



CAS STNEXT® WEBINAR

# MAXIMIZE YOUR PATENT SEARCH WITH THE DERWENT WORLD PATENTS INDEX (DWPI) IN CAS STNEXT

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# Agenda

- Derwent World Patents Index history
- Patent coverage

## Value-add data

Title/abstract

Derwent Patent Assignee Codes

Derwent classes/manual codes

Derwent Chemistry Resource (aka DCR) indexing

Derwent Markush Resource (aka DWPIM) indexing

Derwent citation information

## First level data

Titles, abstracts, claims, biblio

# Derwent World Patents Index overview

- Patent family database with value-add features
- An industry standard
  - Used by patent examiners and professional searchers worldwide
- Covers all disciplines from over 60 patenting authorities
- CAS STNext is the *only* platform that has both the CAS suite of databases (CAplus, CAS REGISTRY, MARPAT, etc.) and the Derwent suite of databases (DWPI, DCR, DWPIM, etc.)

# Derwent World Patents Index (DWPI) history

- Produced by Clarivate
  - 1963: Pharmdoc
  - 1965: Agdoc
  - 1966: Plasdoc
  - 1970: all other chemistry
  - 1974: all other disciplines
- Presently covers 61 patenting authorities
  - Including Unitary Patents

# Derwent World Patents Index

- Patent family-based database
- Contains Derwent value-add abstracts, indexing and classifications
- Contains first-level data
- Includes unique patent family citation info
- Derwent Patent Citation Index (DPCI) database used to be a separate database, now it is part of DWPI

# Derwent World Patents Index

- Includes first level data for many patent authorities
- Original titles, abstracts, claims, bibliographic data
- The amount of data varies by patenting authority/time range
- Original language(s)

# Derwent titles vs. original titles

- Derwent titles contain much more information about the invention compared to the original titles
- All Derwent titles are in English vs. original documents
- Scrolling through Derwent titles allows the searcher to ascertain if the documents are relevant vs. original titles

# Original title vs. Derwent title

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)  
 (19) World Intellectual Property Organization  
 International Bureau  
 (43) International Publication Date  
 30 December 2021 (30.12.2021) **WIPO PCT**  
 (10) International Publication Number  
**WO 2021/260124 A1**

(51) International Patent Classification:  
 C08G 73/06 (2006.01) C08K 2817 (2018.01) **Publ. No.:**  
 C08L 79/04 (2006.01) C08K 582 (2006.01) — with international search report (Art. 21(3))

(11) International Application Number  
 PCT/EP2021/067170

(22) International Filing Date:  
 24 June 2021 (24.06.2021)

(25) Filing Language:  
 English

(26) Publication Language:  
 English

(30) Priority Data:  
 20182174.1 24 June 2018 (24.06.2018) EP  
 20198245.1 24 September 2019 (24.09.2019) EP  
 20197633.8 26 February 2021 (26.02.2021) EP

(71) Applicant: **ARXADA AG** (CH); Lantzenweg 1, 1930 Visp (CH)

(72) Inventors: **LA BIELEA, Gaetano**; Narenloch 5, 1944 Naters (CH); **ELLINGER, Stefan**; Weggenweg 64, 7050 Visp (CH); **MAZZITTI, Roger**; Valckenweg 11, 7050 Visp (CH); **ARGOTTSON, Magnus**; Zur Tanne, 7051 Sattelried (CH); **BICK, Viktor**; Rutenstr. 2, 4054 Basel (CH)

(74) Agent: **GREYER, Elisabeth**; d-fog Dornes Frank-Molina & Pöhlmann, Patentanwälte Rechtsanwälte PartG mbH, Theatersstrasse 16, 80333 München (DE)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SG, SD, SE, SI, SK, SL, ST, SV, SY, TH, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BF, BI, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW); EPO (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, JP, KR, LK, LU, LV, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SG, SD, SE, SI, SK, SL, ST, SV, SY, TH, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW)

L3 ANSWER 1 OF 1 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
 TI Composition used for preparing thermoset composite material, comprises component which is cyanate esters comprising difunctional cyanate ester compound and/or polyfunctional cyanate ester compound and/or its oligomer, prepolymer and polymer, and component which is substituted bisimide compound



PI WO 2021260124 A1 20211230 (2022008)\* EN 85[0]  
 KR 2022164807 A 20221213 (2022102) KO  
 CA 3183897 A1 20211230 (2022104) EN  
 CN 115698133 A 20230203 (2023014) ZH  
 IL 299364 A 20230201 (2023022) EN  
 EP 4172240 A1 20230503 (2023036) EN  
 JP 2023526687 T 20230622 (2023051) JA  
 KR 2556138 B1 20230714 (2023058) KO  
 US 20230265287 A1 20230824 (2023070) EN

**(54) Title:** NOVEL COMPOSITIONS WITH IMPROVED CHARACTERISTICS

**(57) Abstract:** The present invention relates to novel compositions comprising cyanate ester resins and substituted bisimides (citraconimides, bisitaconimide, citraconimido-itaconimide, bisnadacidimide, bistetrahydroimide and mixtures thereof) as defined in claim 1, and thermoset composite materials based on these compositions.



# Original title vs. Derwent title

(19)  Deutsches Patent- und Markenamt 

(10) **DE 10 2022 005 106 A1 2024.02.29**

(12) **Offenlegungsschrift**

(21) Aktenzeichen: **10 2022 005 106.0**  
(22) Anmeldetag: **24.08.2022**  
(43) Offenlegungstag: **29.02.2024**

(51) Int Cl.: **G02F 1/35 (2006.01)**  
**G02F 3/00 (2006.01)**

(62) Teilung aus:  
**10 2022 005 089.7**

(71) Anmelder:  
**Akhetonics GmbH, 10823 Berlin, DE**

(74) Vertreter:  
**Kobiako-von Gamm Patent- und  
Rechtsanwaltskanzlei PartG mbB, 80638  
München, DE**

L2 ANSWER 2 OF 1319532 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
TI Optical logic gate for use in analog processor and digital processor, has phase modulating unit for shifting phase of first optical signal with respect to phase of second optical signal by predetermined phase difference

PI DE 102022005106 A1 20240229 (2024020)\* DE

Prüfungsantrag gemäß § 44 PatG ist gestellt.  
**Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen.**

(54) Bezeichnung **Optisches Logikgatter und Verfahren für dessen Betrieb** → **Optical logic gate and method for its operation**

# DWPI abstracts

- Derwent patent editors with in-depth technical expertise create DWPI abstracts aligned with their subject matter knowledge
- DWPI abstracts are written using standardized terms that are more likely to match your search terms, improving keyword search results
- Summarizes novelty, use and advantage
- DWPI abstracts are broken down into various subsections
  - Focus/limit search

# DWPI abstract subsections

Field	Description	Availability
NOV	Novelty	1999-
DETD	Detailed Description	1999-
ACTN	Mechanism of Action	1999-
ACTV	Activity	1999-
ADV	Advantage	1984-
UADV	Use/Advantage	1984-
USE	Use	1984-
DRWD	Drawing Description	1999-
TECH	Technology Focus	1999-

# DWPI abstract subsections

=> S ((Transferrin ( ) receptor ( ) (1 OR ONE)) OR TFR1)/ACTN

113 TRANSFERRIN/ACTN

54157 RECEPTOR/ACTN

2721 RECEPTORS/ACTN

55277 RECEPTOR/ACTN

((RECEPTOR OR RECEPTORS)/ACTN)

72201 1/ACTN

6444 ONE/ACTN

13 ONES/ACTN

6454 ONE/ACTN

((ONE OR ONES)/ACTN)

4 TRANSFERRIN (W) RECEPTOR (W) (1 OR ONE)

12 TFR1/ACTN

L3 15 ((TRANSFERRIN (W) RECEPTOR (W) (1 OR ONE)) OR TFR1)/ACTN

=> D KWIC 1-3

L3 ANSWER 1 OF 15 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
ACTN MECHANISM OF ACTION - **Transferrin receptor 1 (TFR1)** binder.

L3 ANSWER 2 OF 15 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
ACTN MECHANISM OF ACTION - SLC39A14 inhibitor; Heme oxygenase 1 (HMOX1) inhibitor; Transferrin receptor protein 1 (**TFR1**) inhibitor; Acyl-CoA synthetase long chain (ACSL4) inhibitor; Cyclooxygenase 2 (COX-2) inhibitor; Voltage dependent anion channel 1 (VDAC1) inhibitor; Glutathione peroxidase.. . .

L3 ANSWER 3 OF 15 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
ACTN MECHANISM OF ACTION - **Tfr1** binder; Gene therapy.

# DWPI patent families

- Clarivate creates patent families for DWPI
- Most families are based on common priority/application information
- Non-convention equivalents
  - Documents added to the patent family that do not share priority/application information
  - Denoted by # in patent number field

# DWPI patent families

```
L11 ANSWER 102 OF 7526 WPINDEX COPYRIGHT 2024 CLARIVATE on STN
AN 2022-D1786H [2022088] WPINDEX Full-text
TI Electronic device for electrically coupling with automotive electrical
system, has measuring unit electrically coupled between power source and
connector to measure electrical signal communicated between power and
connector when mode is selected
DC S01; W05
IN BARDEN D; SWERKES D
PA (MGLG-N) MGL GLOBAL SOLUTIONS LTD
CYC 3
PI US 20220334154 A1 20221020 (2022088)* EN
CN 115214486 A 20221021 (2022089) ZH
TW 2022041734 A 20221101 (2023006) # ZH
ADT US 20220334154 A1 US 2021-231265 20210415; TW 2022041734 A TW 2021-113654
20210415; CN 115214486 A CN 2021-10869262 20210730
PRAI US 2021-231265 20210415
TW 2021-113654 20210415
```

# DWPI patent families

L6 ANSWER 1003 OF 1460957 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
AN 2023-C5949W [2023099] WPINDEX [Full-text](#)  
TI Rotary kiln magnetic fluid dynamic sealing mechanism, has shifting fork  
and shifting shaft set between cooling cover and cylinder body, where  
shifting fork is set on one of cylinder body and cooling cover  
DC Q65; Q77  
IN QIAN X; WANG S  
PA (SHAN-N) SHANGHAI FANGJIACHENG NEW ENERGY TECHNOLOGY CO  
SHANGHAI FANGJIACHENG NEW ENERGY  
CYC 1  
PI [CN 117028573](#) A 20231110 (2023099)\* ZH  
[CN 220435418](#) U 20240202 (2024015) **#** ZH  
ADT [CN 117028573](#) A [CN 2023-11001864](#) 20230809; [CN 220435418](#) U [CN 2023-22142314U](#)  
20230809  
PRAI [CN 2023-11001864](#) 20230809  
[CN 2023-22142314U](#) 20230809

This is an example of the Chinese dual filing system, where the same invention is applied for on the same day as both a utility model and patent application. These two documents do not share any priority or application info.

# Original documents from DWPI patent family example

(19) 国家知识产权局



(12) 发明专利申请

(10) 申请公布号 CN 117028573 A

(43) 申请公布日 2023. 11. 10

(21) 申请号 202311001864.0

(22) 申请日 2023.08.09

(71) 申请人 上海方加诚新能源科技有限公司  
地址 201900 上海市宝山区蕙川路3738号9  
幢101室-57号

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理有限公司 44542  
专利代理师 李晶

(51) Int.Cl.  
F16J 15/43 (2006.01)  
F27B 7/24 (2006.01)

(19) 国家知识产权局



(12) 实用新型专利

(10) 授权公告号 CN 220435418 U

(45) 授权公告日 2024. 02. 02

(21) 申请号 202322142314.2

(22) 申请日 2023.08.09

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理有限公司 44542  
专利代理师 李晶

(51) Int.Cl.  
F16J 15/43 (2006.01)  
F27B 7/24 (2006.01)



# DWI Patent Assignee Codes (aka PACO)

- Patent assignee codes developed by Clarivate
- Allows for more comprehensive assignee searching
- May include company name variations, subsidiaries, etc.
- May or may not include previous names prior to merger
  - i.e., Exxon has a PACO (ESSO-C), Mobil has a PACO (MOBI-C), and ExxonMobil has a PACO (ESSO-C)
- To see complete list of patent assignee names associated with a PACO, use **S PACO+ALL/PACO**

# DWPI PACOs

## => E ESSO-C+ALL/PACO

E1	20596	-->	ESSO-C/PACO
E2		DEF	ADVANCED ELASTOMER SYSTEM LP/PACO
E3		DEF	ADVANCED ELASTOMER SYSTEMS/PACO
E4		DEF	ADVANCED ELASTOMER SYSTEMS CO/PACO
E5		DEF	ADVANCED ELASTOMER SYSTEMS INC/PACO
E6		DEF	ADVANCED ELASTOMER SYSTEMS LP/PACO
E7		DEF	AMPOLEX LTD/PACO
E8		DEF	CANADIAN SUPERIOR OIL LTD/PACO
E9		DEF	CROSS TIMBERS OIL/PACO
E10		DEF	CROSS TIMBERS OIL CO/PACO
E11		DEF	ECPI EXXON CHEM PATENTS INC/PACO
E12		DEF	ESSO AG/PACO
E13		DEF	ESSO BELGIUM SA/PACO
E14		DEF	ESSO BRASILEIRA PETROLEO LTD/PACO
E15		DEF	ESSO CHEM CANADA/PACO
E16		DEF	ESSO CHEM GMBH/PACO
E17		DEF	ESSO CHIM/PACO
E18		DEF	ESSO CO/PACO
E19		DEF	ESSO EXPLORATION & PRODN UK LTD/PACO
E20		DEF	ESSO FRANCAISE SA/PACO

E21	DEF	ESSO NORGE AS/PACO
E22	DEF	ESSO PETROLEUM CO LTD/PACO
E23	DEF	ESSO PRODN RES CO/PACO
E24	DEF	ESSO RES & ENG CO/PACO
E25	DEF	ESSO RESOURCES CANADA LTD/PACO
E26	DEF	ESSO SA/PACO
E27	DEF	ESSO SEKIYU KK/PACO
E28	DEF	ESSO SEKIYU YG/PACO
E29	DEF	ESSO STANDARD SA/PACO
E30	DEF	ESSO TEXTILE CO LTD/PACO
E31	DEF	EXONMOBIL CHEM PATENTS INC/PACO
E32	DEF	EXXOMMOBIL RES & ENG CO/PACO
E33	DEF	EXXON/PACO
E34	DEF	EXXON BELGIUM SA/PACO
E35	DEF	EXXON CHEM CO/PACO
E36	DEF	EXXON CHEM CO INC/PACO
E37	DEF	EXXON CHEM CO LAW TECHNOLOGY/PACO
E38	DEF	EXXON CHEM EURO INC/PACO
E39	DEF	EXXON CHEM GMBH/PACO
E40	DEF	EXXON CHEM JAPAN LTD/PACO
E41	DEF	EXXON CHEM LTD/PACO

# DWPI PACOs

E42	DEF	EXXON CHEM PATENT CO/PACO
E43	DEF	EXXON CHEM PATENT CORP/PACO
E44	DEF	EXXON CHEM PATENTS INC/PACO
E45	DEF	EXXON CHEM PROD INC/PACO
E46	DEF	EXXON CHIM/PACO
E47	DEF	EXXON CO/PACO
E48	DEF	EXXON COAL USA INC/PACO
E49	DEF	EXXON CORP/PACO
E50	DEF	EXXON FRANCAISE SA/PACO
E51	DEF	EXXON MEDICAL PATENTS INC/PACO
E52	DEF	EXXON MOBIL/PACO
E53	DEF	EXXON MOBIL ANS ENG CO/PACO
E54	DEF	EXXON MOBIL CHEM CO/PACO
E55	DEF	EXXON MOBIL OIL CORP/PACO
E56	DEF	EXXON MOBIL RES & ENG/PACO
E57	DEF	EXXON MOBIL RES & ENG CO/PACO
E58	DEF	EXXON MOBIL RES CO/PACO
E59	DEF	EXXON MOBIL UPSTREAM RES CO/PACO
E60	DEF	EXXON MOBILE CORP/PACO
E61	DEF	EXXON NUCLEAR CO INC/PACO
E62	DEF	EXXON PETROLEUM CO/PACO
E63	DEF	EXXON PRINTING SYSTEMS INC/PACO

E64	DEF	EXXON PRODN CO/PACO
E65	DEF	EXXON PRODN RES CO/PACO
E66	DEF	EXXON RES & ENG CO/PACO
E67	DEF	EXXON RES & ENG CO/HATCO CORP/PACO
E68	DEF	EXXON RES & ENG ER & E/PACO
E69	DEF	EXXON RES & ENG INC/PACO
E70	DEF	EXXON RESOURCES CANADA LTD/PACO
E71	DEF	EXXON STANDARD SA/PACO
E72	DEF	EXXON VALVE & COUPLING CO/PACO
E73	DEF	EXXONOBIL CHEM PATENTS INC/PACO
E74	DEF	EXXONOBIL RES & ENG CO/PACO
E75	DEF	EXXONMOBIL/PACO
E76	DEF	EXXONMOBIL ASIA PACIFIC RES & DEV CO LTD/PACO
E77	DEF	EXXONMOBIL CHEM CO/PACO
E78	DEF	EXXONMOBIL CHEM CO INC/PACO
E79	DEF	EXXONMOBIL CHEM EURO INC/PACO
E80	DEF	EXXONMOBIL CHEM LTD/PACO
E81	DEF	EXXONMOBIL CHEM PATENT CO/PACO
E82	DEF	EXXONMOBIL CHEM PATENTES INC/PACO
E83	DEF	EXXONMOBIL CHEM PATENTS/PACO
E84	DEF	EXXONMOBIL CHEM PATENTS CO/PACO
E85	DEF	EXXONMOBIL CHEM PATENTS CO LTD/PACO
E86	DEF	EXXONMOBIL CHEM PATENTS INC/PACO

# DWPI PACOs

E87	DEF	EXXONMOBIL	CHEM PATENTS INC US/PACO
E88	DEF	EXXONMOBIL	CHEM PATENTS LTD/PACO
E89	DEF	EXXONMOBIL	CORP/PACO
E90	DEF	EXXONMOBIL	EXPRESS RES CORP/PACO
E91	DEF	EXXONMOBIL	MOBILEPANTS INC/PACO
E92	DEF	EXXONMOBIL	OIL CORP/PACO
E93	DEF	EXXONMOBIL	PRODN DEUT GMBH/PACO
E94	DEF	EXXONMOBIL	PRODN RES CO/PACO
E95	DEF	EXXONMOBIL	RES & ENG/PACO
E96	DEF	EXXONMOBIL	RES & ENG CO/PACO
E97	DEF	EXXONMOBIL	RES & ENG CO LAW DEPT/PACO
E98	DEF	EXXONMOBIL	RES & ENG CO LTD/PACO
E99	DEF	EXXONMOBIL	RES & ENG CORP/PACO
E100	DEF	EXXONMOBIL	RES UPSTREAM/PACO
E101	DEF	EXXONMOBIL	TECH & ENG CO/PACO
E102	DEF	EXXONMOBIL	TECHNOLOGY & ENG CO/PACO
E103	DEF	EXXONMOBIL	UPSTREAM/PACO

E104	DEF	EXXONMOBIL	UPSTREAM CO/PACO
E105	DEF	EXXONMOBIL	UPSTREAM RES CO/PACO
E106	DEF	EXXONMOBIL	UPSTREAM RES CO CORP-URC-SW34/PACO
E107	DEF	EXXONMOBIL	UPSTREAM RES INC/PACO
E108	DEF	EXXONMOBILE	RES & ENG CO/PACO
E109	DEF	EXXONMOBIL	UPSTREAM RES CO/PACO
E110	DEF	EXXONMOBIL	CHEM PATENTS INC/PACO
E111	DEF	MATERIA	INC/PACO
E112	DEF	TWP ENTERPRISES OF GEORGIA	INC/PACO
E113	DEF	TWP	INC/PACO
E114	DEF	TWP LAGE	GMBH/PACO
E115	DEF	XTO ENERGY	INC/PACO
***** END *****			

# Derwent Classes

- Unique classification system consistently applied to all patent families by Clarivate subject experts
- Allows for effective and precise searching in a particular area of technology
- Three broad areas: Chemical, Engineering, and Electronic and Electrical Engineering.
- Each of these is then further divided into Sections and Classes which describe the technical area, or areas, covered by the patent
- Can be used with other search options (i.e., keyword search, IPCs/CPCs) to help focus search results/reduce false drops

# Derwent Classes

- 21 sections
  - A-N (Chemical); P-Q (Engineering); and S-X (Electronic and Electrical)
  - These Sections are then further subdivided into classes
  - Each Derwent Class consists of the Section letter, followed by two digits

# Derwent Chemical Sections

A – Polymers and Plastics

B – Pharmaceuticals

C – Agricultural Chemicals

D – Food, Detergents, Water Treatment and Biotechnology

E – General Chemicals

F – Textiles and Paper-Making

G – Printing, Coating, Photographic

H – Petroleum

J – Chemical Engineering

K – Nucleonics, Explosives and Protection

L – Refractories, Ceramics, Cement and Electro(in)organics

M – Metallurgy

N – Catalysts

# Derwent Engineering Sections

P – General

Q – Mechanical



# Derwent Electronic and Electrical Sections

- S – Instrumentation, Measuring and Testing
- T – Computing and Control
- U – Semiconductors and Electronic Circuitry
- V – Electronic Components
- W – Communications
- X – Electric Power Engineering

# Derwent Classes example

```
=> S (AMYOTROPHIC ( ) LATERAL ( ) SCLEROSIS) OR ALS

19173 AMYOTROPHIC/BI
10056 AMYOTROPHIC/BIEX
515267 LATERAL/BI
1154 LATERALS/BI
515790 LATERAL/BI
      ((LATERAL OR LATERALS)/BI)
827501 LATERAL/BIEX
2539 LATERALS/BIEX
828657 LATERAL/BIEX
      ((LATERAL OR LATERALS)/BIEX)
59816 SCLEROSIS/BI
47 SCLEROSES/BI
59855 SCLEROSIS/BI
      ((SCLEROSIS OR SCLEROSES)/BI)
33954 SCLEROSIS/BIEX
16 SCLEROSISES/BIEX
83 SCLEROSES/BIEX
33996 SCLEROSIS/BIEX
      ((SCLEROSIS OR SCLEROSISES OR SCLEROSES)/BIEX)
20314 AMYOTROPHIC/BI,BIEX (W) LATERAL/BI,BIEX (W) SCLEROSIS/BI,BIEX
6266 ALS/BI
1086522 ALS/BIEX
L1 1102014 (AMYOTROPHIC/BI,BIEX (W) LATERAL/BI,BIEX (W) SCLEROSIS/BI,BIEX)
      OR ALS/BI,BIEX
```

# Derwent Classes example

```
=> S L1 AND B?/DC
```

```
2982273 B?/DC
```

```
L2 88273 L1 AND B?/DC
```

```
=> S L1 NOT L2
```

```
L3 1013741 L1 NOT L2
```

```
=> D KWIC 1-3
```

```
L3 ANSWER 1 OF 1013741 WPINDEX COPYRIGHT 2024 CLARIVATE on STN  
NOV . . . 1-1.2 wt.% manganese, 0.07-0.1 wt.% phosphorus,  
notGreaterThan0.008 wt.% sulfur, 1.1-1.3 wt.% chromium, 0.25-0.35 wt.%  
copper, 0.11-0.13 wt.% titanium, 0.01-0.04 wt.% Als, ≤0.0050 wt.%  
nitrogen, iron and unavoidable impurities
```

```
Member. . .
```

```
not more than 0.008 % of S, 1.10-1.30 % of Cr, 0.25-0.35 % of Cu, Ti  
0.110 to 0.130 %, Als 0.010 to 0.040 %, N is less than or equal to  
0.0050 %, the rest is Fe and unavoidable impurities.
```

In this example, the plural of the element symbol for aluminum 'als' is being picked up. Consider the use of the Derwent classes.

# Derwent Classes example

L3 ANSWER 2 OF 1013741 WPINDEX COPYRIGHT 2024 CLARIVATE on STN

Member. . .

% of S, 1.10 to 1.30 % of Cr, 0.25 to 0.35 % of Cu, Ti 0.045 to 0.065 %, **Als** 0.010 to 0.040 %, N is less than or equal to 0.0050 %, the rest is Fe and unavoidable impurities.

L3 ANSWER 3 OF 1013741 WPINDEX COPYRIGHT 2024 CLARIVATE on STN

Member. . .

Hilfsschablone nach einem der vorhergehenden Ansprueche, dadurch gekennzeichnet, dass ein an die rechte Seitenwand des Formkoerper grenzender Abschnitt der Aufnahme **als** nach unten geneigte Rampen ausgebildet ist.

[CLAIM 5] Hilfsschablone nach einem der vorhergehenden Ansprueche, dadurch gekennzeichnet, dass an dem der linken Seitenwand des Formkoerpers grenzenden Bereich der Unterseite ein dritter horizontaler Abschnitt ausgebildet ist, der hoeher **als** die beiden anderen Abschnitte verlaeuft und durch eine zweite Stufe mit einem der beiden anderen Abschnitte verbunden ist.

In this example, the German word 'als' is being picked up. Consider limiting to certain text fields or use the Derwent classes.

# Derwent Manual Codes

- Consistently applied by specialist teams at Clarivate
  - Complement to keyword, IPC/CPC tools
- Hierarchical classification system
- More than 27,000 Manual codes
- Revised yearly
- Access to Derwent Manual Chemical codes requires subscription

# Derwent Manual Codes

- Derwent Manual Code Lookup
- [MCL - Clarivate](#)

← BACK TO DERWENT - DWPI REFERENCE CENTER

## Manual Code Lookup

Search by keyword

Select boolean search type:

AND ▼

**Search**

Search by Manual Code

**Search**

# Derwent Manual Codes

Search by keyword  
COVID

Select boolean search type:  
AND

Search

Search by Manual Code

Search

**4 results found.**  
Find: COVID

Code	Status	Title
<u>B04-F11B2</u>	Current	Coronavirus
<u>B04-F11B2E</u>	Current	Coronavirus (genetica
<u>C04-F11B2</u>	Current	Coronavirus
<u>C04-F11B2E</u>	Current	Coronavirus (genetica

|\_\_ B04 Natural products (or genetically engineered), polymers  
|\_\_ B04-F Cells, microorganisms, transformants, hosts  
|\_\_ B04-F11 Viruses  
|\_\_ B04-F11B RNA virus general

**Code** B04-F11B2  
**Title** Coronavirus  
**Status** Current  
**Date** (2021-)  
**Related Codes** --  
**Scope Notes** Coronavirus, including COVID-19.  
**Search Terms** --  
B04-F11B2E Current Coronavirus (genetically engineered)

# Derwent Manual Codes

- Derwent Manual code thesaurus available in DWPI
- E MC+ALL/MC

```
=> E B04-F11B2+ALL/MC

E1      1945024  BT4  B04/MC
        DEF  NATURAL PRODUCTS (OR GENETICALLY ENGINEERED), POLYMERS
E2          1  BT3  B04-F/MC
        DEF  CELLS, MICROORGANISMS, TRANSFORMANTS, HOSTS
E3      18050  BT2  B04-F11/MC
        DEF  VIRUSES
        HNTE (1994-   )
E4      10018  BT1  B04-F11B/MC
        DEF  RNA VIRUS GENERAL
        HNTE (2005-   )
E5      2112   --> B04-F11B2/MC
        DEF  CORONAVIRUS
        HNTE (2021-   )
E6      95     NT1  B04-F11B2E/MC
        DEF  CORONAVIRUS (GENETICALLY ENGINEERED)
        HNTE (2021-   )

***** END *****
```



# Derwent Manual Codes

- To include all narrower Manual code terms
- S MC+NT/MC

```
=> S B04-F11B2+NT/MC
```

```
B04-F11B2 CORONAVIRUS
```

```
L1          2192 B04-F11B2+NT/MC (2 TERMS)
```

# Derwent companion databases

## Derwent Chemistry Resource database (aka DCR)

- Substance-focused database
- Search by structure, chemical name, molecular formula, etc.

## Derwent Markush Resource database (aka DWPIIM)

- Markush structure-focused database
- Also contains records for specific compounds
- Search by structure

# Derwent companion databases

## GENESEQ database

- Bio-sequence focused database
- BLAST, motif searching
- Keyword searching

# Derwent Chemistry Resource (aka DCR) database

Produced by Clarivate

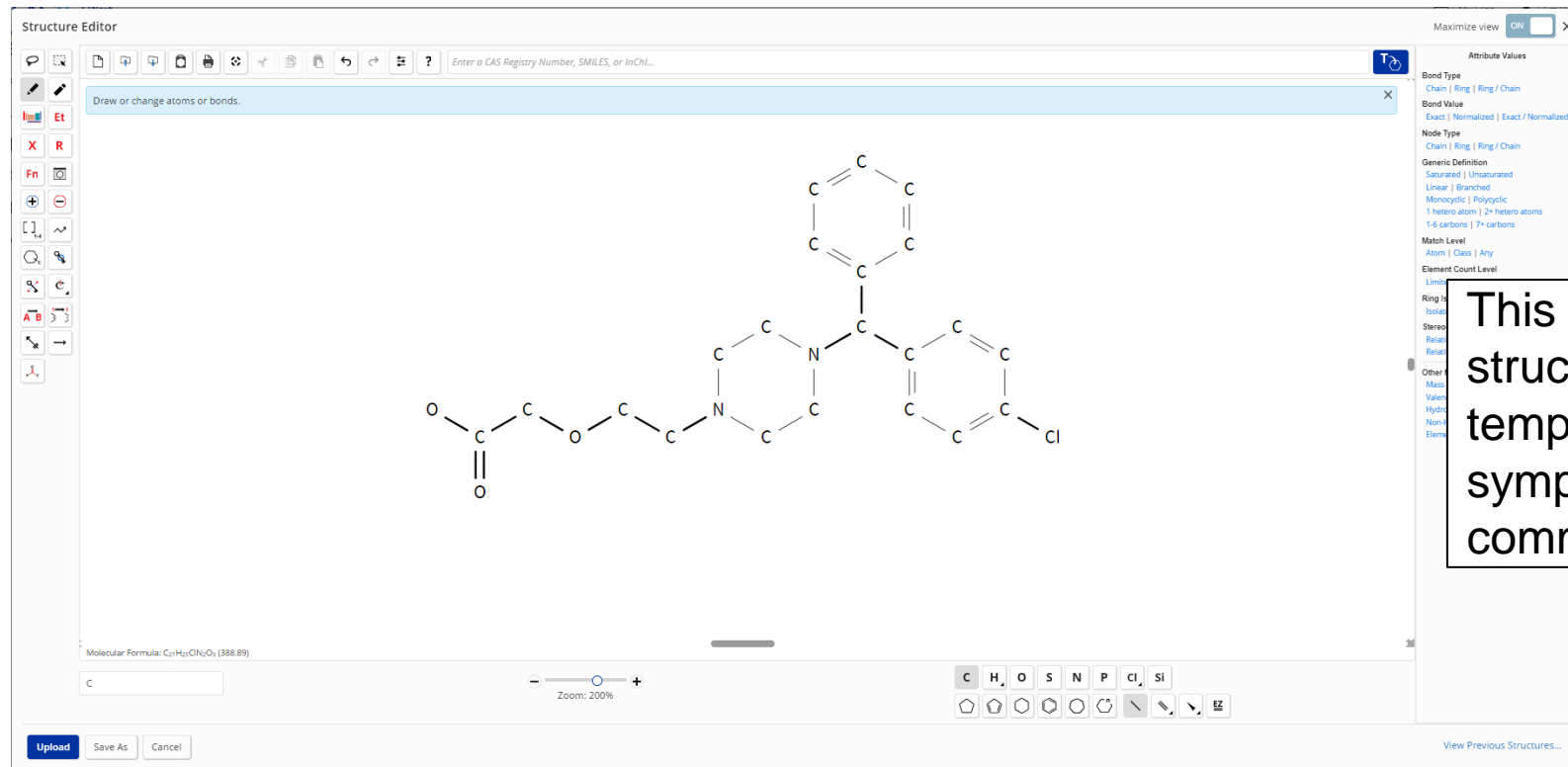
- Substance-focused database used in conjunction with DWPI
- Same procedure as REGISTRY/CAplus searching
- Chemical name, chemical name segments
- Structure searching
- Molecular formula, etc.
- Also some ‘non-structure’ records

# Derwent Markush Resource (aka DWPIIM) database

Produced by Clarivate

- Markush structures found in patents
- Specific compounds
  - Pre-DCR
  - Substance-focused database used in conjunction with DWPI
  - Same procedure as DCR/DWPI searching
- Structure searching

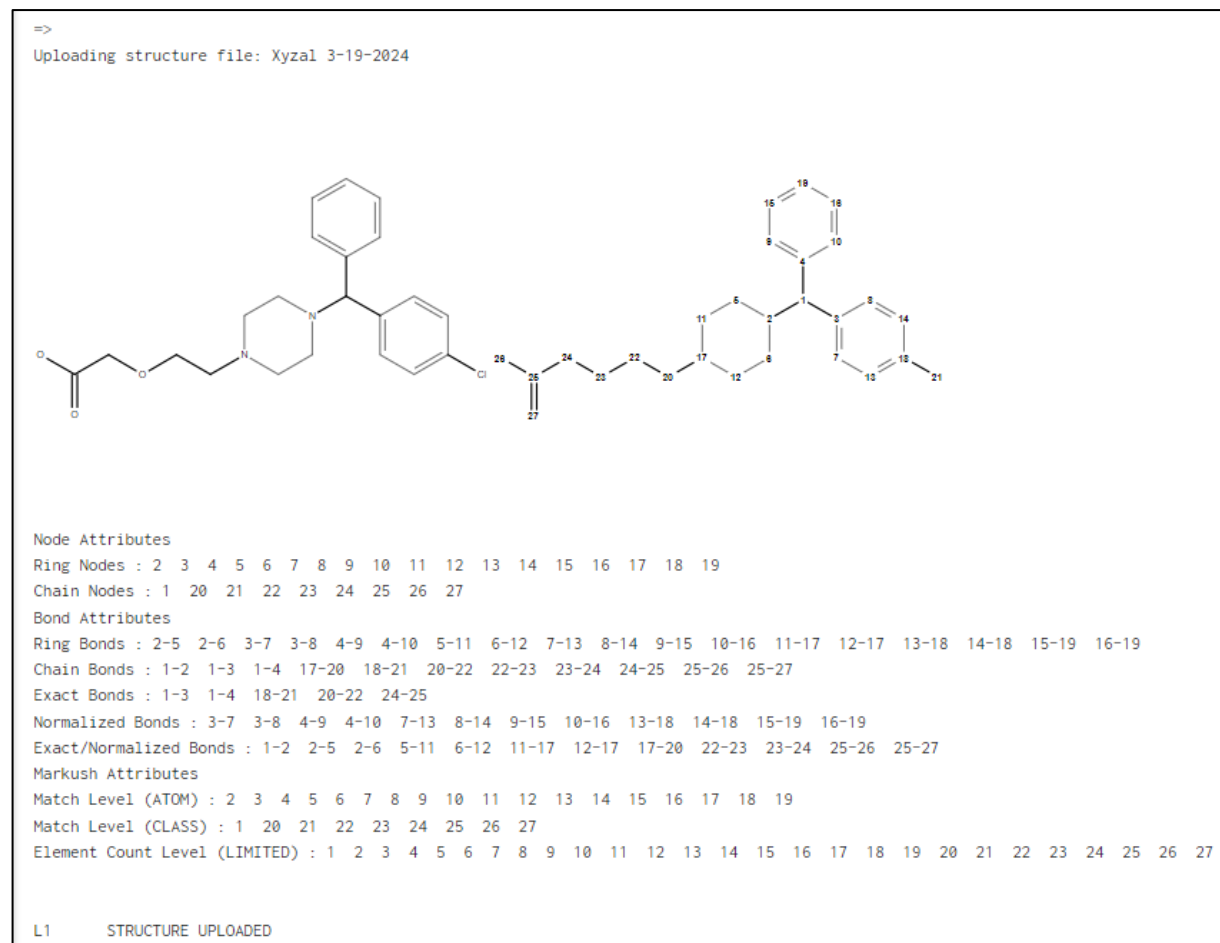
# Multi-file example – FAM/CSS structure search



This structure is the non-salt structure for Xyzal, a substance that temporarily relieves allergy symptoms. Drowsiness is a common side-effect.

# Multi-file example – FAM/CSS structure search

REG/MARPAT/HCAPLUS



# Multi-file example – FAM/CSS structure search

REG/MARPAT/HCAPLUS

=> S L1 FAM FULL

FULL SEARCH INITIATED 14:03:36

FULL SCREEN SEARCH COMPLETED - 543 TO ITERATE

100.0% PROCESSED 543 ITERATIONS

182 ANSWERS

SEARCH TIME: 00.00.01

L2 182 SEA FAM FUL L1

=> FILE MARPAT

=> S L1 CSS FULL

FULL SEARCH INITIATED 14:04:49

FULL SCREEN SEARCH COMPLETED - 37008 TO ITERATE

100.0% PROCESSED 37008 ITERATIONS

35 ANSWERS

SEARCH TIME: 00.00.01

L3 35 SEA CSS FUL L1

=> FILE HCAPLUS

=> S L2

L4 4643 L2

=> S L3

L5 35 L3

=> S L4 OR L5

L6 4653 L4 OR L5

=> S L6 AND P/DT

19998173 P/DT

L7 1685 L6 AND P/DT



# Multi-file example – FAM/CSS structure search

DCR/DWPIM/DWPI

=> FILE DCR

=> S L1 FAM FULL

FULL SEARCH INITIATED 14:10:24

FULL SCREEN SEARCH COMPLETED - 0 TO ITERATE

0.0% PROCESSED 5383374 ITERATIONS 74 ANSWERS  
SEARCH TIME: 00.00.02

L8 74 SEA FAM FUL L1

=> FILE DWPIM

=> S L1 CSS FULL

FULL SEARCH INITIATED 14:12:00

FULL SCREEN SEARCH COMPLETED - 0 TO ITERATE

0.0% PROCESSED 2663866 ITERATIONS ( 1 INCOMPLETE) 46 ANSWERS  
SEARCH TIME: 00.00.35

L9 46 SEA CSS FUL L1

=> FILE WPINDEX

=> S L8

L10 1328 L8

=> S L9

L11 26 L9

=> S L10 OR L11

L12 1336 L10 OR L11

# Multi-file example – FAM/CSS structure search

DCR/DWPIM/DWPI

```
=> TRA L7 PN 1-
```

```
L13      TRANSFER L7 1- PN :    8871 TERMS
```

```
L14      1887 L13
```

```
L15      QUE  TERMS FROM L13 WITH NO HITS:    820 TERMS
```

```
=> S L12 NOT L14
```

```
L16      219 L12 NOT L14
```

219 patent family records not found in the REG/MARPAT/HCAplus search.

# Multi-file example – FAM/CSS structure search

DCR/DWPIM/DWPI

```
=> S L16 AND SLEEP

      105054 SLEEP/BI
      1052 SLEEPS/BI
      105613 SLEEP/BI
            ((SLEEP OR SLEEPS)/BI)
      127761 SLEEP/BIEX
      2479 SLEEPS/BIEX
      129180 SLEEP/BIEX
            ((SLEEP OR SLEEPS)/BIEX)
L17      13 L16 AND SLEEP/BI,BIEX

=> D TI 1-3

L17 ANSWER 1 OF 13 WPINDEX COPYRIGHT 2024 CLARIVATE on STN
TI Oral mucoadhesive delivery system for administering pharmaceutical agent
for CNS-related conditions involving e.g. depression and anxiety,
comprises saccharide base, soy or sunflower lecithin, palm oil, natural
and/or artificial sweetener, salt, and pharmaceutical agent

L17 ANSWER 2 OF 13 WPINDEX COPYRIGHT 2024 CLARIVATE on STN
TI Arm used in gastric residence system, to deliver agent comprises carrier
polymer, agent and release rate-modulating film coated on portion of
surface of arm and release rate-modulating film comprises poly-D,L-lactide
(PDL) and PDL/glycolide

L17 ANSWER 3 OF 13 WPINDEX COPYRIGHT 2024 CLARIVATE on STN
TI In situ gel composition useful in preparing medicine-containing
preparations for e.g. inhibiting sudden release of medicine comprises
phospholipids, mucopolysaccharide derivatives and medicinal active
ingredient
```

# Derwent World Patents Index Citation information

- Includes citation information from complete patent family
- Backwards citations
- Forwards citations
- Derwent citation counts allows for greater precision when counting ‘inventions’ vs. documents

# Derwent World Patents Index Citation information

```

=> S B04-F11B2+NT/MC

B04-F11B2 CORONAVIRUS
L1          2192 B04-F11B2+NT/MC (2 TERMS)

=> S L1 AND ANC.G>10
          4989821 ANC.G>10

L2          14 L1 AND ANC.G>10

=> SORT L2 ANC.G D

SORT ENTIRE ANSWER SET? (Y)/N:Y

PROCESSING COMPLETED FOR L2
L3          14 SORT L2 ANC.G D
    
```

ANC.G = Citing DWPI  
Accession Number Count

```

=> D BIB KWIC

L3 ANSWER 1 OF 14 WPIX COPYRIGHT 2024 CLARIVATE on STN
AN 2023-00737R [2023005] WPIX Full-text
TI Composition useful for reducing the risk of having a viral infection
comprises (a) a spatial array comprising: a capture probes, (b) a
biological sample on the spatial array, and (c) first probes and second
probes
DC B04; D16
IN BORGSTROM E L H; CHELL J M; GIACOMELLO S; HILL A J; JUREK A; MASARAPU Y;
SOUNART H E
PA (TNXG-C) 10X GENOMICS INC
CYC 137
PI WO 2022271820 A1 20221229 (2023005)* EN 270[56]
ADT WO 2022271820 A1 WO 2022-US34520 20220622
PRAI US 2021-291040P 20211217
      US 2021-276202P 20211105
      US 2021-246581P 20210921
      US 2021-213582P 20210622

Citation . . . (total)
ANC.D 44 Cited DWPI Accession Number Count
PNC.G 30 Citing Patents Count
PCC.G 1 Citing Patents Country Count
ANC.G 27 Citing DWPI Accession Number Count
MC CPI: B04-E01; B04-E05; B04-E99; B04-F02; B04-F11B2; B04-L04A; B04-L05;
      B04-L08; B11-C07B3; B11-C08E3; B11-C08F8; B12-K04F; B12-K04G1B;
      B14-A02; D05-A02C; D05-H06A; D05-H18B; D05-H99
    
```

# Derwent World Patents Index – First level data

- Covers over 20 patenting authorities
- Varying amounts of data, document and time coverages
  - Original titles, abstracts, claim(s)
  - Original inventors, assignees, legal reps
  - Multiple languages
- [DWPI Summary Table of First Level Patent Data | STN International \(stn-international.com\)](https://www.stn-international.com/DWPI-Summary-Table-of-First-Level-Patent-Data)

# Derwent World Patents Index – First level data

- Add to keyword search
  - /BIEX will search all original titles, abstracts and claims available
  - Limit to claims - /CLM, /CLMEN, /CLMFR, /CLMDE, /CLMOL, /CLMES
  - Limit to abstracts - /ABEN, /ABFR, /ABDE, /ABOL, /ABES
- Setting options
  - **SET SFIELDS BI BIEX PERM**
  - **SET SFIELDS BI CLMEN PERM**

# First level text search example

```
=> S ((COMPLEMENTARY OR COMPLEMENTARITY) (W) DETERMINING (W) REGION)

217596 COMPLEMENTARY
      8 COMPLEMENTARIES
217600 COMPLEMENTARY
      (COMPLEMENTARY OR COMPLEMENTARIES)
20421 COMPLEMENTARITY
      20 COMPLEMENTARITIES
20439 COMPLEMENTARITY
      (COMPLEMENTARITY OR COMPLEMENTARITIES)
2217486 DETERMINING
        2 DETERMININGS
2217488 DETERMINING
        (DETERMINING OR DETERMININGS)
      190 DETG
        1 DETGS
      190 DETG
        (DETG OR DETGS)
2217645 DETERMINING
        (DETERMINING OR DETG)
1547842 REGION
      417979 REGIONS
1683893 REGION
        (REGION OR REGIONS)
L1      18235 ((COMPLEMENTARY OR COMPLEMENTARITY) (W) DETERMINING (W) REGION)
```



# First level text search example

```
=> S ((COMPLEMENTARY OR COMPLEMENTARITY) (W) DETERMINING (W) REGION)/BI,BIEX  
  
217596 COMPLEMENTARY/BI  
8 COMPLEMENTARIES/BI  
217600 COMPLEMENTARY/BI  
((COMPLEMENTARY OR COMPLEMENTARIES)/BI)  
244539 COMPLEMENTARY/BIEX  
80 COMPLEMENTARIES/BIEX  
244559 COMPLEMENTARY/BIEX  
((COMPLEMENTARY OR COMPLEMENTARIES)/BIEX)  
20421 COMPLEMENTARITY/BI  
20 COMPLEMENTARITIES/BI  
20439 COMPLEMENTARITY/BI  
((COMPLEMENTARITY OR COMPLEMENTARITIES)/BI)  
14051 COMPLEMENTARITY/BIEX  
43 COMPLEMENTARITIES/BIEX  
14074 COMPLEMENTARITY/BIEX  
((COMPLEMENTARITY OR COMPLEMENTARITIES)/BIEX)  
2217486 DETERMINING/BI  
2 DETERMININGS/BI  
2217488 DETERMINING/BI  
((DETERMINING OR DETERMININGS)/BI)  
190 DETG/BI  
1 DETGS/BI  
190 DETG/BI  
((DETG OR DETGS)/BI)  
2217645 DETERMINING/BI  
((DETERMINING OR DETG)/BI)
```

```
190 DETG/BI  
1 DETGS/BI  
190 DETG/BI  
((DETG OR DETGS)/BI)  
2217645 DETERMINING/BI  
((DETERMINING OR DETG)/BI)  
3879208 DETERMINING/BIEX  
94 DETERMININGS/BIEX  
3879211 DETERMINING/BIEX  
((DETERMINING OR DETERMININGS)/BIEX)  
15 DETG/BIEX  
1 DETGS/BIEX  
15 DETG/BIEX  
((DETG OR DETGS)/BIEX)  
3879222 DETERMINING/BIEX  
((DETERMINING OR DETG)/BIEX)  
1547842 REGION/BI  
417979 REGIONS/BI  
1683893 REGION/BI  
((REGION OR REGIONS)/BI)  
2677165 REGION/BIEX  
597193 REGIONS/BIEX  
2819704 REGION/BIEX  
((REGION OR REGIONS)/BIEX)  
L2 19503 ((COMPLEMENTARY OR COMPLEMENTARITY) (W) DETERMINING (W) REGION)/  
BI,BIEX
```

# First level text search example

=> S L2 NOT L1

L3 1268 L2 NOT L1

=> D HIT 1-2

L3 ANSWER 1 OF 1268 WPINDEX COPYRIGHT 2024 CLARIVATE on STN

Member(0001)

ABEN CN 117551200 A UPA 20240313

The invention belongs to the technical field of biology, claims an anti-human CD45 antibody or antigen-binding fragment thereof, wherein the light chain **complementary determining region** has the amino acid sequence shown as SEQ ID NO: 1-6, or has at least one amino acid difference; The heavy chain **complementarity determining region** has an amino acid sequence as set forth in SEQ ID NOs: 7-12, or has at least one amino acid difference compared thereto. The anti-human CD45 antibody or antigen binding fragment can specifically recognize human CD45 antigen, affinity, antibody specificity are close to positive antibody CD45 [2D1\*. The preparation method of the anti-human CD45 antibody provided by the invention does not need to be prepared by the animal hybridoma, so the step is simple, and the antibody gene is not easy to be lost, the antibody expression yield is far higher than the yield of the traditional hybridoma cell preparation antibody.

# First level text search example

L3 ANSWER 2 OF 1268 WPINDEX COPYRIGHT 2024 CLARIVATE on STN

Member(0001)

CLMEN US 20240029820 A1 UPCL 20240214

[CLAIM 10] 10. The method of claim 1, wherein the first protein part and the second protein part each comprise flexible **complementary-determining region** (CDR) loop structures.

[CLAIM 29] 29. The system of claim 20, wherein the first protein part and the second protein part each comprise flexible **complementary-determining region** (CDR) loop structures.

# Considerations

- Covers ALL inventions from 1974
  - Not just chemical inventions
- Unique country coverage
  - AM, BY, GE, ID, KG, KZ, TH, UZ, TJ, TP, UZ, VN
- Unique document coverage
- Differences in indexing and abstracting philosophies
  - What is chemically interesting vs. what is claimed
  - Written for the scientist vs. written for the patent attorney
  - Abstracting perspective affects keyword searching
- Differences in indexing systems
- Human interpretation

# Benefits of the Chemical Patent Index (CPI)

A subscription for CPI includes access to:

- Extension abstracts providing additional detailed information and preferred embodiments of the invention
- Derwent chemical manual codes
- Derwent fragmentation
  - Pre-DCR and DWPIIM, still indexed today, structural and non-structural codes
- Plasdac and Enhanced Polymer Indexing

# Derwent record for KR2356624

L1 ANSWER 1 OF 1 WPIX COPYRIGHT 2024 CLARIVATE on STN  
AN 2022-218134 [2022015] WPIX Full-text  
CR 2022-93787D  
TI Composition useful as e.g. medicine for preventing and treating senile sarcopenia by e.g. suppressing reduction of muscle diameter and muscle strength, increasing lean muscle mass and improving athletic performance, comprises oxiracetam  
DC B03; D13  
IN JIN L K; JUNG S H; KIM B; KIM S; KIM S J; LEE K  
PA (KSBT-N) KSB TUGEN INC  
CYC 137  
PI KR 2356624 B1 20220208 (2022015)\* KO 21[12]  
WO 2022231257 A1 20221103 (2022089) KO  
US 20240050406 A1 20240215 (2024015) EN  
EP 4331579 A1 20240306 (2024020) EN  
ADT KR 2356624 B1 KR 2021-86607 20210701; EP 4331579 A1 EP 2022-796090  
20220426; WO 2022231257 A1 WO 2022-KR5916 20220426; US 20240050406 A1 PCT  
Application WO 2022-KR5916 20220426; EP 4331579 A1 PCT Application WO  
2022-KR5916 20220426; US 20240050406 A1 US 2023-18020320 20230208  
FDT EP 4331579 A1 Based on WO 2022231257 A  
PRAI KR 2021-53617 20210426  
KR 2021-86607 20210701  
KR 2021-146501 20211029

AB KR 2356624 B1 UPAB 20220222  
NOVELTY - Composition comprises oxiracetam or it's salt.  
ACTIVITY - Muscular-Gen. Test details are described but no results given.  
MECHANISM OF ACTION - None given.  
USE - The composition is useful as medicine and food for preventing and treating senile sarcopenia by suppressing reduction of muscle diameter and muscle strength, increasing lean muscle mass, improving athletic performance, promoting aging muscle differentiation, regenerating aged muscle and strengthening aged muscle, inducing differentiation from aged myoblasts into myotubes and muscle fibers, and increasing ATP activity for muscle cells and muscle fibers by increasing all muscle fibers leads to increase in diameter (all claimed).  
ADVANTAGE - The composition is safe, can be used for long time, can be prepared in form of tablet, pill, powder, granule and capsule, can be administered as pressurized packs, and has no side effect.

# Extension abstract for KR2356624

L1 ANSWER 1 OF 1 WPIX COPYRIGHT 2024 CLARIVATE on STN

ABEX ADMINISTRATION - Administration of the composition is 0.1-1000 mg/kg/day, preferably 10- 100 mg/kg/day by oral, rectal, intravenous, intramuscular, subcutaneous, transdermal, intrauterinedural mater or intracerebrovascular route.

EXAMPLE - 10 mg Oxiracetam, 3 mg microcrystalline cellulose, 14.8 mg lactose hydrate and 0.2 mg magnesium stearate were mixed and the mixture was filled to obtain composition in a form of capsule.

# Summary

- CAS STNext is the only platform that has both the CAS suite of databases and the Derwent suite of databases
- Both suites of databases are ‘industry standards’
- Patent Examiners search the Derwent databases, so you should too
- The CAS and Derwent databases *complement* each other
  - Unique hits from each system



# Patent examiner citations

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)  
 (19) World Intellectual Property Organization  
 International Bureau  
 (43) International Publication Date  
 08 July 2021 (08.07.2021)

WIPO | PCT

(10) International Publication Number  
**WO 2021/136758 A1**

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(51) International Patent Classification:  
*B01J 13/14* (2006.01) *A01N 25/28* (2006.01)

(21) International Application Number:  
 PCT/EP2020/087938

(22) International Filing Date:  
 28 December 2020 (28.12.2020)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
 19220150.7 30 December 2019 (30.12.2019) EP

(71) Applicant: **BAYER AKTIENGESELLSCHAFT**  
 [DE/DE]; Kaiser-Wilhelm-Allee 1, 51373 Leverkusen (DE).

(72) Inventors: **KRAUSE, Jens**; Max-Ernst-Str. 7, 51375 Leverkusen (DE). **EGGER, Holger**; TakustraÙe 41a, 50825 KÙln (DE).

(74) Agent: **BIP PATENTS**; Alfred-Nobel-Str. 10, 40789 Monheim am Rhein NRW (DE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GI, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:  
 — as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

**INTERNATIONAL SEARCH REPORT**

International application No  
**PCT/EP2020/087938**

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Week 201953 Thomson Scientific, London, GB; AN 2019-317628 XP002799295, -& CN 109 529 737 A {UNIV TIANJIN POLYTECHNIC} 29 March 2019 (2019-03-29) abstract	1-15
A	DATABASE WPI Week 201880 Thomson Scientific, London, GB; AN 2018-797968 XP002799296, -& CN 108 579 634 A {UNIV TIANJIN POLYTECHNIC} 28 September 2018 (2018-09-28) abstract	1-15
A	DATABASE WPI Week 201775 Thomson Scientific, London, GB; AN 2017-598028 XP002799297, -& CN 107 088 389 A {UNIV TIANJIN POLYTECHNIC} 25 August 2017 (2017-08-25) abstract	1-15
A	WO 2008/127423 A2 {CORNELL RES FOUNDATION INC [US]; MCQUADE D TYLER [US] ET AL.) 23 October 2008 (2008-10-23) the whole document	1-15

Between problems  
and progress  
are connections  
that matter



## CONTACT

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stn-international.de