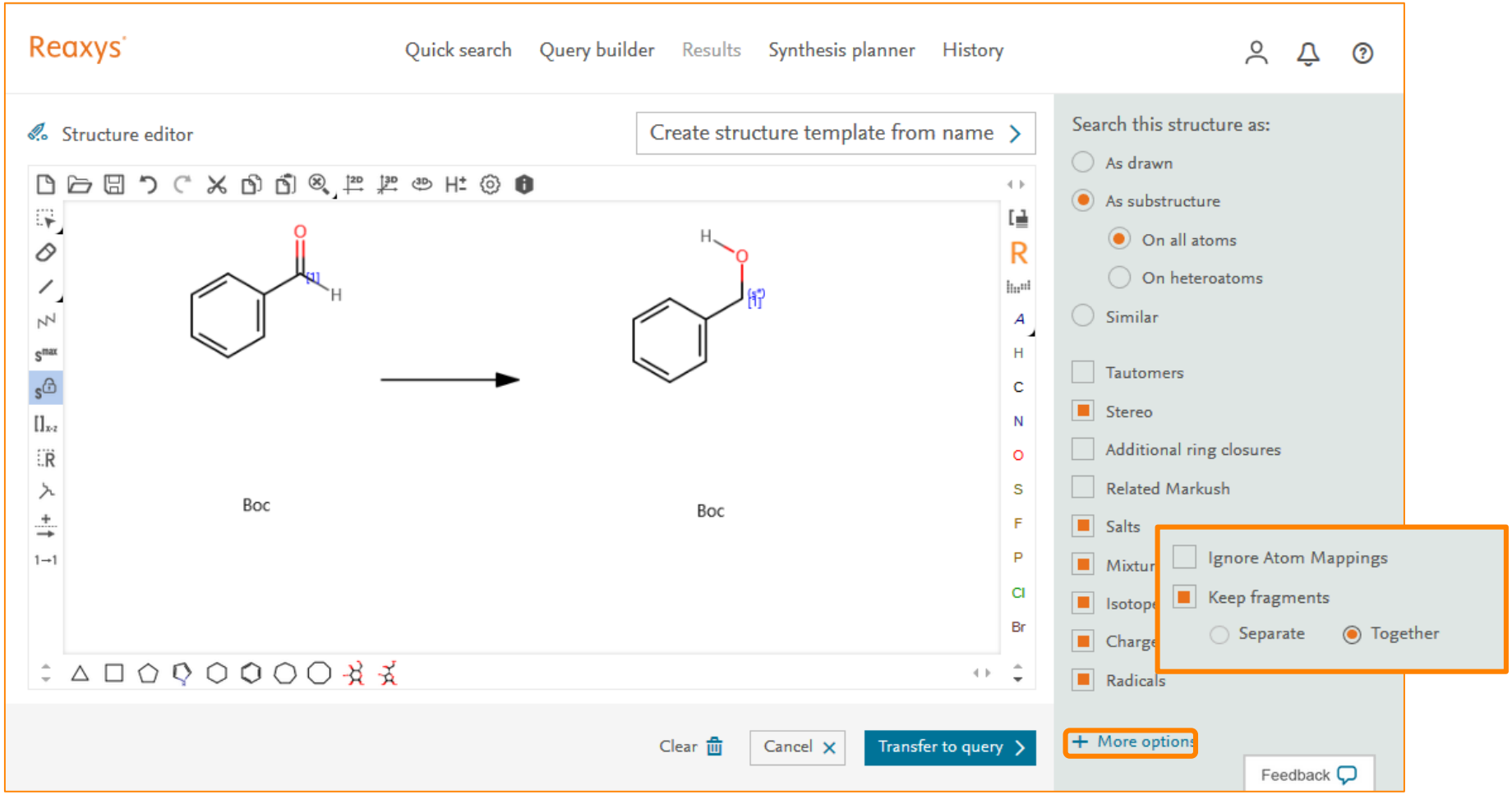
1：亚结构检索
2：添加环的保护，Additional Ring closures.
3：S*，Atom Mapping

Reaxys中的结果



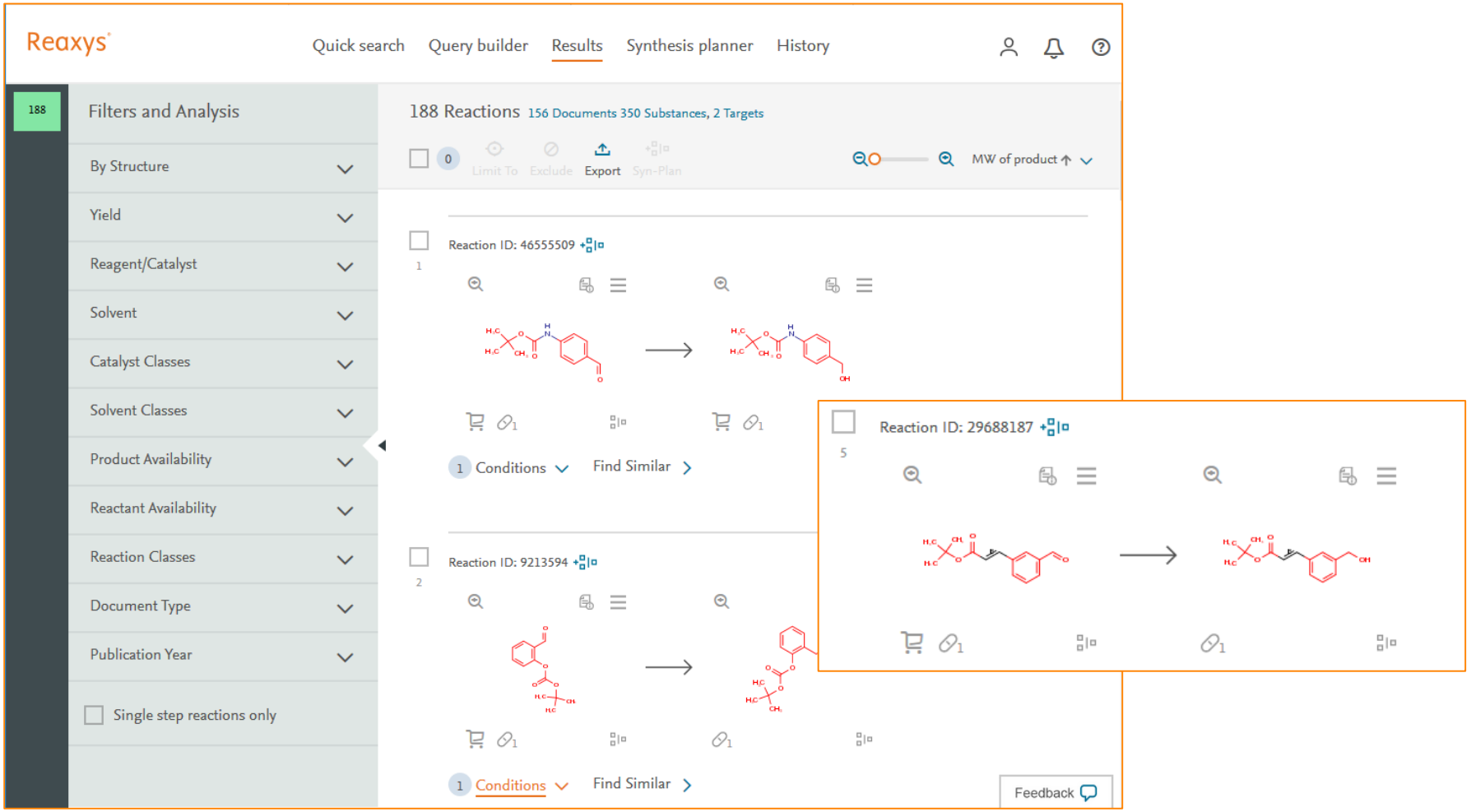
在不做任何设置的情况下，会获得两个片段在不同结构中的反应

Reaxys在结构定义时直接定义碎片为一个整体



New Reaxys定义的时候，可以直接选择Fragments是否在一个片段中

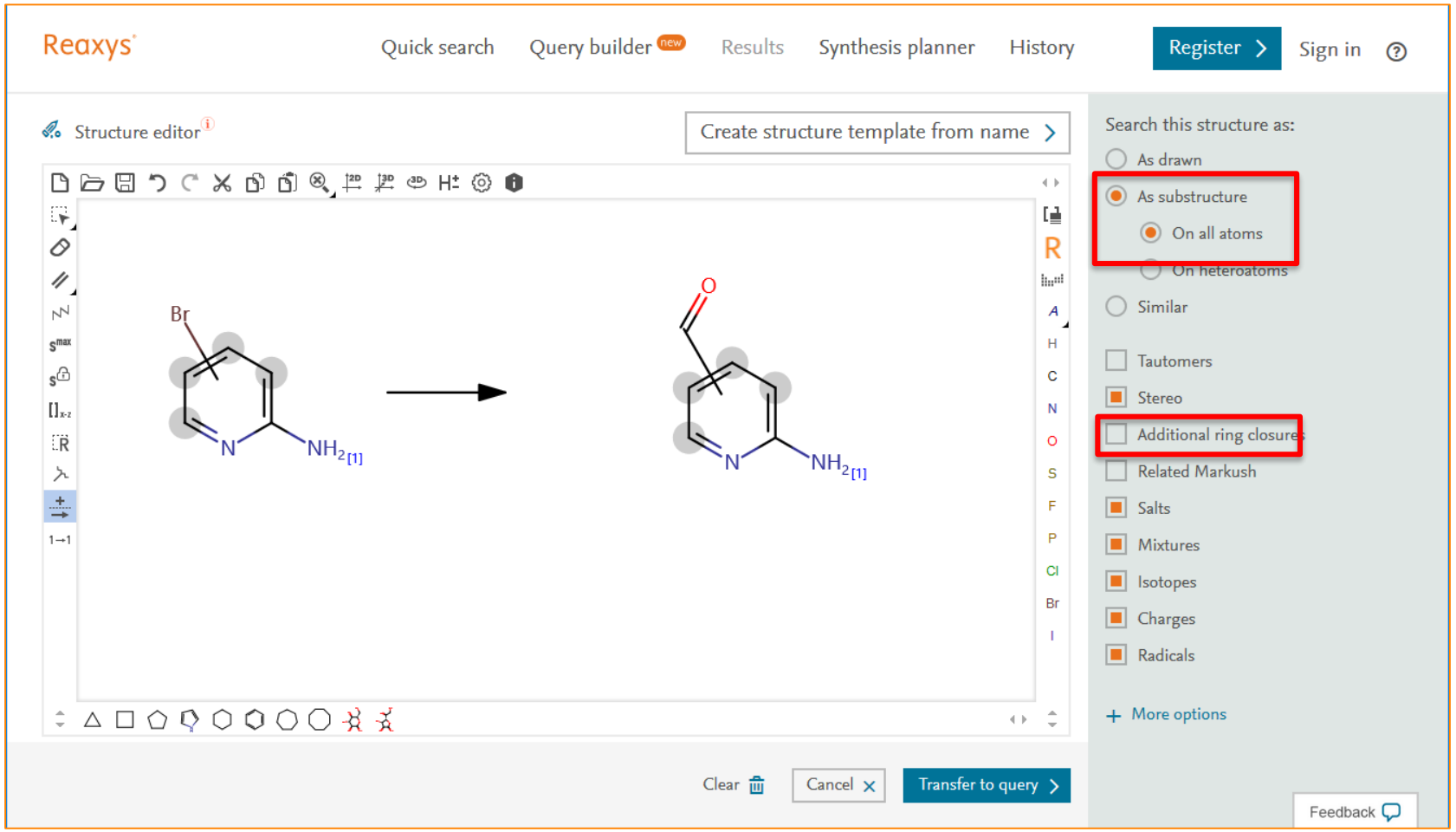
最后的结果



从结构上看，所有的结构中都包含2个片段

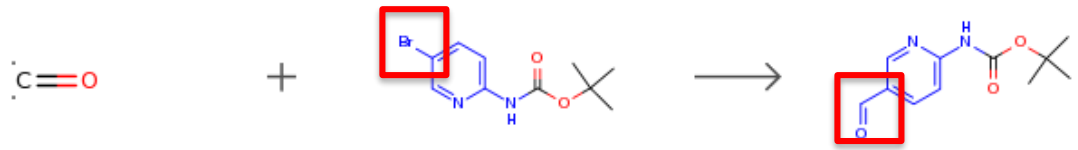
Case Study 4

- 检索以下反应，将Br变成羰基



检索到的结果

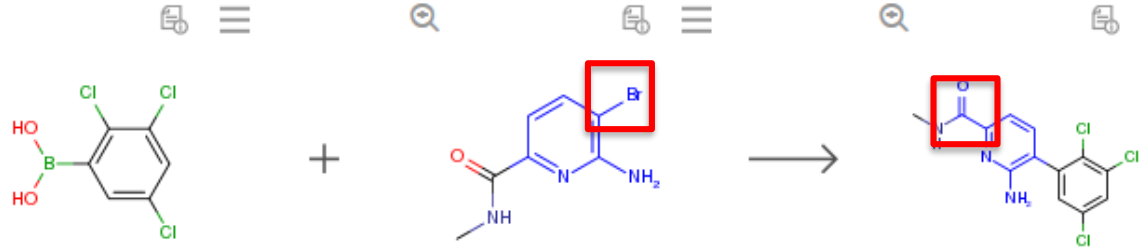
Reaction ID: 9592539



符合要求

3 Conditions Find Similar

Reaction ID: 23837246



不符合要求

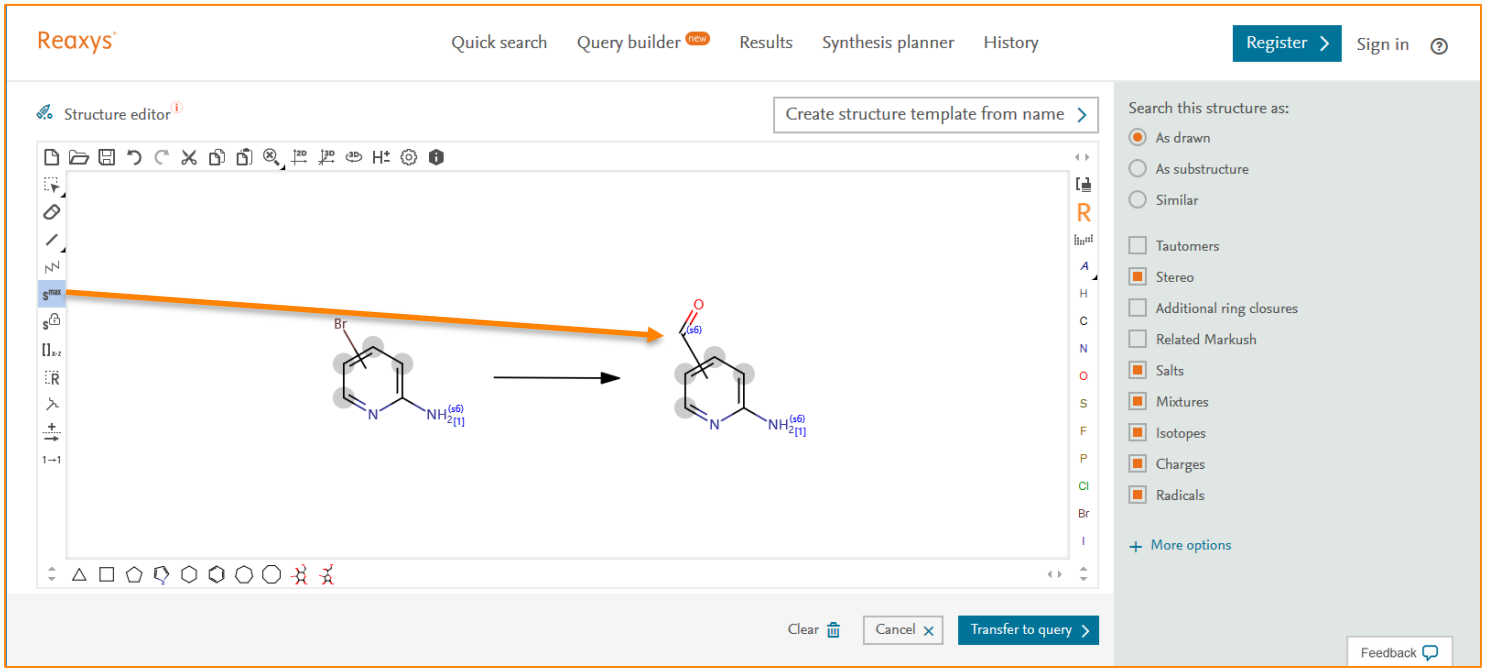
5 Conditions Find Similar

如何解决

- 不符合要求的反应
  - C=O在原来反应物中带过来
  - 不是在Br的地方换成C=O
- 原因分析
  - 不定位取代的时候没有办法做原子映射
- 如何解决
  - Solution 1：
  - Solution 2：

Solution 1：换一个检索模式

- As Draw检索同样结构

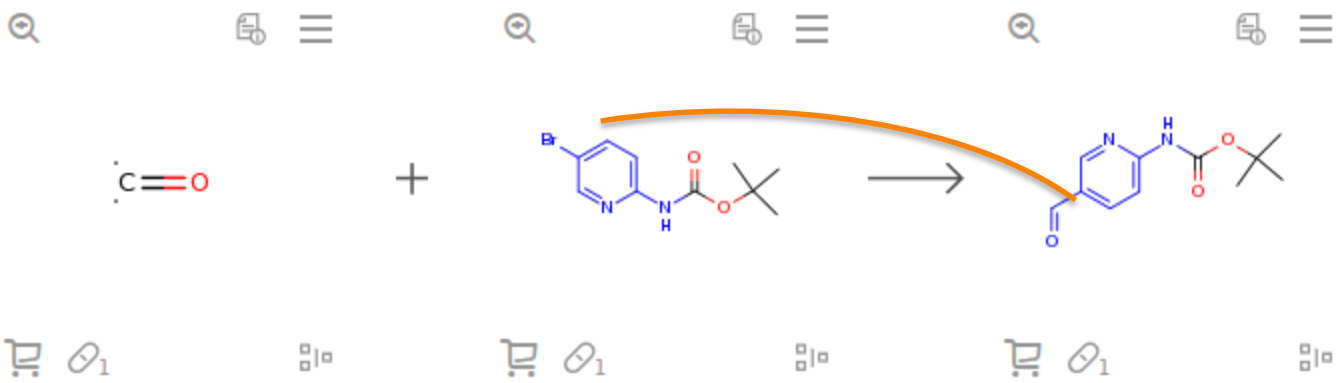


Tips：

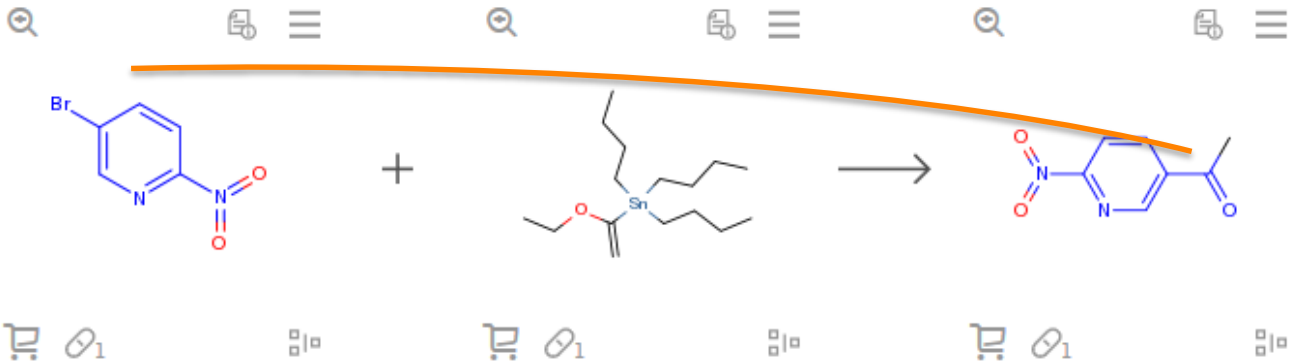
1. 使用As Draw，可以使得Br变成C=O，但也封闭了C=O，NH2上的取代可能性
2. 可以使用S Max标记C=O，NH2，在进行As Draw检索时，实现原子的开放
3. 该检索结果，吡啶上只能有一个取代基

检索结果

Reaction ID: 9592539

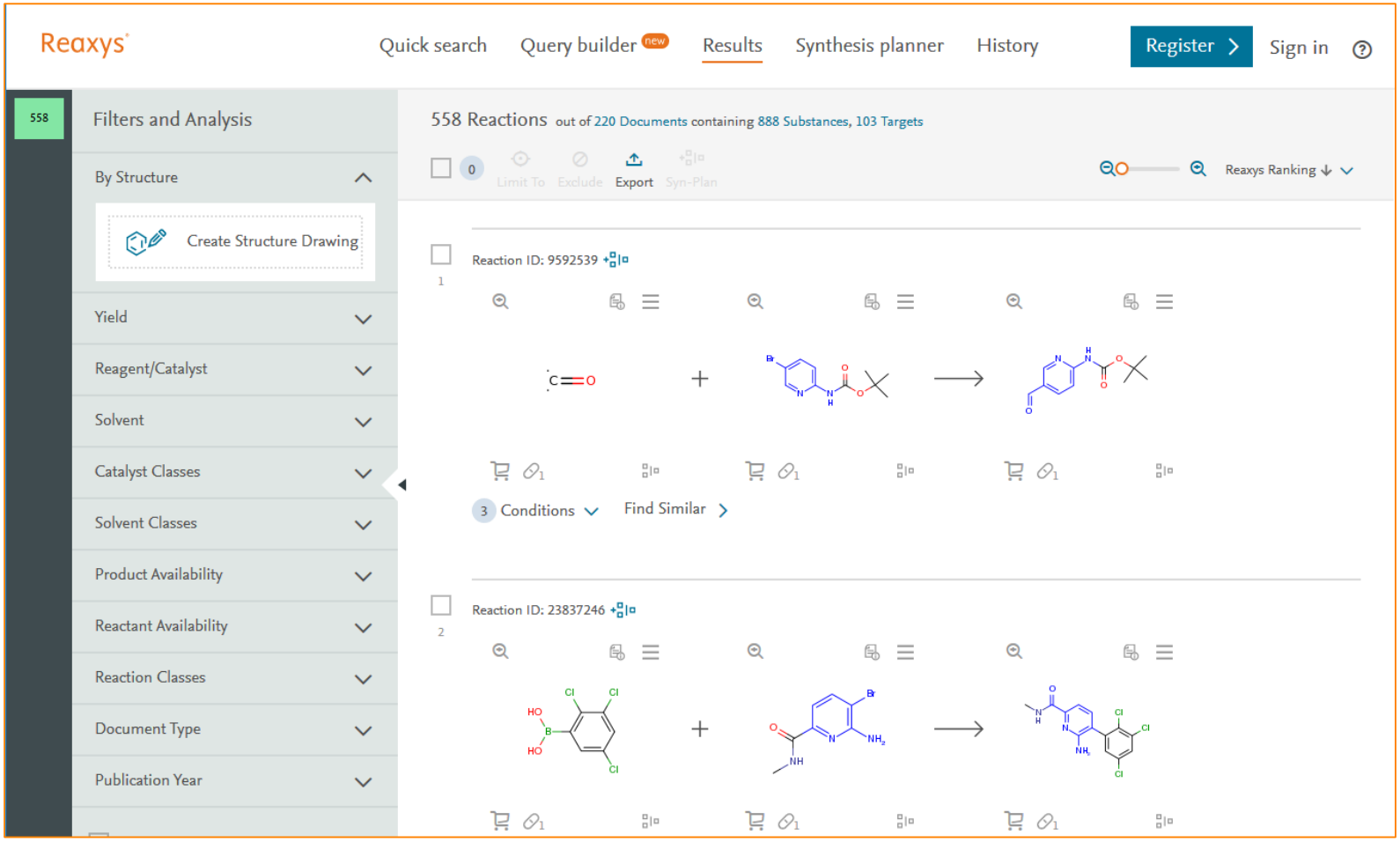


Reaction ID: 27821858



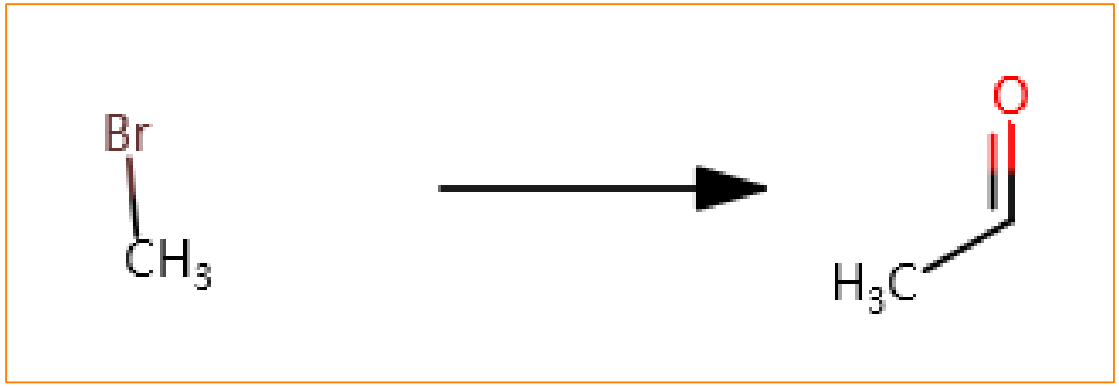
Solution 2：对于As Substructure结果的筛选

- 利用结构进行筛选

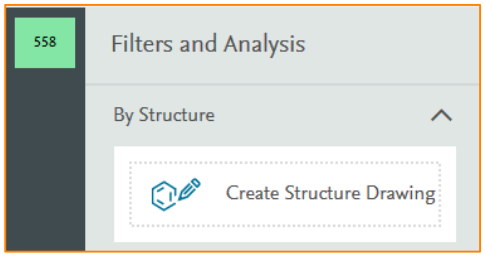


筛选的出发点

- 问题的结症
  - Br和C=O接在吡啶上的位置不确定，无法保证对应
- 反应的共性
  - 但是Br，C=O都是接在C上，且该C原子一定在一个芳环，或者一定要有一个不饱和键
- 筛选的结构
  - 基本上反应中心如下

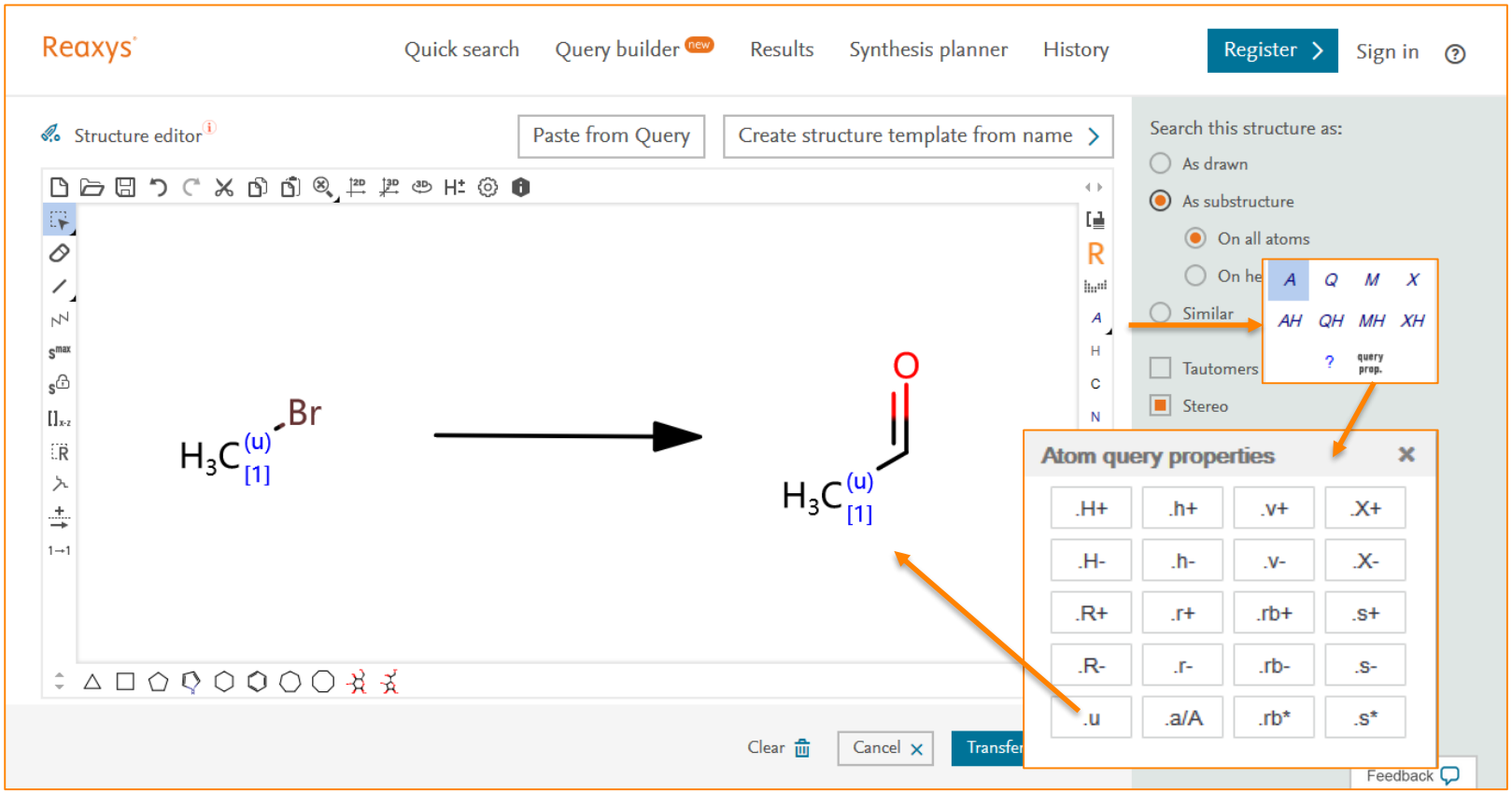


如何绘制

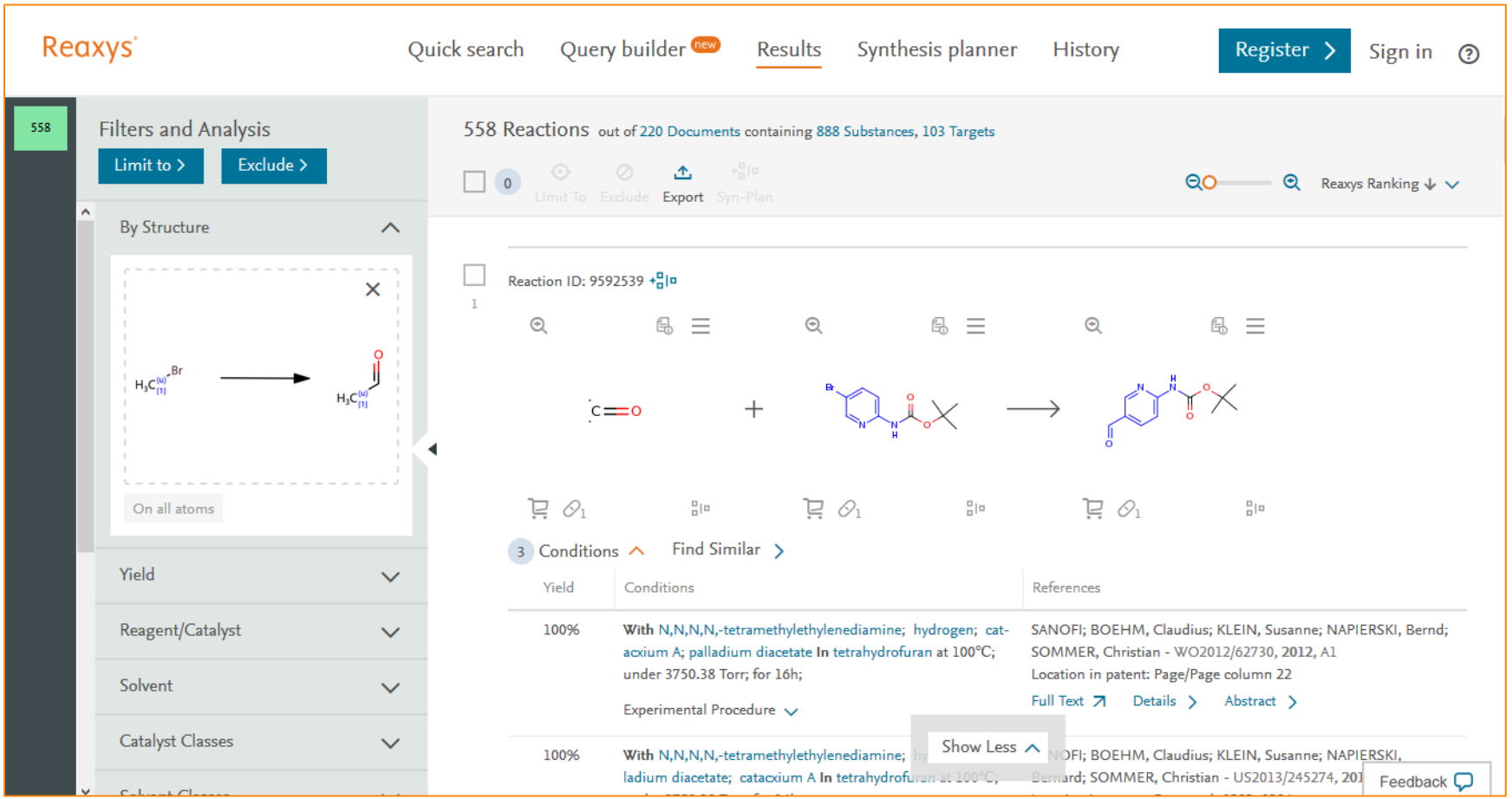


Tips：

1. 如果对于C原子有要求，可以带上U的定义，
2. 如果没要求，也可以不画

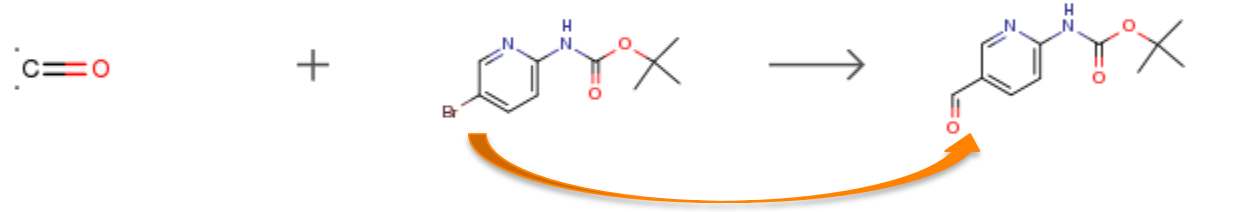


添加筛选后的界面


Reaxys
Quick search
Query builder new
Results
Synthesis planner
History
Register
Sign in
558
Filters and Analysis
Limit to
Exclude
By Structure
On all atoms
Yield
Reagent/Catalyst
Solvent
Catalyst Classes
558 Reactions out of 220 Documents containing 888 Substances, 103 Targets
0
Limit To
Exclude
Export
Syn-Plan
Reaxys Ranking
Reaction ID: 9592539
3 Conditions
Find Similar
Yield
Conditions
References
100%
With N,N,N,N,-tetramethylethylenediamine; hydrogen; cat-acxium A; palladium diacetate In tetrahydrofuran at 100°C; under 3750.38 Torr; for 16h;
Experimental Procedure
SANOFI; BOEHM, Claudius; KLEIN, Susanne; NAPIERSKI, Bernd; SOMMER, Christian - WO2012/62730, 2012, A1
Location in patent: Page/Page column 22
Full Text
Details
Abstract
Show Less
100%
With N,N,N,N,-tetramethylethylenediamine;
ladium diacetate; catacxium A In tetrahydrofu
NOFI; BOEHM, Claudius; KLEIN, Susanne; NAPIERSKI,
Bernard; SOMMER, Christian - US2013/245274, 201
Feedback

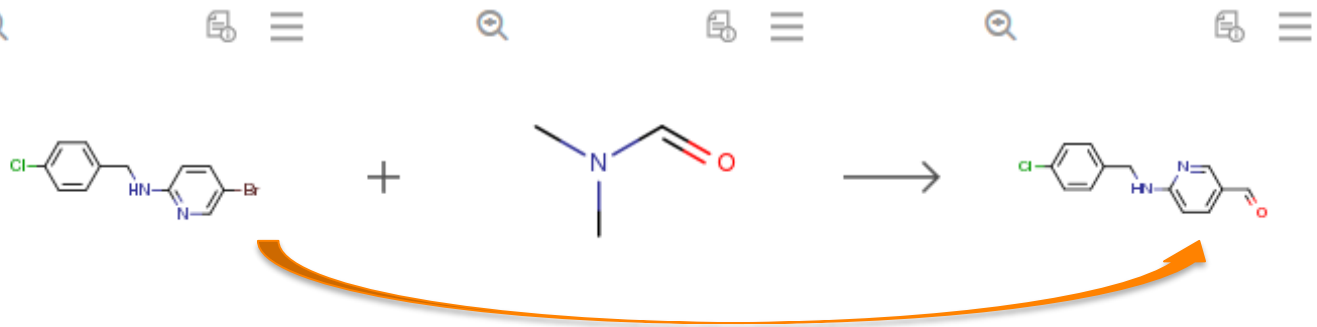
最后的结果

Reaction ID: 9592539



3 Conditions Find Similar

Reaction ID: 27780690



提纲

- Reaxys数据库的介绍与更新
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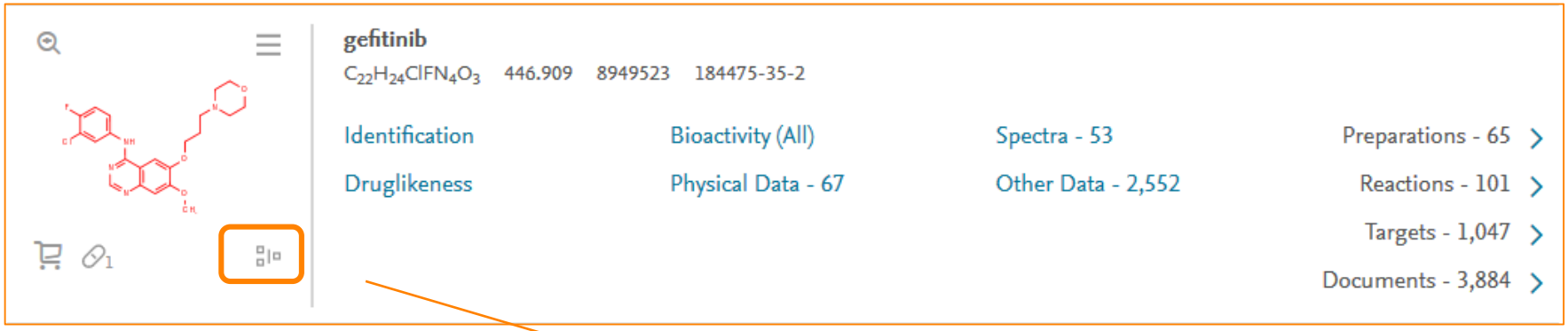
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
  - Reaxys数据库中与物性数据有关的检索
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

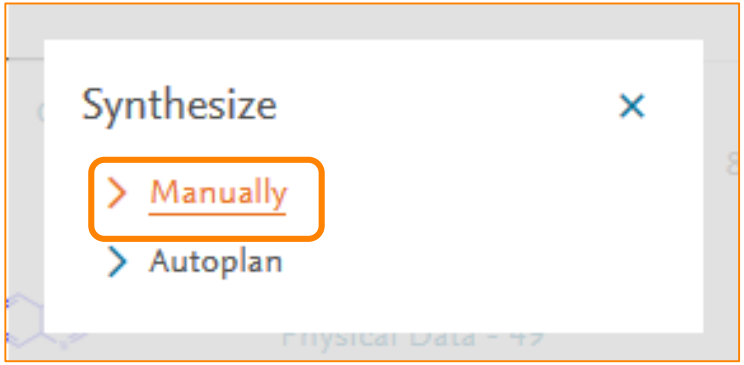
Reaxys中的合成计划

- 给吉非替尼制定合成计划
  - Step1：检索到吉非替尼
  - Step2：导入合成计划



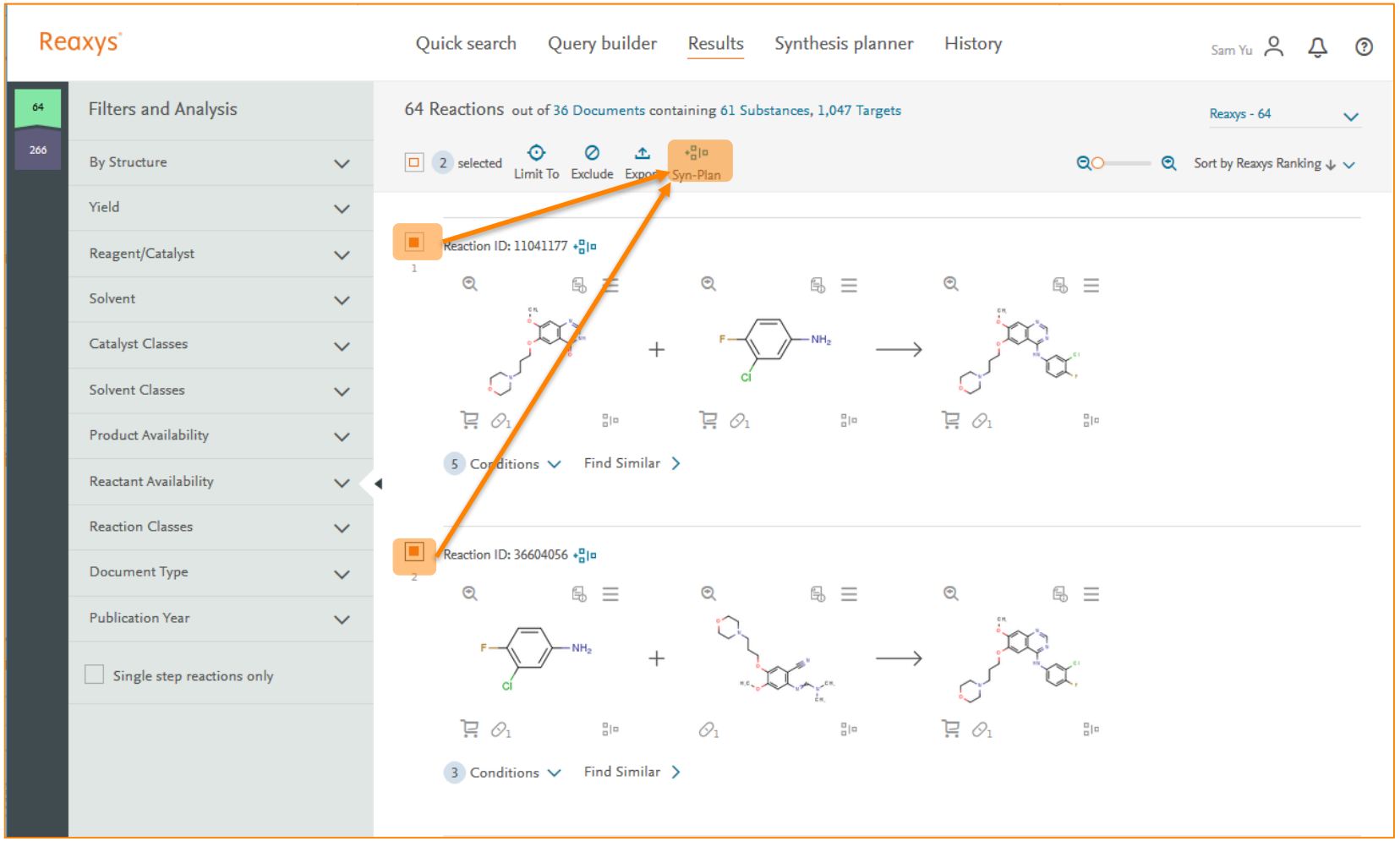
Tips：

1：通过前述的操作找到物质
2：点击Synthesize图标
3：打开Synthesis Plan，这里选择手动

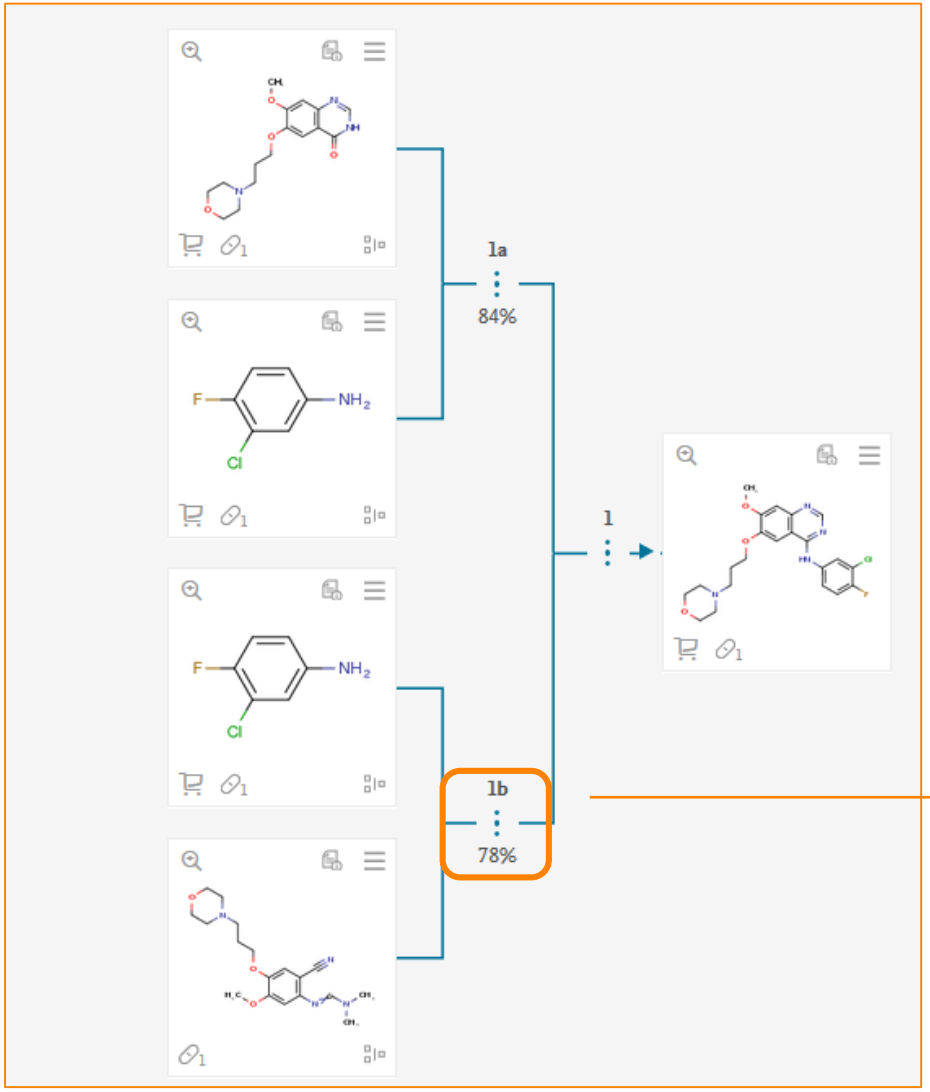


Synthesis Plan—添加感兴趣的反应

- 可以添加多条反应在一个Plan中，用于比较

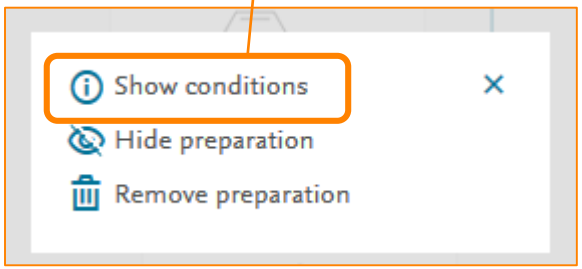


添加好的结果界面

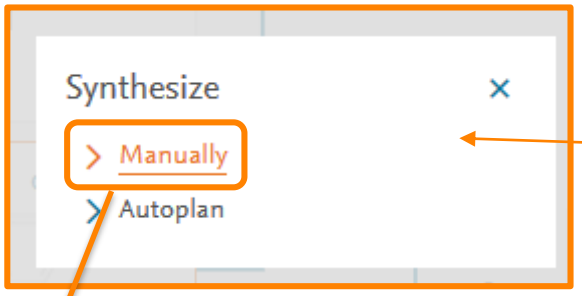


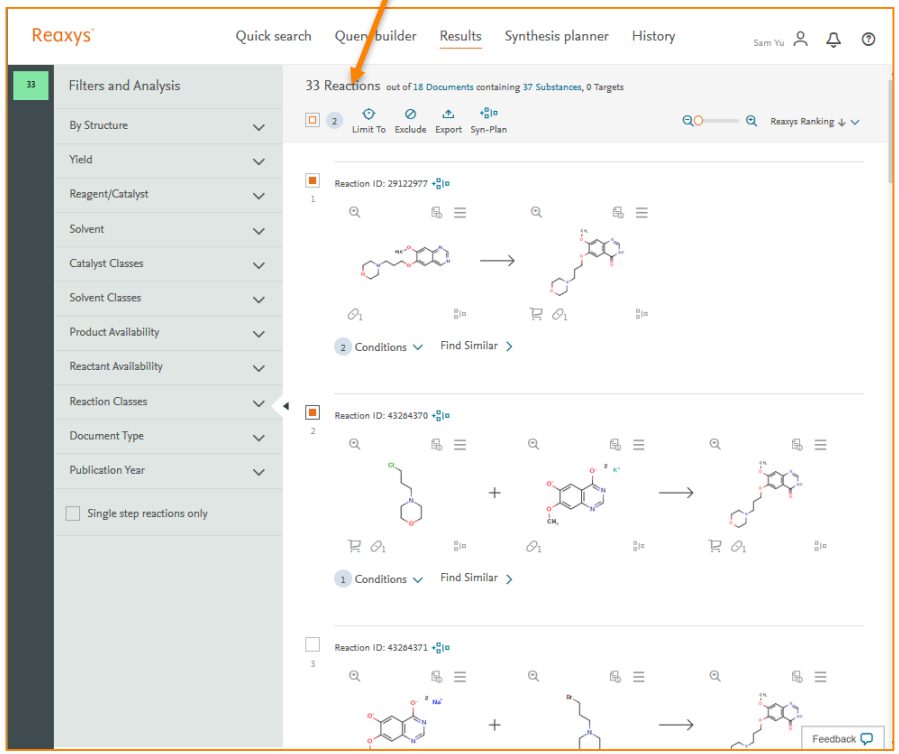
Preparation - 1b

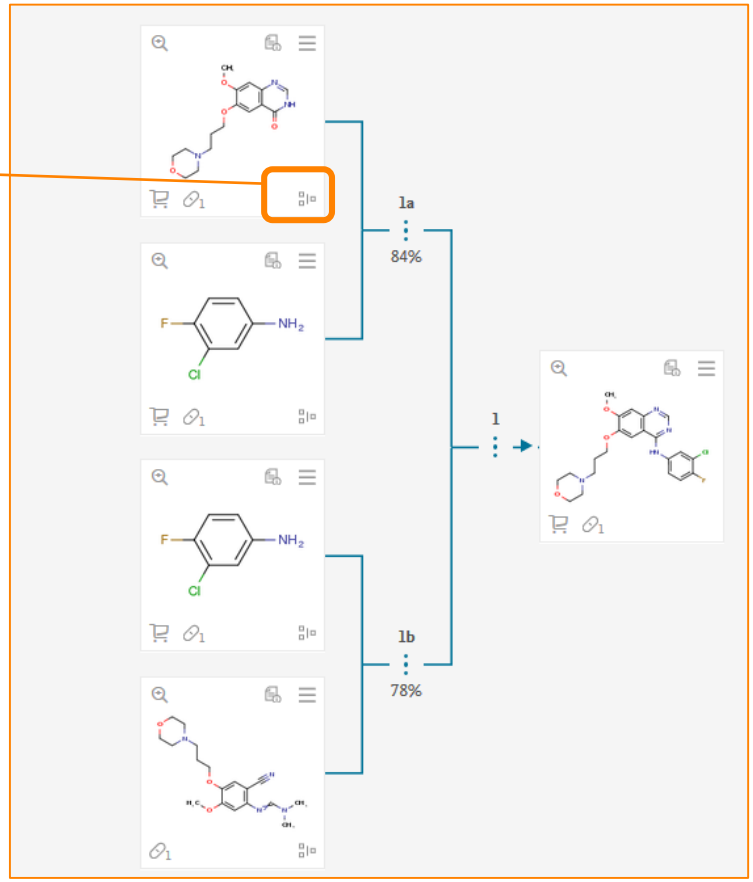
Yield	Conditions	Reference
78%	**With** acetic acid at 130°C; for 3h; Temperature; Experimental Procedure	Guangzhou Baiyunshan Pharmaceutical Group Co., Ltd. Baiyunshan Pharmaceutical Zong Factory; Chen Mao; Zhu Shaoxuan; Huang Xiaoguang - CN104072426, 2017, B Location in patent: Paragraph 0050; 0051; 0052; 0053; 0054; 0055 Full Text Details Abstract
71.1%	**With** acetic acid **In** 5,5-dimethyl-1,3-cyclohexadiene at 135°C; Experimental Procedure	Shaanxi Normal University; Li, Baolin; Ren, Yufei; Wang, Liuchang; Jia, Yucai; Ding, Siyi; Wang, Wei - CN103539702, 2016, B Location in patent: Paragraph 0094-0096 Full Text Details Abstract
70%	**With** acetic acid at 125 - 130°C; for 3h;	- Organic Process Research and Development, 2007, vol. 11, # 5, p. 813 - 816 Full Text Cited 51 times Details Abstract



继续的扩充反应路线



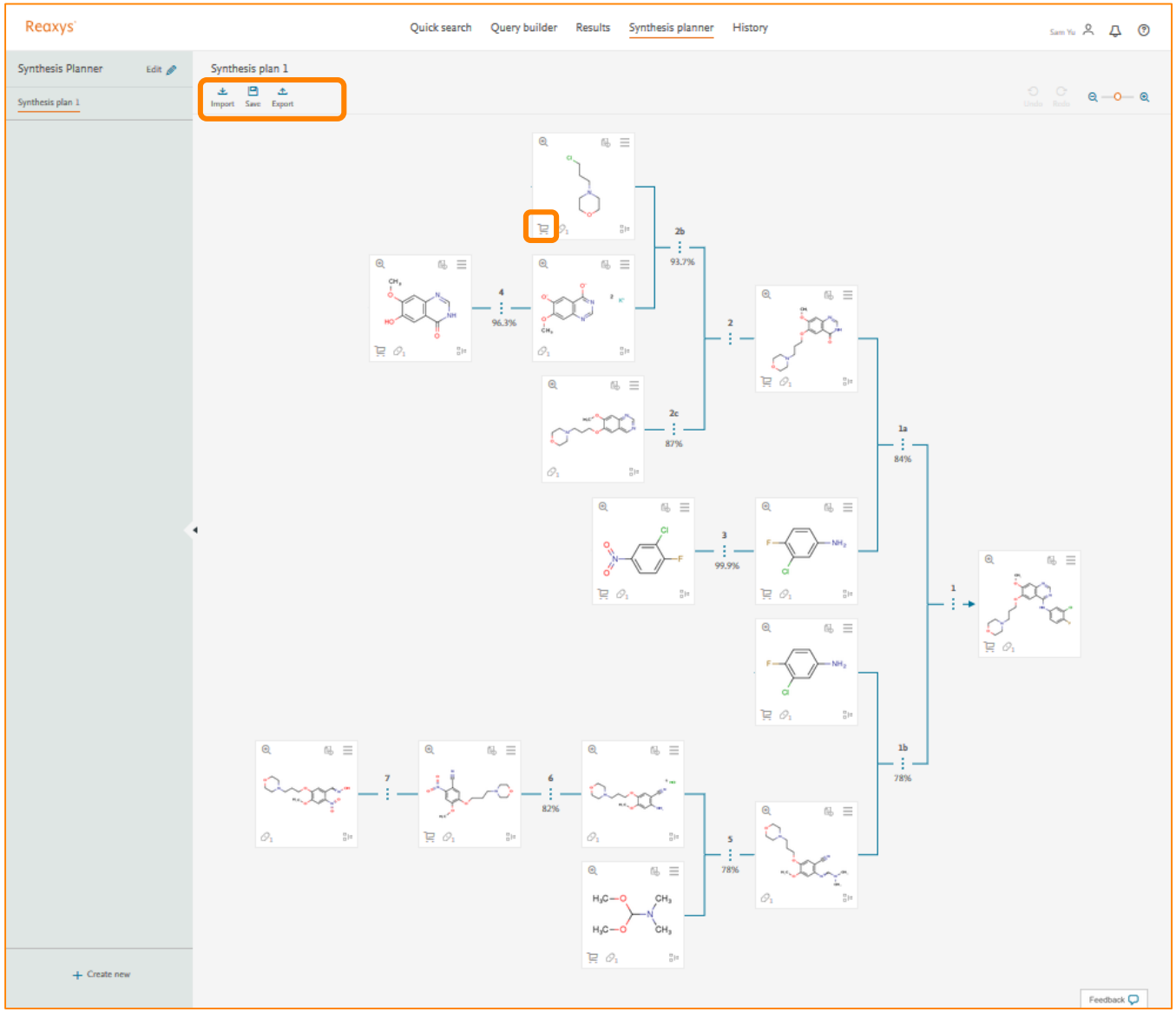




Tips：

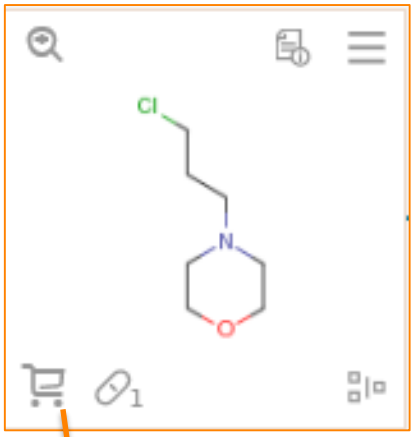
在Synthesis Plan上可以对任意一个物质进行同样的Synthesis的操作，可以将更多的反应添加进来

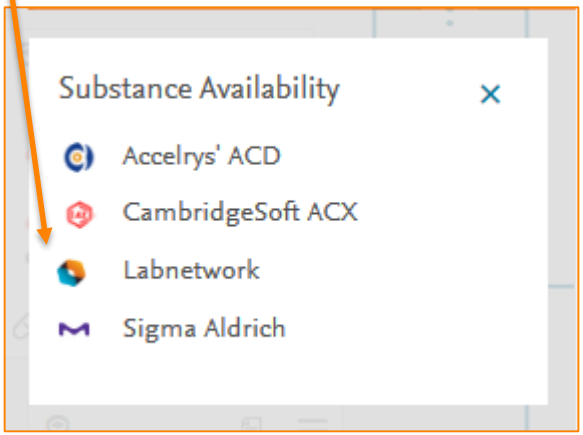
最后的结果

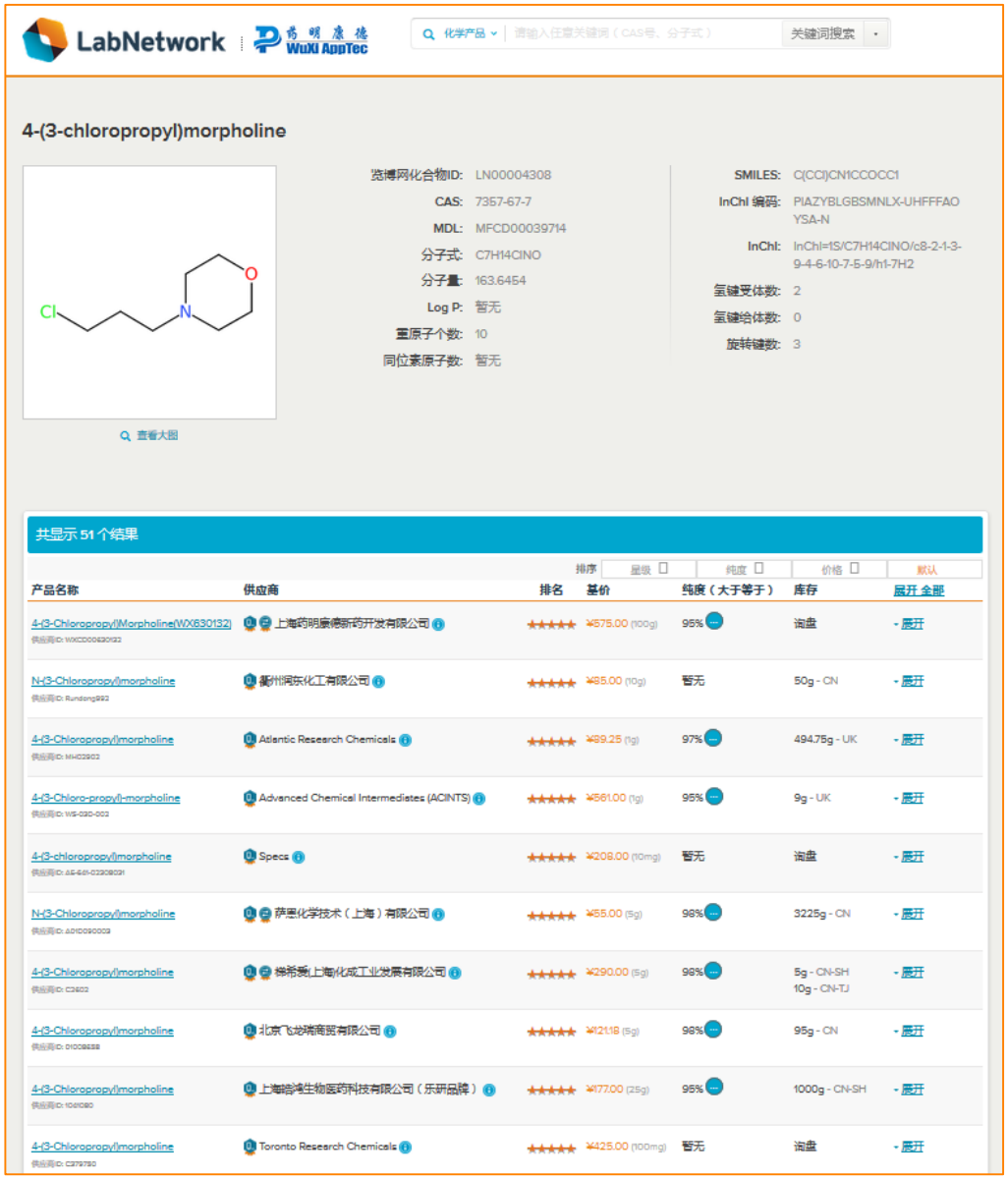


可以对Synthesis Plan进行导入，导出或者保存等操作。

获得物质的商业信息


Cl
N
O
1


Substance Availability
Accelrys' ACD
CambridgeSoft ACX
Labnetwork
Sigma Aldrich


LabNetwork
WuXi AppTec
化学产品
关键词搜索
4-(3-chloropropyl)morpholine
览博网化合物ID: LN00004308
CAS: 7357-67-7
MDL: MFCD00039714
分子式: C7H14ClNO
分子量: 163.6454
Log P: 暂无
重原子个数: 10
同位素原子数: 暂无
SMILES: C(CCl)CN1CCOCC1
InChI 编码: PIAZYBLGBSMNLX-UHFFFAOYSA-N
InChI: InChI=1S/C7H14ClNO/c8-2-1-3-9-4-6-10-7-5-9/h1-7H2
氢键受体数: 2
氢键给体数: 0
旋转键数: 3
查看大图
共显示 51 个结果
产品名称
供应商
排名
基价
纯度（大于等于）
库存
展开 全部
4-(3-Chloropropyl)Morpholine(WX630132)
上海药明康德新药开发有限公司
¥575.00 (100g)
95%
询盘
展开
N-(3-Chloropropyl)morpholine
衢州润东化工有限公司
¥85.00 (10g)
暂无
50g - CN
展开
4-(3-Chloropropyl)morpholine
Atlantic Research Chemicals
¥89.25 (1g)
97%
494.75g - UK
展开
4-(3-Chloro-propyl)-morpholine
Advanced Chemical Intermediates (ACINTS)
¥561.00 (1g)
95%
9g - UK
展开
4-(3-chloropropyl)morpholine
Specs
¥208.00 (10mg)
暂无
询盘
展开
N-(3-Chloropropyl)morpholine
萨恩化学技术（上海）有限公司
¥55.00 (5g)
98%
3225g - CN
展开
4-(3-Chloropropyl)morpholine
梯希爱(上海)化成工业发展有限公司
¥290.00 (5g)
98%
5g - CN-SH
10g - CN-TJ
展开
4-(3-Chloropropyl)morpholine
北京飞龙瑞商贸有限公司
¥121.18 (5g)
98%
95g - CN
展开
4-(3-Chloropropyl)morpholine
上海皓鸿生物医药科技有限公司（乐研品牌）
¥177.00 (25g)
95%
1000g - CN-SH
展开
4-(3-Chloropropyl)morpholine
Toronto Research Chemicals
¥425.00 (100mg)
暂无
询盘
展开

提纲

- Reaxys数据库的介绍与更新
- Reaxys数据库与同类数据库的比较
  - 索引内容比较
  - 可检索性比较
- Reaxys数据库中的检索
  - Reaxys数据库中与物性数据有关的检索
  - Reaxys数据库中的结构面板与复杂结构设计
  - Reaxys数据库中的反应设计与筛选
  - Reaxys数据库中的合成路线设计
- Reaxys数据库检索小结

Reaxys检索小结

- Reaxys从大量文献中摘取和物质性质相关的所有数据，帮助科研人员获得标准化，规范化，格式化的物性数据列表及参考文献
- Reaxys中的Query Builder检索帮助科研人员通过简便的方式，获得精准，跨学科的精确答案
- Reaxys中的结构面板，能实现科研人员绝大部分的结构绘制要求，帮助科研人员用最直接的方式获得相应的物质和反应

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If you have questions feel free to reach out

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