



Get the Most Out of Your Patents: A deep-dive analysis into pharmaceutical patent life cycle management

Created by: Dr. Sarbani Chattopadhyay



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Consultant

- Computational biologist with a PhD in Biochemistry from the University of Calcutta and a LL.M. in European IP and IT Law from the University of Göttingen, Germany.
- As a Consultant at LexisNexis PatentSight, she works with clients across the globe in different technology fields. She specializes in searching and analyzing patents, patent landscaping and benchmarking technologies from a patent perspective.



Today's Discussion: A deep-dive analysis into pharmaceutical patent life cycle management

- Product-to-Patent mapping using Orange Book data
- Insight into fiercely fought patent battles from the prosecution details about key patents.
- The strength and the power provided by the apparent key patent to the patent owner on the basis of the scientifically validated and patented methodology.
- The early predictors indicating the potential contributors to the global pressing needs (e.g., Covid-19 treatment methods).



Rights in the Pharmaceutical Field in USA Patents vs. Exclusivity

Patents granted by the USPTO

Exclusivity granted by the FDA

- Patent rights enable the patent owner to **exclude others** from making, using, or selling the patented invention. Patent rights are limited to the specific claims of the patent and do not enable the patent owner to prevent others from developing or selling similar products.

- Exclusivity refers to certain delays and prohibitions on approval of competitor drugs. Exclusivity is granted for a limited period of time, typically 5 years, and applies to each upon approval of a New Drug Application (NDA) or Abbreviated New Drug Application (ANDA) holder is eligible to apply for a supplement.

BOTH are NEGATIVE RIGHTS

- Period of patent term: 20 years*.

- A New Drug Application (NDA) or Abbreviated New Drug Application (ANDA) holder is eligible to apply for a supplement.

- Patents can be issued or expire at any time regardless of the drug's approval status.
- Some drugs have both patent and exclusivity protection while others have just one or neither.
- Patents and exclusivity may or may not run concurrently and may or may not cover the same aspects of the drug product

Orange Book

- Orange Book: Approved Drug Products with Therapeutic Equivalence Evaluations, identifies drug products approved on the basis of safety and effectiveness by the Food and Drug Administration (FDA) under the Federal Food, Drug, and Cosmetic Act (the FD&C Act).

The Orange Book information enables direct Product-to-Patent mapping

- FDA will not publish in the Orange Book patent information on unapproved applications or on patents beyond the **scope** of the Food Drug & Cosmetic Act (i.e., process or manufacturing patents). The patents that FDA regards as covered by the statutory provisions for submission of patent information are:
 - patents that claim the active ingredient(s);
 - drug product patents which include formulation/ composition patents;
 - use patents for a particular approved indication or method of using the product; and
 - certain other patents as detailed on FDA Form 3542.

Product-to-Patent mapping

Focus: Multiple Sclerosis

Multiple sclerosis (MS) is a condition that can affect the brain and spinal cord, causing a wide range of potential symptoms, including problems with vision, arm or leg movement, sensation or balance.

It's a lifelong condition that can sometimes cause serious disability, although it can occasionally be mild.

There's no cure for multiple sclerosis. In many cases, it's possible to treat symptoms. Average life expectancy is slightly reduced for people with MS.

It's most commonly diagnosed in people in their 20s, 30s and 40s although it can develop at any age. It's about 2 to 3 times more common in women than men. MS is one of the most common causes of disability in younger adults.



LexisNexis TotalPatent One[®]

Patent Search in LexisNexis TotalPatentOne®

TotalPatentOne® is a patent search software created by LexisNexis®.

The screenshot displays the LexisNexis TotalPatentOne search interface. The left pane shows a search query 'PC:(US)' and various filters. A red arrow points from the 'All authorities' filter to the right pane. The right pane, titled 'Authority selection', shows a grid of checkboxes for various regions and countries.

Authority selection [Data coverage](#)

Regions: EU EPC NA LA EA ASEAN

All authorities

Major authorities, full text

All

CA CN DE EP FR GB JP KR RU US WO

Other authorities, full text

All

AR AT AU BE BG BR CH CU CZ DD DK

DZ EA EE ES FI GR HR IE IL IN IS

IT KZ LT LU MA MC MX NL NO NZ OA

PL PT RO RS SE SI SU TN TR TW UA

UY

Other authorities, bibliographic information and abstracts

All

AM AP BA BN BO BY CL CO CR CS CY

DO EC EG GC GE GT HK HN HU ID JO

KE KG LB LV MD ME MN MT MW MY NI

PA PE PH PY SG SK SM SV TH TJ TT

UZ VE VN YU ZA ZM ZW

Patent Search in LexisNexis TotalPatentOne® : Multiple Sclerosis

The screenshot displays the LexisNexis TotalPatentOne search interface. The main search bar contains the query: `(TAC:(multiple sclerosis) OR CPC:(Y10S514/903+)) AND OBAT:(N)`. Below the search bar, there are filters for "All authorities", "Patent type", and "Publication group". The search results are displayed in a table with columns for "Title, Abstract & Claims" and "multiple sclerosis". The search results are filtered by "CPC" (Y10S514/903+) and "Orange Book application type" (N). A red arrow points to the "CPC selection" panel on the right, which shows a list of CPC codes and their corresponding descriptions. The selected CPC code is Y10S514/903, which is highlighted in green and labeled "Multiple sclerosis".

QUERY NUMBERS Search companion

Save search ★ Stemming

`(TAC:(multiple sclerosis) OR CPC:(Y10S514/903+)) AND OBAT:(N)`

[EDIT IN FULL PAGE](#)

107 All authorities Patent type Publication group Search

Title, Abstract & Claims

OR

AND N A

AND

AND

AND

New Drug Application

Abbreviated New Drug Application (ANDA)

CPC selection

multiple sclerosis Smart

- C07K14/4701 not used
- C07K14/4713 Autoimmune diseases, e.g. Insulin-depend... [More](#)
- G PHYSICS
- G01 MEASURING; TESTING
- G01N INVESTIGATING OR ANALYSING MATERIALS BY DETERMININ... [More](#)
- G01N33/00 Investigating or analysing materials by specific methods nc... [More](#)
- G01N33/48 • Biological material, e.g. blood, urine ; Haemocytometer... [More](#)
- G01N33/50 •• Chemical analysis of biological material, e.g. blood, t... [More](#)
- G01N33/53 ••• Immunoassay; Biospecific binding assay; Material... [More](#)
- G01N33/564 •••• for pre-existing immune complex or autoimmu... [More](#)
- Y GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; G... [More](#)
- Y10 TECHNICAL SUBJECTS COVERED BY FORMER USPC
- Y10S TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS... [More](#)
- Y10S514/00 Drug, bio-affecting and body treating compositions
- Y10S514/903 • Multiple sclerosis

[CLOSE](#)

LexisNexis Privacy Policy LexisNexis

Patent Search in LexisNexis TotalPatentOne®: Multiple Sclerosis

The screenshot shows the LexisNexis TotalPatentOne interface. The search query is: `(TAC:(multiple sclerosis) OR CPC:(Y10S514/903+)) AND OBAT:(N)`. The search results show 109 records found out of 152,980,061 records searched. The results are displayed in a table with columns: Publication number, Publication date, Application number, Current assignee (standardized), Original assignee (standardized), Legal status, and Title. The first three results are highlighted.

Publication number	Publication date	Application number	Current assignee (standardized)	Original assignee (standardized)	Legal status	Title
US11246850B2	2022-02-15	US17321788	BIOGEN MA INC., MASSACH...	BIOGEN	Granted	Methods of treating multiple sclerosis
US11129806B2	2021-09-28	US15647016	BIOGEN	BIOGEN	Granted	Methods of treating multiple sclerosis
US11007166B2	2021-05-18	US16936398	BIOGEN	BIOGEN	Granted	Methods of treating multiple sclerosis

Patent Search in LexisNexis TotalPatentOne®: Multiple Sclerosis

TotalPatent One®

109 records found out of 152,980,061 records searched

Sort by: Publication date

Publication number	Publication date	Application number	Current assignee (standardized)
US8399514B2	2013-03-19	US13372426	BIOGEN
US8383150B2	2013-02-26	US13162048	INTERMUNE
US8377903B2	2013-02-19	US12766173	MERCK SERONO MERCK SERONO

Original

[US8399514B2](#) - Treatment for **multiple** sclerosis

Granted

Pharmaceuticals

Bibliographic information & Images

Publication number and date
[US8399514B2](#)
2013-03-19
Granted

Application number and date
[US13372426](#)
2012-02-13

Priority number and date
[US13372426](#)
2012-02-13

Ultimate owner
[Biogen](#)

Original assignee
[Matvey E. Lukashev](#)

Current assignee
[BIOGEN MA INC.](#)

Inventor
[Matvey E. Lukashev](#)

Legal representative
[Sterne, Kessler, Goldstein & Fox P.L.L.C.](#)

1/5 Clipped image

Figure 1

Information: Codes and Definition

TotalPatent One®

109 records found out of 152,980,061 records searched

Publication number Publication date Application number

US8399514B2	2013-03-19	US13372426
US8383150B2	2013-02-26	US13162048
US8377903B2	2013-02-19	US12766173

Original

US8399514B2 - Treatment for multiple sclerosis

Pharmaceuticals

Orange Book

Product	Type	Active Ingredient	Applicant	Application No.	Application Type	Approval Date	Patent Expiry Date	Patent usage code	Exclusivity Code	Exclusivity Date	Dosage	Strength
TECFIDERA	RX	DIMETHYL FUMARATE	BIOGEN INC	204063	New drug Application (NDA)	2013-03-27	2028-02-07	U-1384	M-260	2023-02-05	CAPSULE, DELAYED RELEASE	1
TECFIDERA	RX	DIMETHYL FUMARATE	BIOGEN INC	204063	New drug Application (NDA)	2013-03-27	2028-02-07	U-1384	M-260	2023-02-05	CAPSULE, DELAYED RELEASE	2

Granted

Patent Use Codes and Definitions

Patent Use Code

Code to designate a use patent that covers the approved indication or use of a drug product. May repeat for multiple applications, multiple products and multiple patents. Format is nnnnnnnnn.

U- TREATMENT OF INFLAMMATORY LESIONS OF NON-NODULAR MODERATE TO SEVERE ACNE VULGARIS
1376
U- IMPROVE RESPIRATORY SYMPTOMS IN CYSTIC FIBROSIS IN PATIENTS WITH PSEUDOMONAS AERUGINOSA
1377
U- TREATMENT OF A NITROGEN METABOLISM DISORDER
1378
U- IMPROVEMENT OF GLYCEMIC CONTROL IN ADULTS WITH TYPE 2 DIABETES MELLITUS WHO HAVE ONE OR MORE SPECIFIED CARDIOVASCULAR RISK FACTORS
1379
U- IMPROVEMENT OF GLYCEMIC CONTROL IN ADULTS WITH TYPE 2 DIABETES MELLITUS WHO HAVE ONE OR MORE SPECIFIED CARDIOVASCULAR RISK FACTORS WHEREIN THE PATIENT HAS CARDIOVASCULAR DISEASE
1380
U- USE OF PRASUGREL AND ASPIRIN IN PATIENTS REQUIRING THE REDUCTION OF THROMBOTIC CARDIOVASCULAR EVENTS
1381
U- TREATMENT OF NAUSEA AND VOMITING OF PREGNANCY IN WOMEN WHO DO NOT RESPOND TO CONSERVATIVE MANAGEMENT
1382
U- DOSAGE ADJUSTMENT OF A NITROGEN SCAVENGING DRUG IN THE TREATMENT OF A UREA CYCLE DISORDER
1383
U- METHOD OF TREATING MULTIPLE SCLEROSIS
1384
U- METHOD OF TREATING AN AUTOIMMUNE DISEASE SELECTED FROM AUTOIMMUNE POLYARTHRITIS AND MULTIPLE SCLEROSIS BUT NOT TREATING PSORIATIC ARTHRITIS
1385
U- A METHOD OF INCREASING THE TESTOSTERONE BLOOD LEVEL OF A PERSON IN NEED THEREOF
1386
U- REDUCTION IN RISK OF HOSPITALIZATION IN PATIENTS WITH A HISTORY OF PAROXYSMAL OR PERSISTENT AF WITHOUT SEVERE HEART FAILURE AND WITH ONE OR MORE RISK FACTORS BY ADMINISTRATION TWICE A DAY WITH
1387 MORNING AND EVENING MEALS
U- TREATMENT OF PATIENTS WITH A HISTORY OF PAROXYSMAL OR PERSISTENT AF WITHOUT SEVERE HEART FAILURE AND WITH ONE OR MORE RISK FACTORS BY ADMINISTRATION TWICE A DAY WITH MORNING AND EVENING
1388 MEALS
U- ELLA IS A PROGESTERONE AGONIST/ANTAGONIST EMERGENCY CONTRACEPTION INDICATED FOR THE PREVENTION OF PREGNANCY FOLLOWING UNPROTECTED INTERCOURSE OR A KNOWN OR SUSPECTED CONTRACEPTIVE
1389 FAILURE. ELLA CAN BE TAKEN WITH OR WITHOUT FOOD
U- A METHOD OF INCREASING THE TESTOSTERONE BLOOD LEVEL OF AN ADULT MALE SUBJECT IN NEED THEREOF
1390
U- PROVIDING PREVENTION AND TREATMENT OF EMERGENT AND NON-EMERGENT

Information: Codes and Definition

TotalPatent One®

109 records found out of 152,980,061 records searched

Publication number Publication date Application number

US8399514B2	2013-03-19	US13372426
US8383150B2	2013-02-26	US13162048
US8377903B2	2013-02-19	US12766173

Original

US8399514B2 - Treatment for multiple sclerosis

Pharmaceuticals

Orange Book

Product	Type	Active Ingredient	Applicant	Application No.	Application Type	Approval Date	Patent Expiry Date	Patent usage code	Exclusivity Code	Exclusivity Date	Dosage	Strength
TECFIDERA	RX	DIMETHYL FUMARATE	BIOGEN INC	204063	New drug Application (NDA)	2013-03-27	2028-02-07	U-1384	M-260	2023-02-05	CAPSULE, DELAYED RELEASE	1
TECFIDERA	RX	DIMETHYL FUMARATE	BIOGEN INC	204063	New drug Application (NDA)	2013-03-27	2028-02-07	U-1384	M-260	2023-02-05	CAPSULE, DELAYED RELEASE	2

Exclusivity Codes and Definitions

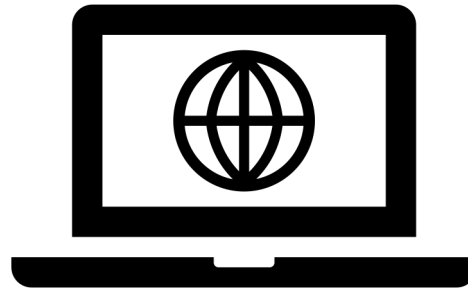
Exclusivity Code:

Code to designate exclusivity granted by the FDA to a drug product. Format is nnnnnnnnnn.

M-247 REVISIONS TO THE LABELING REGARDING CONTINUOUS SUBCUTANEOUS INSULIN INFUSION AS A CONDITION OF USE FOR INSULIN ASPART
M-248 INFORMATION ADDED TO THE LABELING TO DESCRIBE A TRIAL EVALUATING A LOWER DOSE THAN THOSE APPROVED FOR PEDIATRIC PATIENTS 13 TO 17 YEARS OF AGE
M-249 INFORMATION ADDED TO THE LABELING TO DESCRIBE STUDY LVM-MD-15 TO FULFILL POSTMARKETING COMMITMENT 1943-4
M-250 REVISIONS TO THE PEDIATRIC USE SECTION TO INCLUDE AN OPEN-LABEL CLINICAL TRIAL TO FULFILL PMR 1655-1
M-251 INFORMATION ADDED TO THE CLINICAL PHARMACOLOGY SECTION REGARDING INFLUENZA VIRUS RESISTANCE TO OSELTAMIVIR IN IMMUNOCOMPROMISED PATIENTS
M-252 ADDITION OF INFORMATION TO CLINICAL STUDIES SECTION REGARDING CARDIOVASCULAR OUTCOME
M-253 INFORMATION ADDED TO THE LABELING TO DESCRIBE STUDY P061, A RANDOMIZED, PLACEBO-CONTROLLED, PARALLEL GROUP, MULTI-SITE, DOUBLE-BLIND STUDY TO EVALUATE SAFETY AND EFFICACY OF SUVOREXANT FOR THE TREATMENT OF INSOMNIA IN SUBJECTS WITH ALZHEIMERS DISEASE
M-254 INFORMATION ADDED TO THE LABELING REGARDING PEDIATRIC PATIENTS AGES 7 TO 17 YEARS OF AGE WITH MAJOR DEPRESSIVE DISORDER
M-255 INFORMATION ADDED TO THE LABELING TO DESCRIBE STUDY GS-US-320-4018 IN VIROLOGICALLY SUPPRESSED ADULTS W/ CHRONIC HEP B INFECTION WHO SWITCHED FROM TENOFOVIR DISOPROXIL FUMARATE TO TENOFOVIR ALAFENAMIDE
M-256 INFORMATION ADDED TO THE CLINICAL STUDIES SECTION TO FULFILL A POST-MARKETING REQUIREMENT
M-257 INFORMATION ADDED TO THE CLINICAL STUDIES SECTION OF THE LABELING REGARDING THE USE OF PLAQUE PSORIASIS OF THE SCALP
M-258 INFORMATION ADDED TO THE LABELING TO DESCRIBE CARMELINA TRIAL TO FULFILL POSTMARKETING COMMITMENT 1766-4
M-259 INFORMATION ADDED TO THE LABELING REGARDING SAFETY AND EFFICACY IN SUBJECTS WITH HCV SUBTYPE 3B INFECTION
M-260 INFORMATION ADDED TO THE LABELING DESCRIBING A RANDOMIZED, OPEN-LABEL STUDY THAT EXAMINED THE CONCOMITANT USE OF DIMETHYL FUMARATE AND SEVERAL NON-LIVE VACCINES IN ADULTS 27-55 YEARS OF AGE WITH RELAPSING FORMS OF MULTIPLE SCLEROSIS
M-261 ADDITIONAL INFORMATION ADDED TO THE LABELING REGARDING THE USE IN PATIENTS ON CHRONIC HEMODIALYSIS
M-262 REVISIONS TO THE USE IN SPECIFIC POPULATIONS SECTION OF THE PACKAGE INSERT TO INCLUDE THE RESULT OF STUDY P146 TO FULFILL THE REQUIREMENTS OF PMR 3003-4
M-263 REVISIONS TO THE LABELING TO INCLUDE RESULTS FROM CLINICAL STUDY ICL670E2419 (THETIS TRIAL) TO SUPPORT PMR 3342-2 AND 3342-3
M-264 INFORMATION ADDED TO THE LABELING DESCRIBING A PHASE 2, MULTICENTER, OPEN-LABEL STUDY TO EVALUATE THE SAFETY/EFFICACY OF SOFOSBUVIR/VELPATASVIR IN SUBJECTS WITH CHRONIC HCV INFECTION WHO HAVE RECEIVED A LIVER TRANSPLANT
M-265 REVISIONS TO THE LABELING TO INCLUDE RESULTS FROM CLINICAL STUDY M15-656 (VIALE-A) AND M16-043 (VIALE-C) TO SUPPORT PMR 3545-1 AND PMR 3545-2
M-266 INFORMATION ADDED TO THE LABELING TO DESCRIBE STUDY GS-US-320-4035 IN VIROLOGICALLY SUPPRESSED ADULTS W/ CHRONIC HEP B INFECTION WHO SWITCHED FROM TENOFOVIR DISOPROXIL FUMARATE TO TENOFOVIR ALFAENAMIDE
M-267 INFORMATION ADDED TO THE LABELING REGARDING THE RESULT OF STUDY LUAA21004-402

D-19 DOLOS DOSING GUIDELINES

D-20 SINGLE 32MG DOSE



<https://portal.uspto.gov/pair/PublicPair>

USPTO PAIR Information

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Public Patent Application Information Retrieval

Patent eBusiness
Patent Application Information Retrieval

GLOBAL DOSSIER ORDER CERTIFIED APPLICATION AS FILED ORDER CERTIFIED FILE WRAPPER VIEW ORDER LIST

13/372,426
Treatment for Multiple Sclerosis
13502-033-999

Select New Case Application Data Transaction History Image File Wrapper Patent Term Adjustments Continuity Data Fees Published Documents Address & Attorney / Agent Supplemental Content Assignments Display References

BIBLIOGRAPHIC DATA

Application #: 13/372,426 [Application Report](#)

Filing or 371(c) Date: 02-13-2012

Application Type: Utility

Examiner: STUCKER, JEFFREY J SPE

Allowance Rate	Average Office Actions To Allowance	Examiner Time Allocation (ETA)
50.8%	1.2	

View This Examiner's
[File Wrappers](#) [Interview Stats](#) [Appeal Stats](#)

Art Unit: 1649

Allowance Rate	Average Office Actions To Allowance	
44.4%	2.2	

Correspondence Address Customer Number: 20583

Status: Application Involved in Court Proceedings

Status Date: 04-03-2020

Location: ELECTRONIC

Location Date: -

Earliest publication #: US 2012-0196931 A1

Earliest publication date: 08-02-2012

Patent #: 8,399,514

Issue Date of Patent: 03-19-2013

Intl. registration # (Hague): -

Intl. registration publication date: -


Confirmation #: 5998

Attorney Docket #: 13502-033-999

Class/subclass: 514/549

First Named Inventor: Matvey E. LUKASHEV , Tewksbury, MA (US) all Inventors

LexisNexis PatentAdvisor® : PTAB Proceedings Information



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Browsing History / QuickPAIR - 13/372,426

QuickPAIR Results

QuickPAIR: 13/372,426

Group Art Unit: 1649 Examiner Name: STUCKER, JEFFREY J



Info	Image File Wrapper	Transaction History	Continuity Data	Family	Timeline	Assignments	Guidebook	Litigation	Update
								SHOW PTAB FILE HISTORY	
PTAB Proceeding									
Case Number	Judges	Parties - Patent Owner	Parties - Petitioner	Status	Outcome				
IPR2015-01993	Richard E. Schafer Fred E. McKelvey Deborah Katz Sally Gardner Lane	Biogen MA Inc.	Hayman Orange Fund SPC J Kyle Bass Hayman Capital Master Fund, LP Hayman Credes Master Fund, LP Coalition For Affordable Drugs V LLC IP Navigation Group, LLC Hayman Offshore Management, Inc. Hayman Investments, LLC Erich Spangenberg nXn Partners, LLC	Terminated	Final Decision: All Claims Upheld				
IPR2018-01403	Sheridan K. Snedden Jennifer Meyer Chagnon Jacqueline T. Harlow Jamie T. Wisz	Biogen MA Inc.	Sawai USA, Inc. Mylan Laboratories Ltd. Sawai Pharmaceutical Co., Ltd. Mylan N.V. Mylan, Inc. Mylan Pharmaceuticals, Inc.	Terminated	Final Decision: All Claims Upheld				
IPR2015-01136	Fred E. McKelvey Deborah Katz Sally Gardner Lane	Biogen MA Inc.	Hayman Orange Fund SPC - Portfolio A J Kyle Bass Hayman Capital Master Fund, LP Hayman Capital Management L.P. Hayman Credes Master Fund, LP Coalition For Affordable Drugs V LLC IP Navigation Group, LLC Hayman Offshore Management, Inc. Hayman Investments, LLC Erich Spangenberg nXn Partners, LLC	Terminated	Institution Decision: Denied Institution				
IPR2019-00789	Sheridan K. Snedden Jennifer Meyer Chagnon Jacqueline T. Harlow	Biogen MA Inc.	Upsher-Smith Laboratories, LLC Sawai USA, Inc. Sawai America, LLC Sawai Pharmaceutical Co., Ltd. Sawai America Holdings Inc. Stason Pharmaceuticals, Inc.	Terminated	Post-Institution: Joined To Other Trial				

LexisNexis PatentAdvisor® : Law Firm Statistics

The screenshot displays the LexisNexis PatentAdvisor interface. At the top, there is a navigation bar with the PatentAdvisor logo and several menu items: Search, Compare, My Saved Work, Pathways™, PAIR Extension, and Admin. Below the navigation bar, the main content area is titled "Results" and shows "QuickPAIR: 13/372,426". It also displays "Group Art Unit: 1649" and "Examiner Name: STUCKER, JEFFREY J". A document icon is visible in the top right corner of the results area.

Below the main information, there is a tabbed interface with the following tabs: Info, Image File Wrapper, Transaction History, Continuity Data, Family, Timeline, Assignments, Guidebook, Litigation, and Update. The "Info" tab is currently selected.

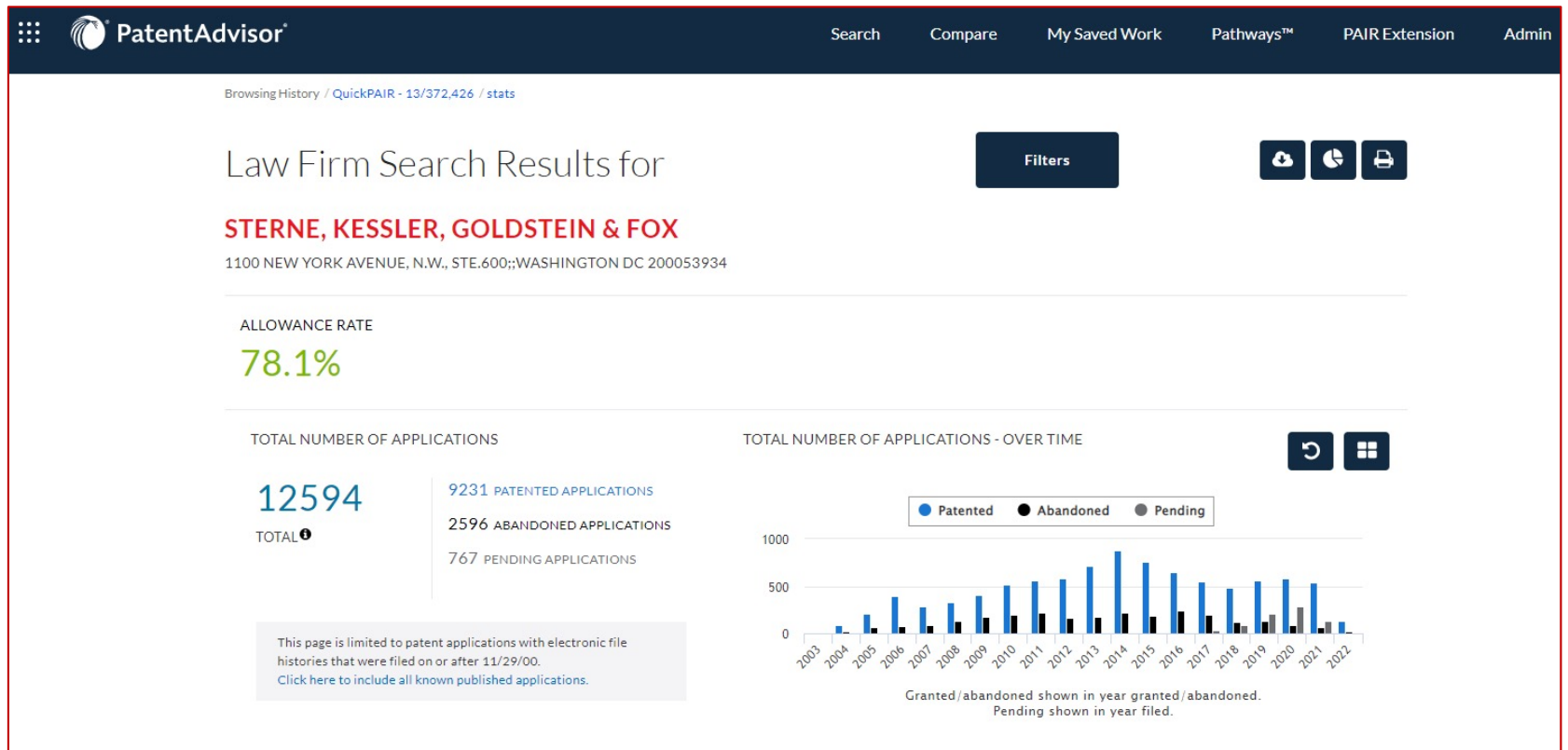
The "APPLICATION INFORMATION" section contains the following data:

Application Number:	13/372,426	Customer Number:	20583
Filing or 371 (c) Date:	2012-02-13	Status:	Application Involved in Court Proceedings
Application Type:	Utility	Status Date:	2020-04-03
Examiner Name:	STUCKER, JEFFREY J	Location:	ELECTRONIC
Group Art Unit:	1649	Location Date:	—
Confirmation Number:	5998	Earliest Publication No:	US 2012-0196931 A1

The "LAW FIRM" section displays the following information:

Original Name:	STERNE, KESSLER, GOLDSTEIN & FOX	Search	Law Firm Details
Standardized Name:	STERNE KESSLER GOLDSTEIN & FOX	Search	
Normalized Name:	STERNE KESSLER GOLDSTEIN & FOX	Search	

LexisNexis PatentAdvisor® : Law Firm Statistics



Patent search w.r.t. Exclusivity Codes

TotalPatent One® Search Folders Search history Downloads Alerts Sarbani Chattopadhyay Assistance

9 records found out of 152,980,122 records searched

Publications Families

Sort by: Publication date (new-old)

Search companion

Save search ★ Stemming

OBEC:(M-260)

All authorities 107 Search

Please refer to full screen for Object search

Record ID	Title	Publication Date	Status	Original assignee (stand.)	Current assignee (stand.)	IPC Classifications	CPC Classifications	
7	Not available	US10555993B2 - Dimethyl fumarate and vaccination regimens	2020-02-11	Granted	BIOGEN	BIOGEN	IPC A61K39/09, A61K31/225, A61K39/00, A61K39/05	CPC A61K39/05, A61K39/092, A61K31/225, A61K2039/545, A61K2039/6081, A61P25/28, A61P31/00, A61P37/04, A61K2300/00, A61K39/05
8	Not available	US10391160B2 - Dimethyl fumarate and vaccination regimens	2019-08-27	Granted	BIOGEN	BIOGEN	IPC A61K39/00, A61K31/225, A61K39/05, A61K39/09	CPC A61K39/05, A61K31/225, A61K2039/545, A61K2039/6081, A61K39/092, A61P25/28, A61P31/00, A61P37/04, A61K2300/00, A61K39/05
9	Not available	US8399514B2 - Treatment for multiple sclerosis	2013-03-19	Granted		BIOGEN	IPC A61K31/22	CPC A61K31/137, A61K31/194, A61K31/197, A61K31/225, A61K31/277, A61K31/436, A61K31/4704, A61K31/7076, A61K38/217, A61K45/06, A61P25/00, ...

TecFidera: Blockbuster drug for Biogen for Relapsing MS



Unlikely Multiple Sclerosis Pill On Track To Become Blockbuster

October 28, 2013 · 3:21 PM ET

There aren't very many drugs that are also, essentially, industrial chemicals available in railroad-car volumes, pharmaceutical chemist Derek Lowe noted on his blog, *In The Pipeline*, [this spring](#).

But there are a few. One is [lithium carbonate](#), a staple of glassmaking and ceramic glazes and also the active ingredient in drugs for depression. Another is [nitrous oxide](#), or laughing gas, for anesthesia.

Then there's Tecfidera, or [dimethyl fumarate](#), which was approved by the Food and Drug Administration in March to treat multiple sclerosis. The twice-a-day pill from Biogen Idec was derived from an old, basic chemical: fumaric acid, [used industrially](#) to make foods taste sour and to preserve them.



Only a few drugs could really be bought in bulk.

iStockphoto.com

Patent search w.r.t. Exclusivity Codes

TotalPatent One Search Folders Search history Downloads Alerts Sarbani Chattopadhyay Assistance

15 records found out of 153,016,686 records searched

15 documents selected

Send selection to PatentSight®. For subscribers only.

Sort by: Publication date (new-old)

Publication number	Application number	Current assignee (standardized)	Original assignee (standardized)	Legal status	Title
US7619001B2	2009-11-17	US11765578	BIOGEN	Ceased	Utilization of dialkylfumarates
US7320999B2	2008-01-22	US10197077	BIOGEN	Granted	Dimethyl fumarate for the treatment of mult
US6509376B1	2003-01-21	US09831620	BIOGEN	Granted	Utilization of dialkylfumarates

OBP:(tectidera)

All authorities Search

Please refer to full screen for Object search

Privacy Policy

12:26 PM 4/25/2022

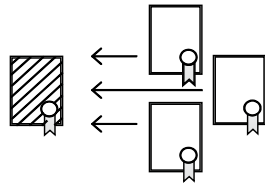
LexisNexis PatentSight Methodology

- The scientifically validated and patented methodology is based on “Simple Patent Family” definition.
- All patent documents with the exactly same priority parameters are grouped into 1 patent family: Hypothesis: The Simple patent family technically covers one single invention.

Technology Relevance

Worldwide citations received from later patents, adjusted for age, patent office practices and technology field

Average value: 1



Market Coverage

Market size protected by active patents and pending patent applications on a certain invention

Value of granted US patent: 1



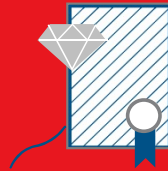
Competitive Impact

(Individual patent strength)
The relative business value of a patent family

X

Σ

Individual Patent Family

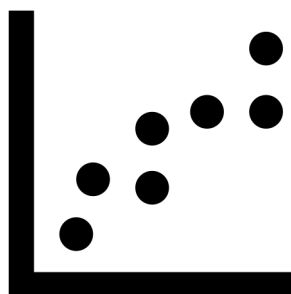


Patent Asset Index™



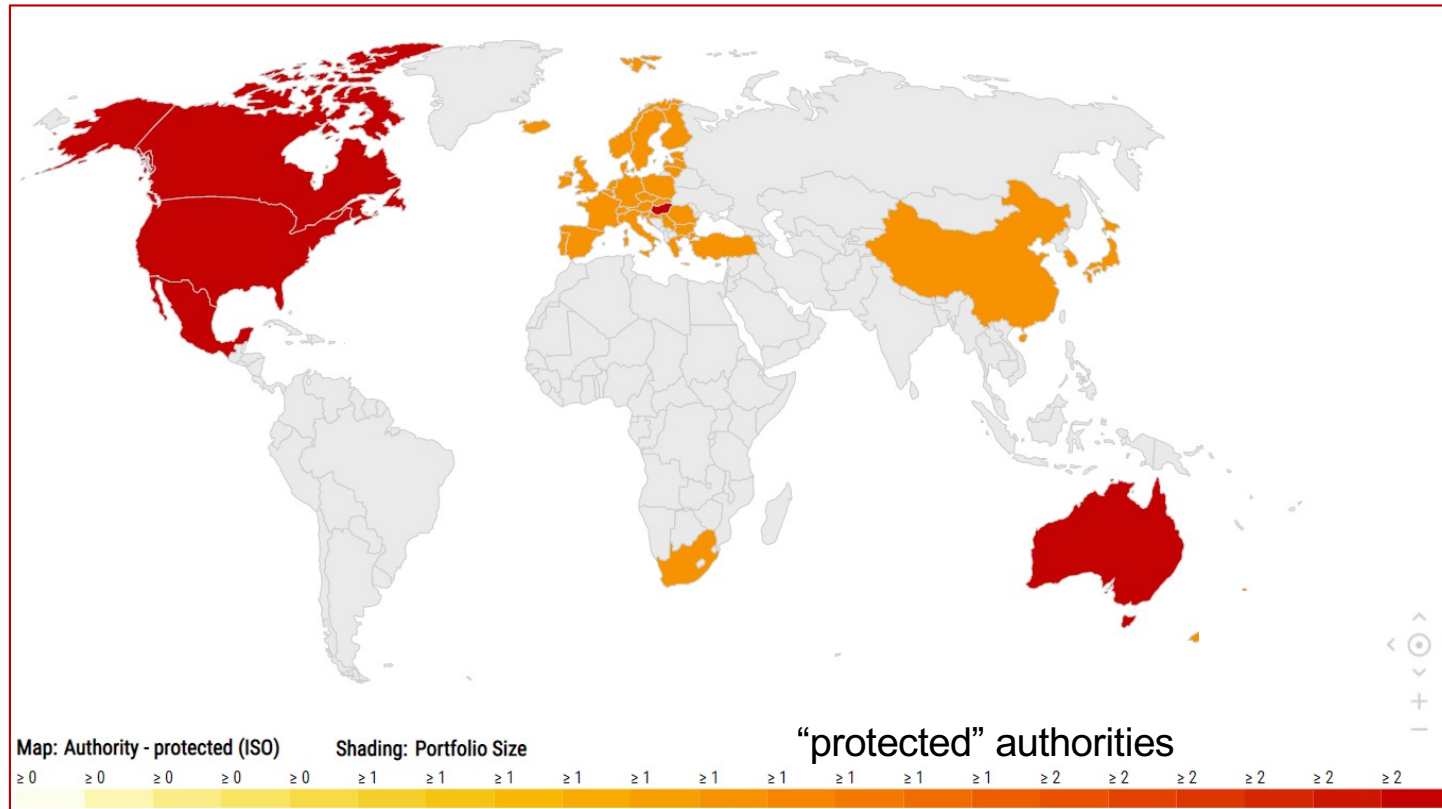
Innovative strength of a company or portfolio (ability to achieve competitive advantage)!

The **Current Ultimate Owner** is the basis for actuating right to ownership of the patent.

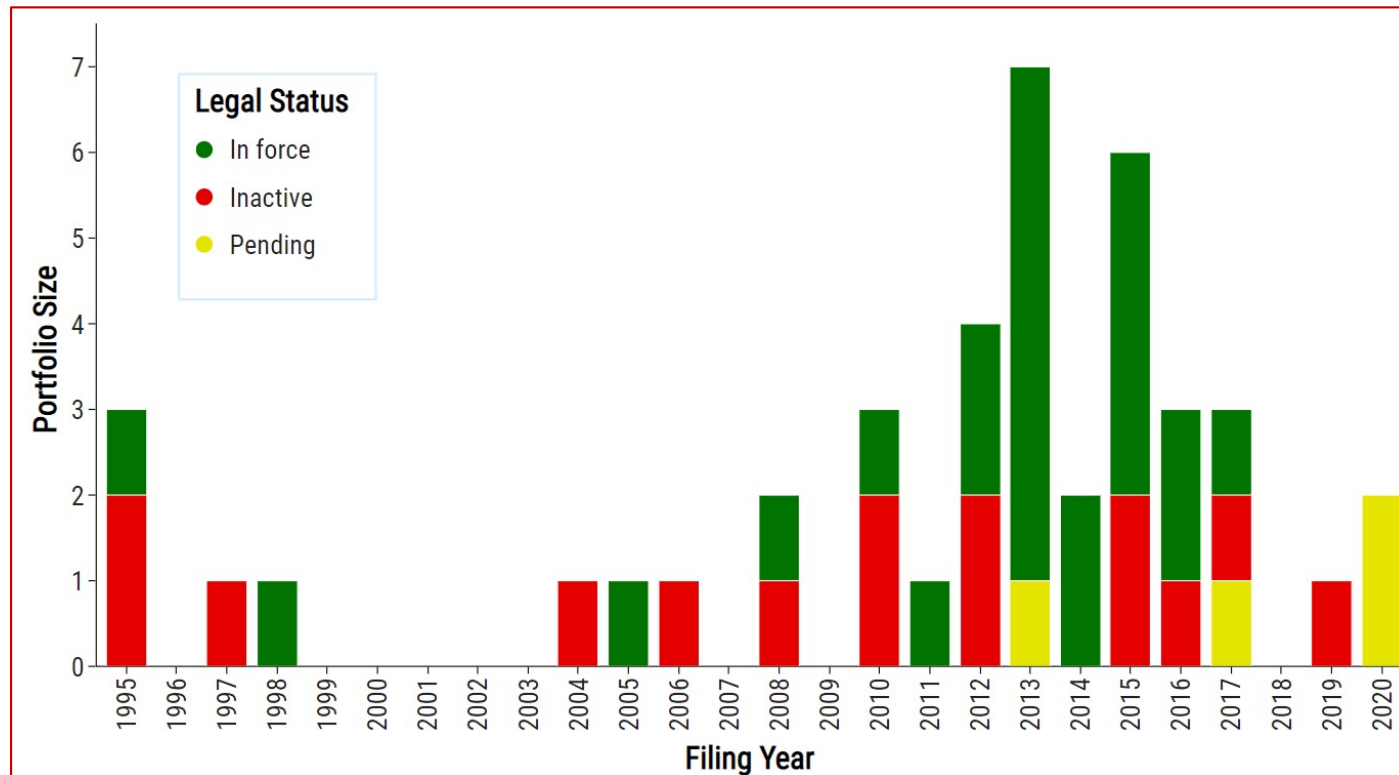


LexisNexis PatentSight®

Biogen's protection strategy for patents related to (active product): Tecfidera

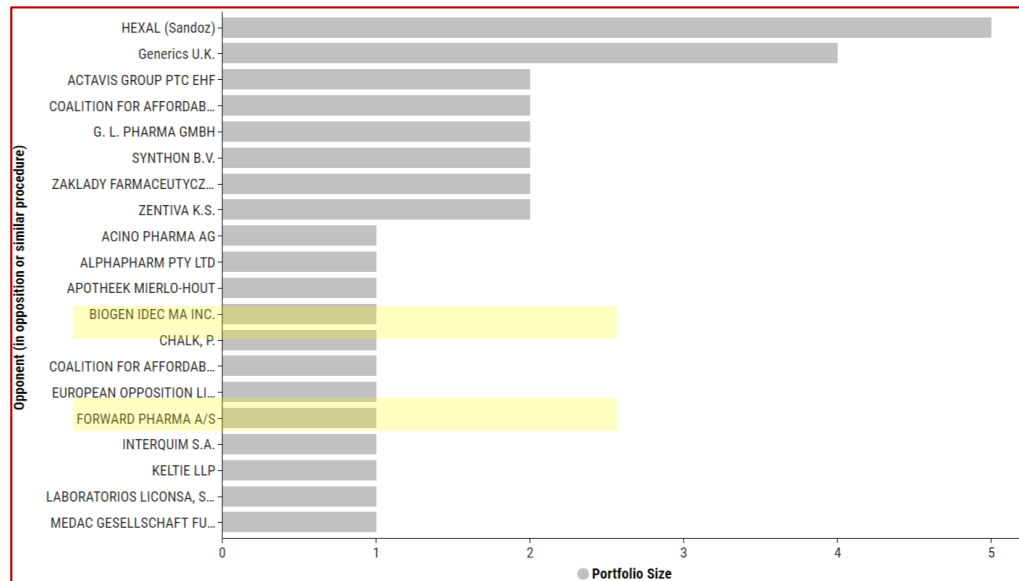


Biogen's patents around Tecfidera over the years



“protected” authorities

Biogen's patents around Tecfidera over the years




LexisNexis PatentSight
The **Current Ultimate Owner** is
the basis for actuating right to
ownership of the patent.

- Generic companies like Generics U.K., Organisations like Coalition for Affordable drugs had opposed the Biogen Tecfidera patents.
- **Interestingly Biogen Idec is shown as Opponent here.**

Biogen vs Forward Pharma regarding Tecfidera patents

Document EP2137537.A2 – family of EP2137537.A2 et al.

Highlight keywords... Family of EP2137537.A2

NRF2 SCREENING ASSAYS AND RELATED METHODS AND COMPOSITIONS 

First filing in family 2/7/2008
First publication in family 8/14/2008

No drawing available.

Source: equivalent

Abstract Claims Description Drawings


Source: equivalent

1. A pharmaceutical composition for use in treating multiple sclerosis, the composition consisting of: wherein the composition is to be administered orally to a subject in need of treatment for multiple sclerosis, and wherein the dose of dimethyl fumarate or **monomethyl fumarate to be administered is 480 mg per day**
 - (a) dimethyl fumarate or monomethyl fumarate, and
 - (b) one or more pharmaceutically acceptable excipients,
2. The pharmaceutical composition for use as in claim 1, wherein the composition consists of dimethyl fumarate and one or more pharmaceutically acceptable excipients.
3. The pharmaceutical composition for use as in claim 1, wherein the composition consists of monomethyl fumarate and one or more pharmaceutically acceptable excipients.
4. The pharmaceutical composition for use as in any one of claims 1 to 3, wherein the composition is to be administered in the form of a tablet, a suspension, or a capsule.
5. The pharmaceutical composition for use as in any one of claims 1 to 4, wherein the composition is to be administered to the subject for 5, 10, 12, 20, 40, 52, 100, or 200 weeks or more.
6. The pharmaceutical composition for use as in any one of claims 1 to 5, wherein the composition is to be administered to the subject for at least 12 weeks.
7. Dimethyl fumarate or monomethyl fumarate for use in treating multiple sclerosis, wherein the dimethyl fumarate or monomethyl fumarate is the only neuroprotective compound to be administered, and wherein the dimethyl fumarate or monomethyl fumarate is to be orally administered to a subject in need of treatment for multiple sclerosis at a dose of 480 mg per day.
8. Dimethyl fumarate for use as in claim 7, wherein the dimethyl fumarate is the only neuroprotective compound to be administered.



Document EP2801355.B1 – family of EP1799196.A2 et al.

Highlight keywords... Family of EP1799196.A2 National E

Controlled release pharmaceutical compositions comprising a fumaric acid ester 

Filing date: 10/7/2005
Publication date: 11/12/2014

The present invention relates to controlled release pharmaceutical compositions comprising fumaric acid ester(s) as active substance(s). The compositions are suitable for use in the treatment of e.g. psoriasis or other hyperproliferative, inflammatory or autoimmune disorders and are designed to release the fumaric acid ester in a controlled manner so that local high concentrations of the active substance within the gastrointestinal tract upon oral administration can be avoided and, thereby, enabling a reduction in gastr...

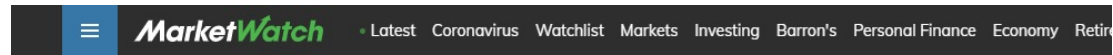
Source: equivalent

Abstract Claims Description Drawings

Source: original

1. A pH controlled release pharmaceutical composition for oral use which consists of dimethylfumarate as the active substance, wherein the composition is provided with an enteric coating wherein the daily dosage is from 480 to 720 mg active substance given in one to three doses for use in the treatment of psoriatic arthritis, neurodermatitis, inflammatory bowel disease, or an autoimmune disease.
2. The composition for use of claim 1, which is a multi-particulate composition and the individual units are provided with an enteric coating.
3. The composition for use of claim 1 wherein the daily dosage is from 480 to 600 mg active substance.
4. The composition for use of claim 1 wherein the daily dosage is from 600 to 720 mg active substance.
5. The composition for use of claim 1, wherein the daily dosage is 480 mg active substance.
6. The composition for use of claim 1, wherein the the dosage form contains 120, 180 or 240 mg active substance.
7. The composition for use of claim 1, wherein the autoimmune disease is selected from:
 - i. polyarthritis
 - ii. multiple sclerosis (MS)
 - iii. juvenile-onset diabetes mellitus
 - iv. Hashimoto's thyroiditis
 - v. Grave's disease
 - vi. SLE (systemic lupus erythematosus)
 - vii. Sjögren's syndrome
 - viii. pernicious anemia
 - ix. chronic active (lupoid) hepatitis

Biogen vs Forward Pharma regarding Tecfidera patents



Biogen's \$1.25 billion agreement with Forward Pharma is a very expensive insurance policy on its most valuable drug

Published: Jan. 17, 2017 at 10:46 a.m. ET

By [Emma Court](#)

The agreement does not resolve a patent dispute between the two companies

Biogen can now use Forward Pharma's patents to extend the drug's legal protections, Evercore ISI's

Losing a patent dispute could require a company to take its product off the market and pay hefty sums. Decisions for the U.S. and European patent cases are expected this quarter, with a U.S. decision in late March.

Biogen vs Forward Pharma regarding Tecfidera patents



BIOGEN AND FORWARD PHARMA AGREE TO ENTER INTO SETTLEMENT AND LICENSE AGREEMENT

January 17, 2017 at 7:30 AM EST

*Biogen to Pay \$1.25B in Exchange for License Agreement to Forward Pharma Intellectual Property
Future Payment of Royalties Subject to Resolution of Ongoing Patent Procedures in US and EU*

CAMBRIDGE, Mass.--(BUSINESS WIRE)--Biogen Inc. (NASDAQ: BIIB) today announced that it has agreed to enter into a settlement and license agreement with Forward Pharma, subject to the approval of Forward Pharma's shareholders and other customary conditions. **The license agreement will provide Biogen an irrevocable license to all intellectual property owned by Forward Pharma.**

Upon the effectiveness of the settlement and license agreement, **Biogen will provide Forward Pharma a cash payment of \$1.25 billion. Under certain circumstances outlined in the agreement, Biogen will pay Forward Pharma royalties on net sales of Biogen products for the treatment of multiple sclerosis that are covered by a Forward Pharma patent and have dimethyl fumarate ("DMF") as an active pharmaceutical ingredient.**

FORWARD PHARMA logo and navigation links: Home, About us, Contact, Investors, Search. Below the navigation is a red banner with the text: Investors Forward Pharma / Investors / News / Forward Pharma Agrees to Enter Into Settlement and License Agreement with Biogen

Forward Pharma Agrees to Enter Into Settlement and License Agreement with Biogen

- **Biogen will pay Forward a non-refundable cash fee of \$1.25 billion**
- Forward may be eligible to receive royalties of 10% of net sales of Tecfidera beginning in 2021, and of 20% of net sales beginning in 2029, depending on **the outcome of certain existing litigation and the receipt of regulatory approvals**

COPENHAGEN, Denmark, Jan. 17, 2017 (GLOBE NEWSWIRE) -- Forward Pharma A/S (NASDAQ:FWP) ("we" or "Forward") today announced that it has entered into a binding agreement with two wholly owned subsidiaries of Biogen, Inc. and certain other parties to enter into a Settlement and License Agreement (the "License Agreement") subject to the approval of Forward's shareholders and certain other limited customary conditions. Biogen will pay Forward a non-refundable cash fee of \$1.25 billion in connection with the execution and delivery of the License Agreement. Under certain circumstances, **Biogen will also be obligated to pay Forward royalties of up to 10-20% of net sales of Biogen products, including Tecfidera, approved for the treatment of multiple sclerosis that are covered by a Forward patent and have dimethyl fumarate ("DMF") as an active pharmaceutical ingredient.**

The License Agreement does not resolve the issues pending in the interference proceeding between Forward and Biogen that is currently pending at the Patent Trial and Appeal Board ("PTAB") of the United States Patent and Trademark Office (the "Interference Proceeding") or the opposition proceeding against Forward's European patent EP 2801355 (Application No. 14172398.1) (the "Opposition Proceeding"). Biogen and Forward intend to permit the PTAB and the U.S. Court of Appeals for the Federal Circuit, as applicable, and the **European Patent Office and the Technical Board of Appeal and the Enlarged Board of Appeal, as applicable, to make final determinations in the proceedings before them. The non-refundable fee of \$1.25 billion to be paid by Biogen is not conditional on the outcome of either proceeding.**

Biogen vs Forward Pharma regarding Tecfidera patents

Document EP2137537.A2 – family of EP2137537.A2 et al.

Highlight keywords... Family of EP2137537.A2

NRF2 SCREENING ASSAYS AND RELATED METHODS AND COMPOSITIONS

Biogen
 First filing in family 2/7/2008
 First publication in family 8/14/2008

No drawing available.

Source: equivalent

Abstract Claims Description Drawings

Source: equivalent

1. A pharmaceutical composition for use in treating multiple sclerosis, the composition consisting of: wherein the composition is to be administered orally to a subject in need of treatment for multiple sclerosis, and wherein the dose of dimethyl fumarate or **monomethyl fumarate to be administered is 480 mg per day**
 - (a) dimethyl fumarate or monomethyl fumarate, and
 - (b) one or more pharmaceutically acceptable excipients,
2. The pharmaceutical composition for use as in claim 1, wherein the composition consists of dimethyl fumarate and one or more pharmaceutically acceptable excipients.
3. The pharmaceutical composition for use as in claim 1, wherein the composition consists of monomethyl fumarate and one or more pharmaceutically acceptable excipients.
4. The pharmaceutical composition for use as in any one of claims 1 to 3, wherein the composition is to be administered in the form of a tablet, a suspension, or a capsule.
5. The pharmaceutical composition for use as in any one of claims 1 to 4, wherein the composition is to be administered to the subject for 5, 10, 12, 20, 40, 52, 100, or 200 weeks or more.
6. The pharmaceutical composition for use as in any one of claims 1 to 5, wherein the composition is to be administered to the subject for at least 12 weeks.
7. Dimethyl fumarate or monomethyl fumarate for use in treating multiple sclerosis, wherein the dimethyl fumarate or monomethyl fumarate is the only neuroprotective compound to be administered, and wherein the dimethyl fumarate or monomethyl fumarate is to be orally administered to a subject in need of treatment for multiple sclerosis at a dose of 480 mg per day.
8. Dimethyl fumarate for use as in claim 7, wherein the dimethyl fumarate is the only neuroprotective compound to be administered.



Document EP2801355.B1 – family of EP1799196.A2 et al.

Highlight keywords... Family of EP1799196.A2 National E

Controlled release pharmaceutical compositions comprising a fumaric acid ester

Forward Pharma, Biogen
 Filing date: 10/7/2005
 Publication date: 11/12/2014

Source: equivalent

Abstract Claims Description Drawings

Source: original

1. A pH controlled release pharmaceutical composition for oral use which consists of dimethylfumarate as the active substance, wherein the composition is provided with an enteric coating wherein the daily dosage is from 480 to 720 mg active substance given in one to three doses for use in the treatment of psoriatic arthritis, neurodermatitis, inflammatory bowel disease, or an autoimmune disease.
2. The composition for use of claim 1, which is a multi-particulate composition and the individual units are provided with an enteric coating.
3. The composition for use of claim 1 wherein the daily dosage is from 480 to 600 mg active substance.
4. The composition for use of claim 1 wherein the daily dosage is from 600 to 720 mg active substance.
5. The composition for use of claim 1, wherein the daily dosage is 480 mg active substance.
6. The composition for use of claim 1, wherein the the dosage form contains 120, 180 or 240 mg active substance.
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 - vi. SLE (systemic lupus erythematosus)
 - vii. Sjögren's syndrome
 - viii. pernicious anemia
 - ix. chronic active (lupoid) hepatitis

Biogen vs Forward Pharma regarding Tecfidera patents

Forward Pharma loses European patent case

The European Patent Office has revoked a patent that could have ensured Danish Forward Pharma royalties of US Biogen's multi-blockbuster Tecfidera. Forward Pharma's share price declines by almost 30 percent.

World Business Markets Breakingviews Video More

REUTERS

BRIEF-Forward Pharma Says European Patent Office Has Revoked EP2801355 Patent

1 MIN READ

By Reuters Staff

Jan 29 (Reuters) - Forward Pharma A/S:

- * FORWARD PHARMA ANNOUNCES THE DECISION OF THE EUROPEAN PATENT OFFICE IN THE OPPOSITION PROCEEDINGS FOR THE EP2801355 PATENT
- * SAYS EUROPEAN PATENT OFFICE HAS REVOKED EP2801355 PATENT FOLLOWING ORAL HEARING IN OPPOSITION PROCEEDINGS Source text for Eikon: Further company coverage:

Forward v. Biogen: Biogen Prevails in MS Drug Patent Appeal in Federal Circuit

Oct 24 (Reuters) - A U.S. appeals court on Wednesday upheld a ruling that patents owned by Biogen Inc covering its blockbuster multiple sclerosis drug Tecfidera are valid, rejecting a challenge by Danish drugmaker Forward Pharma A/S.

The U.S. Court of Appeals for the Federal Circuit said it agreed with a March 2017 ruling by the Patent Trial and Appeal Board that freed Biogen Inc from future royalty payments to Forward.

Small Emerging Players targeting Multiple Sclerosis

Underlying hypothesis to identify pathbreaking inventions

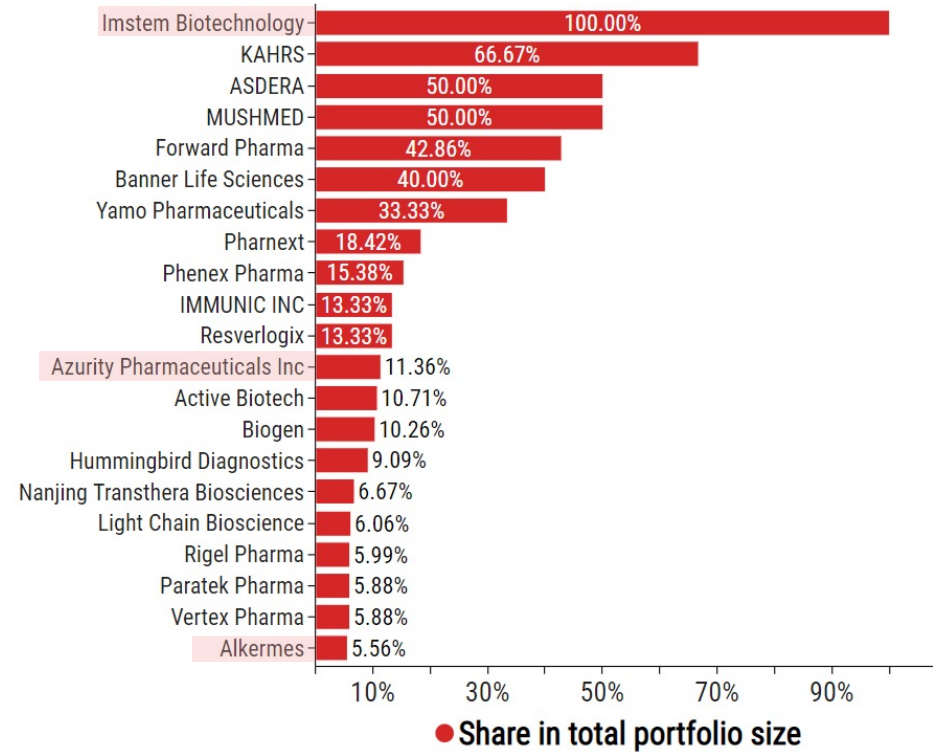
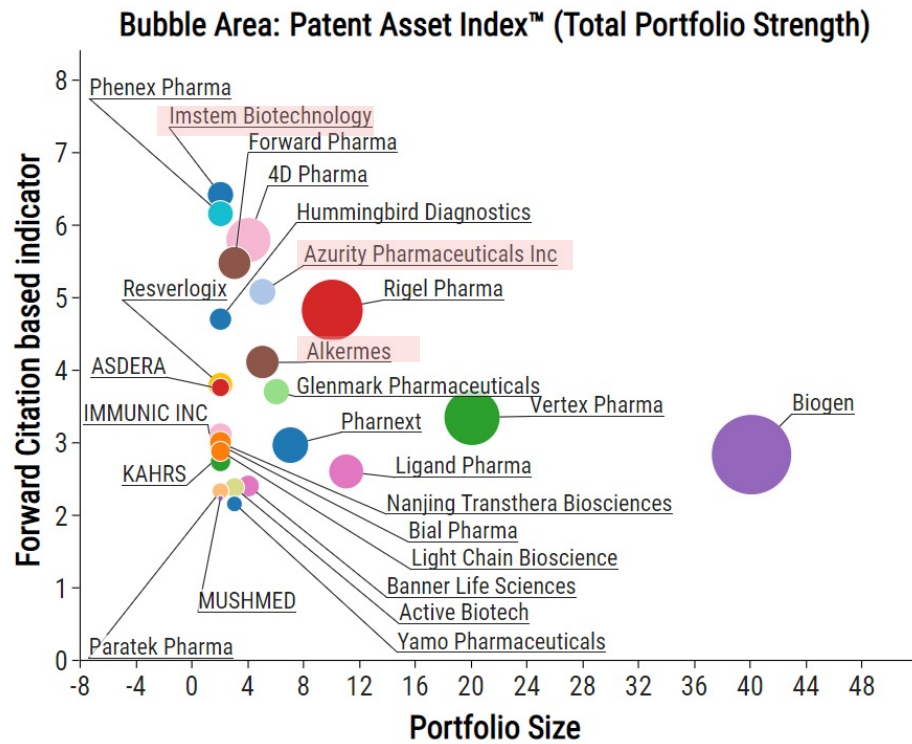
- The patents will be cited as relevant prior art for subsequent patent applications in the same field.
- Small players may not be able to protect as extensively across the globe as established big players.
- Small players (start ups) will have a more focused portfolio concentrating on specific technology topic .



LexisNexis PatentSight

- The forward citation-based indicator can provide insights.
- Exclude effect of market coverage.
- “Share in total portfolio size of owner” in Multiple sclerosis related patents can be useful. .

Small Emerging Players targeting Multiple Sclerosis



News

ImStem Announces First US Multiple Sclerosis Patient Has Been Dosed with its IMS001

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NEWS PROVIDED BY
[ImStem Biotechnology, Inc.](#) →
Nov 18, 2021, 08:37 ET

FARMINGTON, Conn., Nov. 18, 2021 /PRNewswire/ -- ImStem Biotechnology, Inc. (Farmington CT), a biopharmaceutical company pioneering the development of human embryonic stem cell (ESC) derived mesenchymal stem cells (MSCs), today announced through a proprietary method using a trophoblast intermediate stage (termed T-MSC), the first US multiple sclerosis patient with its lead investigational drug candidate IMS001 at the Shepley Center for Biomedical Research in Atlanta, GA. IMS001 is an investigational, allogeneic cell product to be administered intravenously to patients with MS. We believe this is the first hES-MSC based allogeneic cell therapy accepted for clinical trial from MS. The company plans to continue enrollment in a dose-escalating, open-label study of safety, tolerability, and exploratory efficacy of single dose of IV IMS001 in subjects with relapsing-remitting disease and active secondary progressive disease. Biogen holds the exclusive, worldwide license to commercialize VUMERITY and intends to make it available in the United States in the near future.

PHARMA Azurity bags FDA nod for grape-flavored multiple sclerosis drug

By Nick Paul Taylor · Feb 8, 2022 03:35pm

Biogen and Alkermes Announce FDA Approval of VUMERITY™ (diroximel fumarate) for Multiple Sclerosis

OCTOBER 30, 2019 • NEURODEGENERATIVE DISEASES
- VUMERITY, a New Oral Treatment Option for Relapsing Forms of MS, Offers a Combination of Well-Characterized Efficacy, Safety and Tolerability -
CAMBRIDGE, Mass. and DUBLIN, Ireland, Oct. 30, 2019 (GLOBE NEWSWIRE) -- [Biogen Inc.](#) (Nasdaq: BILB) and [Alkermes plc](#) (Nasdaq: ALKS) today announced that the U.S. Food and Drug Administration (FDA) approved VUMERITY™ (diroximel fumarate), a novel oral fumarate with a distinct chemical structure, for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease and active secondary progressive disease. Biogen holds the exclusive, worldwide license to commercialize VUMERITY and intends to make it available in the United States in the near future.

“Vumerity” information in TotalPatentOne

TotalPatent One®

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3 records found out of 153,016,686 records searched

Publications Families

Sort by: Publication date (new-old)

Publication number	Publication date	Application number	Current assignee (standardized)	Original assignee (standardized)	Legal status	Title
US10080733B2	2018-09-25	US15782128	ALKERMES PHARMA	ALKERMES PHARMA	Granted	Prodrugs of fumarates and their use in treatin
US9090558B2	2015-07-28	US14180687	ALKERMES PHARMA	ALKERMES PHARMA	Granted	Prodrugs of fumarates and their use in treatin
US8669281B1	2014-03-11	US14032736	ALKERMES PHARMA	ALKERMES PHARMA	Granted	Prodrugs of fumarates and their use in treatin

Search companion

Save search ★ Stemming

(TAC:(multiple sclerosis) OR CPC:(Y10S514/903+)) AND OBAT:(N) AND OBP:(vumerity)

All authorities Search

Please refer to full screen for Object search

Multiple Sclerosis and Suicide rate

Suicide in Patients with Multiple Sclerosis: Guidance on Red Flags and Prevention

Comorbid depression is only one of the likely warning signs

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"Living with multiple sclerosis [MS] can feel like being stuck in quicksand for some patients," notes Cleveland Clinic neurologist [Mary Alissa Willis, MD](#). "They fight a constant battle not to lose ground in the management of some of their symptoms. Suicide can seem like the last bit of control a patient has over his or her body."

Meeting Coverage > ECTRIMS

Depression, Suicidal Thoughts Prevalent in MS

— Burden equally high in relapsing-remitting and progressive multiple sclerosis

by [Judy George](#), Senior Staff Writer, MedPage Today September 13, 2020

Last Updated September 30, 2020

ADVERTISEMENT

Depression was common in people with multiple sclerosis (MS) and was equally prevalent in patients with relapsing-remitting and progressive forms of the disease, a cross-sectional study showed.

No evidence of group differences between people with progressive MS and relapsing-remitting MS emerged in either depressive symptom severity or suicidal ideation, contrary to the study's hypothesis, reported [Lindsey Knowles, PhD](#), of the University of Washington and the VA Puget Sound Healthcare System in Seattle, at MS Virtual 2020, the joint [ACTRIMS-ECTRIMS](#) meeting.

Sustainability & Sustainable Future

Definition

In 1987, the United Nations Brundtland Commission defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

www.un.org/en/academic-impact/sustainability



The United Nations Sustainable Development Goals (SDGs) are targets for global development adopted in September 2015, set to be achieved by 2030. Implementation and success will rely **on countries' own sustainable development policies, plans and programs, and will be led by countries.** The Sustainable Development Goals (SDGs) will be a compass for aligning countries' plans with their global commitments.



The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to **end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.**

LexisNexis again pioneering to support the United Nations Sustainable Development Goals



RELX is a dedicated signatory of the UN Global Compact which uses the SDGs to chart business participation in achieving these aims.



As an active contributor at the United Nations Rule of Law Steering Committee, LexisNexis helped set the UN SDGs in motion.



LexisNexis PatentSight mapped global patents against the United Nations SDGs



United Nations Sustainable Development Goal 3: Good Health and Well-being

UN SDG 3

<https://unstats.un.org/sdgs/metadata/files/Metadata-03-04-02.pdf> Last updated: May 2021

SDG indicator metadata

(Harmonized metadata template - format version 1.0)

0. Indicator information

0.a. Goal

Goal 3: Ensure healthy lives and promote well-being for all at all ages

0.b. Target

Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

0.c. Indicator

Indicator 3.4.2: Suicide mortality rate

0.d. Series

0.e. Metadata update

May 2021

0.f. Related indicators

NA

4. Other methodological considerations

4.a. Rationale

Mental disorders occur in all regions and cultures of the world. The most prevalent of these disorders are depression and anxiety, which are estimated to affect nearly 1 in 10 people. At its worst, depression can lead to suicide. In 2019, there were over 700,000 estimated suicide deaths worldwide.

Patent Mapping to Targets and Indicators of UN SDG 3 in LexisNexis® PatentSight®


Search Topics	UN SDG Targets	UN SDG Indicators
Cancer Cardiovascular Diseases Chronic Respiratory Diseases Diabetes	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease.
Mental Health		3.4.2 Suicide mortality rate.
4.2 New Surgical and Diagnostic Methods for Non-communicable Diseases		

ature
ases
note

cardiovascular disease, cancer,
/ disease.



Multiple Sclerosis patents map to UN SDGs




Workbook Import Export Insert Options Tools

UN Sustainable Development Go...

Health Topics Countries Newsroom

Home / Health topics / Mental Health



Mental health

PatentSight Visual Search Syntax

Open Save Tag History Undo Redo Copy Paste

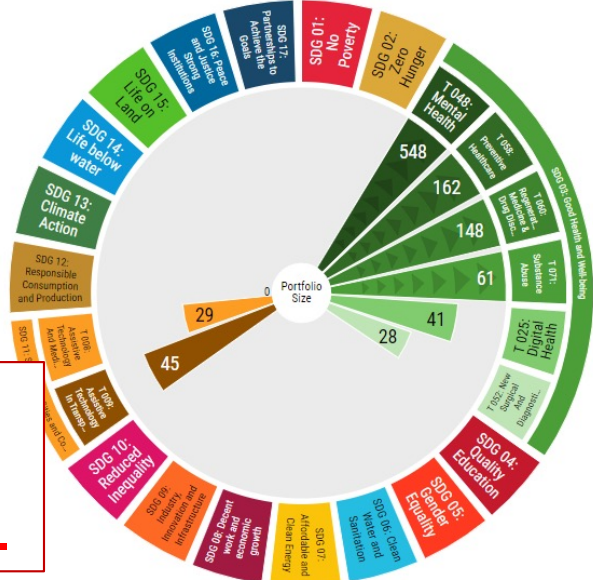
Owner IPC Tag Number Full Text Authority Time Indicator More

Searching active patent families. Hide options

Incl. inactive Incl. other IP rights

Saved Search


##Multiple Sclerosis Add...



SDG	Goal Name	Portfolio Size
SDG 03	Good Health and Well-being	548
SDG 04	Quality Education	162
SDG 05	Gender Equality	148
SDG 08	Decent Work and Economic Growth	61
SDG 09	Industry, Innovation and Infrastructure	45
SDG 10	Reduced Inequality	29
SDG 11	Sustainable Cities and Communities	28
SDG 12	Responsible Consumption and Production	41
SDG 13	Climate Action	28
SDG 14	Life below water	28
SDG 15	Life on Land	28
SDG 16	Peace, Justice and Strong Institutions	28
SDG 17	Partnerships for Sustainable Development Goals	28
SDG 01	No Poverty	28
SDG 02	Zero Hunger	28
SDG 06	Water and Sanitation	28
SDG 07	Affordable and Clean Energy	28
SDG 02	Zero Hunger	28
SDG 04	Quality Education	28
SDG 05	Gender Equality	28
SDG 08	Decent Work and Economic Growth	28
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SDG 14	Life below water	28
SDG 15	Life on Land	28
SDG 16	Peace, Justice and Strong Institutions	28
SDG 17	Partnerships for Sustainable Development Goals	28

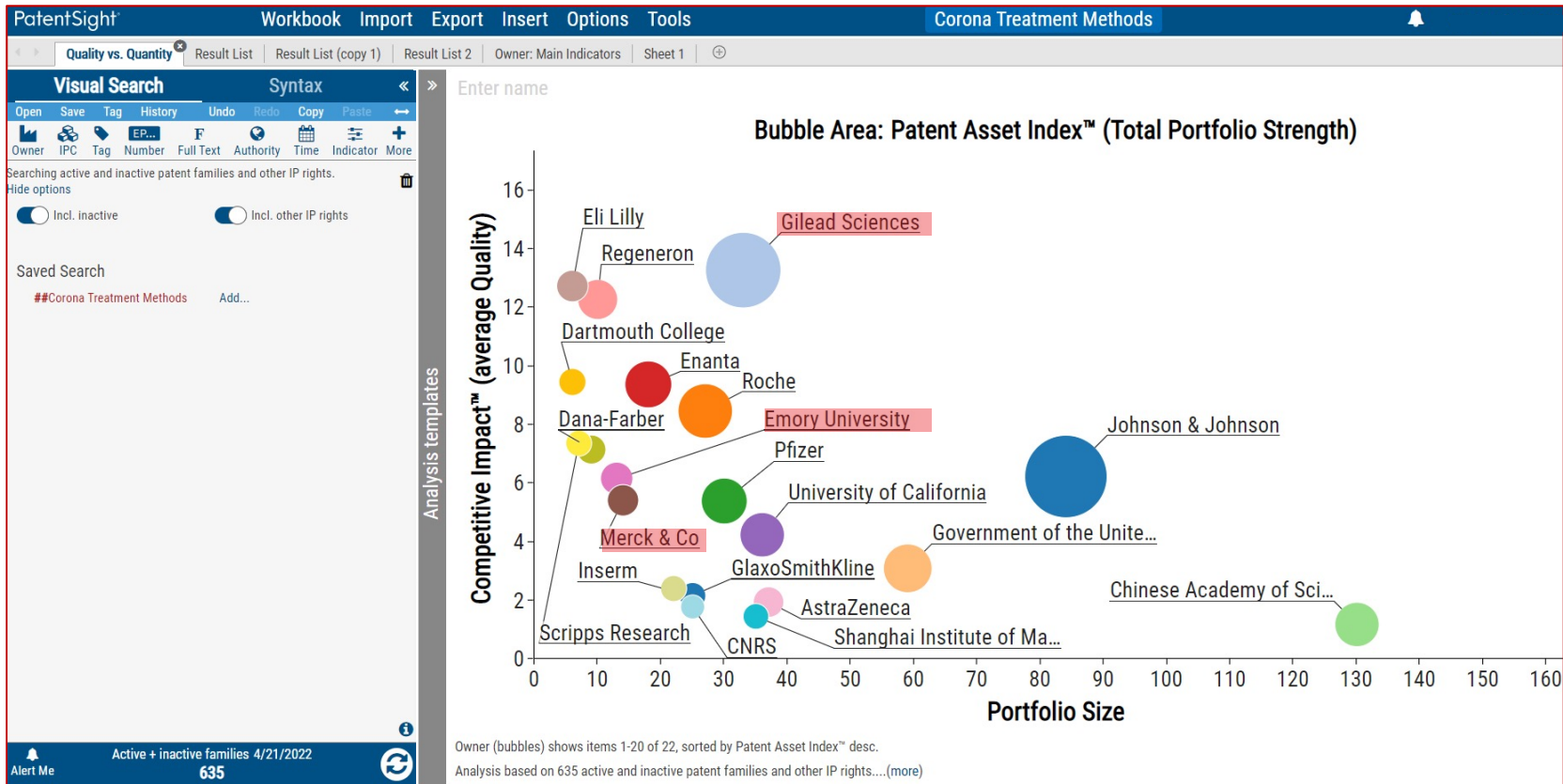
Entities investing in innovating and patenting in Multiple Sclerosis contribute to a more Sustainable future.

Sectors: UN Sustainable Development Goals - Goals Sector Size: Portfolio Size



Patent Analytics in Crisis Response: Covid-19 treatment (not vaccine)

LexisNexis PatentSight: Quality vs. Quantity



Gilead Sciences in Corona treatment

The screenshot shows the FDA's Orange Book website. The header includes the FDA logo and navigation links for Home, Food, Drugs, Medical Devices, Radiation-Emitting Products, Vaccines, Blood & Biologics, Animal & Veterinary, Cosmetics, and Tobacco Products. A search bar is also present. The main content area is titled "Orange Book: Approved Drug Products with Therapeutic Equivalence Evaluations" and includes social media sharing options. Below this, there is a section for "Exclusivity Codes and Definitions" with a table listing various codes and their descriptions. The table has two columns: a code column and a description column. The row for code D-183 is highlighted in red.

Home > Drug Databases > Orange Book Home

Orange Book: Approved Drug Products with Therapeutic Equivalence Evaluations

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[Home](#) | [Back to Patent and Exclusivity](#)

Exclusivity Codes and Definitions

D-181	DOSING REGIMEN EXTENDING THE CONTRACEPTION USE FROM 5 YEARS TO UP TO 6 YEARS
D-182	NEW DOSING REGIMEN FOR THE PREVENTION AND MANAGEMENT OF NERATINIB-ASSOCIATED DIARRHEA
D-183	3-DAY DOSING REGIMEN FOR THE TREATMENT OF COVID-19 IN ADULTS AND PEDIATRIC PATIENTS (>12 YEARS AND WEIGHING AT LEAST 40 KG) WITH POSITIVE RESULTS OF DIRECT SARS-COV-2 VIRAL TESTING, WHO ARE NOT HOSPITALIZED AND HAVE MILD-TO-MODERATE COVID-19, AND ARE AT HIGH RISK FOR PROGRESSION TO SEVERE COVID-19, INCLUDING HOSPITALIZATION OR DEATH
D-184	NEW DOSING SCHEDULE FOR CABOTEGRAVIR/RILPIVRINE INJECTION EVERY 2 MONTHS
L-1	DYSMENORRHEA

[Privacy Policy](#)

Emory University & Merck in Corona treatment

corona virus ebola marburg sars r

Select TR ↓

- N4-hydroxycytidine and derivatives and anti-viral . 2018
N4-Hydroxycytidine derivatives as defined therein a...
Emory University EP3706762.A1
- 4'-halogen containing nucleotide and nucleoside t 2019
Disclosed are halogen containing nucleotide and n...
Emory University EP3762372.A1
- N4-hydroxycytidine and derivatives and anti-viral . 2015
This disclosure relates to N4-hydroxycytidine deriv...
Emory University EP3236972.A1
- Novel forms of antiviral nucleosides 2021
Novel crystalline forms of molnupiravir, including cr...
Emory University, Merck & Co WO2022047229.A1
- ⊗ C-abl tyrosine kinase inhibitors useful for inhibitor 2012
This disclosure provides method of treating a Filovi...
Emory University, Government of the Un... WO2012118599.A1
- Peptidomimetics for the treatment of coronavirus 2020
Compounds, compositions and methods for preven...
Emory University EP3980400.A1
- N4-hydroxycytidine and derivatives and anti-viral . 2021
This disclosure relates to certain N4-hydroxycytidin...
Emory University US2021252033.A1
- 4'-halogen containing nucleotide and nucleoside t 2020
Disclosed are halogen containing nucleotide and n...
Emory University WO2021137913.A2
- Compositions and methods for detecting and tree 2021

Click here to tag patents...

Family of EP3762372.A1 et al.

- 4'-halogen containing nucleotide and nucleoside therapeutic compositions and uses related thereto

Disclosed are halogen containing nucleotide and nucleoside therapeutic compositions and uses related thereto. In certain embodiments, the disclosure relates to the treatment or prophylaxis of viral infections. Such viral infections can include tongaviridae, bunyaviridae, arenaviridae, **coronaviridae**, flaviviridae, picornaviridae, Eastern, Western, and Venezuelan Equine Encephalitis (EEE, WEE and VEE, respectively), Chikungunya fever (CHIK), Ebola, Influenza, RSV, and Zika virus infections. (Source: EP3762372.A1, original)

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Applicant Univ Emory

Family members (16)

Document #	Title	Publication date
EP3762372.A1	4'-halogen containing nucleotide and nucleoside therapeutic compo...	1/13/2021 Pending E
AU2019231725.A1	4'-halogen containing nucleotide and nucleoside therapeutic compo...	10/8/2020 Pending E
BR112020018209.A2	Pharmaceutical compositions, pressurized container, and, methods f...	12/29/2020 Pending E
CA3093222.A1	4'-halogen containing nucleotide and nucleoside therapeutic compo...	9/12/2019 Pending E
CN112074506.A	4'-halogen containing nucleotide and nucleoside therapeutic compo...	12/11/2020 Pending E
EA202092117.A1	Therapeutic compositions 4' - halogen-containing nucleotides and n...	6/28/2021 Pending E
EP3762372.A4	4'-halogen containing nucleotide and nucleoside therapeutic compo...	12/8/2021 Pending E
GB202015827.D0	4'-halogen containing nucleotide and nucleotide therapeutic compos...	11/18/2020 Pending E
GB2589205.A	4'-halogen containing nucleotide and nucleotide therapeutic compos...	5/26/2021 Pending E
IL277160.D0	4'-halogen containing nucleotide and nucleoside therapeutic compo...	10/29/2020 n/a E
JP2021517132.A	4' - Halogen-containing therapeutic composition using their associat...	7/15/2021 Pending E
KR20200140274.A	4' - Halogen-containing nucleotides and nucleoside treatment comp...	12/15/2020 Pending E
PH12020551404.A1	4'-halogen containing nucleotide and nucleoside therapeutic compo...	6/21/2021 Pending E
US2021137913.A2	4'-halogen containing nucleotide and nucleoside therapeutic compo...	10/20/2020 Pending E

Emory University

First filing in family 3/7/2019


First publication in family 9/12/2019

No drawing available.

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Wendy Holman and Merck.

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Thank You!



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Links

- <https://www.nhs.uk/conditions/multiple-sclerosis/>
- <https://www.fda.gov/drugs/drug-approvals-and-databases/orange-book-data-files>
- https://www.accessdata.fda.gov/scripts/cder/ob/results_exclusivity.cfm
- <https://www.fda.gov/drugs/development-approval-process-drugs/frequently-asked-questions-patents-and-exclusivity#exclusivityexpire>
- <https://www.accessdata.fda.gov/scripts/cder/ob/>
- <https://www.fda.gov/media/92548/download>
- https://www.accessdata.fda.gov/scripts/cder/ob/results_patent.cfm
- <https://www.fda.gov/drugs/drug-approvals-and-databases/orange-book-data-files>
- <https://www.npr.org/sections/health-shots/2013/10/28/241365414/unlikely-multiple-sclerosis-pill-on-track-to-become-blockbuster?t=1650841331917>
- <https://www.reuters.com/article/brief-forward-pharma-says-european-paten/brief-forward-pharma-says-european-patent-office-has-revoked-ep2801355-patent-idUKFWN1PO11G>
- <https://consultqd.clevelandclinic.org/suicide-in-patients-with-multiple-sclerosis-guidance-on-red-flags-and-prevention/>