CAS SCIFINDER DISCOVERY PLATFORM™
持续增值的内容及数据创新服务

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提纲

- 独特的增值内容结合先进的技术
- 创新的数据服务及应用案例
- 规避知识产权风险的独特解决方案
- 综合材料、健康与能源等多学科应用

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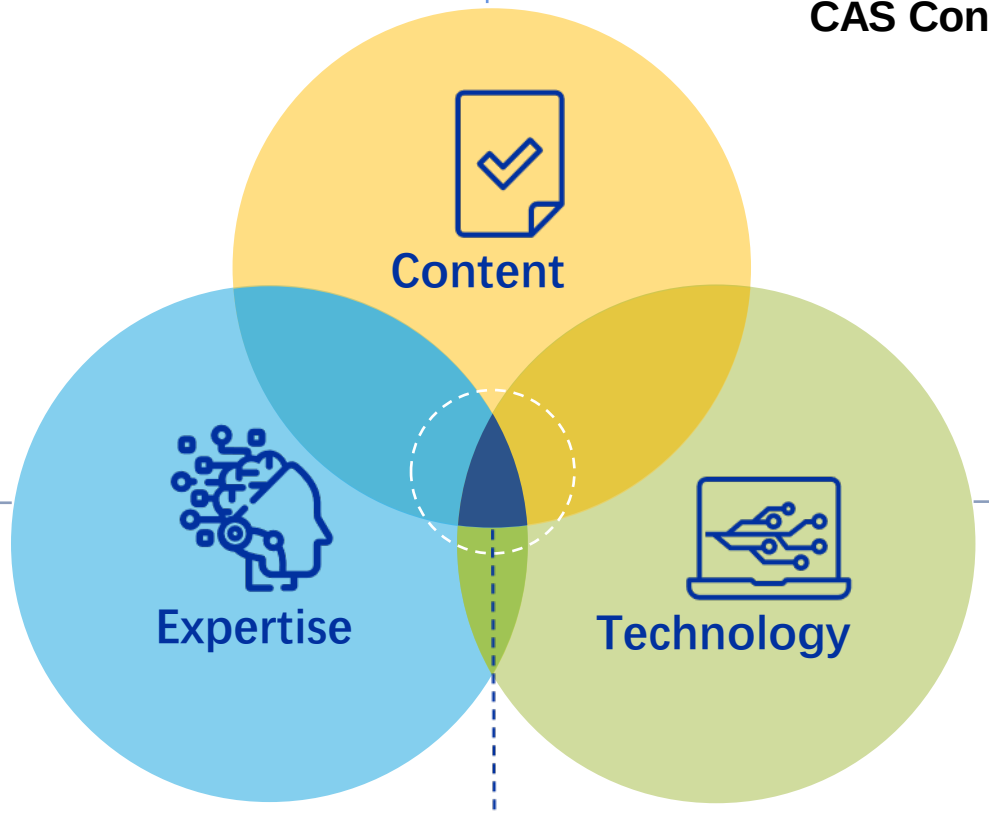

专业知识 | 多学科背景的科学家和技术专家，精通50多国语言

专业技术 | 在数据管理、搜索和检索方面领先的创新者

我们在全球出版的科学数据间建立关联，
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加速创新之旅

Informing and accelerating the innovation process end-to-end

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独特的内容 |最大科学数据合集

专业技术 |为整个创新之旅提供信息

专业知识 | 多学科背景的科学家和技术专家

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CAS 内容合集来源于化学、超越于化学

五大类80小类

- **生物化学**
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- **有机化学各领域：**
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- **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

来源： https://www.cas.org/support/documentation/references/ca-sections

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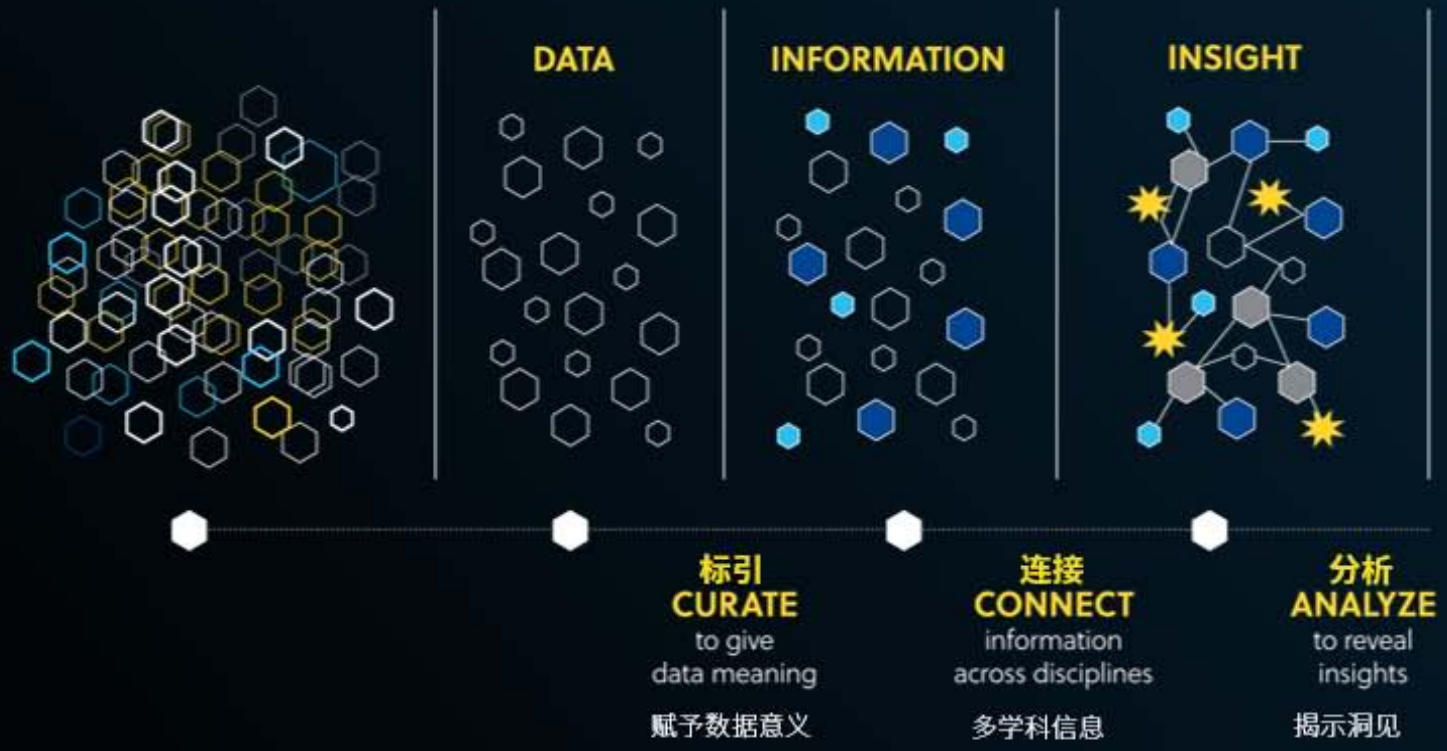
CAS的科学家们标引、连接和分析科学知识



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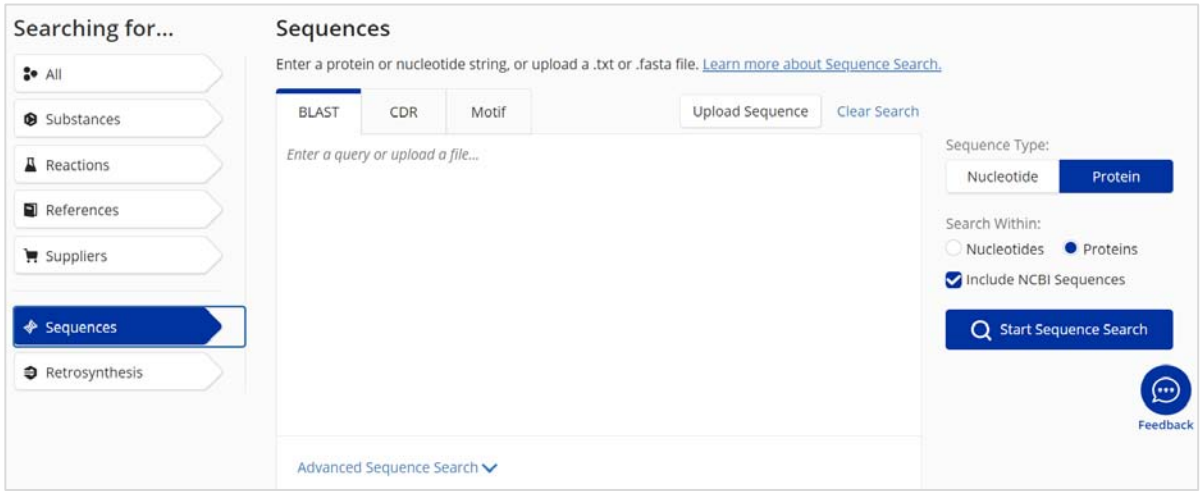
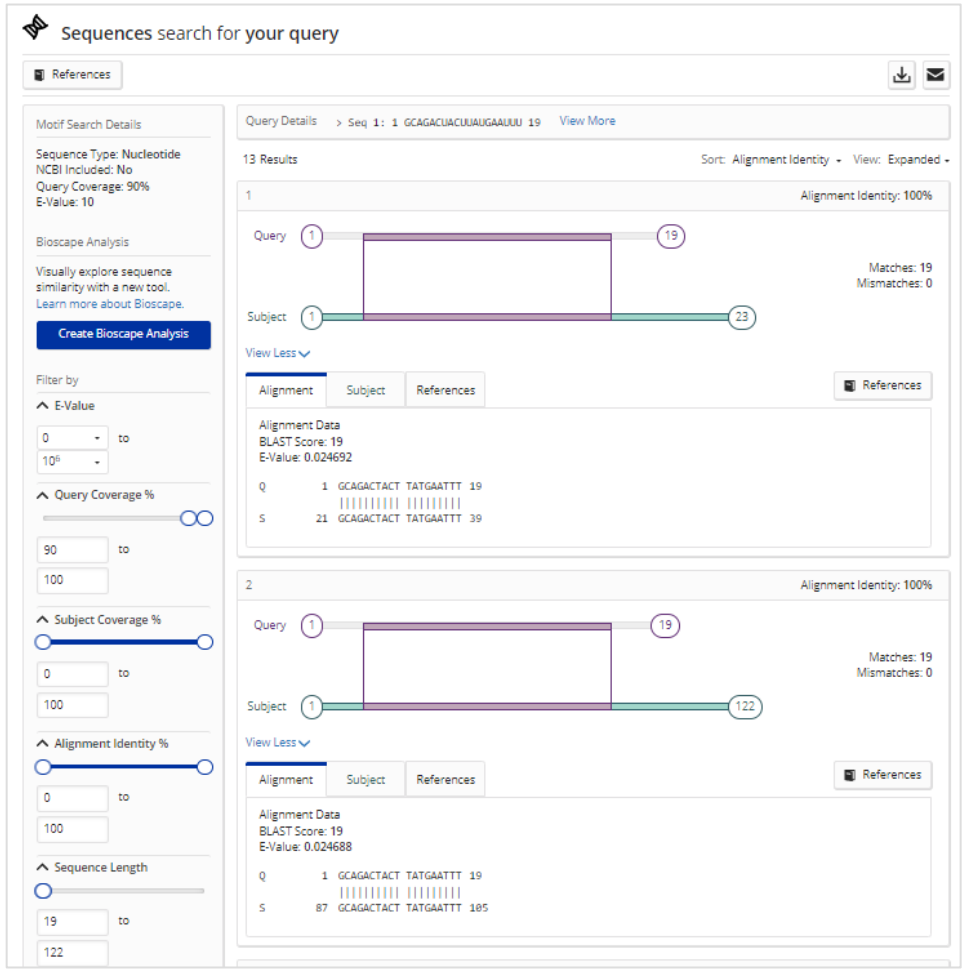
提升生物学研究





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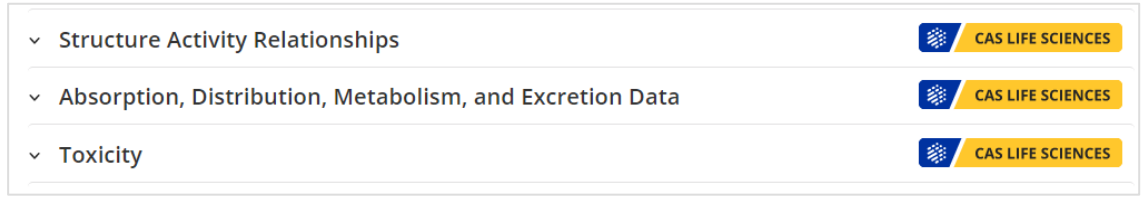

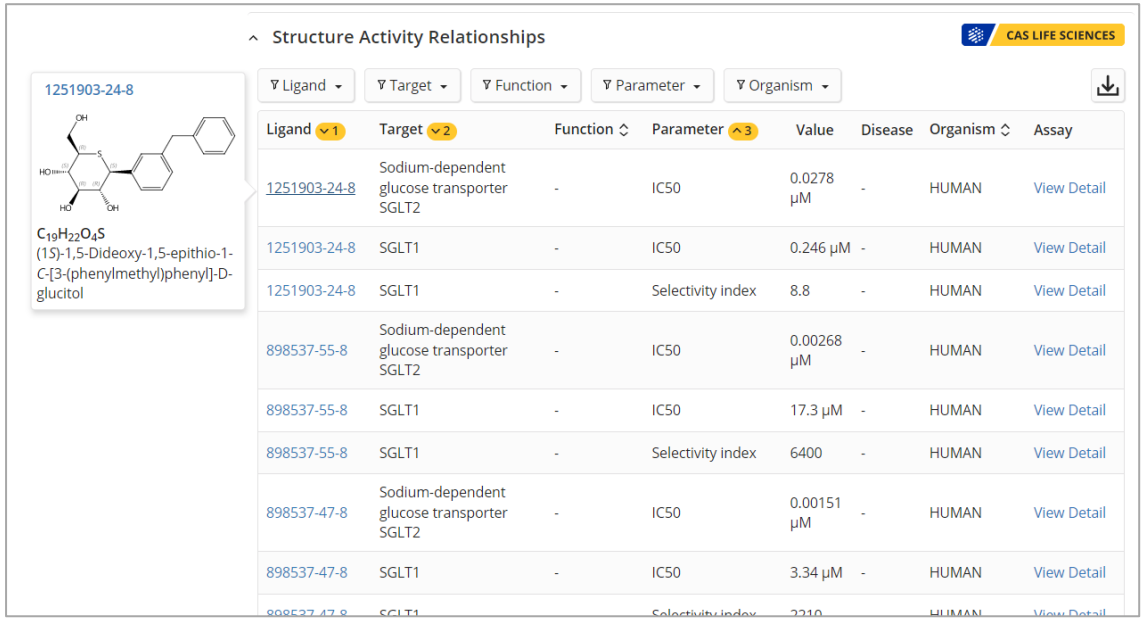

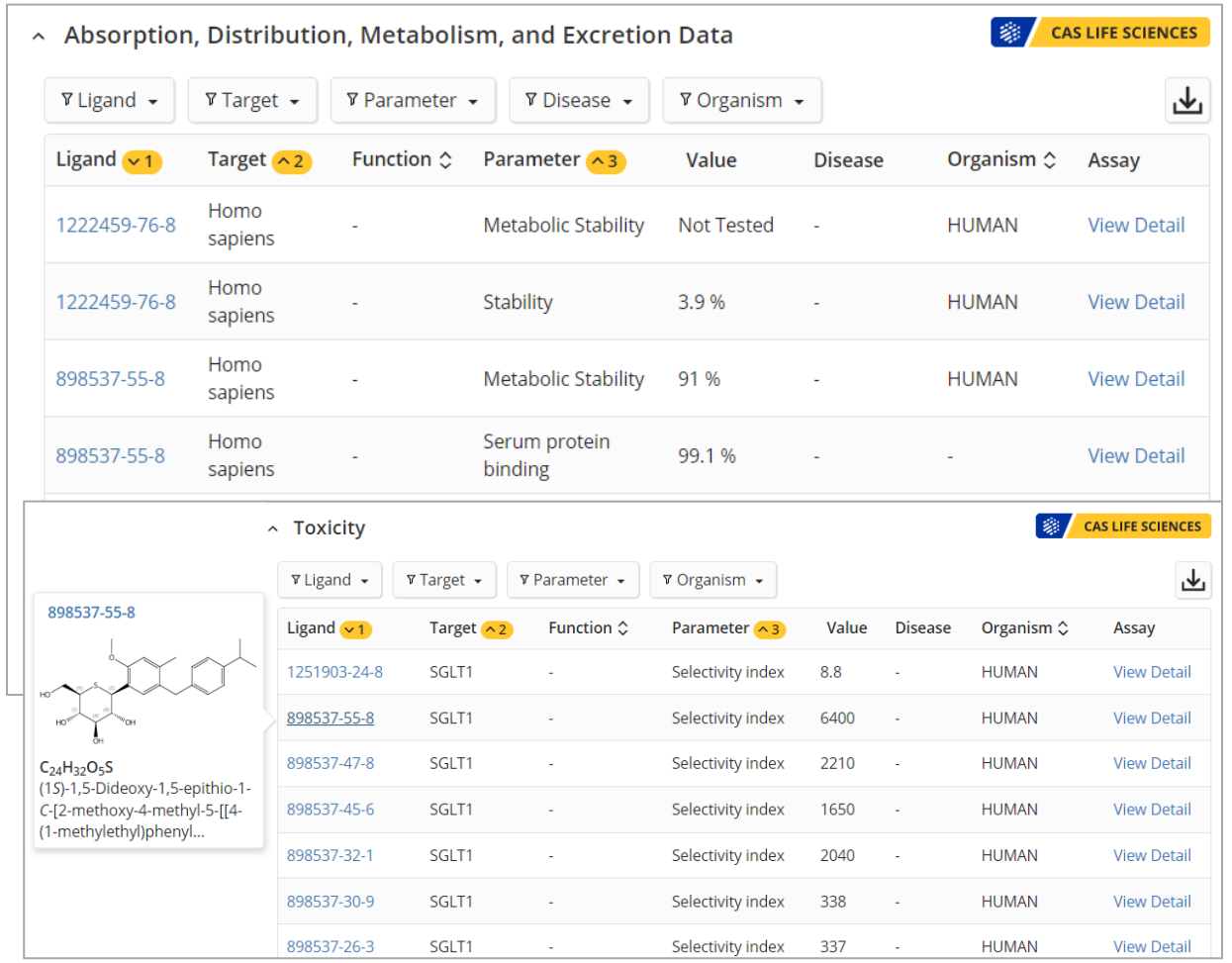

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CAS SciFinder Discovery Platform 助力分析科学家

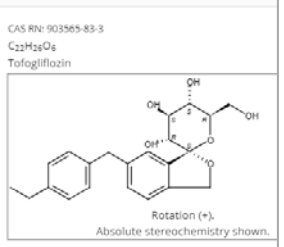
CAS科学家增值标引的分析实验详情

Analysis of Tofogliflozin in Blood plasma by Solvent extraction

CAS MN: 1-101-CAS-323779

Method Category: Active Pharmaceutical Ingredient and Metabolite Analysis
Technique: Liquid chromatography; Electrospray ionization tandem mass spectrometry; Solvent extraction

Materials



Materials	Role	Image	
Tofogliflozin	analyte	View Structure	903565-83-3
Blood plasma	matrix		
Quicksorb ODS (2.1 mm i.d. × 150 mm, 5 µm size) column	material		
Methanol	reagent	View Structure	67-56-1
Sodium carboxymethyl cellulose	reagent	View Structure	9004-32-4
Acetonitrile	reagent	View Structure	75-05-8
Heparin	reagent		9005-49-6
Ammonium acetate	reagent	View Structure	631-61-8
tert-Butyl methyl ether	reagent	View Structure	1634-04-4

Source

Development and validation of an LC-MS/MS method for the determination of tofogliflozin in plasma and its application to a pharmacokinetic study in rats

Kobuchi, Shinji; Matsuno, Megumi; Fukuda, Etsuko; Ito, Yukako; Sakaeda, Toshiyuki

Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences (2016), 1027, 227 - 233. Elsevier B.V.

CODEN: JCBAAI | ISSN: 15700232 | DOI: 10.1016/j.jchromb.2016.05.053

Full Text | View in CAS SciFinder

Abstract

Tofogliflozin is a novel selective inhibitor of sodium-dependent glucose co-transporter-2 (SGLT2) and has been developed for the treatment of patients with type 2 diabetes mellitus. In this study, a highly sensitive and specific liquid chromatog.-tandem mass spectrometry (LC-MS/MS) method for the quantitation of tofogliflozin in rat plasma was developed and validated. The detection was performed using an API 3200 triple-quadrupole mass spectrometer with selected reaction monitoring (SRM) in the pos. electrospray ionization mode. The SRM transitions were m/z = 387.1 $[M+H]^+$ → 267.1 for tofogliflozin and m/z = 451.2 $[M+H]^+$ → 71.0 for empagliflozin (internal standard: I.S.). Chromatog. separation was performed on a Quicksorb ODS (2.1 mm i.d. × 150 mm, 5 µm size) using isocratic elution with acetonitrile/10 mM ammonium acetate (50:50, volume/volume) as the mobile phase at a flow rate of

Equipment Used

LC system, Shimadzu Corp., Kyoto, Japan

Mass spectrometer, API 3200, Applied Biosystems, CA, USA

Micropump, LC-10AD, Shimadzu Corp., Kyoto, Japan

Autosampler, AS8020, Toso, Tokyo, Japan

Conditions

Instrument

column: Quicksorb ODS (2.1 mm i.d. × 150 mm, 5 µm size); column temperature: 50 °C; mobile phase: acetonitrile/10 mM ammonium acetate (50:50, v/v) as mobile phase; flow rate: 0.2 mL/min; injection volume: 30 µL; run time: 4.0 min

ionization mode: positive ion mode; ion spray voltage: 5000 V; source temperature: 500 °C; curtain gas: 5.0 arbitrary units; collision gas: 5.0 arbitrary units; ion source gas: 1 of 50 arbitrary units and gas: 2 of 70 arbitrary units; declustering potential (DP): 31.0 V; entrance potential (EP): 10.5 V for tofogliflozin, 6.5 V for internal standard; collision energy (CE): 20.0 V for tofogliflozin, 31.0 V for internal standard; collision exit potential (CXP): 6.0 V for tofogliflozin, 1.0 V for internal standard

Instructions

Collection of plasma samples

1. Administer male wistar rats orally (p.o.) with 0.4 mg/kg tofogliflozin solution (0.2 mg/mL in 1% carboxymethyl-cellulose sodium in distilled water).
2. Collect the blood samples (0.25 mL) from the external left jugular vein.
3. Transfer the blood samples to heparinized centrifuge tubes and centrifuge at 12,000 rpm for 15 min to obtain plasma samples.
4. Store the plasma samples at -80 °C.

Preparation of stock solutions, calibration curves a

1. Prepare the stock solutions of tofogliflozin
2. Prepare the working solutions by further d
   tofogliflozin.
3. Prepare internal standard (IS) working solu
4. Prepare the calibration standard samples
   standards with concentrations ranging fro
5. Prepare the quality control (QC) samples a
6. Add 10 µL aliquot of the IS working solutio
   454.5 ng/mL.

Solvent extraction

1. Add 100 µL of acetonitrile to standard and
2. Mix the sample vigorously for 15 s.
3. Add 1 mL of tert-butyl methyl ether to the
4. Centrifuge the mixture for 15 min at 12,00
5. Transfer the supernatant to a fresh centrifuge tube and evaporate to dryness under a stream of nitrogen at 60 °C.
6. Add 100 µL of mobile phase (acetonitrile/10 mM ammonium acetate (50:50, v/v)) to the resulting residue, vortex for over 30 s and transfer to HPLC

Validation

Linearity Range	0.5 - 1000 ng/mL
Limit of Quantitation	0.5 ng/mL (LLOQ)
Recovery	115.7 ± 13.3, 90.2 ± 4.7 and 87.5 ± 6.1% in 1.5, 100 and 500 ng/mL spiked concentration, respectively
Accuracy	−2.1, 1.1 and 1.3% (bias, intra-day); −8.8, -4.1 and -0.7% (bias, inter-day) in 1.5, 100 and 500 ng/mL spiked concentration, respectively
Precision	11.5, 9.2 and 5.3% (CV, intra-day); 11.7, 8.9 and 4.1% (CV, inter-day) in 1.5, 100 and 500 ng/mL spiked concentration, respectively
Retention Time	2.3 min

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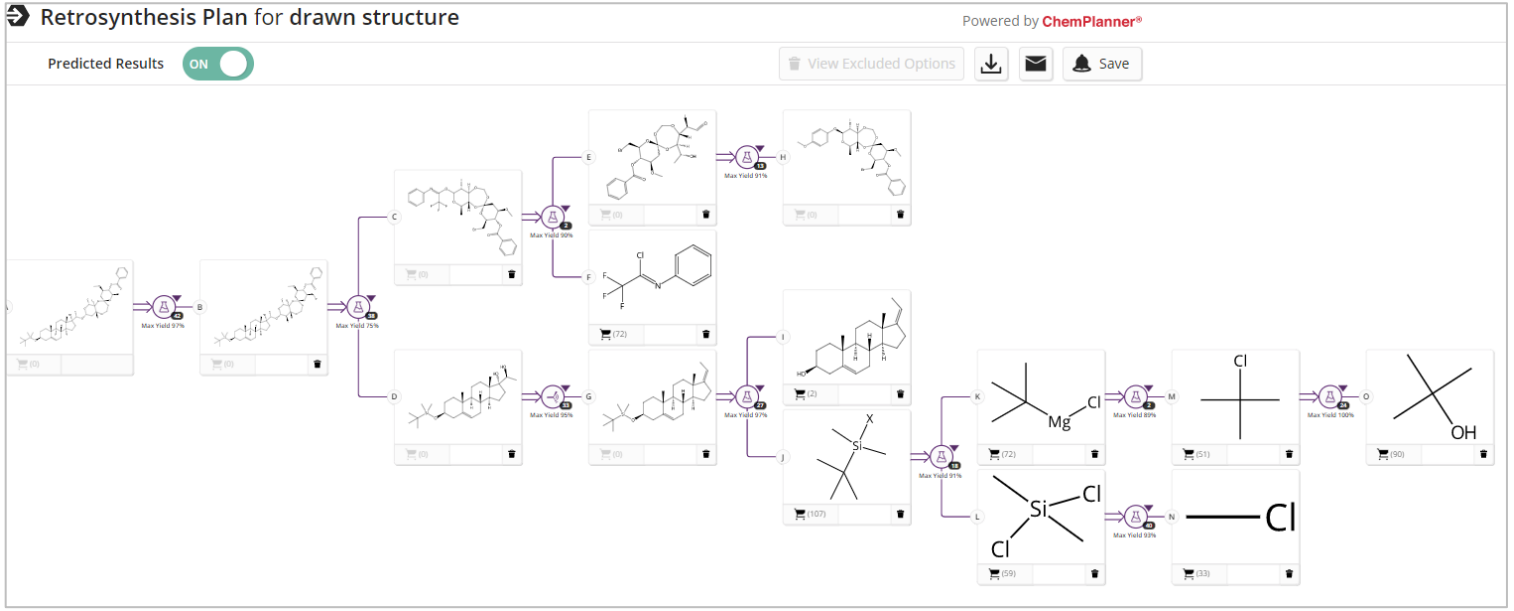
CAS SciFinder Discovery Platform 助力药化与合成化学家

利用机器学习、人工智能技术进行逆合成路线分析



- 合成新分子
- 合成放大实验
- 发现突破现有合成方法的新机会

CAS科学家增值的合成制备详情

Products (6*S*,9*S*)-5,6,7,8,9,10,12,13,14,15,16,17-Dodecahydro-6-(methoxymethyl)-4,7-dioxo-4*H*-pyrazolo[5,1-*i*][1,4,7,10]oxatriazacyclohexadecine-9-carboxylic acid, Yield: 75%

Reactants 2242434-22-4

Reagents Hydrogen

Catalysts Grubbs second generation catalyst; Palladium

Solvents Toluene; Methanol

Procedure
1. Degas a solution of benzyl O-allyl-N-(O-methyl-N-(1-(pent-4-en-1-yl)-1H-pyrazole-5-carbonyl)-L-seryl) -L-serinate (0.20 mmol, 1.0 equiv) in toluene (0.01 molar) with dry nitrogen for 15 minutes.
2. Stir the mixture for 5 minutes at 100 °C.
3. Inject the Grubbs second-generation catalyst (0.10 equiv) in toluene (0.01 molar) to a degassed solution with a syringe for 30 minutes.
4. Stir the reaction mixture for additional half an hour.
5. Cool the reaction mixture to room temperature.
6. Evaporate the solvent under reduced pressure.
7. Purify by flash chromatography on silica gel.
8. Re-dissolve the resulting products in methanol (0.05 molar).
9. Stir the reaction mixture overnight with 10% Pd/C (0.10 equiv).
10. Filter the mixture over Celite and concentrate to obtain (6S,9S)-6-(methoxymethyl)-4,7-dioxo-5,6,7,8,9,10,12,13,14,15,16,17-dodecahydro-4H-pyrazolo[5,1-i][1]oxa[4,7,10]triazacyclohexadecine-9-carboxylic acid.

Transformation Addition of Alkanes to Alkenes; Hydrolysis or Hydrogenolysis of Carboxylic Esters or Thioesters

Characterization Data

(6*S*,9*S*)-5,6,7,8,9,10,12,13,14,15,16,17-Dodecahydro-6-(methoxymethyl)-4,7-dioxo-4*H*-pyrazolo[5,1-*i*][1,4,7,10]oxatriazacyclohexadecine-9-carboxylic acid

Proton NMR Spectrum	(500 MHz, $CDCl_3$) δ 7.47 (d, *J* = 2.0 Hz, 1H), 6.60 (d, *J* = 2.0 Hz, 1H), 5.15-5.06 (m, 1H), 4.75-4.69 (m, 1H), 4.58-4.52 (m, 1H), 4.19 (dt, *J* = 13.5, 5.0 Hz, 1H), 3.90 (dd, *J* = 10.0, 5.5 Hz, 1H), 3.75 (dd, *J* = 10.0, 4.0 Hz, 1H), 3.70-3.62 (m, 2H), 3.48-3.28 (m, 5H), 2.01-1.90 (m, 1H), 1.76-1.66 (m, 1H), 1.51-1.29 (m, 3H), 1.28-0.99 (m, 3H) ppm
Carbon-13 NMR	(100 MHz, DMSO) δ 171.18, 169.36, 159.65, 136.90, 134.37, 108.05, 71.09, 69.92, 69.17, 58.08, 52.53, 52.00, 50.80, 28.57, 26.80, 24.45, 24.39
Mass Spectrum	383 $[M + H]^+$
State	white solid

CAS Method Number 3-248-CAS-19350113

Transformations
1. Addition of Alkanes to Alkenes
2. Hydrolysis or Hydrogenolysis of Carboxylic Esters or Thioesters

Reaction Notes
ring closing metathesis in stage 1

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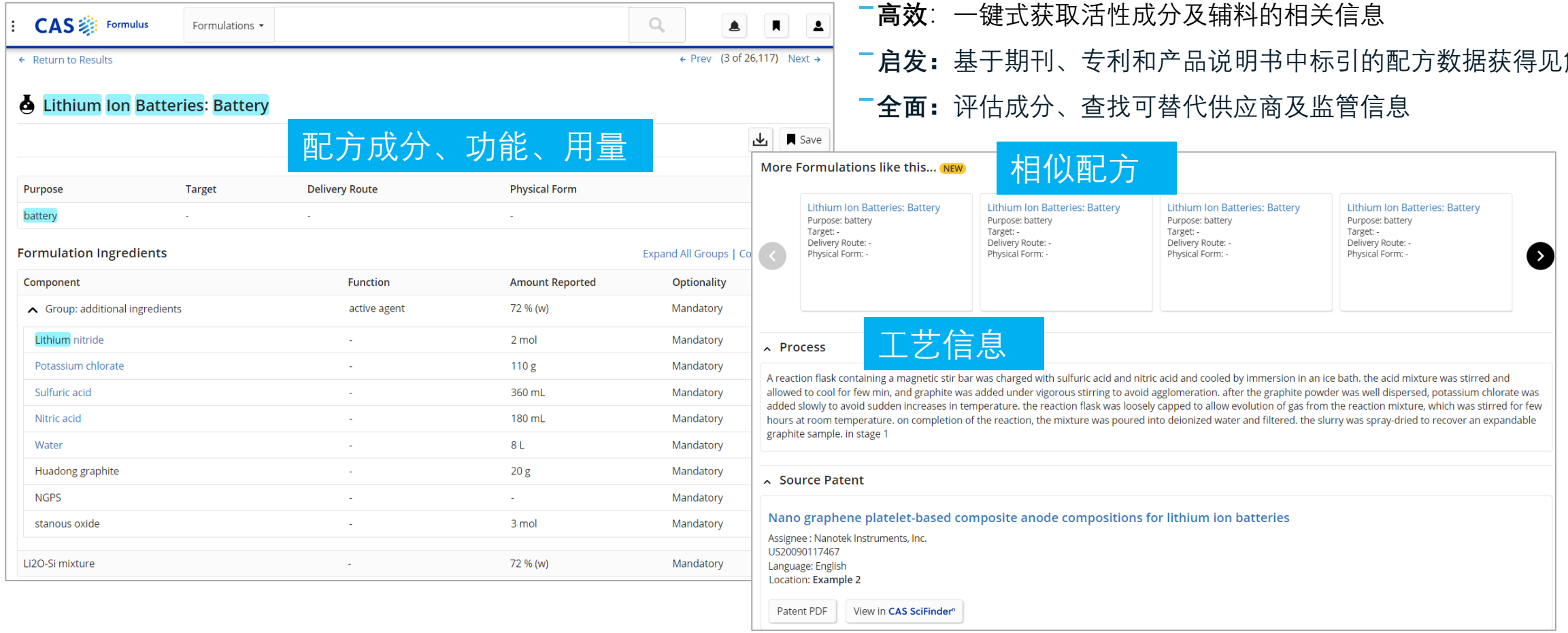
开发安全有效的产品



- **高效**：一键式获取活性成分及辅料的相关信息
- **启发：**基于期刊、专利和产品说明书中标引的配方数据获得见解
- **全面：**评估成分、查找可替代供应商及监管信息

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与CAS定制服务合作，推动数据分析取得成功

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- 数据构架
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- 电子实验记录本（ELN）集成
- 数据协调（标准化数据、定制化标引）
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- 趋势分析
- 决策分析

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- 监管提交支持
- 数据许可

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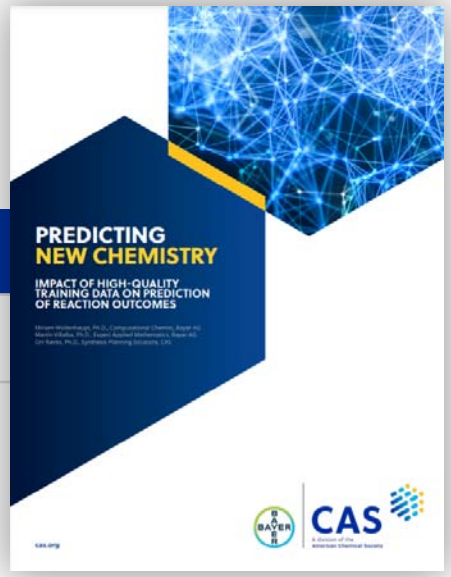
案例分享1

在极难突破的科学领域，改进反应预测结果

训练数据集	预测精度
基准数据集	**16%**
+CAS反应数据集	**48%**



训练数据集	数据组成
基准数据集	商业可获得的正样本数据（800万）和负样本数据（2400万）
+CAS反应数据集	拜尔的3200万基准数据+CAS定制的14,500条特定的反应数据

影响

用CAS科学家标引的反应数据集进行训练时，准确率提高到48%——提高了32个百分点。

这种在“罕见”反应类别中增强的预测能力贡献了新的、有用的结果，为极难突破的科学领域开辟了道路。

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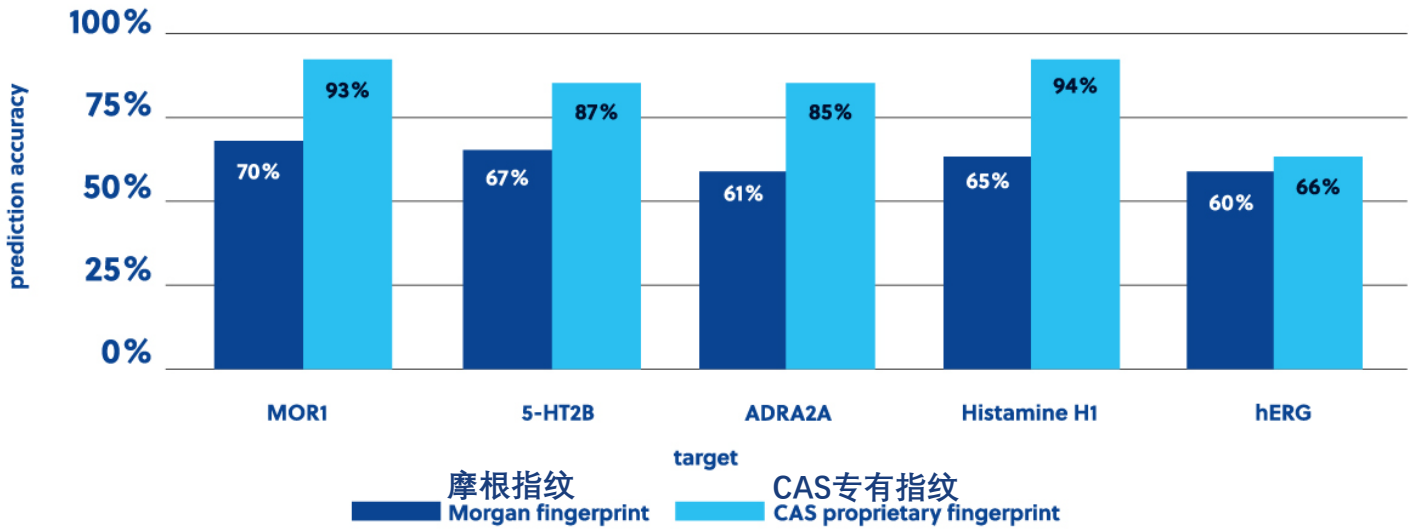
案例分享2

数据质量对机器学习预测的影响

与剑桥大学合作，测试给定算法所使用的化学描述符的质量对机器学习预测的影响。

使用高质量的CAS数据时，分类精度提升30%.

这种精确度的提高使团队能够探索更广阔的领域，减少误报，并将精力集中在最有前景的化合物上。



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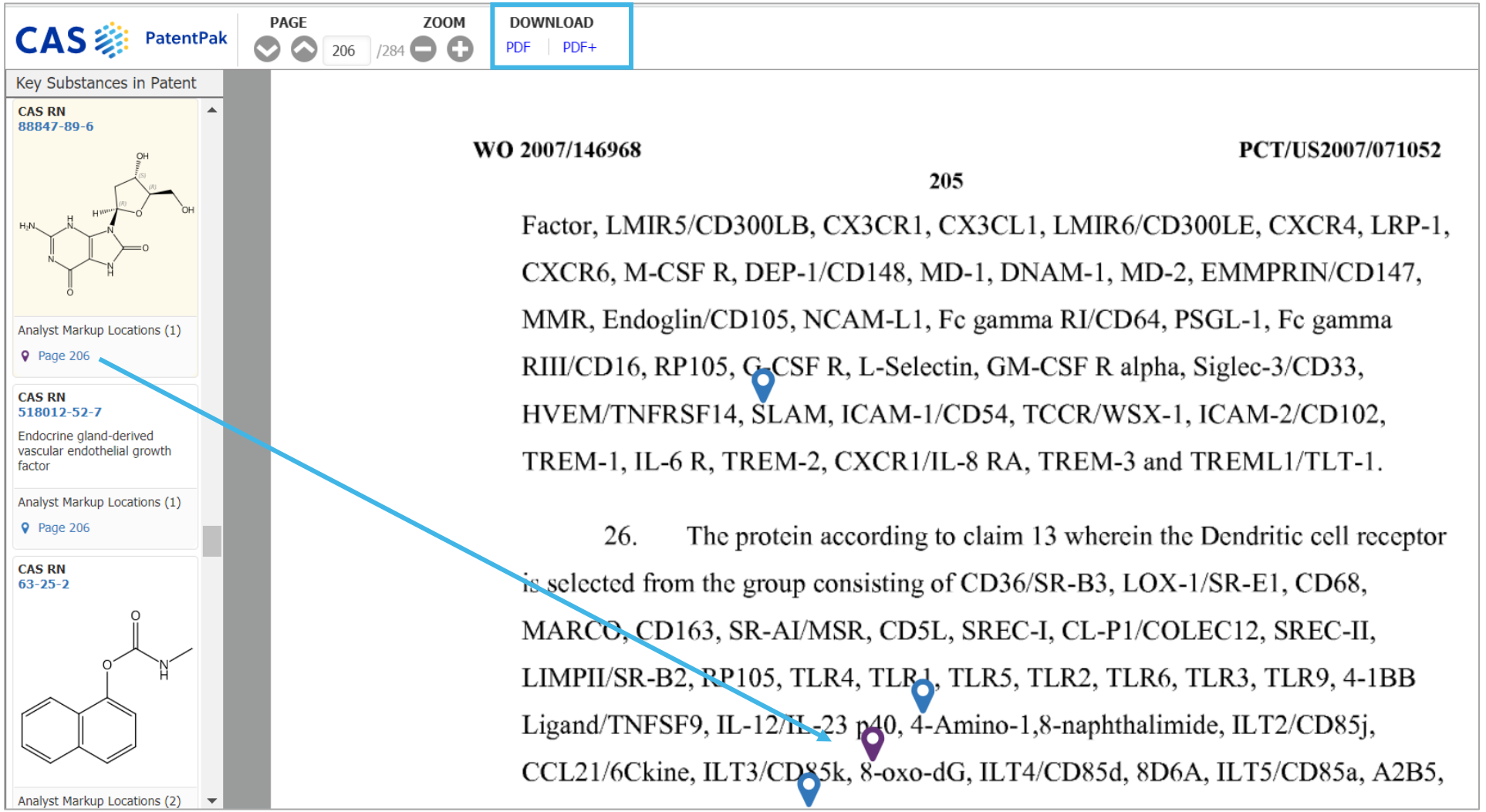
独特专利解决方案—CAS PatentPak®



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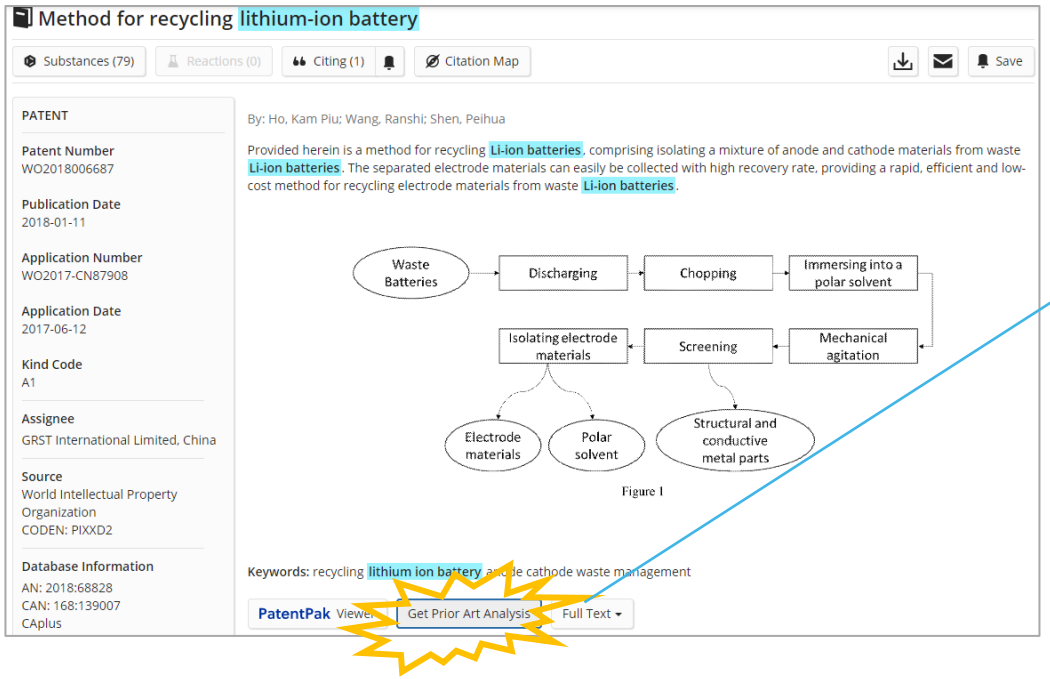
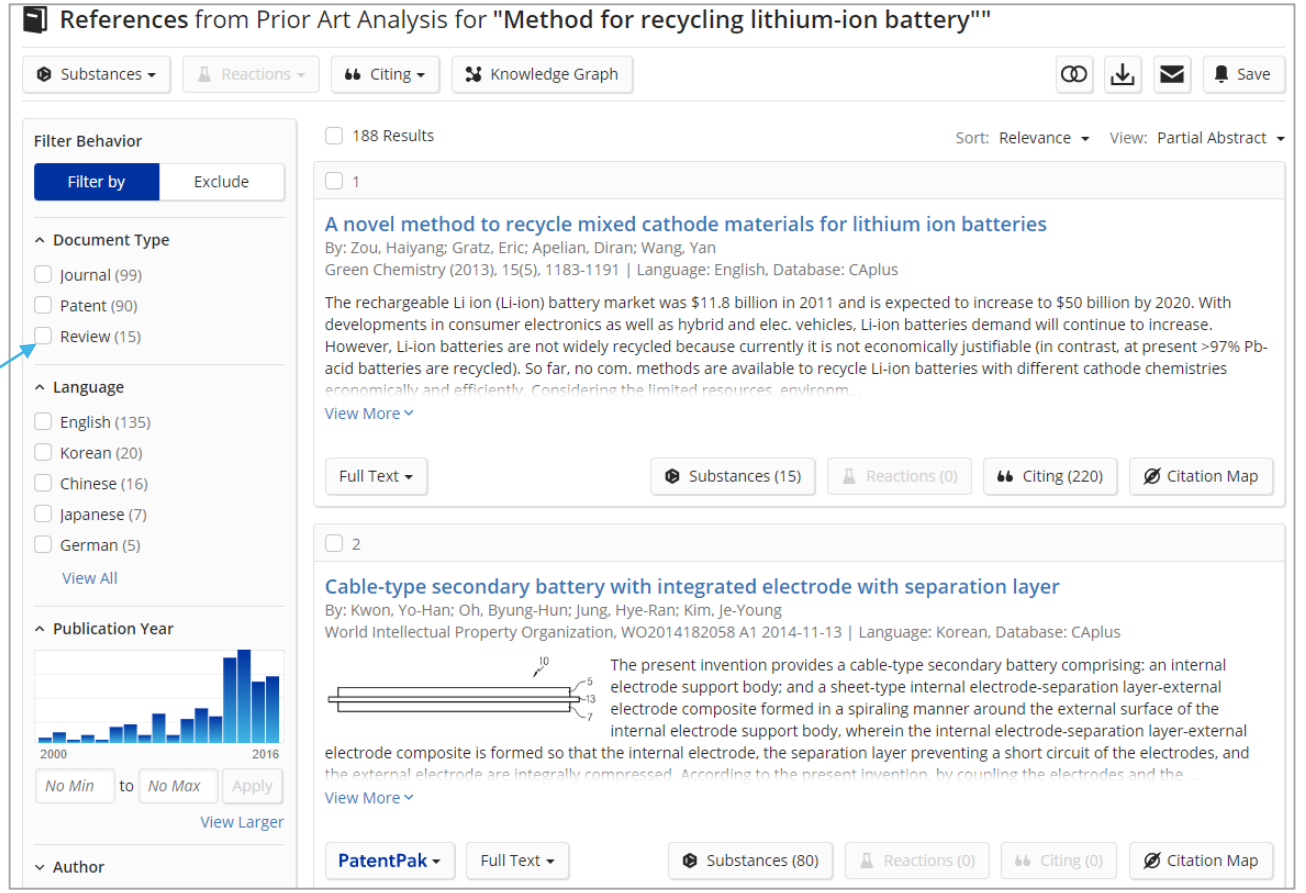
基于CAS科学家智慧和人工智能，对专利进行现有技术分析，为可专利性和专利自由实施策略提供信息支撑

现有技术分析





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Patent Office

- World Intellectual Property Organization (4)
- United States (1)

CA Section

- Heterocyclic Compounds (More Than One Hetero Atom) (2)
- Heterocyclic Compounds (One Hetero Atom) (2)
- Pharmacology (1)

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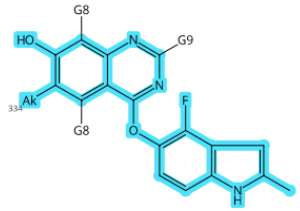
WO2009030224



Quinazoline derivative pharmaceutical agents, method for their production, and their use in medical therapy, particularly for cancer

By: Scheefers, Hans
World Intellectual Property Organization, WO2009030224 A2 2009-03-12 | Language: German, Database: CAplus
Assignee: ScheBo Biotech A.-G.

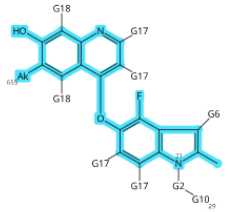
Patent claim 1

PatentPak | Full Text

334: carbon chain <containing 1-10 C> (opt. substd. by 1 or more G2)

2

US20050137395



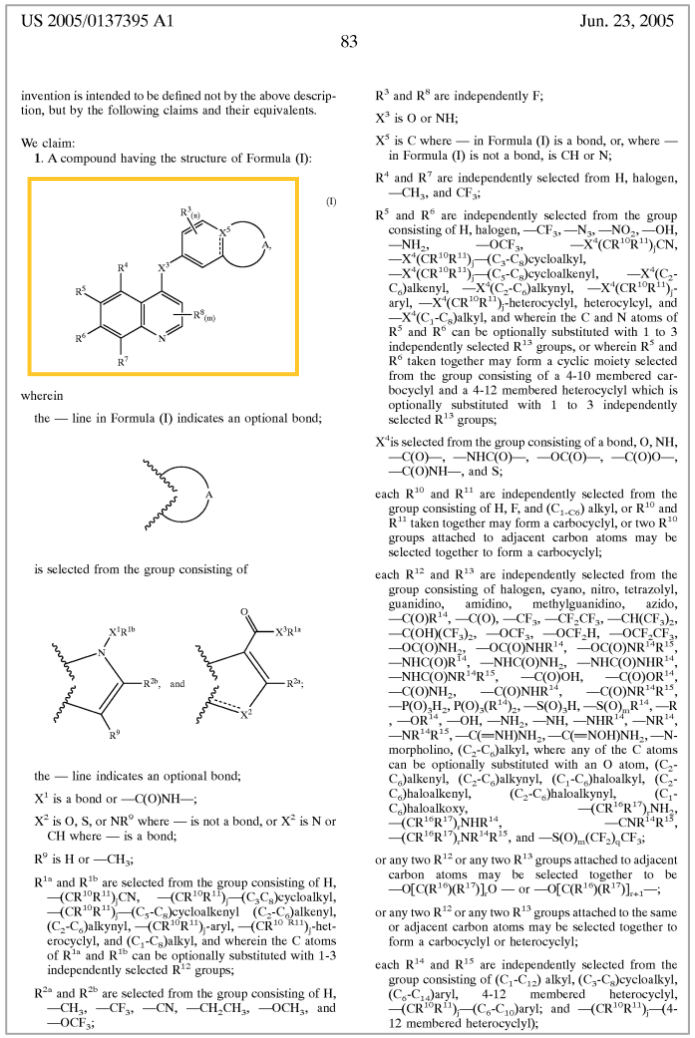
Preparation of novel quinoline derivatives for treating hyperproliferative disorders

By: Hong, Yufeng; Kania, Robert Steven
United States, US20050137395 A1 2005-06-23 | Language: English, Database: CAplus
Assignee: Agouron Pharmaceuticals, Inc.

Patent claim 1

PatentPak | Full Text

655: alkyl <containing 1-8 C> (opt. substd.)



US 2005/0137395 A1 Jun. 23, 2005
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invention is intended to be defined not by the above description, but by the following claims and their equivalents.

We claim:

1. A compound having the structure of Formula (I):

(I)

wherein

the — line in Formula (I) indicates an optional bond;

is selected from the group consisting of

the — line indicates an optional bond;

X^1 is a bond or —C(O)NH—;

X^2 is O, S, or NR^9 where — is not a bond, or X^2 is N or CH where — is a bond;

R^9 is H or $—CH_3$;

R^{1a} and R^{1b} are selected from the group consisting of H, $—(CR^{10}R^{11})_nCN$, $—(CR^{10}R^{11})_j—(C_3-C_8)$cycloalkyl, $—(CR^{10}R^{11})_j—(C_5-C_8)$cycloalkenyl, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, $—(CR^{10}R^{11})_j$-aryl, $—(CR^{10}R^{11})_j$-heterocyclyl, and (C_1-C_8)alkyl, and wherein the C atoms of R^{1a} and R^{1b} can be optionally substituted with 1-3 independently selected R^{12} groups;

R^{2a} and R^{2b} are selected from the group consisting of H, $—CH_3$, $—CF_3$, —CN, $—CH_2CH_3$, $—OCH_3$, and $—OCF_3$;

R^3 and R^8 are independently F;

X^3 is O or NH;

X^5 is C where — in Formula (I) is a bond, or, where — in Formula (I) is not a bond, is CH or N;

R^4 and R^7 are independently selected from H, halogen, $—CH_3$, and CF_3;

R^5 and R^6 are independently selected from the group consisting of H, halogen, $—CF_3$, $—N_3$, $—NO_2$, —OH, $—NH_2$, $—OCF_3$, $—X^4(CR^{10}R^{11})_nCN$, $—X^4(CR^{10}R^{11})_j—(C_3-C_8)$cycloalkyl, $—X^4(CR^{10}R^{11})_j—(C_5-C_8)$cycloalkenyl, $—X^4(C_2-C_6)$alkenyl, $—X^4(C_2-C_6)$alkynyl, $—X^4(CR^{10}R^{11})_j$-aryl, $—X^4(CR^{10}R^{11})_j$-heterocyclyl, heterocylcyl, and $—X^4(C_1-C_8)$alkyl, and wherein the C and N atoms of R^5 and R^6 can be optionally substituted with 1 to 3 independently selected R^{13} groups, or wherein R^5 and R^6 taken together may form a cyclic moiety selected from the group consisting of a 4-10 membered carbocyclyl and a 4-12 membered heterocyclyl which is optionally substituted with 1 to 3 independently selected R^{13} groups;

$X^4$is selected from the group consisting of a bond, O, NH, —C(O)—, —NHC(O)—, —OC(O)—, —C(O)O—, —C(O)NH—, and S;

each R^{10} and R^{11} are independently selected from the group consisting of H, F, and (C_{1-C6}) alkyl, or R^{10} and R^{11} taken together may form a carbocyclyl, or two R^{10} groups attached to adjacent carbon atoms may be selected together to form a carbocyclyl;

each R^{12} and R^{13} are independently selected from the group consisting of halogen, cyano, nitro, tetrazolyl, guanidino, amidino, methylguanidino, azido, $—C(O)R^{14}$, —C(O), $—CF_3$, $—CF_2CF_3$, $—CH(CF_3)_2$, $—C(OH)(CF_3)_2$, $—OCF_3$, $—OCF_2H$, $—OCF_2CF_3$, $—OC(O)NH_2$, $—OC(O)NHR^{14}$, $—OC(O)NR^{14}R^{15}$, $—NHC(O)R^{14}$, $—NHC(O)NH_2$, $—NHC(O)NHR^{14}$, $—NHC(O)NR^{14}R^{15}$, —C(O)OH, $—C(O)OR^{14}$, $—C(O)NH_2$, $—C(O)NHR^{14}$, $—C(O)NR^{14}R^{15}$, $—P(O)_3H_2$, $P(O)_3(R^{14})_2$, $—S(O)_3H$, $—S(O)_{m}R^{14}$, —R, $—OR^{14}$, —OH, $—NH_2$, —NH, $—NHR^{14}$, $—NR^{14}R^{15}$, $—NR^{14}R^{15}$, $—C(=NH)NH_2$, $—C(=NOH)NH_2$, —N-morpholino, (C_2-C_6)alkyl, where any of the C atoms can be optionally substituted with an O atom, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, (C_1-C_6)haloalkyl, (C_2-C_6)haloalkenyl, (C_2-C_6)haloalkynyl, (C_1-C_6)haloalkoxy, $—(CR^{16}R^{17})_nNH_2$, $—(CR^{16}R^{17})_nNHR^{14}$, $—CNR^{14}R^{15}$, $—(CR^{16}R^{17})_nNR^{14}R^{15}$, and $—S(O)_m(CF_2)_6CF_3$;

or any two R^{12} or any two R^{13} groups attached to adjacent carbon atoms may be selected together to be $—O[C(R^{16})(R^{17})]_nO$ — or $—O[C(R^{16})(R^{17})]_{n+1}—$;

or any two R^{12} or any two R^{13} groups attached to the same or adjacent carbon atoms may be selected together to form a carbocyclyl or heterocyclyl;

each R^{14} and R^{15} are independently selected from the group consisting of (C_1-C_{12}) alkyl, (C_3-C_8)cycloalkyl, (C_6-C_{14})aryl, 4-12 membered heterocyclyl, $—(CR^{10}R^{11})_j—(C_6-C_{10})$aryl; and $—(CR^{10}R^{11})_j—$(4-12 membered heterocyclyl);

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提纲

- 独特的增值内容结合先进的技术
- 创新的数据服务及应用案例
- 规避知识产权风险的独特解决方案
- **综合材料、健康与能源等多学科应用**

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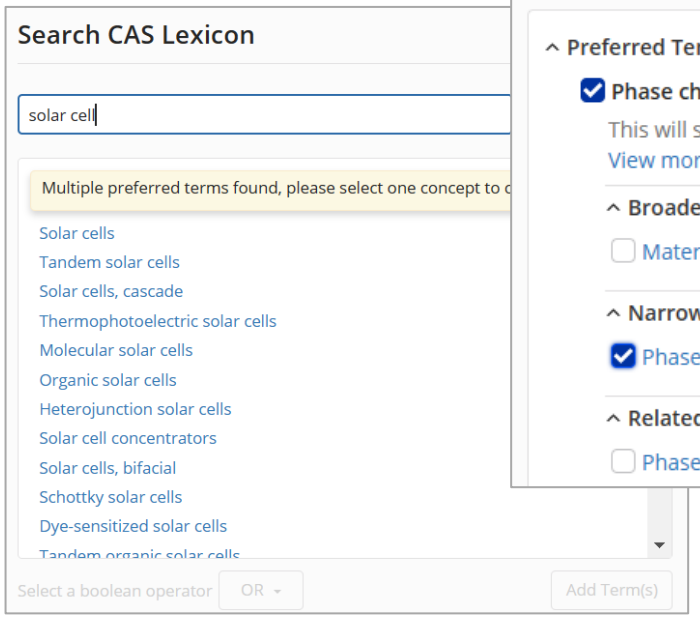
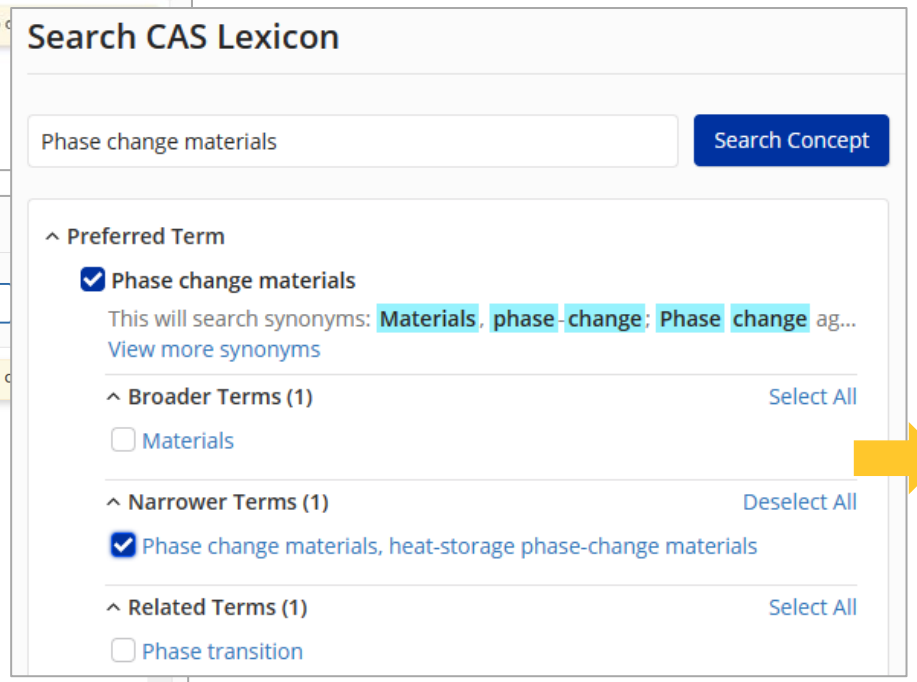
拓展能源与材料相关应用领域

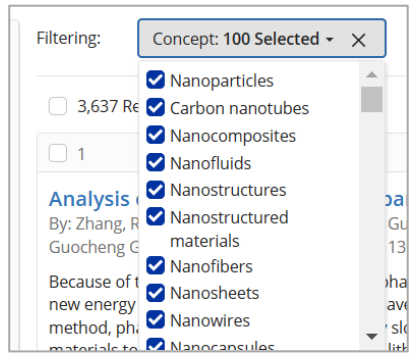
借助CAS词库提供的技术标准词，快速拓展获取信息的思路

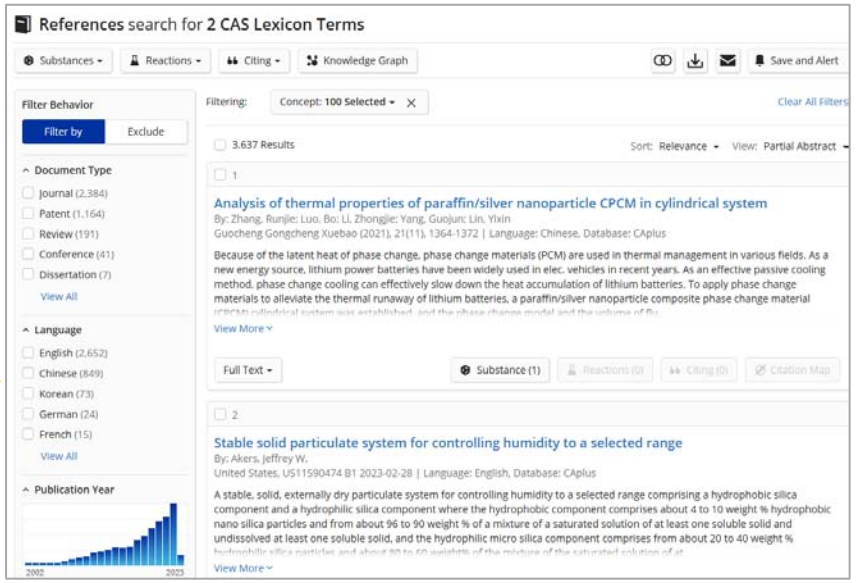
锂电池、太阳能电池、相变材料等





纳米相关的相变材料





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纳米复合材料在葡萄糖分析方法中的应用

TiO2-石墨烯生物传感器

Analysis of Glucose by Amperometry

CAS MN: 2-114-CAS-104693

Method Category: Biomolecule Isolation Assay
Technique: Amperometry

分析方法所用材料

Materials	Role
Glucose	analyte
Nanoparticles	material
Teflon membrane filter	material
Glassy carbon electrode (GCE)	material
Ag/AgCl electrode	material
Platinum foil	material
TiO_2-GR/GOD modified GCE	material
Sulfuric acid	reagent
Permanganic acid ($HMnO_4$), potassium salt (1:1)	reagent
Graphite	reagent
Titania	reagent
Perfluoro-3,6-dioxa-4-methyl-7-octenesulfonic acid-tetrafluoroethylene copolymer	reagent
Graphene	reagent
Phosphate	reagent

方法来源文献

Source

A glucose biosensor based on TiO_2-Graphene composite

Jang, Hee Dong; Kim, Sun Kyung; Chang, Hankwon; Roh, Ki-Min; Choi, Jeong

Biosensors & Bioelectronics (2012), 38 (1), 184 - 188. Elsevier B.V.

CODEN: BBIOE4 | ISSN: 09565663 | DOI: 10.1016/j.bios.2012.05.033

Full Text | View in CAS SciFinder

标题、摘要

Abstract

A novel glucose biosensor was developed based on the adsorption of gluc
composite was synthesized from a colloidal mixture of TiO_2 nanoparticles
(AASA). The particle morphol. of all TiO_2-GR composites was spherical in sh
nanosheets and that the degree of encapsulation was proportional to the
fabricated by the TiO_2-GR composite was linear against a concentration of
about 6.2 μA/mM cm^2. The as prepared glucose biosensor based on the Ti
pure TiO_2 and GR biosensor.

Equipment Used

仪器

Electrochemical interface instrument, VSP, Bio-Logics

Conditions

实验条件

Instrument

supporting electrolyte: 0.01 M phosphate buffer solution (PBS), potential:

Instructions

Synthesis of graphene oxide (GO) colloid

1. Synthesize graphene oxide (GO) by oxidation of graphite powder using
2. Mix the micrographic powder with a strong oxidizing agent, filter, wash and dry.
3. Disperse the dry GO in water with mechanical agitation or mild sonication using a tabletop ultrasonic cleaner to obtain a colloidal solution of exfoliated GO.

操作步骤

Synthesis of titanium dioxide graphene (TiO_2-GR) composite

1. Prepare a colloidal mixture solution as a aerosol precursor by dispersing TiO_2 nanoparticle (P25, Degussa) and GO colloid in distilled water.
2. Prepare the precursor with different weight ratios of GO/TiO_2 from 0.05 to 2.0 while the concentration of the TiO_2 at fixed 0.1 wt% in the colloidal mixture.
3. Use the experimental apparatus for aerosol assisted self-assembly (AASA) process consisting of ultrasonic atomizer, electrical tubular furnace and a filter sampler.
4. Use the ultrasonic atomizer to generate micro-sized droplets of the colloidal precursor.
5. Carry the droplets into the furnace at 1.0 L/min flow of argon.
6. Perform the evaporation of water, self-assembly of GO and TiO_2 and reduction of GO in sequence in the tubular furnace (length and diameter of the heating zone 54 cm and 25 mm, respectively).
7. Set the operating temperature at 800 °C.
8. Collect the fabricated TiO_2-GR composites using a Teflon membrane filter.
9. Heat the filter to prevent water from condensing on it.

Preparation of TiO_2-GR/glucose oxidase (GOD) biosensor

1. Disperse 1 mg of TiO_2-GR composite in 1 mL of 10,000 ppm (10 mg/mL) GOD solution.
2. Incubate the TiO_2-GR/GOD colloid at 4 °C for 24 h.
3. Centrifuge using a centrifugal separator at 10,000 rpm for 1 h in order to ensure complete GOD immobilization.
4. Disperse the precipitate with 1 mL of 0.01 M phosphate buffer solution (PBS).
5. Drop 5 μL of TiO_2-GR/GOD colloid onto the surface of glassy carbon electrode (GCE) and dry at room temperature.
6. Cast 10 μL of 0.05 wt% Nafion solution additionally on the surface of modified GCE.
7. Dry before the electrochemical experiment.

Amperometry measurement

1. Analyze the sample using electrochemical interface instrument (VSP, Bio-Logics).
2. Use TiO_2-GR/GOD modified GCE as working electrode, Ag/AgCl electrode as reference electrode and platinum foil as counter electrode.
3. Use 0.01 M phosphate buffer solution (PBS) as supporting electrolyte.
4. Perform measurement in a cell containing different concentrations of glucose and electrolyte solution.
5. Set the instrumental parameters as follows: potential: -0.6 V, scan rate: 50 mV/s.

数据有效性

Validation

Linearity Range	0 - 8 mM
Precision	5.6% (RSD) in 8 mM spiked concentration
Sensitivity	6.2 μA/mM cm^2

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纳米复合材料在缓控释药物递送系统中的应用配方

负载抗癌药物的羧甲基纤维素/氧化石墨烯复合材料

Doxorubicin Loaded Carboxymethyl Cellulose/Graphene Oxide Nanocomposite Hydrogel Beads: Controlled-Release Drug Delivery Systems or Anticancer Agents--Controlled Release

Purpose	Target	Delivery Route	Physical Form	Source
Antitumor agents, Pharmaceutical formulations	doxorubicin	-	Hydrogels	View

Formulation Ingredients 配方成分、功能、用量

Expand All Groups | Collapse All Groups

Component	Function	Amount Reported	Optionality
Group: carboxymethylcellulose/graphene oxide nanocomposite hydrogel bead	-	0.2 g	Mandatory
Graphene	-	5 wt. %	Mandatory
Water	-	20 mL	Mandatory
Sodium carboxymethyl cellulose	-	1 g	Mandatory
Iron chloride ($FeCl_3$)	-	-	Mandatory
Group: doxorubicin solution	-	-	Mandatory
Doxorubicin	drug	20 mL	Mandatory
Water	solvent	25 ppm	Mandatory

More Formulations like this... NEW 相似配方

- Doxorubicin Loaded Carboxymethyl Cellulose/Graphene Oxide... — Purpose: Antitumor agents, Pharmace... Target: doxorubicin Delivery Route: - Physical Form: Hydrogels
- Doxorubicin Loaded Carboxymethyl Cellulose/Graphene Oxide... — Purpose: Antitumor agents, Pharmace... Target: doxorubicin Delivery Route: - Physical Form: Hydrogels
- Doxorubicin Loaded Graphene Oxide-Pyrenyl-Polyethylene Glycol Hydrogel: Drug Delivery Systems... — Purpose: Antitumor agents, Drug deliv... Target: doxorubicin, tumor cell prolifer... Delivery Route: - Physical Form: pharmaceutical hydrog...
- Doxorubicin Loaded Magnetic Iron Oxide Based on Poly(Acrylic Acid) Grafted Onto Sodium Alginate... — Purpose: Drug delivery systems Target: doxorubicin Delivery Route: - Physical Form: pharmaceutical hydrog...

配方制备工艺

Process

preparation of carboxymethylcellulose/graphene oxide nanocomposite hydrogel beads: graphene oxide was exfoliated and dispersed in 20 ml of water by ultrasonication for 20 min afterwards, 1 g carboxymethyl cellulose was dissolved in the prepared graphene oxide aqueous dispersion; the solutions were transferred into a syringe to assist the droplet addition of the above mixture into 0.2 M ferric chloride solution; the beads were allowed to crosslink with ferric ion in solution for 20 min; after that, the beads were filtered and washed with distilled water to remove unreacted ferric chloride on the surface of the beads and dried in 50 °C under vacuum for 24 h.

Loading of carboxymethylcellulose/graphene oxide nanocomposite hydrogel with doxorubicin: 0.2 g of prepared dry bead hydrogels was added to 20 ml of doxorubicin solution (25 ppm in distilled water) under stirring at room temperature for 72 h in dark conditions; excess of doxorubicin was washed using distilled water.

Experimental Activity 配方评估

Descriptor	Notes	Details
cytotoxicity	cytotoxicity of doxorubicin loaded carboxymethyl cellulose/graphene oxide nanocomposite hydrogel against SW480 cells was evaluated and result expressed in terms of cell viability.	Observed loss of cell viability compared to the untreated control cells.

Source Journal 来源文献

Carboxymethyl cellulose/graphene oxide bio-nanocomposite hydrogel beads as anticancer drug carrier agent

Carbohydrate Polymers
Language: English
Location: **Article page 2, 6**

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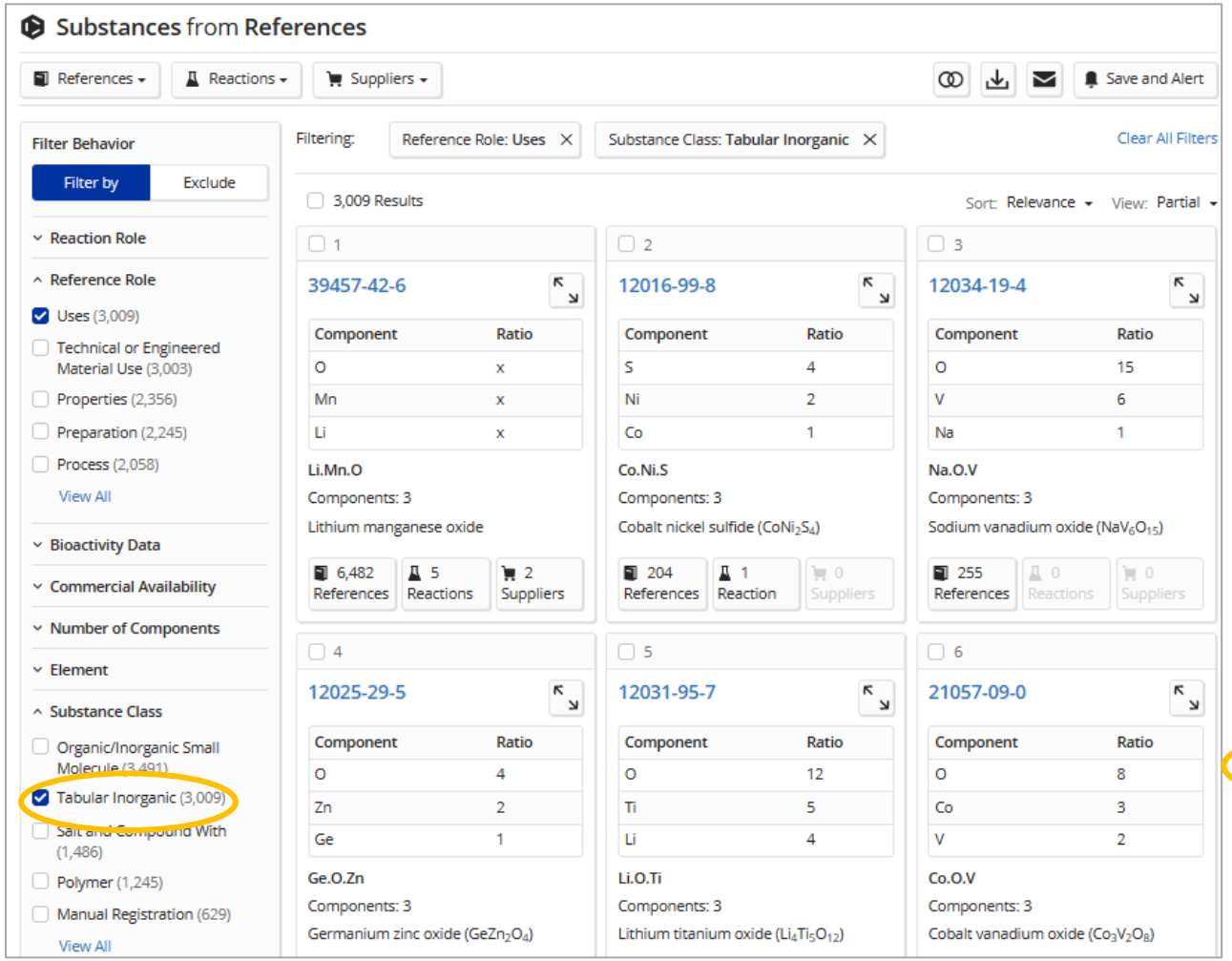
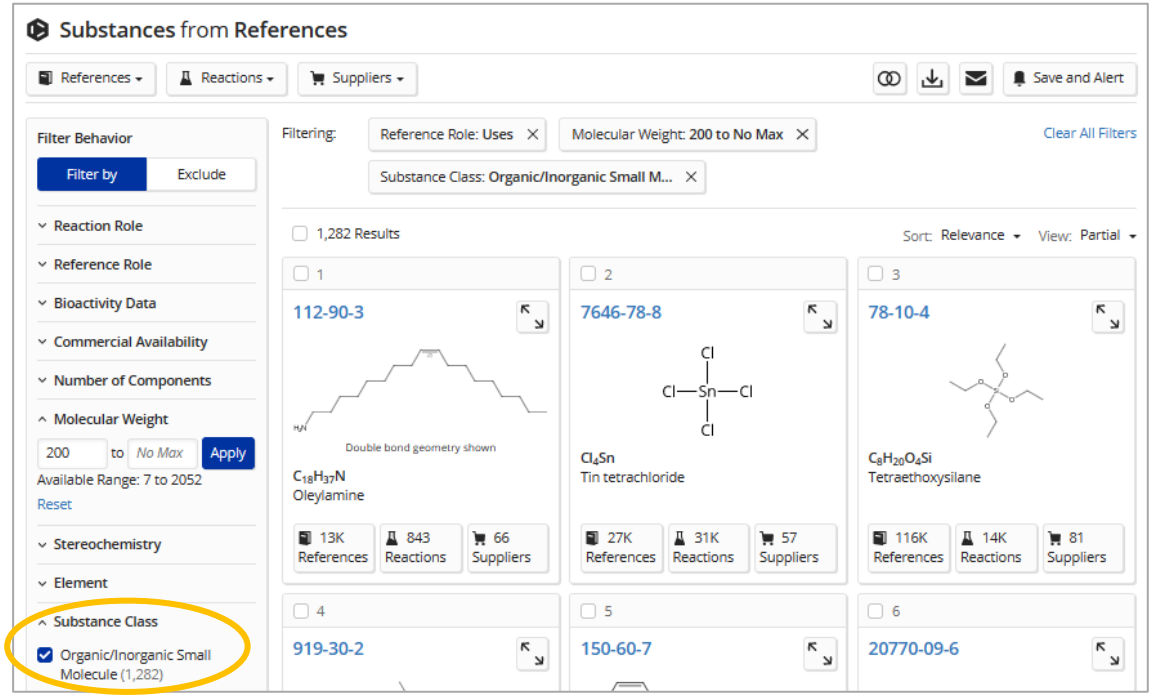
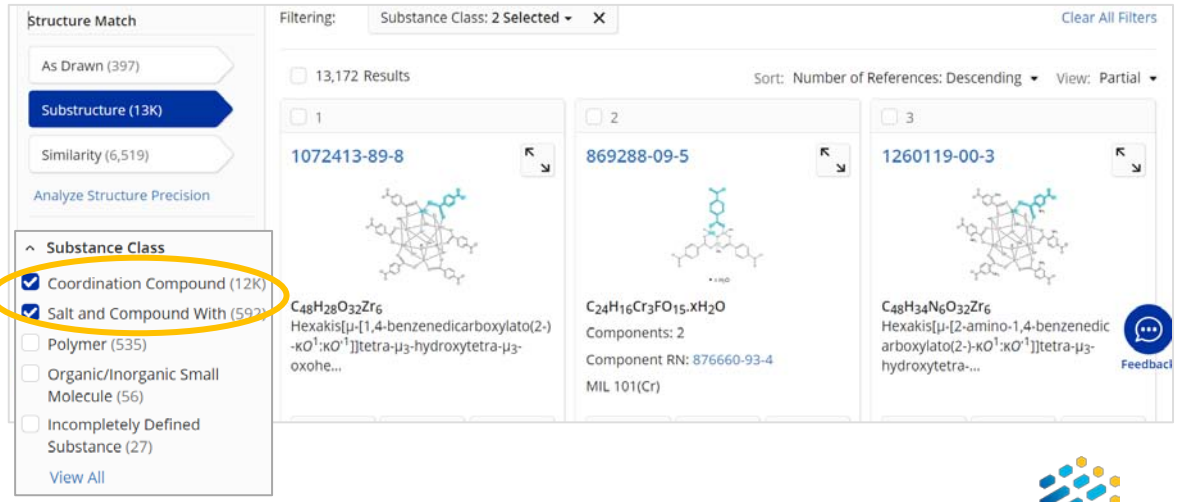
纵览各种材料的组成

CAS收录丰富的物质类型







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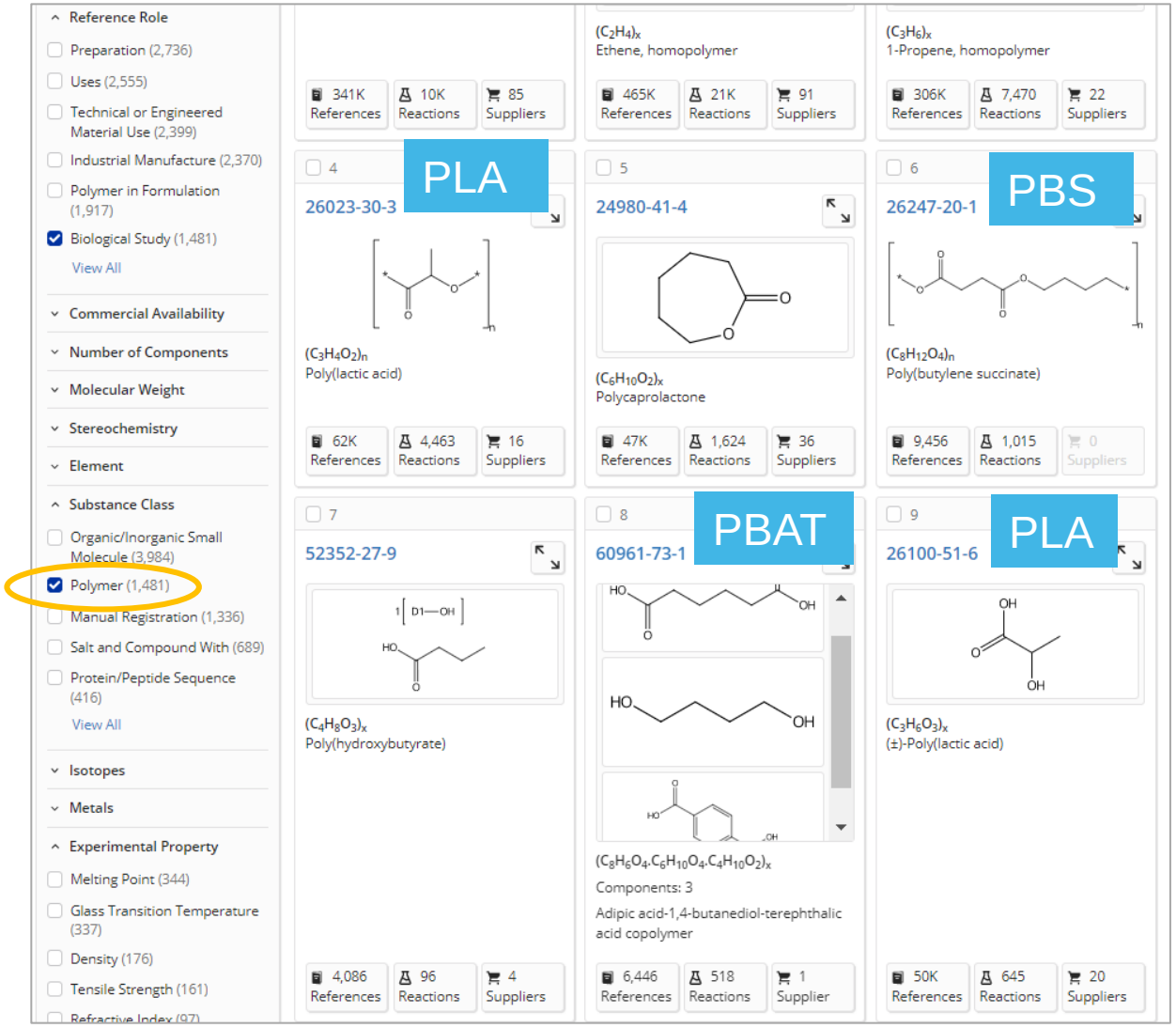
纵览各种材料的组成

生物可降解聚合物



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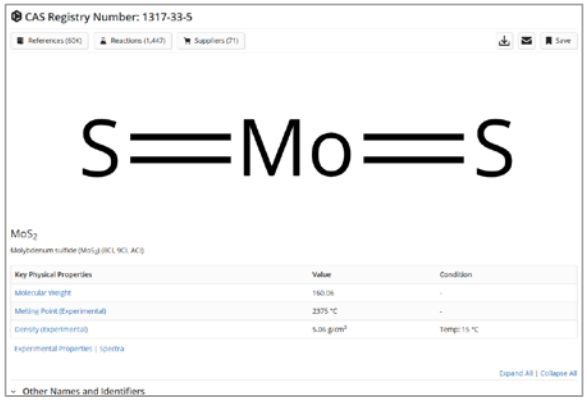
深入了解材料属性特征

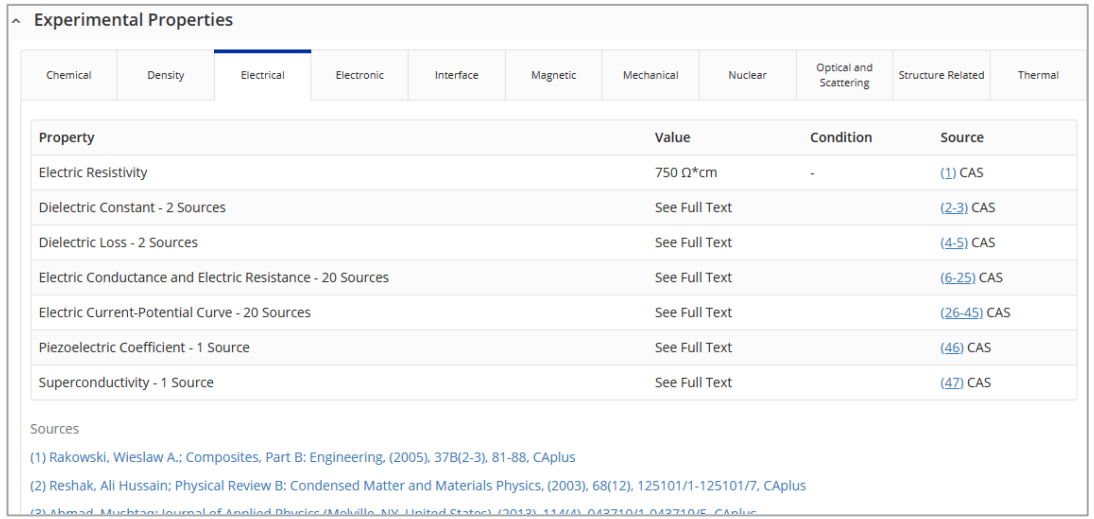


分子量

熔点

密度

化学、密度、电学、电子、界面、磁学、机械、光学、结构、热学等性能



核磁氢谱、红外、质谱、拉曼、红外可见、X-Ray等

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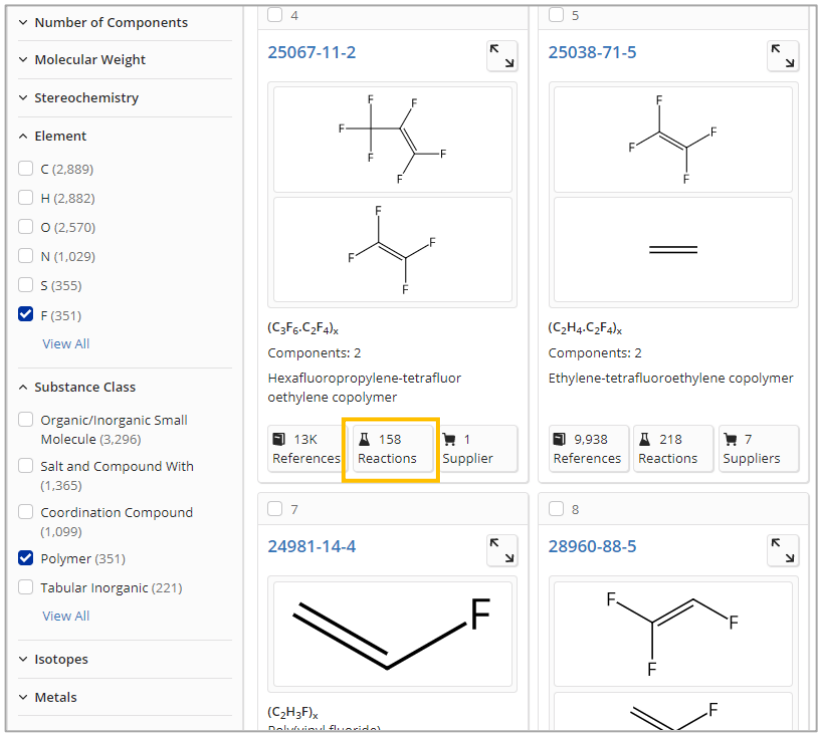
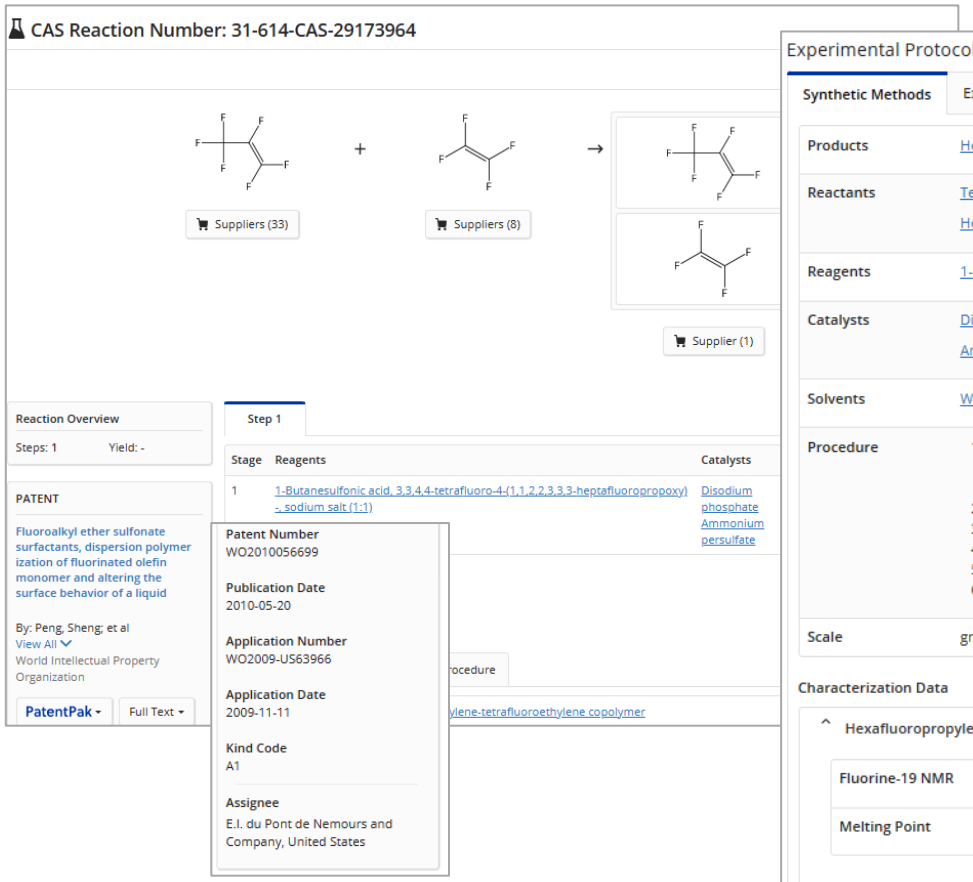
含氟聚合物能源材料及制备





详细的材料制备与表征等信息

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总结：

- CAS内容合集来源于化学并超越于化学，支持多学科、跨学科研发创新
- 全面覆盖的内容确保不遗漏任何重要的信息
- 独特的增值内容与强大的功能提升研发创新的效率
- CAS科学家标引的高质量数据集为极难突破的科学领域开辟了道路
- CAS科学家人工智慧与先进专有技术结合标引的数据，能够揭示隐藏在数据间的隐秘关联，促进对前沿研究的洞察和对未来发展趋势的前瞻

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Between problems and progress are connections that matter

谢 谢！

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