LexisNexis®

Saving the World with Patents:
Is the TRIPS Waiver helping or hurting innovation?

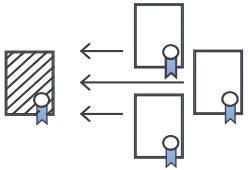
June 15, 2021

Patent Analytics in LexisNexis® PatentSight®: Quality assessment

Technology Relevance™

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

Average value: 1



X

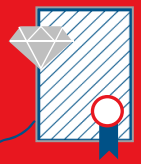
Market Coverage™

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



Individual Patent Family

Σ

Patent Asset Index™

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

LexisNexis IPWatchdog

Today's speakers

Brian Arthur Pomper
Akin Gump

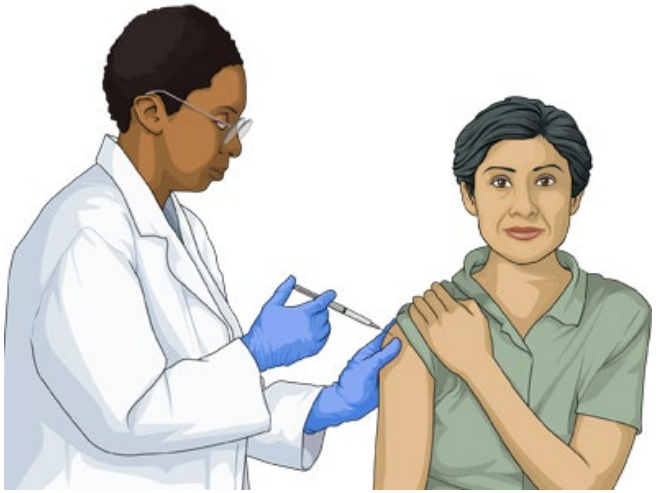
Melissa Brand
Biotechnology Innovation Organization (BIO)

Dr Sarbani Chattopadhyay
LexisNexis PatentSight

Gene Quinn
IPWatchdog

Vaccine

- A substance used to stimulate the production of antibodies and provide immunity against one or several diseases, prepared from the causative agent of a disease, its products, or a synthetic substitute, treated to act as an antigen without inducing the disease
- Prophylactic vaccines are for prevention of disease

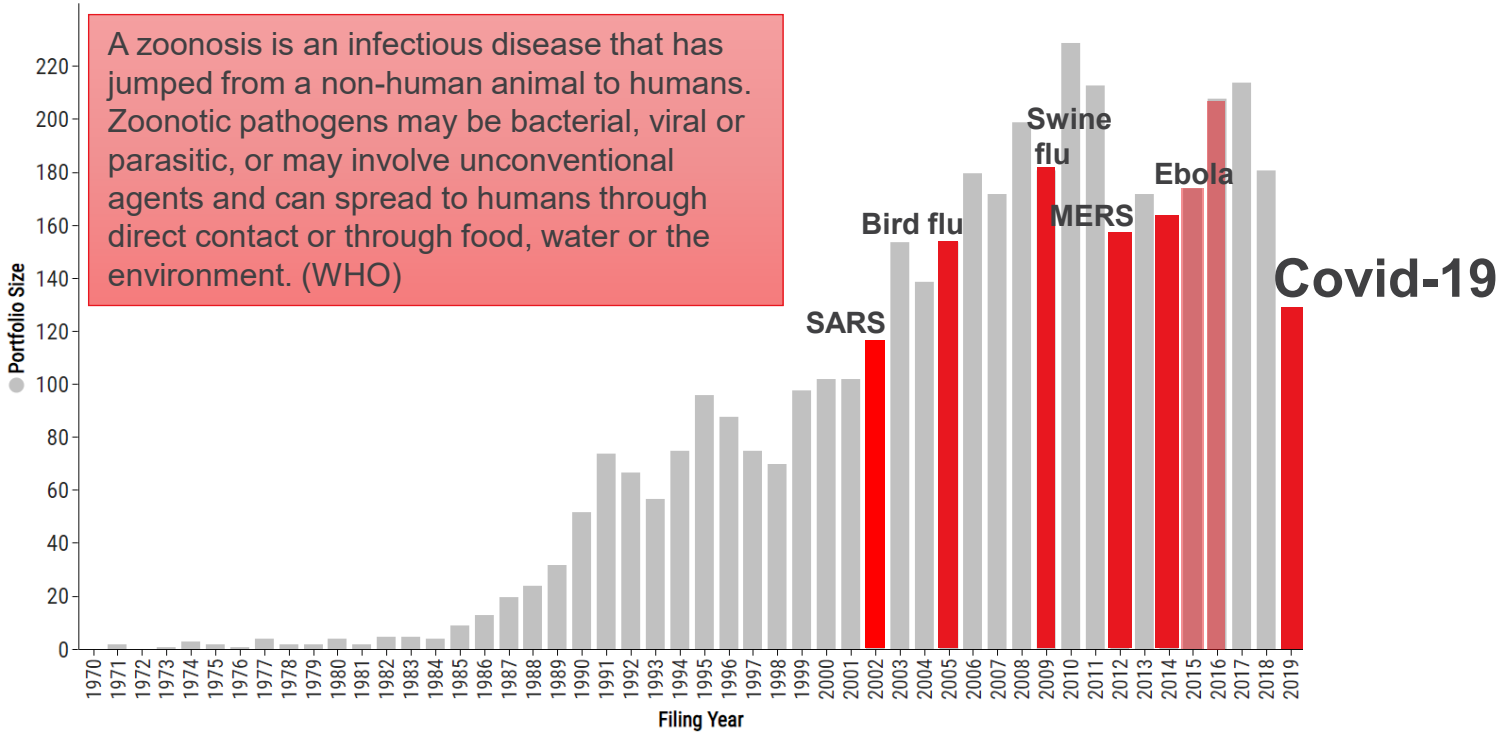


https://medlineplus.gov/ency/article/002024.htm

Overview of the Field

Filing Statistics of patents related to vaccines against viruses

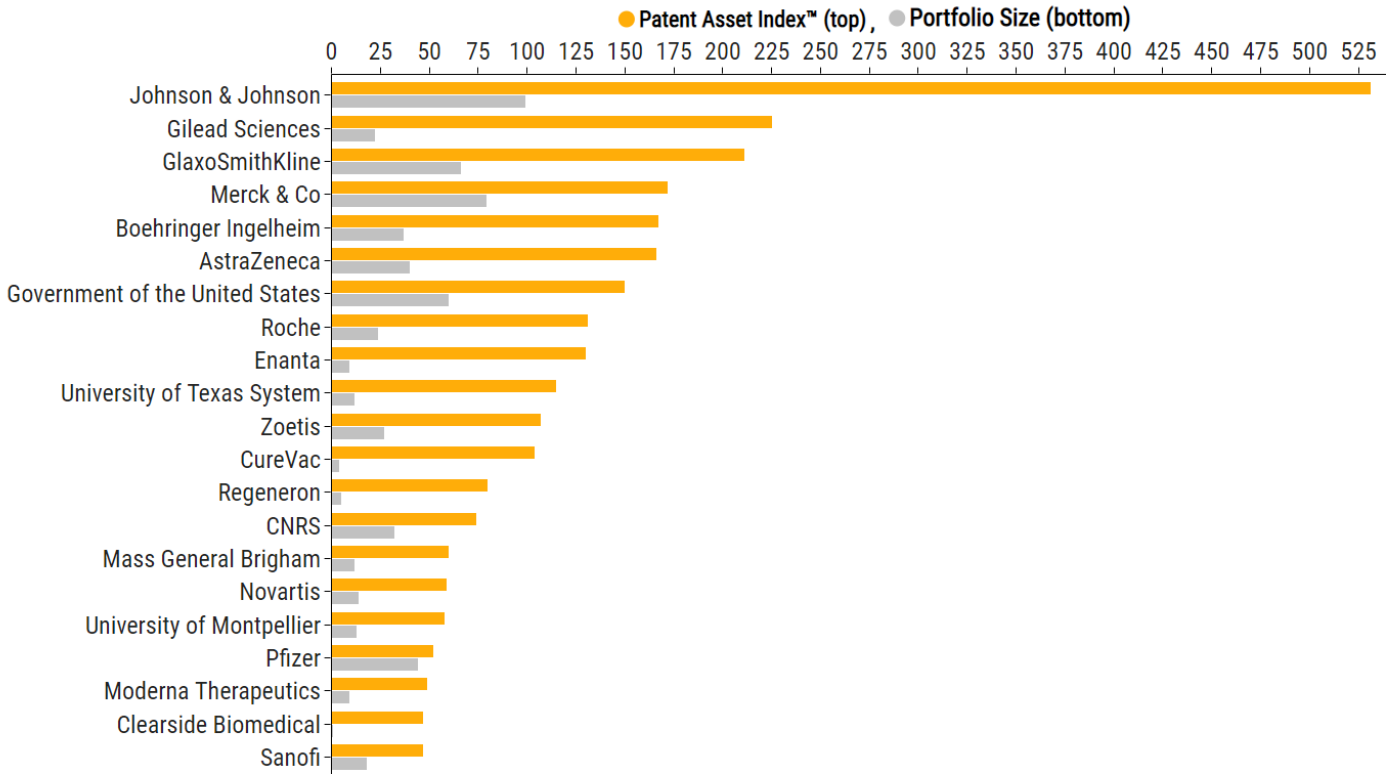
A zoonosis is an infectious disease that has jumped from a non-human animal to humans. Zoonotic pathogens may be bacterial, viral or parasitic, or may involve unconventional agents and can spread to humans through direct contact or through food, water or the environment. (WHO)



LexisNexis IPWatchdog

https://www.who.int/news-room/fact-sheets/detail/zoonoses#:~:text=A%20zoonosis%20is%20an%20infectious,food%2C%20water%20or%20the%20environment

Top 20 companies, as per PatentSight®, in the field of antivirals related to Corona virus family and related virus families (broad overview)



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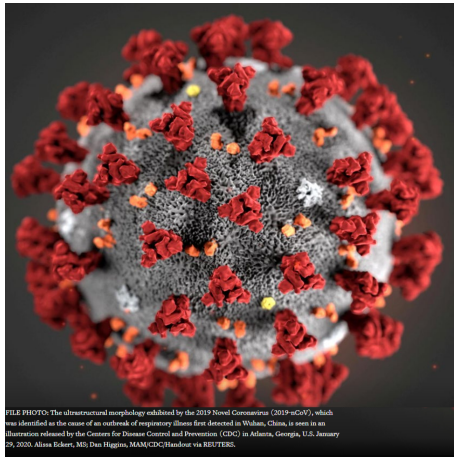
Coronaviridae family

Subunit vaccine
(optional: with adjuvants)

Vector based vaccine



Conjugate vaccine

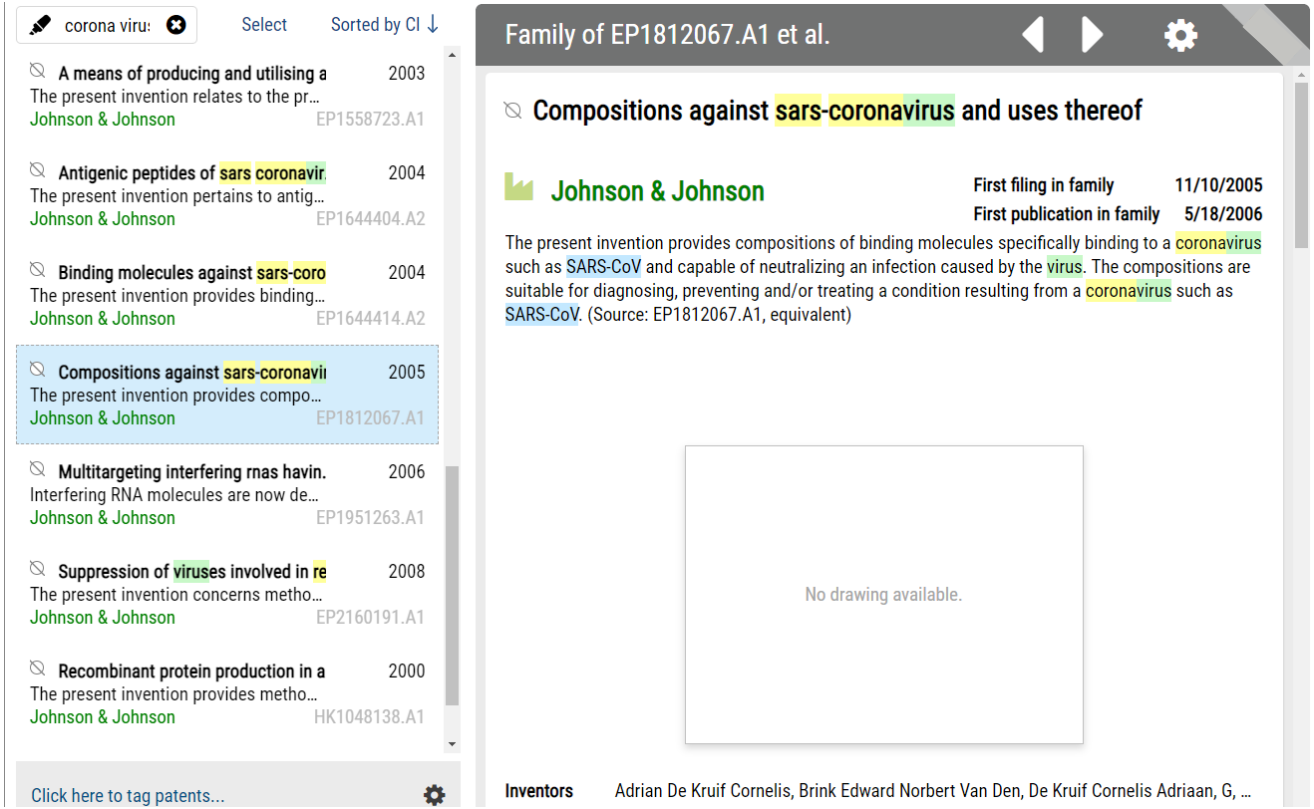
Nucleic acid vaccine

Source: WHO: https://www.who.int/health-topics/coronavirus#tab=tab_1

Inactivated vaccine

Johnson & Johnson

Johnson & Johnson



Johnson & Johnson

Document US2005196384.A1 — family of US2005196384.A...

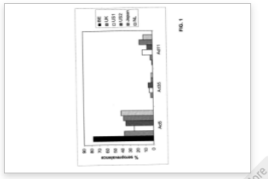
Family of US2005196384.A1 | In force | E

Settings for recombinant adenoviral-based vaccines

Filing date: 4/14/2005
Publication date: 9/8/2005

The present invention provides new uses of recombinant adenoviral vectors in vaccination regimens, such as prime/boost set-ups and subsequent vaccinations and applications for gene therapy. Moreover, the invention provides new assays to determine the best regimen for applying the most suitable recombinant viral vector in a vaccination or gene ther...

Source: original



More

Abstract | Claims | Description | Drawings

Source: original

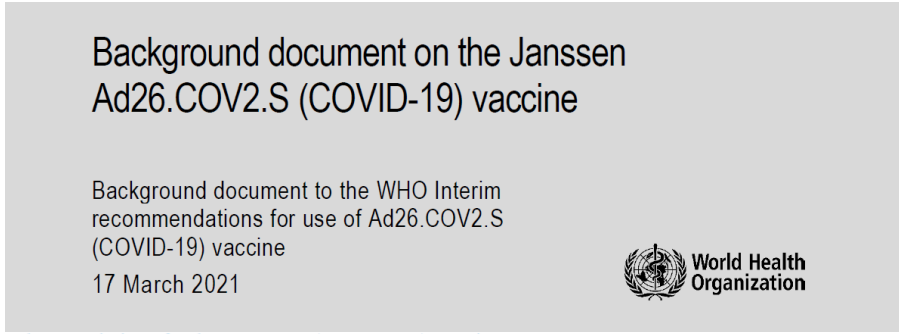
1
. An improvement in a method of delivering a nucleic acid sequence of interest to a subject using an adenoviral delivery vehicle, the method comprising:

administering to the subject a recombinant adenovirus vector of a first serotype having a nucleic acid sequence of interest, wherein the first serotype is selected from the group consisting of Ad11, Ad26, Ad34, Ad35, Ad46, and Ad49; and

administering to the subject, subsequent to administering the recombinant adenovirus vector of the first serotype, a recombinant adenovirus vector of a second serotype having a nucleic acid sequence of interest, wherein the second serotype is different from the first serotype.

6
. The method according to
claim 5
, wherein the viral antigen is selected from the group consisting of an Ebola virus antigen, a measles virus antigen, and a West Nile virus antigen.

Johnson & Johnson



Background document on the Janssen Ad26.COV2.S (COVID-19) vaccine

Background document to the WHO Interim recommendations for use of Ad26.COV2.S (COVID-19) vaccine

17 March 2021

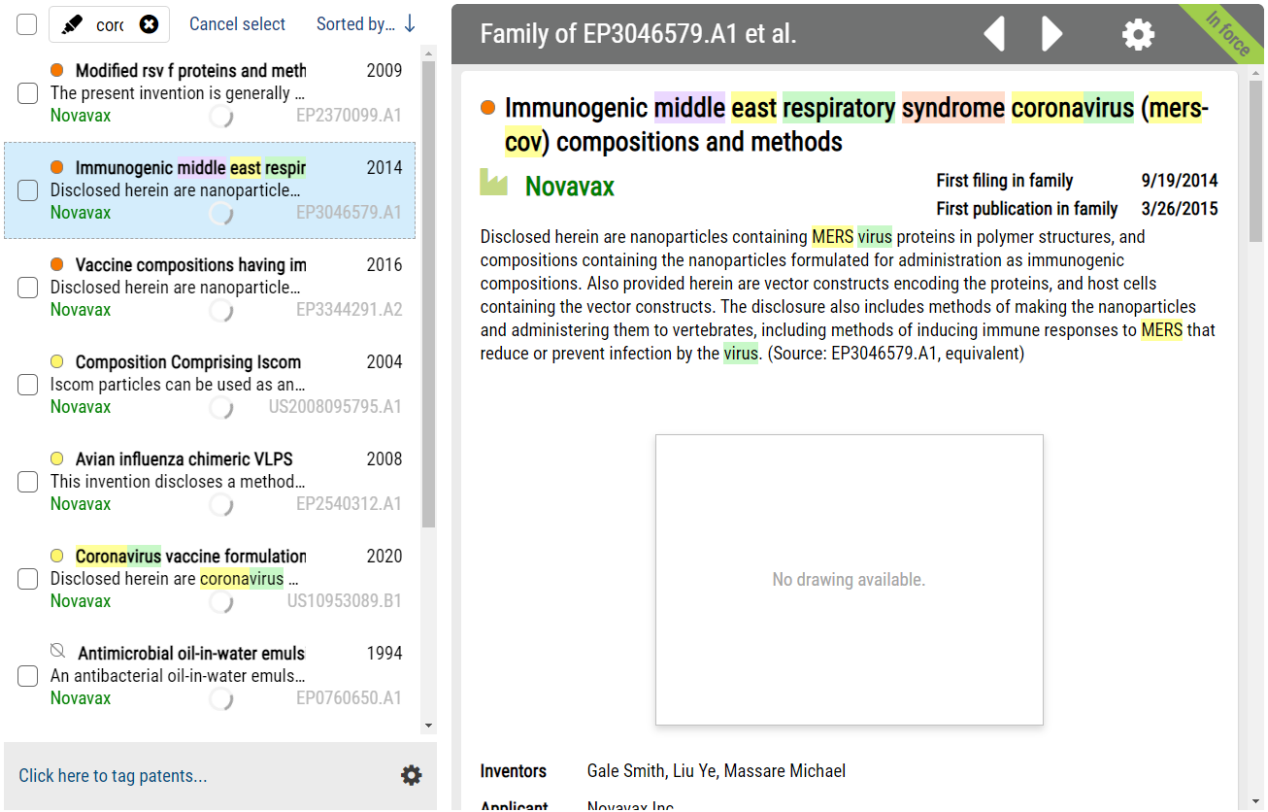
World Health Organization

Characteristics of Ad26.COV2.S (COVID-19) vaccine

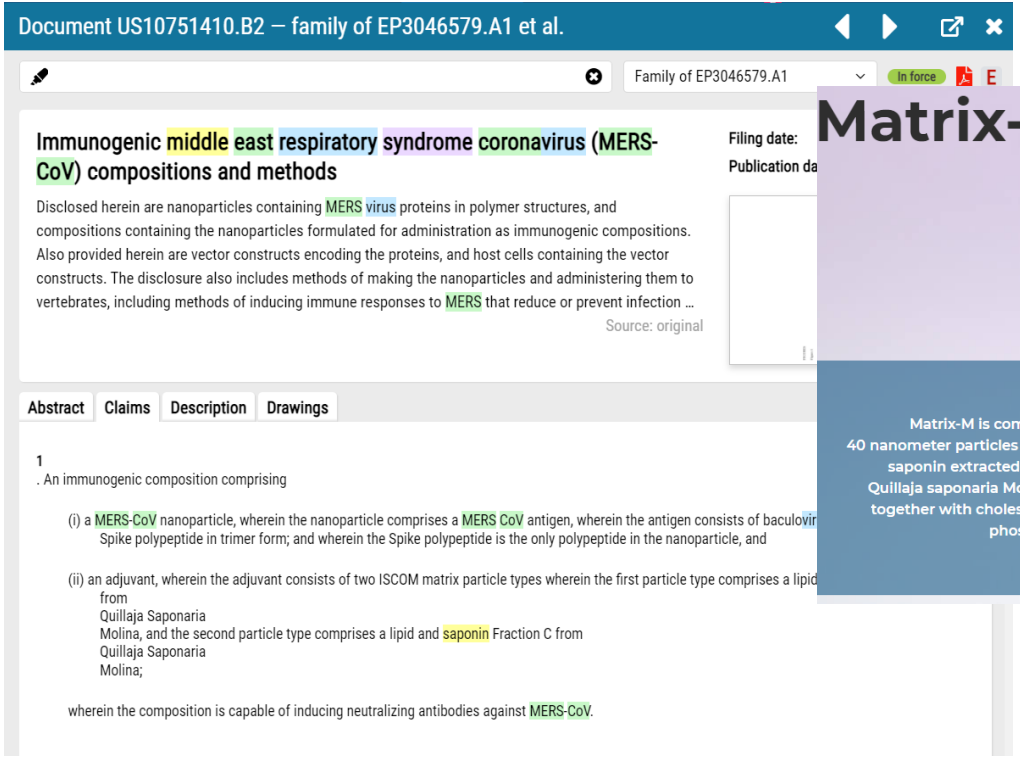
The Janssen COVID-19 Vaccine is a replication-incompetent adenovirus type 26 (Ad26)-vectored monovalent vaccine encoding the SARS-CoV-2 spike (S) protein from the Wuhan-Hu-1 isolate (GenBank accession number MN908947), stabilized in its prefusion conformation. The vector cannot replicate in human cells because the E1 gene was deleted from the genome. To manufacture vaccines that are based on replication incompetent adenoviral vectors, a specific cell line is used that complements for the missing E1 gene. This cell line is derived from a single human primary cell, obtained in 1985 from fetal retina tissue (at 18 weeks of gestation adhering to the Dutch laws that were in effect). The cell line was established by transformation of the primary cells using the Adenovirus E1 gene which resulted in a cell line that constitutively expresses E1, and that is thus able to complement the adenoviral vector that misses E1, allowing the vector to replicate during the manufacturing process. Another consequence of the E1 transformation is that the cell line can be propagated indefinitely and as a result, there is no need to go back to the primary cells in any part of the scientific discovery or manufacturing process. The Ad26 vector expressing the S protein is grown in PER.C6G TetR cell line, in media containing amino acids and no animal-derived proteins. After propagation, the vaccine is processed through several purification steps, formulated with inactive ingredients and filled into vials.

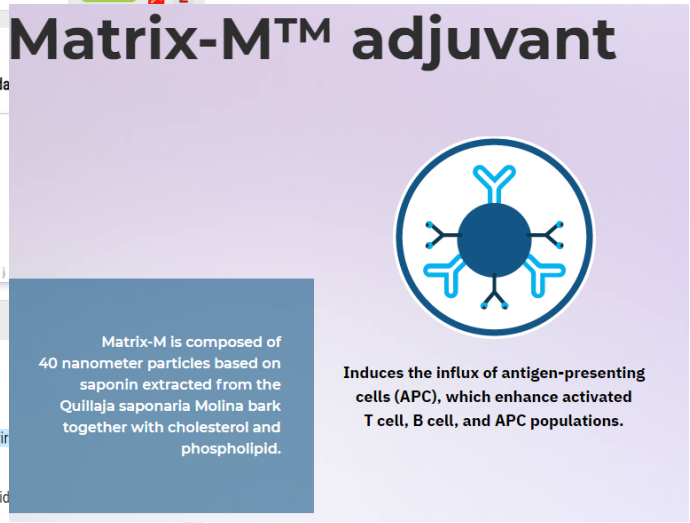
Novavax

Novavax


corc
Cancel select
Sorted by...
Modified rsv f proteins and meth 2009
The present invention is generally ...
Novavax EP2370099.A1
Immunogenic middle east respir 2014
Disclosed herein are nanoparticle...
Novavax EP3046579.A1
Vaccine compositions having im 2016
Disclosed herein are nanoparticle...
Novavax EP3344291.A2
Composition Comprising Iscom 2004
Iscom particles can be used as an...
Novavax US2008095795.A1
Avian influenza chimeric VLPS 2008
This invention discloses a method...
Novavax EP2540312.A1
Coronavirus vaccine formulation 2020
Disclosed herein are coronavirus ...
Novavax US10953089.B1
Antimicrobial oil-in-water emuls 1994
An antibacterial oil-in-water emuls...
Novavax EP0760650.A1
Click here to tag patents...
Family of EP3046579.A1 et al.
In force
Immunogenic middle east respiratory syndrome coronavirus (mers-cov) compositions and methods
Novavax
First filing in family 9/19/2014
First publication in family 3/26/2015
Disclosed herein are nanoparticles containing MERS virus proteins in polymer structures, and compositions containing the nanoparticles formulated for administration as immunogenic compositions. Also provided herein are vector constructs encoding the proteins, and host cells containing the vector constructs. The disclosure also includes methods of making the nanoparticles and administering them to vertebrates, including methods of inducing immune responses to MERS that reduce or prevent infection by the virus. (Source: EP3046579.A1, equivalent)
No drawing available.
Inventors Gale Smith, Liu Ye, Massare Michael
Applicant Novavax Inc

Novavax





https://www.novavax.com/our-unique-technology

News

Novavax to Present at International Society for Vaccines Virtual Congress COVID-19 Vaccine Update

Novavax COVID-19 Vaccine Demonstrates 89.3% Efficacy in UK Phase 3 Trial

Jan 28, 2021 at 4:05 PM EST

First to Demonstrate Clinical Efficacy Against COVID-19 and Both UK and South Africa Variants

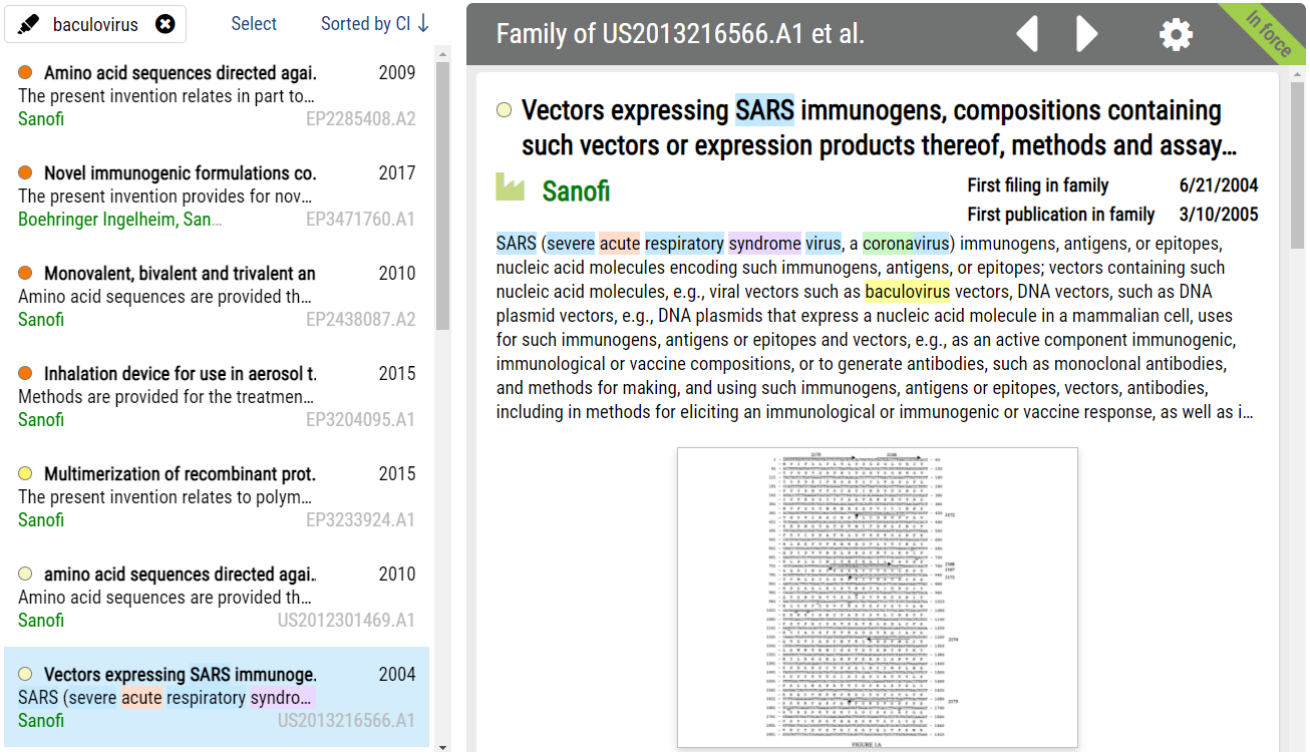
coronavirus spike (S) protein and is adjuvanted with Novavax' patented saponin-based Matrix-M™ to enhance the immune response and stimulate high levels of neutralizing antibodies. NVX-CoV2373 contains purified protein antigen and can neither replicate, nor can it cause COVID-19. In preclinical studies, NVX-CoV2373 induced antibodies that blocked the binding of spike protein to cellular receptors and provided protection from infection and disease. It was generally well-tolerated and elicited robust antibody response in Phase 1/2 clinical testing.

https://www.prnewswire.com/news-releases/novavax-to-present-at-international-society-for-vaccines-virtual-congress-covid-19-vaccine-update-301298080.html

https://ir.novavax.com/news-releases/news-release-details/novavax-covid-19-vaccine-demonstrates-893-efficacy-uk-phase-3

Sanofi

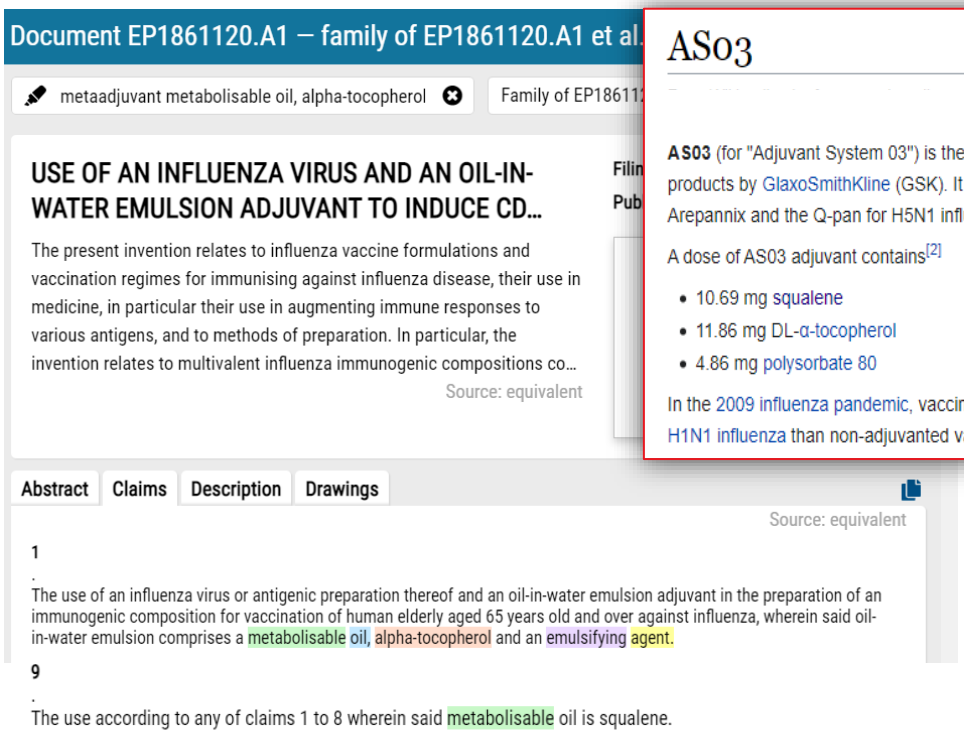
Sanofi

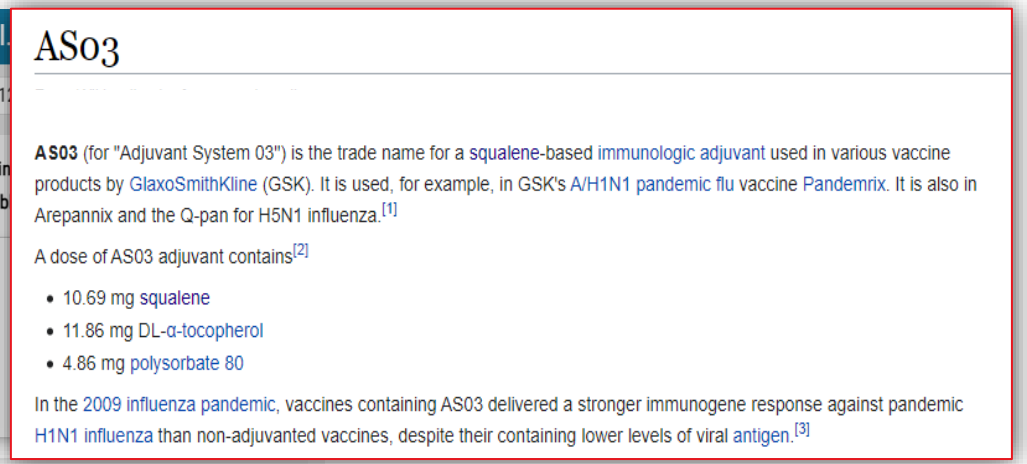

baculovirus
Select
Sorted by CI
Amino acid sequences directed agai. 2009
The present invention relates in part to...
Sanofi EP2285408.A2
Novel immunogenic formulations co. 2017
The present invention provides for nov...
Boehringer Ingelheim, San... EP3471760.A1
Monovalent, bivalent and trivalent an 2010
Amino acid sequences are provided th...
Sanofi EP2438087.A2
Inhalation device for use in aerosol t. 2015
Methods are provided for the treatmen...
Sanofi EP3204095.A1
Multimerization of recombinant prot. 2015
The present invention relates to polym...
Sanofi EP3233924.A1
amino acid sequences directed agai. 2010
Amino acid sequences are provided th...
Sanofi US2012301469.A1
Vectors expressing SARS immunoge. 2004
SARS (severe acute respiratory syndro...
Sanofi US2013216566.A1
Family of US2013216566.A1 et al.
In force
Vectors expressing SARS immunogens, compositions containing such vectors or expression products thereof, methods and assay...
Sanofi
First filing in family 6/21/2004
First publication in family 3/10/2005
SARS (severe acute respiratory syndrome virus, a coronavirus) immunogens, antigens, or epitopes, nucleic acid molecules encoding such immunogens, antigens, or epitopes; vectors containing such nucleic acid molecules, e.g., viral vectors such as baculovirus vectors, DNA vectors, such as DNA plasmid vectors, e.g., DNA plasmids that express a nucleic acid molecule in a mammalian cell, uses for such immunogens, antigens or epitopes and vectors, e.g., as an active component immunogenic, immunological or vaccine compositions, or to generate antibodies, such as monoclonal antibodies, and methods for making, and using such immunogens, antigens or epitopes, vectors, antibodies, including in methods for eliciting an immunological or immunogenic or vaccine response, as well as i...

GlaxoSmithKline

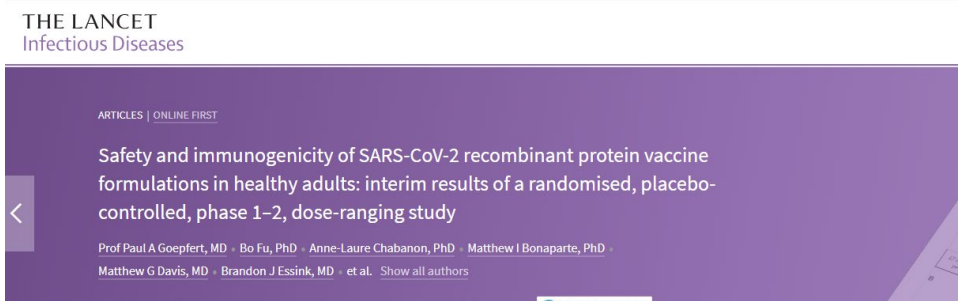
GlaxoSmithKline

GlaxoSmithKline





NEWS



Summary

Background

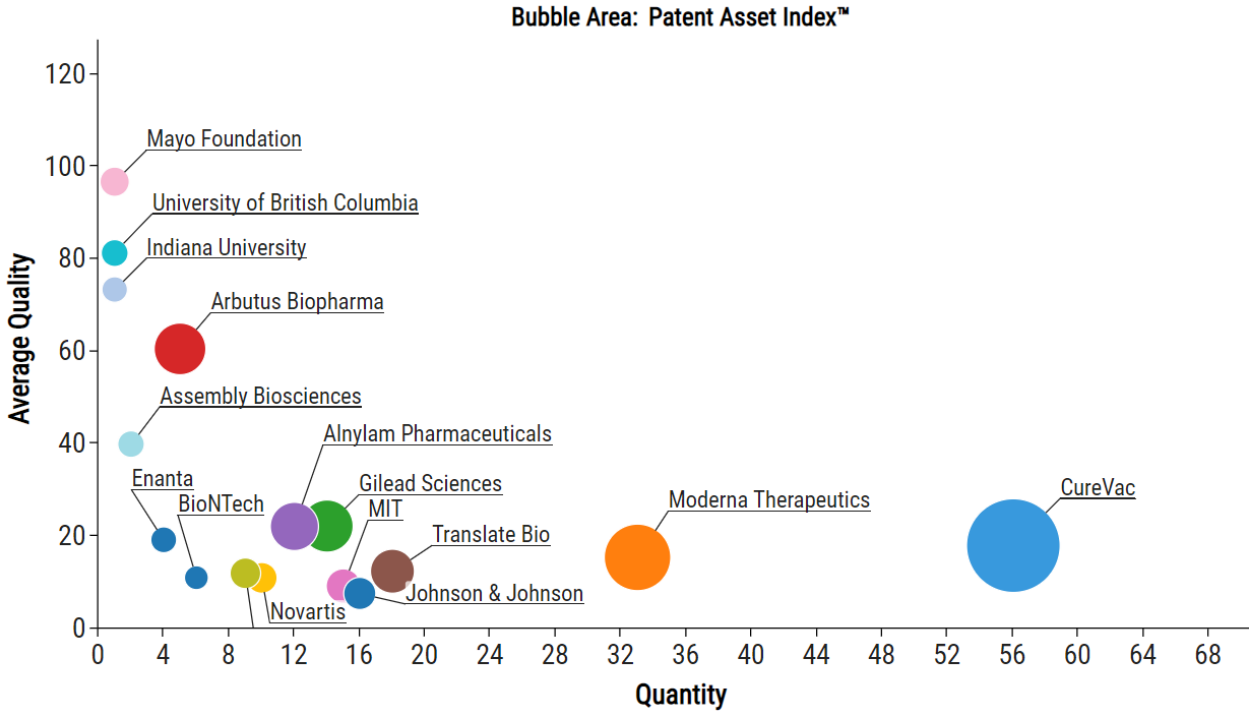
CoV2 preS dTM is a stabilised pre-fusion spike protein vaccine produced in a baculovirus expression system being developed against SARS-CoV-2. We present interim safety and immunogenicity results of the first-in-human study of the CoV2 preS dTM vaccine with two different adjuvant formulations.

Methods

This phase 1–2, randomised, double-blind study is being done in healthy, SARS-CoV-2-seronegative adults in ten clinical research centres in the USA. Participants were stratified by age (18–49 years and ≥50 years) and randomly assigned using an interactive response technology system with block randomisation (blocks of varying size) to receive one dose (on day 1) or two doses (on days 1 and 22) of placebo or candidate vaccine, containing low-dose (effective dose 1·3 μg) or high-dose (2·6 μg) antigen with adjuvant AF03 (Sanofi Pasteur) or AS03 (GlaxoSmithKline) or unadjuvanted high-dose antigen (18–49 years only). Primary endpoints were safety, assessed up to day 43, and immunogenicity, measured as SARS-C0V-2 neutralising antibodies (geometric mean titres), assessed on days 1, 22, and 36 serum samples. Safety was assessed according to treatment received in the safety analysis set, which included all randomly assigned participants who received at least one dose. Neutralising antibody titres were assessed in the per-protocol analysis set for immunogenicity, which included participants who received at least one dose, met all inclusion and exclusion criteria, had no protocol deviation, had negative results in the neutralisation test at baseline, and had at least one valid post-dose serology sample. This planned interim analysis reports data up to 43 days after the first vaccination; participants in the trial will be followed up for 12 months after the last study injection. This trial is registered with ClinicalTrials.gov, NCT04537208, and is ongoing.

mRNA Based Vaccines

mRNA Based Vaccines



Thank you.

www.patentsight.com

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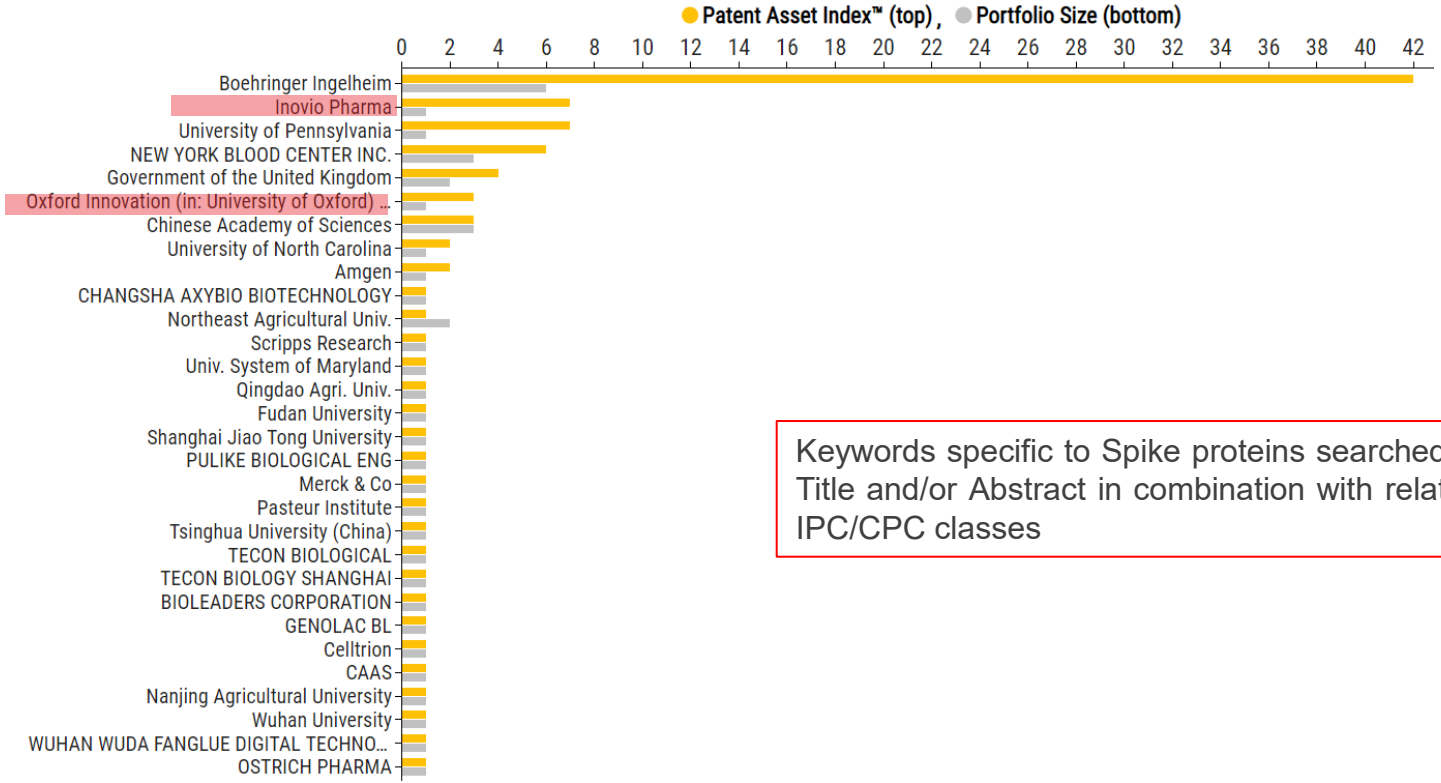
MSombrio@lexisnexisip.com
+1 760-619-9689

Appendix

Other Entities with Know How

Focused Search for Patents Regarding *Coronaviridae* Spike Protein



Keywords specific to Spike proteins searched in Title and/or Abstract in combination with related IPC/CPC classes

LexisNexis IPWatchdog

Zoetis

Orangutans and bonobos at US zoo get experimental COVID-19 vaccine

March 04, 2021

Nine great apes at the San Diego Zoo are the first non-human primates to receive an experimental COVID-19 vaccine.

In February, four orangutans and five bonobos at the zoo each received two doses of the vaccine, which was developed by the veterinary pharmaceutical company Zoetis, according to National Geographic.

The zoo reached out to Zoetis after several of the gorillas at their safari park tested positive for COVID-19 in January, and the company responded by providing a small supply of their vaccine, according to a statement from Zoetis.

The vaccine is still experimental and hasn‘t yet been approved for use in animals in the US.

https://www.livescience.com/great-apes-covid-19-vaccine.html