VacCiencia

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EN ESTE NÚMERO

VacCiencia es una publicación dirigida a investigadores y especialistas dedicados a la vacunología y temas afines, con el objetivo de serle útil. Usted puede realizar sugerencias sobre los contenidos y de esta forma crear una retroalimentación que nos permita acercarnos más a sus necesidades de información.

- Resumen de la información publicada por la OMS sobre candidatos vacunales en desarrollo contra la COVID-19 a nivel mundial.
- Noticias más recientes en la Web sobre vacunas.
- Artículos científicos más recientes de Medline sobre vacunas.
- Patentes más recientes en Patentscope sobre vacunas.
- Patentes más recientes en USPTO sobre vacunas.

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Resumen de la información publicada por la OMS sobre los candidatos vacunales contra la COVID-19 en desarrollo a nivel mundial

Última actualización por la OMS: 20 de septiembre de 2022.

Fuente de información utilizada: World Health Organization; R&DBlueprint Powering research to prevent epidemics

172 Vacunas en evaluación clínica y 199 en evaluación preclínica

Candidatos vacunales en evaluación clínica por plataforma

Platform		Candidate vaccines (no. and %)	
PS	Protein subunit	55	32%
VVnr	Viral Vector (non-replicating)	23	13%
DNA	DNA	16	9%
IV	Inactivated Virus	22	13%
RNA	RNA	40	23%
VVr	Viral Vector (replicating)	4	2%
VLP	Virus Like Particle	6	4%
VVr + APC	VVr + Antigen Presenting Cell	2	1%
LAV	Live Attenuated Virus	2	1%
VVnr + APC	VVnr + Antigen Presenting Cell	1	1%
BacAg-SpV	Bacterial antigen-spore expression vector	1	1%
		172	

Candidatos vacunales mucosales en evaluación clínica

Desarrollador de la vacuna/fabricante/país	Plataforma de la vacuna	Vía de administración	Fase
University of Oxford/Reino Unido	Vector viral no replicativo	Intranasal	1
CanSino Biological Inc./Beijing Institute of Biotechnology/China	Vector viral no replicativo	Inhalación	4
CanSino Biological Inc./China	Vector viral no replicativo	Intranasal	3
Vaxart/Estados Unidos	Vector viral no replicativo	Oral	2
Univ. Hong Kong, Xiamen Univ./Beiging Wantai Biol. Pharm./China	Vector viral replicativo	Intranasal	3
Symvivo/Canadá	ADN	Oral	1
ImmunityBio, Inc./Estados Unidos	Vector viral no replicativo	Oral y SL	1/2
Codagenix/Serum Institute of India	Virus vivo atenuado	Intranasal	3
Center for Genetic Engineering and Biotechnology (CIGB)/Cuba	Subunidad proteica	Intranasal	1/2
Razi Vaccine and Serum Research Institute/India	Subunidad proteica	Intranasal	3
Bharat Biotech International Limited/India	Vector viral no replicativo	Intranasal	3
Meissa Vaccines, Inc./Estados Unidos	Virus vivo atenuado	Intranasal	1
Laboratorio Avi-Mex/México	Virus inactivado	Intranasal	2/3
USSF + VaxForm/Estados Unidos	Subunidad proteica	Oral	1
CyanVac LLC/Estados Unidos	Vector viral no replicativo	Intranasal	1
DreamTec Research Limited/Hong Kong	BacAg-SpV	Oral	NA
Sean Liu, Icahn School of Medicine at Mount Sinai	Vector viral replicativo	Intranasal	2/3
Hannover Medical School/Alemania	Vector viral no replicativo	Inhalación	1
ACM Biolabs/Singapur	Subunidad proteica	Intranasal	1
CanSino Biologics Inc.	Vector viral no replicativo	Intranasal	3

Candidatos vacunales más avanzados/fabricante/país	Plataforma de la vacuna	Fase
Sinovac/China	Virus Inactivado	4
Sinopharm/Beijing Institute of Biological Products/China	Virus Inactivado	4
University of Oxford/AstraZeneca/Reino Unido	Vector viral no replicativo	4
CanSino Biological Inc./Beijing Institute Biotechnology/China (IM e IH)	Vector viral no replicativo	4
Gamaleya Research Institute/Rusia	Vector viral no replicativo	3
Janssen Pharmaceutical Companies/Estados Unidos	Vector viral no replicativo	4
Novavax/Estados Unidos	Subunidad proteica	3
Moderna/NIAID/Estados Unidos	ARN	4
Pfizer/BioNTech Fosun Pharma/Estados Unidos	ARN	4
Anhui Zhifei Longcom Biopharmac./Inst. Microbiol, Chin Acad Sci/China	Subunidad proteica	3
CureVac AG/Alemania	ARN	3
Institute of Medical Biology/Chinese Academy of Medical Sciences	Virus inactivado	3
Research Institute for Biological Safety Problems, Kazakhstan	Virus inactivado	3
Inovio Pharmac. + Intern. Vacc Inst. + Advaccine Biopharm Co., Ltd	ADN	3
Zydus Cadila Healthcare Ltd./India	ADN	3
Bharat Biotech International Limited/India	Virus Inactivado	3
Sanofi Pasteur + GSK/Francia/Gran Bretaña	Subunidad proteica	3
Shenzhen Kangtai Biological Products Co., Ltd./China	Virus Inactivado	3
Clover Biopharmaceuticals Inc./GSK/Dynavax/China/Reino Unido/EE.UU	Subunidad proteica	3
Vaxine Pty Ltd. + CinnaGen Co./Australia, Irán	Subunidad proteica	3
Medigen Vaccine Biol./Dynavax/NIAID/Taiwán/EE.UU	Subunidad proteica	4
Instituto Finlay de Vacunas/Cuba	Subunidad proteica	3
Federal Budget Res Inst State Res Cent Virol Biotechnol "Vector"/Rusia	Subunidad proteica	3
West China Hospital + Sichuan University/China	Subunidad proteica	3
Vaxxinity/EE.UU	Subunidad proteica	3
Univ. Hong Kong, Xiamen Univ. & Beijing Wantai Biological Pharm./China	Vector viral replicativo	3
Acad Milit Sci (AMS) Walvax Biotechnol, Suzhou Abogen Biosci/China	ARN	3
Medicago Inc./Canadá	Partícula similar a virus	3
Codagenix/Serum Institute of India	Virus vivo atenuado	3
Center for Genetic Engineering and Biotechnology (CIGB)/Cuba	Subunidad proteica	3
Valneva, National Institute for Health Research, Reino Unido	Virus inactivado	3
Biological E. Limited/India	Subunidad proteica	3
Nanogen Pharmaceutical Biotechnology/Vietnam	Subunidad proteica	3
Shionogi/Japón	Subunidad proteica	3
Erciyes University/Turquía	Virus inactivado	3
SK Bioscience Co., Ltd./CEPI/Corea del Sur/Noruega	Subunidad proteica	3
Razi Vaccine and Serum Research Institute/Irán, India	Subunidad proteica	3
Bharat Biotech International Limited/India	Vector viral no replicativo (IN)	3
Providence Therapeutics/Canadá	ARN	3
Jiangsu Rec-Biotechnology/China	Subunidad proteica	3
Radboud University/Holanda	Partícula similar a virus	3
Arcturus Therapeutics, Inc./Estados Unidos	ARN	3
Livzon Pharmaceutical/China	Subunidad proteica	3
KM Biologics Co., Ltd.	Virus inactivado	3
Bagheiat-allah University of Medical Sciences/AmitisGen/Irán	Subunidad proteica	3
Laboratorios Hipra, S.A.	Subunidad proteica	3
Sinocelltech Ltd./China	Subunidad proteica	3
Chumakov Federal Scientific Center for Research/Rusia	Virus Inactivado	3
Airlangga University/Indonesia	Virus Inactivado	3
PT Bio Farma/Indonesia	Subunidad proteica	3
AIM Vaccine and Liverna Therapeutics/China	ARN	3
China National Biotec Group Company Limited	Virus inactivado	3

Noticias en la Web

Global South countries strive for vaccine independence

Sep 12. They are integrating medical technology, skills and knowledge, manufacturing practices, intellectual property and training from their respective universities and pharmaceutical companies.

The cooperative is an mRNA vaccine technology transfer hub, centralized at Afrigen, a South African biotech company. The first goal is to expand global access to new medicines by creating self-reliant, vaccine- and drug-making capabilities in the Global South. The second step is to transfer or share skills and technology throughout established centers in Africa, South America, Asia and Eastern Europe. (tinyurl.com/wn4jbdcv)

Once the transfer hub develops a new next-generation mRNA technology, it can quickly make vaccines to fight impending COVID-19 variants and other diseases claiming the lives of millions — such as tuberculosis, malaria, influenza, Zika and measles, and potentially even HIV.

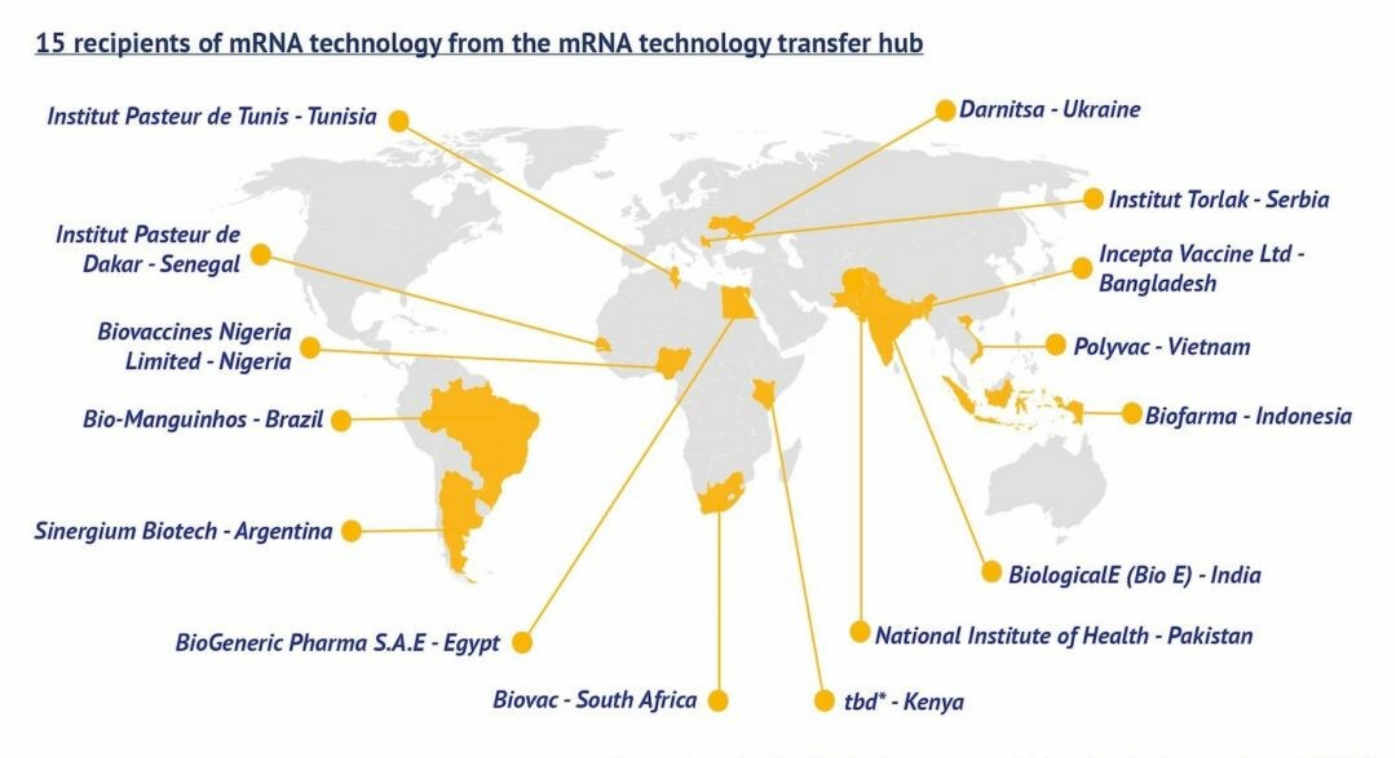
Clinical trials for some of these vaccines are predicted to start at the end of 2022. Countries receiving the technology could be approved soon after.

This approach has the potential of preventing the next pandemic. “Until you can vaccinate the whole world in six months instead of six years, we’re going to continue with challenges like we are having right now with the variants,” says Barney Graham, a researcher who conducted foundational work on mRNA vaccines at the U.S. National Institutes of Health (NIH) in Bethesda, Maryland, and is one of the hub’s advisers. (tinyurl.com/bdz44sa7)

Surmounting patent laws

At this research stage, the hub’s work is “legal.” But the biggest hurdle in its success will be international patent laws.

The hub receives help from the World Health Organization and the U.S. NIH, two organizations fraught with



contradictions within capitalism. Both organizations have provided some progressive assistance and have developed some progressive programs in relation to health. However, their track record shows that, in the end, they ensure profits for huge pharmaceutical companies by protecting and enforcing patent laws.

Researchers at the hub see two possible strategies to avoid patent laws. They are trying to develop distinct mRNA sequences and lipids that won't infringe on Big Pharma Moderna's mRNA patents. But this strategy is "like reinventing the wheel," says Abdullah Ely, a molecular biologist at the University of the Witwatersrand in Johannesburg, South Africa. Moderna holds patents that are so broad, it will be hard for anyone else to develop distinct vaccines. The company has refused WHO's request to help hub researchers.

Another avenue is to call on governments, the WHO and NIH to enforce policy changes and override patent barriers. But researchers at the hub are doubtful that these organizations will push back against Big Pharma.

Patent apartheid

In 1995, due to intense lobbying by the U.S. and other developed countries, the World Trade Organization (WTO) signed the TRIPS agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights). TRIPS stipulates that countries comply with patents for international intellectual property rights (IP) for a minimum of 20 years. This ensures profits for big capitalist businesses.

When the COVID-19 pandemic hit in 2020, India and South Africa called on the WTO to suspend enforcement of patent laws on COVID-19 vaccines and technology. The intent was that each country should be allowed to manufacture the vaccine without penalty. Nearly every Global South country supported this proposal.

But the developed countries refused to temporarily waive the COVID-19 vaccine patents. On Nov. 29, 2021, nursing unions in 28 countries, representing more than 2.5 million health care workers, filed a formal appeal with the U.N. over the terrible crisis created by profiteering by the developed countries. The unions' appeal stressed that the health care workers witnessed "staggering numbers of deaths and the immense suffering caused by political inaction." (tinyurl.com/bdhfjkyh)

The patent waiver was rejected at the WTO through pressure by centibillionaire Bill Gates and the wealthy capitalist countries, including the U.S., the EU, Switzerland and Norway.

The Gates Foundation is the second largest donor after the U.S. to the World Health Organization, and it "prioritizes capitalist ownership first and health care in the formerly colonized world a distant second." ("China shares vaccines, technology with world," workers.org/2021/08/58302/)

In June the WTO finally suspended COVID-19 patents — partially. "Piyush Goyal, Indian commerce minister, responded, 'Vaccines have already lost relevance. Two years [the WTO] spent without giving a solution, and it is too late — not even a situation where you can say better late than never. It is just too late.' Alan Beattie, world trade editor of the Financial Times, wrote: 'TRIPS provisions have been watered down to almost homeopathic levels from the original proposal.'" (tinyurl.com/548wd6fm)

While vaccination rates are now 70% to 90% in developed countries, more than 30 underdeveloped countries have vaccinated less than 10% of their population, according to the Multilateral Leaders Taskforce on COVID-19.

In the U.S., Big Pharma companies have pocketed profits from mRNA vaccine development, even though

their costs were offset by public funding, foundational work at universities and a government grant of $1 billion for clinical trials.

COVID-19 vaccines created nine new billionaires with a combined net wealth of $19.3 billion, enough to fully vaccinate all people in low-income countries 1.3 times. (oxfam.org, May 20, 2021)

China and Cuba, collaboration and global assistance

Cuba and China filed for joint patent for a Pan-Corona vaccine in June 2022. The new vaccine, a collaboration between the biotechnological sectors of the two countries, is the first patent for a single vaccine effective against the many variants of COVID-19. (workers.org/2022/06/64691/)

Cuba asked the World Health Organization to approve its vaccines — an important step towards making them available throughout the developing world. They are already exporting two homegrown vaccines to Venezuela, Vietnam, Iran and Nicaragua. As of November, 89% of Cuba's population have been vaccinated — including children as young as 2. Unlike the messenger RNA (mRNA) vaccines, Cuba's protein vaccines do not need to be kept at extremely low temperatures, making them easier to deliver to remote areas. (tinyurl.com/2u9cemcw)

China has provided over 2.1 billion doses to more than 120 countries and international organizations, a third of the total number of vaccines administered outside China. It is already providing technology to low- to medium-income countries, so they can manufacture their own vaccines. China has 17 manufacturing agreements with 15 countries — with an anticipated production per year amounting to an additional 2 billion doses.

These countries with a socialist foundation show that sharing technology and raw materials, while helping to develop manufacturing, breaks the monopoly of the U.S. and EU pharmaceutical industries.

Fuente: Workers World. Disponible en https://bit.ly/3f9R1MN

¿Cómo funciona la vacuna inhalable de CanSino contra covid?

12 sep. ¿Recuerdan a CanSino? Hace unos días, fue aprobada una de sus vacunas ante la Administración Nacional de Productos Médicos de China (NMPA), aunque esta inmunización es diferente a las que ya conocemos, pues no necesita de un piquete en tu brazo para que haga efecto.

De acuerdo con un comunicado de la compañía farmacéutica, la NMPA le otorgó la aprobación para su vacuna recombinante covid para inhalación para usarse como dosis de refuerzo, pero qué es una vacuna recombinante y en qué consiste esta tecnología.

¿Qué es una vacuna recombinante?

Mucho hemos escuchado hablar de los diferentes tipos de vacunas que hay: de virus atenuados, de RNA mensajero, de virus inactivos. La de CanSino Biologics es de tecnología recombinante.

De acuerdo con los Centros para el Control y Prevención de Enfermedades (CDC) de Estados Unidos, para

elaborar una vacuna recombinante, los científicos primero obtienen el gen que contiene las instrucciones genéticas para formar una proteína superficial llamada S o spike, la cual está presente en los virus de SARS-CoV-2.

La proteína Spike es un antígeno, que es una característica del virus del SARS-CoV-2 que desencadena una respuesta del sistema inmune humano para crear anticuerpos que apunten específicamente al virus.

Este gen para crear el antígeno de la proteína Spike luego se combina con un adenovirus, el adenovirus 5 (Ad5), que es un virus que infecta a humanos. Esto da como resultado un adenovirus recombinante.

La función del adenovirus es ayudar a transportar las instrucciones genéticas a una célula huésped para que sepa cómo crear los antígenos de spike contra el virus dedel SARS-CoV-2.

¿Cómo funcionará la vacuna inhalable contra COVID-19?

En su comunicado, Cansino Biologics informó que se utilizó la misma plataforma tecnológica de vectores de adenovirus que la versión intramuscular, Convidecia.

Lo que se hará es que pondrán la inmunización en un nebulizador para convertir el líquido en un aerosol para inhalar por la boca.

Esto hará que Convidecia Air no necesite agujas y pueda inducir eficazmente una protección inmunitaria integral en respuesta al SARS-CoV-2 con solo una respiración.

CanSinoBIO recibió la aprobación de su solicitud de ensayo clínico para Convidecia Air™ en marzo de 2021. Los estudios publicados en *The Lancet* indicaron que Convidecia Air™ puede inducir una fuerte inmunidad humoral, celular y de las mucosas para lograr una triple protección y contener eficazmente la infección y la propagación del virus.

Fuente: Plano Informativo. Disponible en https://bit.ly/3LFjiHp

OMS llama a no descuidar la protección contra la COVID-19 y la viruela símica

13 sep. La Organización Mundial de la Salud (OMS) llamó a evitar la relajación en el cumplimiento de las medidas para enfrentar la viruela símica y la COVID-19.

Tedros Adhanom, director general de la OMS explicó que la reducción en la cifra de casos en Europa, sitúa al continente en una posición de riesgo mayor, pues muchas personas pueden descuidarse y dispararse la transmisión de ambas dolencias.

“Europa va a tener que vivir con la COVID-19 pero no con la viruela del mono, siempre y cuando lleve a cabo las medidas necesarias para controlar, frenar y eliminar su transmisión, ya que en ningún país la enfermedad es endémica”, subrayó Adhnom en la 72ª Reunión del Comité Regional de la Organización Mundial de la Salud para Europa.

Advirtió que todavía un tercio de la población europea sigue sin vacunarse contra la COVID-19, el 25% de los trabajadores sanitarios y el 20% de las personas mayores.

“Estas brechas en la vacunación representan un riesgo para todos”, sentenció el director general de la OMS.

Fuente: Cubadebate. Disponible en https://bit.ly/3eYo2eS

OMS dice que se vislumbra el fin de la pandemia de COVID-19

14 sep. El mundo nunca ha estado en mejor posición para acabar con la pandemia de COVID-19, dijo el miércoles el jefe de la Organización Mundial de la Salud (OMS), quien instó a las naciones a mantener sus esfuerzos contra el virus que ha matado a más de seis millones de personas.

"Todavía no hemos llegado a la meta, pero el final está a la vista", dijo el director general de la OMS, Tedros Adhanom Ghebreyesus, a periodistas en una conferencia de prensa virtual.

El comentario fue el más optimista de la agencia de la ONU desde que declaró la COVID-19 como una emergencia internacional y comenzó a describir el virus como una pandemia en marzo de 2020.

El virus, que surgió en China a finales de 2019, ha matado a casi 6,5 millones de personas y ha infectado a 606 millones, provocando trastornos en las economías mundiales y sobrecargando los sistemas sanitarios.

El despliegue de vacunas y terapias ha ayudado a frenar la gravedad de la enfermedad. Las muertes por COVID-19 la semana pasada fueron las más bajas desde marzo de 2020, informó la agencia de la ONU.

Sin embargo, los países deben revisar sus políticas y reforzarlas para la COVID-19 y futuros virus, dijo Tedros. Además instó a las naciones a vacunar al 100% de sus grupos de alto riesgo y a seguir haciendo pruebas para detectar el virus.

La OMS advirtió la posibilidad de que haya oleadas del virus y dijo que los países deben mantener un suministro adecuado de equipos médicos y personal sanitario.

"Esperamos que haya futuras oleadas de infecciones, potencialmente en diferentes momentos en todo el mundo, causadas por diferentes subvariantes de Ómicron o incluso por diferentes variantes de preocupación", dijo la epidemióloga principal de la OMS, Maria Van Kerkhove.

Fuente: Cubadebate. Disponible en https://bit.ly/3LvKrg1

Study explores new-onset tinnitus after COVID-19 vaccination

Sep 15. In a recent study published in *The Laryngoscope*, researchers assessed the incidence of new-onset tinnitus after coronavirus disease 2019 (COVID-19) vaccination.

The growing prevalence of vaccine hesitancy and anxiety about the messenger ribonucleic acid (mRNA) COVID-19 vaccine's side effects has become an important global health concern. As a result, throughout the COVID-19 pandemic, extensive research has been conducted on the adverse effects of COVID-19 vaccination. Recently, tinnitus has drawn attention as a possible side effect of the mRNA COVID-19 vaccine.

Following COVID-19 vaccination, patients have reported the development of life-altering tinnitus that may be accompanied by hearing loss, thus drastically damaging a patient's quality of life.

About the study

In the present study, researchers determined the proportion of patients who experienced new-onset tinnitus within 21 days of receiving the COVID-19 vaccine compared to those who received influenza, polysaccharide pneumococcus, and Tdap (tetanus, diphtheria, and acellular pertussis) vaccines.

The TriNetX Analytics Network, a federated health research network, collected de-identified electronic health record (EHR) data from over 78 million patients across 45 health care organizations (HCOs) in the US. This data was employed to create a retrospective cohort design. In the US Collaborative Network of the TriNetX platform, there were 78,058,186 patients with any EHR.

Five patient groups were identified: (1) those who were administered the first mRNA COVID-19 vaccine dose between 15 December 2020 and 1 March 2022, (2) those who received their second mRNA COVID-19 vaccine dose between 15 December 2020 and 1 March 2022, (3) those who received the influenza vaccine between 1 January 2019 and 1 December 2019, (4) those who received Tdap vaccine between 1 January 2019 and 1 December 2019, and (5) those who received pneumococcal vaccine between 1 January 2019 and 1 December 2019.

Fuente: News Medical Life Sciences. Disponible en https://bit.ly/3DJIRVL

Qué se sabe de la nueva subvariante BA.4.6 del coronavirus, que empieza a ganar terreno

18 sep. A pesar de que la OMS considera que el fin de la pandemia del coronavirus "ya está a la vista", no por ello continúan apareciendo nuevas subvariantes que podrían poner en jaque esta recuperación. Tras la propagación de los linajes de Ómicron BA.4 y BA.5, que se convirtieron en los dominantes desde antes del verano, los expertos han detectado ahora la subvariante BA.4.6, que ha estado ganando terreno en EE UU y también se está extendiendo por el Reino Unido.

Manal Mohammed, profesor de Microbiología Médica de la Universidad de Westminster, en Londres, ha desgranado en un artículo publicado en *The Conversation* toda la información de que se dispone hasta la fecha sobre este nuevo sublinaje de ómicron y si supone un riesgo para la población.

Según ha explicado, a mediados de agosto la variante BA.4.6 representaba el 3,3% de las muestras analizadas en Reino Unido. En cuestión de un mes, su crecimiento ha ido a más hasta representar el 9% de los casos secuenciados.

"No está del todo claro cómo surgió BA.4.6, pero es posible que sea una variante recombinante", apunta Mohammed, si bien se sabe que es descendiente de la variante BA.4 de Ómicron. Esta recombinación tiene lugar cuando dos variantes distintas del SARS-CoV-2 infectan a la misma persona al mismo tiempo.

En este sentido, aunque BA.4.6 es similar a BA.4 en muchos aspectos, "lleva una mutación en la proteína S (*spike*) que le permite entrar en nuestras células". Esta mutación, R346T, "se ha visto en otras variantes y está asociada con la evasión inmune, lo que significa que ayuda al virus a escapar de los anticuerpos adquiridos por la vacunación y la infección previa", indica el experto.

Puesto que las infecciones con ómicron causan, en general, una enfermedad menos grave y también menos

muertes respecto a las variantes anteriores, "esperamos que esto se aplique también a BA.4.6", señala Mohammed, que agrega que "aún no ha habido informes de que esta variante cause síntomas más graves".

En cuanto a la transmisibilidad de esta variante, todo apunta a que la BA.4.6 evade mejor el sistema inmunológico que BA.5, la variante actualmente predominante. Mohammed apunta a un reciente informe, del pasado 9 de septiembre, emitido por el Departamento de Salud del Reino Unido (*UK Health Security Agency*) que indica que esta subvariante "se replica más rápidamente en las primeras etapas de la infección y tiene una tasa de crecimiento más alta que BA.5".

Asimismo, también preocupa la efectividad de las vacunas ante esta nueva variante. Según la Universidad de Oxford, las personas que recibieron tres dosis de la vacuna contra la COVID-19 de Pfizer producen menos anticuerpos en respuesta a BA.4.6 que a las anteriores variantes BA.4 o BA.5. "Esto sugiere que las vacunas podrían ser menos efectivas contra BA.4.6", advierte este experto.

Mohammed ha hecho hincapié en la aparición de esta variante y otras nuevas, ya que "muestra que el virus todavía está con nosotros y está mutando para encontrar nuevas formas de superar nuestra respuesta inmune de la vacunación y de infecciones previas".

"Sabemos que las personas que han tenido COVID-19 anteriormente pueden volver a contraer el virus, y esto ha sido particularmente cierto en el caso de Ómicron. En algunos casos, los episodios posteriores pueden ser peores", ha advertido el microbiólogo.

A pesar de ello, "la vacunación continúa ofreciendo una buena protección contra enfermedades graves y sigue siendo la mejor arma que tenemos para luchar contra la COVID-19". Por este motivo, "el desarrollo de vacunas multivalentes contra el coronavirus que se dirijan a múltiples variantes podría brindar una protección aún más duradera", concluye.

Fuente: 20 Minutos Salud. Disponible en https://bit.ly/3UtUWo5

EMA committee recommends approval of Merck's pneumococcal 15-valent conjugate vaccine, Vaxneuvance in infants and children

Sep 19. Merck, known as MSD outside of the United States and Canada, announced that the European Medicines Agency's Committee for Medicinal Products for Human Use (CHMP) has recommended the approval of Vaxneuvance (Pneumococcal 15-valent Conjugate Vaccine) (pronounced VAKS-noo-vans) for active immunization for the prevention of invasive disease, pneumonia and acute otitis media caused by Streptococcus pneumoniae in infants, children and adolescents from 6 weeks to less than 18 years of age. Vaxneuvance is currently authorized for use in the European Union (EU) for individuals 18 years of age and older.

The CHMP opinion will now be considered by the European Commission (EC) for amending the marketing authorization in the EU, and a final decision is expected by the end of the year.

"We are committed to advancing protection for those at increased risk for pneumococcal disease, which includes those under the age of 2 years and children of any age who have certain underlying conditions," said Dr. Eliav Barr, senior vice president, head of global clinical development and chief medical officer, Merck Research Laboratories. "We are pleased with the CHMP's positive opinion as it brings us one step closer to our goal of helping to protect against pneumococcal strains that pose substantial risk to infants and children in Europe."

Pneumococcal disease is an infection caused by the bacterium Streptococcus pneumoniae, or pneumococcus. While there are more than 100 different types of S. pneumoniae, called serotypes, a selected number of serotypes are responsible for the majority of pneumococcal infections. Invasive pneumococcal disease (IPD) can cause serious and potentially life-threatening infections such as bacteremia (infection in the bloodstream); bacteremic pneumonia (pneumonia with bacteremia); and meningitis (infection of the coverings of the brain and spinal cord).

The CHMP opinion was based on data from eight randomized, double-blind clinical studies that enrolled approximately 8,400 individuals from a variety of pediatric populations and clinical circumstances; of these, approximately 5,400 received Vaxneuvance.

In July 2021, Vaxneuvance received approval from the US Food and Drug Administration (FDA) for active immunization for the prevention of invasive disease caused by Streptococcus pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F in adults 18 years of age and older, and in June 2022, the FDA approved an expanded indication for Vaxneuvance to include individuals 6 weeks through 17 years of age.

Vaxneuvance, Merck's 15-valent pneumococcal conjugate vaccine, consists of purified capsular polysaccharides from S.pneumoniae serotypes 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F and 33F individually conjugated to CRM197 carrier protein.

Vaxneuvance is indicated in the EU for active immunization for the prevention of invasive pneumococcal disease and pneumonia caused by S. pneumoniae in individuals 18 years of age and older.

Vaxneuvance is indicated in the US for active immunization of individuals 6 weeks of age and older for the prevention of invasive disease caused by the S. pneumoniae serotypes contained in the vaccine.

Merck has been at the forefront of pneumococcal disease prevention through vaccination for more than four decades and remains committed to helping to protect people of all ages from this disease. Merck's ongoing pneumococcal vaccine development program is designed to provide tailored options to address the specific needs of different populations, including infants and children, healthy adults and at-risk subgroups. This approach recognizes that disease burden in paediatric and adult populations is often driven by different bacterial strains, or serotypes, and aims to address unmet needs by offering vaccine options that target serotypes posing the greatest global risk to each population.

Fuente: PharmaBiz.com. Disponible en https://bit.ly/3r3PZEN

Las ciencias computacionales pueden usarse para optimizar el desarrollo de medicamentos

19 sep. Uno de los temas abordados en el 80 Congreso Mundial de Farmacia fue el de las perspectivas de las ciencias farmacéuticas innovadoras para combatir los desafíos de la salud mundial en el futuro. A pesar de los avances, persisten desafíos, particularmente en lo que respecta a la equidad en el acceso a estas tecnologías. Se discutió cómo las ciencias farmacéuticas se están preparando para futuros desafíos de salud global, incluido el abordaje de los desafíos de equidad en el acceso a las tecnologías.

"Las ciencias farmacéuticas han jugado un papel muy importante en la lucha contra el desafío de la salud global de la pandemia de la COVID-19 a través del desarrollo de vacunas y nuevas terapias."

Explorar la ciencia permitió implementar terapias de una manera mucho más rápida durante la pandemia y tomar algunos de los aprendizajes que se obtuvieron y pensar en cómo se podrían aplicar en el futuro. Sobre algunos de los desafíos, implementar esas tecnologías más ampliamente fuera de algunas de las partes desarrolladas del mundo.

Donald Mager, Universidad de Buffalo, EE UU, desgranó la farmacología de sistemas cuantitativos para acelerar el desarrollo de fármacos para los desafíos de salud global emergentes. El caso de estudio que compartió es el desarrollo de un nuevo anticuerpo monoclonal para el tratamiento de la COVID-19. Destacó el papel de los sistemas cuantitativos de farmacología. Recordó que las diferentes variantes de la COVID-19 (Delta, Omicron, etcétera) cambiaron todo el paradigma. La industria farmacéutica está desarrollando anticuerpos mejorados que se dirigen a las nuevas variantes. "Todo lo que tenemos que hacer es actualizar los parámetros", afirmó. Apuntó que hay vacunas que vienen sin problemas de conservación. "Hay algunas ventajas y desventajas, por supuesto, pero espero que esto sirva como un ejemplo de cómo las ciencias computacionales y de la industria farmacéutica pueden usarse para ayudar a optimizar el desarrollo de medicamentos, particularmente en el caso de una pandemia o una crisis de salud global emergente", aseveró.

Mager se formó como farmacéutico, pero luego se convirtió en un modelador matemático. Así es como aprieto todo en el mundo en un diagrama. "Siempre comenzamos con un buen sentido de los factores que controlan el curso temporal de la exposición al fármaco, y eso representa la fuerza impulsora de los efectos beneficiosos y los efectos adversos de los fármacos", afirmó. Disponen de una gran cantidad de enfoques de modelado para manejar la desconexión temporal entre el curso temporal de la exposición y el curso temporal de la respuesta. Para muchos medicamentos, el momento de la respuesta máxima suele ser muy diferente al momento de la concentración máxima. "Y esa desconexión temporal es provocada por diferentes mecanismos de acción", matizó. Tienen diferentes formas de usar modelos matemáticos y programas computacionales para caracterizar la interacción y la relación entre el curso temporal de la exposición al fármaco y el curso temporal de la respuesta al fármaco. Y éstos representan una serie de procesos que tratan de describir en sus modelos, para caracterizar los datos, para hacer predicciones bajo nuevas condiciones.

Hay ciertas técnicas que son útiles para caracterizar datos, hacer predicciones y guiar la terapia, pero no necesariamente son útiles para acelerar todo el proceso que se necesita. "La farmacología cuantitativa de sistemas es una ciencia relativamente nueva y en evolución, esencialmente desarrollando modelos en lugar de modelos de datos", expuso. No es lo mismo que modelos de sistemas. En el pasado, desarrollaban "modelos compartimentales relativamente simples" para caricaturizar los datos. Pero eso es muy limitado en función de los datos que proporcione. Estará limitado por el diseño del estudio. Estará limitado por las muestras que recopile. Tiene muchas limitaciones, pero los estudios de modelos de sistemas "te permiten hacer predicciones incluso antes de tener acceso a los datos". Las matemáticas son más complicadas. Estos son sistemas más complejos, pero con los que se puede obtener información sobre el desarrollo de fármacos.

Admitió que, en lo que son menos buenos, es en "comprender las fuentes de variabilidad en la farmacodinámica, en la respuesta que responde de la que no responde, alguien que va a tener un evento adverso de alguien que no lo tiene". Por eso, requieren hacerlo mejor y estos modelos de sistemas deberían ayudar a identificar fuentes de variabilidad más allá de lo que hacen sus modelos actuales: tener una gran

influencia en la capacidad de comprender la seguridad de los medicamentos, desarrollar estos modelos multiescala, validar objetivos y también ayudarles a reutilizar medicamentos antiguos para nuevos usos. Su esperanza es que estos modelos de sistemas ayuden no sólo con el desarrollo de un solo fármaco, sino también para desarrollar de manera más racional la terapia combinatoria.

Con todo, su modelo no sólo fue útil en las primeras etapas de la pandemia, sino que ahora pueden usarlo para rastrear las relaciones de respuesta de exposición a nivel individual, lo cual es bastante único. A menudo, no usan estos modelos grandes para datos a nivel de pacientes individuales, pero pudieron hacerlo en este caso.

Chima Amadi, Instituto Nacional de Investigación y Desarrollo Farmacéutico, Nigeria, trató el cerrar la brecha tecnológica para mejorar la respuesta sanitaria mundial en África. Habló de cómo África ha podido aprovechar la tecnología para responder a la pandemia, no sólo los farmacéuticos, sino también los trabajadores de la salud en África, porque muchas innovaciones surgieron de África durante la pandemia. Es decir, una respuesta efectiva para futuras pandemias mediante tecnologías básicas y tecnologías de impacto que se comparten hasta el momento. Entonces, "podemos usar la tecnología para impulsar el sistema de salud africano". No necesariamente se precisan productos sofisticados como los que aborda la Inteligencia Artificial, al ajustar las tecnologías básicas en el país, el uso en el sector realmente puede resolver los desafíos peculiares de la salud en África y también en sus hospitales. Remarcó que están en el trabajo de asegurarse el aprovechar los avances logrados en los desarrollos de tecnología de la salud en África también.

Subrayó que todos sabemos que la COVID-19 realmente ha impactado en la salud global a nivel mundial, no sólo en África, sino en todas partes. Pero el caso de África es bastante singular, por su sistema de salud "pobre y frágil". En África, antes de la COVID-19, sufrían altas tasas de VIH, tuberculosis y malaria. En el África subsahariana, también altas tasas de crecimiento de enfermedades no transmisibles como la diabetes y la hipertensión. Hay allí un acceso deficiente a Internet y existe esta gran brecha en las comunidades rurales y las áreas urbanas. La integración de tecnología sofisticada es bastante difícil. Lo que sucede es que, por ejemplo, en los niveles de Gobierno, "el tipo de tecnología que usan no se puede integrar realmente para satisfacer las necesidades de atención médica de las personas en las comunidades rurales, por lo que el desafío de la falta de infraestructura social básica es alto".

La tasa de farmacéuticos que migran de África a países desarrollados es bastante grande, lo que conduce a un alto déficit de farmacéuticos que pueden mitigar estas respuestas de salud. El objetivo fue cerrar la brecha en África y ayudar a la respuesta ante la COVID-19 en las comunidades rurales. Del mismo modo, "empoderar a las farmacias comunitarias y las farmacias de los hospitales en las comunidades rurales para responder mejor a la pandemia".

Unos de los ejemplos que puso fue lo que hizo Sudáfrica al implementar Malaria Connect, que es la plataforma para garantizar datos en tiempo real de los casos de malaria en Sudáfrica mientras se respondía a la pandemia. Pudieron llegar a más de 12.000 mujeres embarazadas y sus bebés, y fue muy eficaz para los casos prenatales y las tasas de vacunación para las madres que ya estaban en África. "Había muchas dudas sobre las vacunas. Este impulso, a medida que construimos confianza tanto para la madre, los niños y, por supuesto, las madres que pueden influir en sus pupilos, para poder vacunarse y cuidar a sus hijos. Además de los gobiernos y el organismo internacional, el sector privado pudo responder tecnológicamente a la pandemia", puntualizó.

Por supuesto, la COVID-19 tuvo implicaciones negativas en el bienestar económico de muchos africanos. "Ayudé a construir una plataforma que permite a las personas en África tener acceso a pagar sus medicamentos y pagar su atención médica a un costo reducido, costos subsidiados sin afectar su sustento al costo de la vida", avisó. Con esta plataforma tecnológica que se desarrolló para combatir dicho desafío; los proveedores de atención médica, los profesionales pueden tener un espacio privado para asesorar a sus pacientes en términos de casos de emergencia.

Fuente: im Farmacias. Disponible en https://bit.ly/3fe5KGV

7 COVAX innovations that could help us fight the next pandemic

Sep 20. COVAX was conceived in January 2020, when COVID-19 was only just beginning its march across the globe, with a simple aim: to ensure no country, rich or poor, missed out on vaccines against this new threat if and when they became available.

This straightforward goal quickly confronted a far more complex reality. Nothing like this had ever been attempted before, and in that first year COVAX had to overcome a succession of inequities and barriers to access before it shipped its first doses in January 2021.

"COVAX's answer was the largest scale-up of ultra-cold chain technology in history. COVAX financed, coordinated and delivered 800 ultra-cold chain freezers to nearly 70 countries in 2021, enabling the delivery of mRNA vaccines to the countries that needed them."

Meeting these challenges required innovation on the part of staff at COVAX partners Gavi, CEPI and WHO, with UNICEF as a delivery partner. New solutions were devised and implemented, and as set out in a new White Paper published by COVAX this month, these hold important lessons that could help the world prepare better for the next pandemic.

1. The COVAX AMC

The COVAX Advance Market Commitment (AMC) is central to COVAX's model. In previous pandemics, lower-income nations were always forced to the back of the vaccine queue. It was clear that, if this inequity was not addressed this time around, not only would millions of people be left needlessly at the mercy of COVID-19, but the pandemic would continue to spread and evolve.

The AMC set out to change that. Building on Gavi's experience with the Advance Market Commitment for pneumococcal conjugate vaccines and the Advance Purchase Commitment for Ebola vaccines, the COVAX AMC would take funding from donor governments and "self-financing" participants and use it to make Advance Purchase Agreements with vaccine manufacturers, securing supplies of vaccines specifically for 92 low- and middle-income countries and territories around the world. These would then be delivered at no cost to countries, guided by a fair allocation framework developed with the WHO to prioritise those most at-risk.

Overcoming well-documented supply challenges in early 2021, the AMC has achieved some notable milestones, reaching its target of 20% population coverage – enough to cover vulnerable health worker and older populations – in early 2022. Today, more than 51% of people in AMC countries have received a full primary series of vaccines. Within the most vulnerable groups prioritised by COVAX, health workers and older adults, coverage stands at 75% and 63% respectively.

One key lesson from building and launching the AMC in 2020 is around the speed of delivery. COVAX's early difficulties securing supply is partly down to the fact that it did not have the 'at risk' funding – support

for the procurement of vaccines before they were developed and approved for use – in place early enough to secure early volumes of doses. Having contingent financing in place to fund at-risk procurements will be vital to ensure vaccine equity in future.

2. Dose donations

The fact that so much of the global vaccine supply in 2021 was concentrated in high-income countries meant COVAX had to be creative again to unlock doses for vulnerable nations. By calling for dose donations from countries with excess supply, COVAX set up a dose donation mechanism from scratch, involving complex "tri -partite" legal agreements between COVAX, donating countries and manufacturers.

Unlocking these doses through donations made an immediate impact and today more than 800 million donated doses have been distributed to more than 100 countries via COVAX. While the model was not perfect – early volumes often came at short notice and on an ad hoc basis – the development of dose donations could be an important tool for equitable access in the future.

3. An actively managed portfolio

It's easy to forget that in the early months of the pandemic, when COVAX was created, there was no guarantee that any of the vaccines in development would be effective and no clear timeframe for when they would become available. Investing in a broad range of vaccines at the start of the pandemic enabled COVAX to build the world's largest vaccine portfolio, now encompassing 11 vaccines across four technology platforms.

4. A No-Fault Compensation programme

All vaccines rolled out to the general public go through rigorous testing, strict safety protocols and continuous monitoring to ensure they are safe and effective. COVID-19 vaccines are no exception. However, as with other vaccines, drugs and medical products, vaccines that are approved for general use may, in rare cases, cause serious adverse events in some individuals.

Ordinarily, vaccine manufacturers would deal with this risk with tools such as product liability insurance. However, the scale of the COVID-19 vaccine rollout, with billions of people receiving the jab, as well as the fact that vaccines were being approved under an 'Emergency-Use Listing', meant these tools were not available. Instead, governments buying COVID-19 vaccines indemnified manufacturers against any financial losses they incurred. In resource-strapped low-income economies, this roadblock could have put an end to COVAX before it even started.

In response, COVAX created the world's first and only global vaccine injury compensation mechanism: the COVAX No Fault Compensation Programme. By providing a no-fault, lump-sum compensation settlement to any claims associated with a COVAX-supplied vaccine, a fair, efficient global compensation system was developed that any country, not just wealthier ones, could participate in.

5. Model indemnity and liability language

Linked to the No Fault Compensation programme is the development of model indemnity agreements between AMC countries and vaccine manufacturers. Previously any country would have to negotiate their own legal agreements to indemnify the manufacturers and agree on liability issues. This would have led to separate agreements for each manufacturer and recipient government, taking valuable time and resources.

Instead, COVAX negotiated and developed pre-agreed uniform language across most manufacturers, ensuring the right legal safeguards were in place for all AMC countries. This cut red tape dramatically, enabling faster access to vaccines, as well as access from manufacturers that might not have otherwise made their product available.

6. Supporting country readiness

Procuring and shipping vaccines would only make a difference if countries were able to turn them into vaccinations. Many lower-income countries' health systems were already stretched to the limit before COVID -19. To identify how best to support them, COVAX performed a detailed readiness assessment in more than 80 countries.

The upshot of this global action was more than 75,000 health workers trained in the administration of COVID -19 vaccines as well as bespoke guidance, reviewed by more than 200 immunisation experts, for each country and territory on their National Deployment and Vaccination Plans.

Today, COVAX continues to offer COVID-19 Delivery Support (CDS): money that is funding supply, communications, data and the human resources needed to carry out a vaccine campaign of this scale. This effort is complemented by the COVID-19 Vaccine Delivery Partnership, set up by WHO, UNICEF and Gavi to focus on countries where vaccine administration rates are among the lowest in the world.

7. Scale-up of Ultra-Cold Chain (UCC)

For vaccines to reach the people who need them, they need to be kept at a cool temperature during the transportation and storage process. In lower-income countries this can be a challenge, which is why Gavi has been investing in this cold chain for two decades, giving many countries a headstart as COVAX began delivering.

More was needed: COVAX provided additional support to improve regular (2°C to 8°C) cold chain for COVID-19 vaccines in 73 countries, however the use of mRNA vaccines, which need to be stored at ultra-cold (-60°C to -80°C) temperatures, meant the use of vaccine freezers which weren't available in most of the lower-income countries supported by the COVAX AMC.

COVAX's answer was the largest scale-up of ultra-cold chain technology in history. COVAX financed, coordinated and delivered 800 ultra-cold chain freezers to nearly 70 countries in 2021, enabling the delivery of mRNA vaccines to the countries that needed them. Without this investment, most lower-income countries would have been unable to roll out the mRNA vaccines that have made such a difference in fighting this pandemic.

At the start of the pandemic COVAX began on a playing field that was anything but level. Inequities and barriers to access for lower-income countries were faced at every turn, and it took creativity and months of hard work to overcome them. The innovations we created made a difference; implementing them in future pandemics would help lessen the inequity that we saw this time round.

Fuente: GAVI The Vaccine Alliance. Disponible en https://bit.ly/3BVISDN

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Patentes registradas en Patentscope

Estrategia de búqueda: *Vaccine in the title or abstract AND 202209012:20220920 as the publication date 49 records*

1.WO/2022/191801INTEGRASE DEFECTIVE HIV-BASED LENTIVIRUS MEDIATED NEW GENERATION COVID-19 VACCINE ENCODING SARS-COV-2 SPIKE PROTEIN
WO - 15.09.2022
Clasificación Internacional C12N 15/00 Nº de solicitud PCT/TR2022/050199 Solicitante SANLIOGLU, Salih Inventor/a SANLIOGLU, Salih
The present invention relates to the development of an integrase defective HIV-based lentivirus vaccine encoding spike protein against COVID-19 disease, which is defined as severe acute respiratory syndrome (SARS) caused by SARS-CoV-2. Spike proteins released during SARS-CoV-2 infection are molecules that provide the formation of neutralizing antibodies responsible for protective immunity and that activate the T cell response. Compared to plasmid DNA or peptide-based vaccines, a viral vector that infects cells is more effective in inducing a cellular and humoral response to the vaccine antigen. In addition, viral-based vaccines are vectors that can be used safely and can create an immune response without the requirement of adjuvant use. The vaccine developed against COVID-19 that is the subject of the invention is a lentivirus-based vaccine carrying spike protein encoding gene based on a third generation replication-defective, integrase-impaired, VSV-G/LCMV-GP pseudotyped vector, and it is a new generation SARS-CoV-2 vaccine that prevents the virus from binding and entering the cell, providing both neutralizing antibody formation and triggering the cellular immune response.

2.4054615METABOLISCHE UMPROGRAMMIERUNG VON IMMUNZELLEN ZUR ERHÖHUNG DER WIRKSAMKEIT VON PROPHYLAKTISCHEN UND THERAPEUTISCHEN IMPFSTOFFEN
EP - 14.09.2022
Clasificación Internacional A61K 38/00 Nº de solicitud 20883948 Solicitante SANFORD BURNHAM PREBYS MEDICAL DISCOVERY INST Inventor/a SHUKLA ASHIMA
Provided herein are compositions comprising a vaccine composition and an agent that triggers metabolic reprogramming of B cells and methods of using the agent that triggers metabolic reprogramming of B cells to increase effectiveness of the vaccine by increasing memory B cell population. One aspect of the disclosure includes a method of increasing the effectiveness of a vaccine in a subject, which comprises administering a B cell metabolic reprogramming agent to the subject in a dose and schedule configured to increase the effectiveness of the vaccine, wherein the subject is administered with the vaccine.

3.WO/2022/188907VERFAHREN UND SYSTEM ZUR DURCHFÜHRUNG VON IMPFUNGEN MIT EINEM VAKZIN
WO - 15.09.2022
Clasificación Internacional A61M 5/20 Nº de solicitud PCT/DE2022/000022 Solicitante HASSENBÜRGER, Anneliese Inventor/a HASSENBÜRGER, Anneliese
Die Erfindung betrifft ein Verfahren zur Durchführung einer Impfung mit einem Vakzin bzw. einem Impfstoff gegen einen Erreger, wobei ein Autoinjektor (10) verwendet wird, der eine vorgefüllte Spritze

(20) mit einer das Vakzin enthaltenden Flüssigkeit oder einen Container mit einer das Vakzin enthaltenden Flüssigkeit umfasst.

4.20220288175COMPOSITIONS AND METHODS OF ENHANCING IMMUNE RESPONSES TO EIMERIA OR LIMITING EIMERIA INFECTION
US - 15.09.2022
Clasificación Internacional A61K 39/002 Nº de solicitud 17824378 Solicitante THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS Inventor/a John R. Barta
Vaccine vectors and methods of using the vaccine vectors to enhance the immune response to an Apicomplexan parasite and reduce the morbidity or mortality associated with subsequent infection are provided herein. The vaccine vectors include a polynucleotide encoding a Rhomboid polypeptide and optionally include an immune-stimulatory polypeptide suitably expressed on the surface of the vaccine vector.

5.WO/2022/191377VACCINE COMPOSITION FOR PREVENTING SARS-COV-2
WO - 15.09.2022
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/KR2021/016460 Solicitante EYEGENE INC. Inventor/a CHO, Yang Je
The present invention relates to a vaccine composition for preventing SARS-CoV-2, comprising mRNA encoding an S mutant antigen of SARS-CoV-2 virus, wherein a vaccine for preventing SARS-CoV-2 according to the present invention exhibits excellent stability and high immunogenicity in vivo, and the vaccine is thus easy to store and use, and excellent preventive effect thereof against COVID-19 can be expected.

6.20220288191SIV AND HIV VACCINATION USING RHCMV- AND HCMV-BASED VACCINE VECTORS
US - 15.09.2022
Clasificación Internacional A61K 39/21 Nº de solicitud 17350891 Solicitante OREGON HEALTH & SCIENCE UNIVERSITY Inventor/a Louis J. PICKER
Particular aspects provide for use of the β-herpesvirus Cytomegalovirus (CMV: e.g., RhCMV and HCMV) as a uniquely evolved “vector” for safely initiating and indefinitely maintaining high level cellular and humoral immune responses (against, e.g., HIV, SIV, TB, etc.). Particular aspects provide a method for treatment or prevention of, e.g., HIV, SIV or TB, comprising infection of a subject in need thereof with at least one recombinant CMV-based vector (e.g., HCMV or RhCMV) comprising an expressible HIV/SIV/TB antigen or a variant or fusion protein thereof. In particular embodiments of the method, infection is of an to immunocompetent, HCMV or RhCMV seropositive subject. Additional aspects provide for RhCMV- and HCMV-based vaccine vectors, and versions thereof with suicide or safety means. Further aspects provide pharmaceutical compositions comprising the inventive CMV-based vaccine vectors.

7.4056582ZIKA-/DENGUE-IMPFSTOFF UND DESSEN ANWENDUNG
EP - 14.09.2022
Clasificación Internacional C07K 14/18 Nº de solicitud 20884983 Solicitante INST MICROBIOLOGY CAS Inventor/a GAO FU
Provided in the present disclosure are a Zika/dengue vaccine and its application thereof. The present disclosure introduces a mutation into the E-protein FL fusion region of the Zika virus or dengue virus. Antigens with said mutations are unable to bind to antibodies that causes ADE. After immunization with the vaccine of the present disclosure acquired from the said antigens, production of FL epitope-induced antibodies can be prevented, thereby reducing or eliminating the ADE effect.

8.WO/2022/192438SUBUNIT VACCINES WITH DINUCLEOTIDE-LOADED HYDROGEL ADJUVANT
WO - 15.09.2022

Clasificación Internacional A61L 27/52 Nº de solicitud PCT/US2022/019606 Solicitante THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY Inventor/a APPEL, Eric, Andrew
Provided herein are vaccine delivery systems including a polymer hydrogel non-covalently crossed-linked with a plurality of nanoparticles, a dinucleotide adjuvant encapsulated in the hydrogel, and an antigen encapsulated in the hydrogel. The provided vaccine delivery systems are particularly useful for slowly releasing the antigen and adjuvant within a subject, thereby triggering a more therapeutically effective immune response. Also provided are kits including the disclosed vaccine delivery systems, and methods of using the disclosed materials.

9.2604737Escape profiling for therapeutic and vaccine development
GB - 14.09.2022
Clasificación Internacional G16B 40/30 Nº de solicitud 202201277 Solicitante BRYAN D BRYSON Inventor/a BRYAN D BRYSON
A method of viral escape profiling is used in association with antiviral or vaccine development. The method begins by training a language-based model against training data comprising a corpus of viral protein sequences of a given viral protein to model a viral escape profile. The viral escape profile represents, for one or more regions of the given viral protein, a relative viral escape potential of a mutation, the relative viral escape potential being derived as a function that combines both "semantic change," representing a degree to which the mutation is recognized by the human immune system (i.e., antigenic change), and "grammaticality,"representing a degree to which the mutation affects viral infectivity (i.e. viral fitness). Using the model, a region of the given viral protein having an escape potential of interest is identified. Information regarding the region is then output to a vaccine or anti-viral therapeutic design and development workflow.

10.20220288198METHODS OF INCREASING VACCINE EFFICACY
US - 15.09.2022
Clasificación Internacional A61K 39/39 Nº de solicitud 17638321 Solicitante Genome Protection, Inc. Inventor/a Andrei GUDKOV
The present invention relates, in part, to compositions and methods for enhancement of an immune response and for increased vaccine efficacy by stimulation of the TLR5 receptor, for example, with a recombinant TLR5 agonist (e.g., a flagellin-based agent or variant thereof).

11.20220288239RABIES VACCINE
US - 15.09.2022
Clasificación Internacional A61K 48/00 Nº de solicitud 17746844 Solicitante CureVac AG Inventor/a Margit SCHNEE
The present invention relates to an mRNA sequence, comprising a coding region, encoding at least one antigenic peptide or protein of Rabies virus or a fragment, variant or derivative thereof. Additionally the present invention relates to a composition comprising a plurality of mRNA sequences comprising a coding region, encoding at least one antigenic peptide or protein of Rabies virus or a fragment, variant or derivative thereof.
Furthermore it also discloses the use of the mRNA sequence or the composition comprising a plurality of mRNA sequences for the preparation of a pharmaceutical composition, especially a vaccine, e.g. for use in the prophylaxis or treatment of Rabies virus infections. The present invention further describes a method of treatment or prophylaxis of rabies using the mRNA sequence.

12.20220288195HEPATITIS B VIRUS VACCINES
US - 15.09.2022
Clasificación Internacional A61K 39/29 Nº de solicitud 17638344 Solicitante Vir Biotechnology, Inc. Inventor/a Eric BRUENING

The present disclosure relates to isolated polynucleotides and polypeptides, and related hepatitis B virus (HBV)vaccines. The present disclosure also relates to viral vectors for expressing such polypeptides, and which may be used in HBV vaccines, as well as methods of protecting a subject from HBV infection and methods of treating HBV in a subject comprising administering the polypeptides, vectors, or vaccines described herein. Methods of designing and producing an HBV vaccine comprising designing vaccine antigens to cover the diversity within a geographic area using an antigen amino acid sequence that efficiently covers the epitopes in the HBV genotypes present in the geographic area are also provided herein.

13.WO/2022/188280METHOD FOR SCREENING INDIVIDUAL TUMOR NEOANTIGEN PEPTIDE, AND VACCINE FORMULATION THEREOF
WO - 15.09.2022
Clasificación Internacional G16B 20/50 Nº de solicitud PCT/CN2021/098629 Solicitante HANGZHOU NEOANTIGEN THERAPEUTICS CO., LTD. Inventor/a MO, Fan
A method for screening an individual tumor neoantigen peptide, and a vaccine formulation thereof. The screening method comprises the following steps: step one, collecting and sorting information for the generation of mutations of neoantigen peptides, and antigen peptides themselves; step two, performing calculation according to a formula, so as to obtain a score (iNeo_Score) of each antigen peptide; step three, arranging the antigen peptides according to scores in descending order, and performing antigen peptide selection from high to low according to rules; step four, continuing antigen peptide selection until sufficient candidate antigen peptides are acquired or the selection of all alternative antigen peptides is completed, so as to obtain screened antigen peptides; and step five, performing formulation grouping on the screened antigen peptides. Individual tumor neoantigen peptides obtained by means of design are screened, and are then prepared to form a formulation, wherein the formulation comprises: screened antigen peptides, an inorganic salt and an excipient. The formulation can be made into small-capacity injection and freeze-dried powder products, and the products have an excellent tumor-inhibition effect.

14.WO/2022/188783CONSTRUCTION OF F GENE-REPLACED CHIMERIC MEASLES ATTENUATED STRAIN
WO - 15.09.2022
Clasificación Internacional C12N 7/04 Nº de solicitud PCT/CN2022/079775 Solicitante SHANGHAI KING-CELL BIOTECHNOLOGY CO. LTD. Inventor/a AN, Qi
Provided are a construction method and application of an F gene-replaced chimeric measles attenuated strain. Specifically, the present invention provides a chimeric measles virus attenuated strain, and the attenuated strain is a measles virus rMV/F(H1a) having a preservation number of CCTCCNO: V202101. The present invention further provides a vaccine composition containing the F gene-replaced chimeric measles attenuated strain or a derivative virus strain thereof as an active component and a preparation method of the vaccine composition.

15.20220288187BIODEGRADABLE NANOCOMPLEX VACCINES, METHODS FOR SUPPRESSION OF HEPAPITIS B VIRUS REPLICATION AND HEPAPITIS B VIRUS SURFACE ANTIGEN SECRETION
US - 15.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 17763184 Solicitante Frank Wen-Chi LEE Inventor/a Ping-Yen HUANG
A hepatitis B virus (HBV) vaccine includes an HBV core antigen (HBcAg) and/or HBV surface antigen (HBsAg) formulated in nanocomplexes. The nanocomplexes contain chitosan and γ-PGA. These nanocomplexes containing HBc/sAg, chitosan, and γ-PGA can induce more balanced T helper cells (Th1 and Th2) polarization than can a conventional vaccine with an alum adjuvant. HBc/s-NC of the invention can elicit high levels of antibodies against HBsAg, a rapid elimination of HBsAg, and a slow decrease of

HBeAg, indicating a phenomenon of HBsAg seroconversion. Thus, HBc/s-NC can overcome immune tolerance caused by chronic HBV infection to re-establish host immunity leading a functional cure.

16.3111955COMPOSITE CONTAINER
CA - 12.09.2022
Clasificación Internacional F25D 3/08 Nº de solicitud 3111955 Solicitante PROPRIETECT L.P. Inventor/a MAZZA, MARTIN
There is disclosed composite container comprising a thermally insulated inner container disposed within a thermally insulated outer container. The thermally insulated inner container is configured to receive one or more phase change material (PCM) elements to define a payload enclosure. The one or more PCM elements are configured to maintain a payload disposed in the payload enclosure initially at -20 C between 8 C and -25 C, such as between 2 C and 8 C or between -15 C and -25 C, for a period of at least 48 hours in an ambient temperature of up to 35 C when tested pursuant to ISTA 7D Test Procedure. The composite container can be used to ship temperature-sensitive payloads such as perishable goods (e.g., a COVID-19 vaccine such as the Moderna COVID-19 vaccine).

17.4054627VERWENDUNG VON MEMBRANHEMMERN ZUR VERBESSERUNG DER IMPFENTWICKLUNG GEGEN UMHÜLLTE VIREN
EP - 14.09.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 20886009 Solicitante UNIV CORNELL Inventor/a AGUILAR-CARRENO HECTOR
The present application relates to method of vaccinating a subject against infection by an enveloped virus. The method includes providing a compound of the Formula (I) as described herein, and contacting the compound of Formula (I) with an isolated enveloped virus, having a membrane, to inactivate the membrane of the isolated enveloped virus. The subject is then treated with the enveloped virus having an inactivated membrane to vaccinate the subject against the enveloped virus. Further disclosed is an ex vivo vaccine composition including the compound of Formula (I) and an enveloped virus.

18.4054630ZUSAMMENSETZUNGEN UND VERFAHREN ZUM PRODUZIEREN EINES VIRALEN VAKZINS MIT REDUZIERTER TEILCHENGRÖSSE
EP - 14.09.2022
Clasificación Internacional A61K 39/145 Nº de solicitud 20830297 Solicitante SEQIRUS UK LTD Inventor/a DADD CHRISTOPHER
Disclosed herein are methods and composition producing a viral vaccine with reduced particle size, particularly for use in the production of influenza virus vaccines.

19.WO/2022/189634VACCINE COMPOSITIONS AND METHODS FOR TREATING HSV
WO - 15.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2022/056345 Solicitante REDBIOTEC AG Inventor/a TAMBASCO STUDART, Marina
The present invention relates to a vaccine composition comprising one or more mRNAs encoding a Herpes Simplex Virus (HSV) structural protein or an immunogenic fragment thereof for the treatment or vaccination against HSV.

20.WO/2022/192163NOVEL VACCINE FORMULATIONS FOR MYCOBACTERIUM TUBERCULOSIS AND USE OF THEREOF
WO - 15.09.2022
Clasificación Internacional A61K 39/04 Nº de solicitud PCT/US2022/019222 Solicitante PURDUE RESEARCH FOUNDATION Inventor/a JAGANNATH, Chinnaswamy
The present invention discloses a recombinant adenovirus vector of a replication-defective human adenovirus (HAdv85C5) or a bovine adenovirus (BAdv85C5) comprising a recombinant adenovirus vector

having a heterologous DNA segment encoding mycobacterial Ag85B-p25 epitope (SEQ ID NO: 1), mycobacterial Ag85B-p25 epitope fusion of autophagy-inducing peptide-C5 (SEQ ID NO: 2), or a substantially homologous functional fragment thereof. The vector, having a heterologous DNA segment of SEQ ID NO: 3, SEQ ID NO: 4, or a substantially homologous functional fragment thereof, is an effective vaccine for therapeutically or prophylactically immunizing a subject for protection of infections by various microorganisms, especially Mycobacterium tuberculosis (Mtb), which causes the widespread tuberculosis. Methods of uses and pharmaceutical composition matters are within the scope of this disclosure.

21.20220288186VACCINE AGAINST RSV
US - 15.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 17664290 Solicitante Janssen Vaccines & Prevention B.V. Inventor/a Johannes Petrus Maria LANGEDIJK
The present invention relates to novel nucleic acid molecules encoding a pre-fusion RSV F protein or immunologically active part thereof, wherein the pre-fusion RSV F protein comprises the amino acid sequence of SEQ ID NO: 1 or 2. The invention further relates to the use of the nucleic acid molecules, or vectors comprising said nucleic acid molecules, as a vaccine against respiratory syncytial virus (RSV).

22.20220291124NONINVASIVE VACCINE TESTER
US - 15.09.2022
Clasificación Internacional G01N 21/43 Nº de solicitud 17707936 Solicitante HANNU HARJUNMAA Inventor/a HANNU HARJUNMAA
This invention this invention is a device and method for validating the identity of a liquid in a container that is transparent to light, while the liquid is in the container, without physically invading container. The liquid is particularly suited for validating vaccines such as the vaccine for COVID-19. The invention uses light from a refractometer and/or nephelometer, passing into and reflected out of the transparent wall of the container, to characterize the liquid.

23.20220289461COMPOSITE CONTAINER
US - 15.09.2022
Clasificación Internacional B65D 81/38 Nº de solicitud 17694211 Solicitante PROPRIETECT L.P. Inventor/a MARTIN MAZZA
There is disclosed composite container comprising a thermally insulated inner container disposed within a thermally insulated outer container. The thermally insulated inner container is configured to receive one or more phase change material (PCM) elements to define a payload enclosure. The one or more PCM elements are configured to maintain a payload disposed in the payload enclosure initially at −20° C. between 8° C. and −25° C., such as between 2° C. and 8° C. or between −15° C. and −25° C., for a period of at least 48 hours in an ambient temperature of up to 35° C. when tested pursuant to ISTA 7D Test Procedure. The composite container can be used to ship temperature-sensitive payloads such as perishable goods (e.g., a COVID-19 vaccine such as the Moderna COVID-19 vaccine).

24.4054571FENTANYLHAPTEN, FENTANYLHAPTEN-KONJUGATE UND VERFAHREN ZU IHRER HERSTELLUNG UND VERWENDUNG
EP - 14.09.2022
Clasificación Internacional A61K 31/44 Nº de solicitud 20884961 Solicitante UNIV MINNESOTA Inventor/a PRAVETONI MARCO
This disclosure describes a fentanyl hapten, a fentanyl hapten-carrier conjugate, methods of making the fentanyl hapten and the fentanyl hapten-carrier conjugate, and methods of using the fentanyl hapten and the fentanyl hapten-carrier conjugate. The fentanyl hapten-carrier conjugate may be used, for example, as a prophylactic vaccine to counteract toxicity from exposure to fentanyl and its analogues. In some

embodiments, the fentanyl hapten-carrier conjugate or a composition including the fentanyl hapten-carrier conjugate may be used in an anti-opioid vaccine.

25.20220289817IMMUNOTHERAPY WITH B*07 RESTRICTED PEPTIDES AND COMBINATION OF PEPTIDES AGAINST CANCERS AND RELATED METHODS
US - 15.09.2022
Clasificación Internacional C07K 14/725 Nº de solicitud 17826612 Solicitante Immatics Biotechnologies GmbH Inventor/a Heiko SCHUSTER
The present invention relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present invention relates to the immunotherapy of cancer. The present invention furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

26.20220289816IMMUNOTHERAPY WITH B*07 RESTRICTED PEPTIDES AND COMBINATION OF PEPTIDES AGAINST CANCERS AND RELATED METHODS
US - 15.09.2022
Clasificación Internacional C07K 14/725 Nº de solicitud 17826557 Solicitante Immatics Biotechnologies GmbH Inventor/a Heiko SCHUSTER
The present invention relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present invention relates to the immunotherapy of cancer. The present invention furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

27.20220288183VACCINE CONSTRUCTS AND USES THEREOF AGAINST STAPHYLOCOCCUS INFECTIONS
US - 15.09.2022
Clasificación Internacional A61K 39/085 Nº de solicitud 17713683 Solicitante SOCPRA SCIENCES ET GENIES S.E.C. Inventor/a Francois MALOUIN
There is provided a fusion construct of formula (I): X-A-linker-B-Z (I) wherein: (1) A and B are identical or different and are independently: (a) a polypeptide comprising a SACOL0029 polypeptide as set forth in any one of the sequences depicted in FIG. **24** (SEQ ID NOs: 5 and 121 to 131), a SACOL264 polypeptide (SEQ ID NO: 185), a SACOL0442 polypeptide as set forth in any one of the sequences depicted in FIG. **22**D (SEQ ID NOs: 29 and 82 to 92), a SACOL0718 polypeptide (SEQ ID NO: 186), a SACOL0720 polypeptide as set forth in any one of the sequences depicted in FIGS. **23**I-J (SEQ ID NOs: 11 and 109 to 120), a SACOL1353 polypeptide (SEQ ID NO: 187), a SACOL1416 polypeptide (SEQ ID NO: 188), a SACOL1611 polypeptide (SEQ ID NO: 189), a SACOL1867 polypeptide as set forth in any one of the sequences depicted in FIG. **25**D (SEQ ID NOs: 152 to 164), a SACOL1912 polypeptide (SEQ ID NO: 43), a SACOL1944 polypeptide (SEQ ID NO: 190), a SACOL2144 polypeptide (SEQ ID NO: 191), a SACOL2365 polypeptide (SEQ ID NO: 192), a SACOL2385 polypeptide (SEQ ID NO: 50) or a SACOL2599 polypeptide (SEQ ID NO: 193), based on the gene nomenclature from the *Staphylococcus aureus* COL (SACOL) genome set forth in NCBI Reference Sequence NC_002951.2; (b) a polypeptide encoded by a gene from a same operon as a gene encoding the polypeptide of (a); (c) a polypeptide comprising an immunogenic fragment of at least 13 consecutive amino acids of (a) or (b); (d) a

polypeptide comprising an amino acid sequence at least 60% identical overall to the sequence of the polypeptide of any one of (a) to (c); or (e) a polypeptide comprising an immunogenic variant comprising at least 13 consecutive amino acids of any one of (a) to (c); (2) the linker is an amino acid sequence of at least one amino acid or is absent; (3) X is absent or is an amino acid sequence of at least one amino acid; and (4) Z is absent or is an amino acid sequence of at least one amino acid. Also provided are compositions and kits comprising the fusion and uses of these fusions, compositions and kits.

28.4056687ABGESCHWÄCHTER MUMPSVIRUSSTAMM DES F-GENOTYPS UND VERFAHREN ZUR HERSTELLUNG UND ANWENDUNG DAVON
EP - 14.09.2022
Clasificación Internacional C12N 7/04 Nº de solicitud 20885195 Solicitante SHANGHAI KING CELL BIOTECHNOLOGY CO LTD Inventor/a TIAN DAYONG
Provided are an F-genotype mumps virus attenuated strain, a construction method therefor and an application thereof. The attenuated strain is a mumps virus with the accession number of CCTCC NO: V201950. Further provided are a vaccine composition containing the F-genotype mumps virus attenuated strain as an active ingredient and a preparation method thereof.

29.WO/2022/192450SELF-ASSEMBLING PEPTIDES, NANOFIBERS, AND METHODS OF USE
WO - 15.09.2022
Clasificación Internacional A61K 38/00 Nº de solicitud PCT/US2022/019621 Solicitante THE BOARD OF REGENTS OF THE UNIVERSITY OF OKLAHOMA Inventor/a ACAR, Handan
Compositions of anionic and cationic peptides which co-assemble under suitable conditions to form peptide nanostructures, methods of assembling the peptide nanostructures, and methods of use of the peptide nanostructures in hydrogels and as vaccines and vaccine adjuvants. The peptide nanostructures demonstrate stability once self-assembled and are biocompatible and have therapeutic functionality, particularly when equipped with additional functional features such as ligands, fluorophores, antigens, drugs, or other bioactive compounds.

30.20220289829ANTI-HIV VACCINE ANTIBODIES WITH REDUCED POLYREACTIVITY
US - 15.09.2022
Clasificación Internacional C07K 16/10 Nº de solicitud 17625247 Solicitante California Institute of Technology Inventor/a Stuart A. Sievers
This disclosure provides novel broadly neutralizing anti-HIV antibodies and antigen-binding fragments thereof. The disclosed anti-HIV antibodies exhibited improved biophysical properties, e.g, reduced polyreactivity, prolonged half-life, while retaining broad and potent neutralization activity. The anti-HIV bNAb variants as disclosed constitute a novel therapeutic strategy for treating and/or preventing HIV infection.

31.2604692Method for preparing recombinant subunit vaccine against novel coronavirus
GB - 14.09.2022
Clasificación Internacional C07K 1/14 Nº de solicitud 202115860 Solicitante BEIJING SHANGWEI BIOTECHNOLOGY DEV CO LTD Inventor/a SHENGLI BI
The method includes: transfecting a plasmid into E. coli inserted with a nucleic acid fragment corresponding to the novel coronavirus receptor binding domain fused to a tetanus toxin sequence (RBD-TT); culturing the E.coli to express the RBD-TT fusion protein; lysing the bacterial cells and separating an inclusion body crude extract of the RBD-TT recombinant protein; dissolving the crude extract in a denaturing buffer solution containing 7.5-8.5 M urea, arginine, reduced glutathione and glycerol at pH 9-10, and purifying by anion exchange chromatography; diluting the crude sample of RBD-TT recombinant protein with a diluent; filtering, renaturing with renaturation solutions comprising lower arginine and

glutathione concentrations than the denaturing solution to obtain a renatured protein; purifying the recombinant renatured protein by anion exchange chromatography.

32.4056199OPTIMIERTER IMPFSTOFF ZUR AUSLÖSUNG EINER T-ZELL-IMMUNITÄT GEGEN SARS-COV-2
EP - 14.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 21020138 Solicitante KOSMATOPOULOS KOSTANTINOS KOSTAS Inventor/a KOSMATOPOULOS KOSTANTINOS
The invention pertains to immunogenic compositions designed to elicit both a humoral and a T-cell immunity against SARS-CoV-2. To this aim, the invention provides modified sequences of the S protein and/or the N protein of SARS-CoV-2, in which each of the introduced modifications is likely to increase the affinity of a cryptic epitope presented by one of the major HLA-I molecules (HLA-A1, -A2, -A3, -A24, -B7, - B35 and Cw7) for this HLA-I molecule

33.WO/2022/192170SCAFFOLDS FOR INDUCING ANTIBODY RESPONSES AGAINST ANTIGENIC SITES
WO - 15.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2022/019230 Solicitante EMORY UNIVERSITY Inventor/a YANG, Chinglai
This disclosure relates to scaffolds for inducing antibody responses against antigenic sites. In certain embodiments, this disclosure relates to compositions and methods using a filovirus sGP as a scaffold for inducing antibody responses against antigenic sites in foreign pathogens. In certain embodiments, this disclosure relates to compositions and methods using a filovirus sGP as a scaffold for inducing antibody responses against a virus to produce a viral vaccine.

34.20220288184VIRAL VECTOR
US - 15.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 17614064 Solicitante Valo Therapeutics Oy Inventor/a Vincenzo Cerullo
The invention concerns a novel viral vector with modified viral capsid or viral envelope; a pharmaceutical composition or immunogenic agent or vaccine comprising same; a target cell transformed or transfected with same; a combination therapeutic comprising same; use of same in treatment of cancer, and a method of treating cancer using same.

35.4054551INHIBITOREN DES INFLUENZAVIRUSEINTRITTS
EP - 14.09.2022
Clasificación Internacional A61K 31/215 Nº de solicitud 20885338 Solicitante UNIV ILLINOIS Inventor/a RONG LIJUN
Vaccination is the most prevalent prophylactic means for controlling seasonal influenza infections. However, an effective vaccine usually takes at least 6 months to develop for the circulating strains. Therefore, new therapeutic options are needed for acute treatment of influenza infections to control this virus and prevent epidemic/pandemic situations from developing. Described herein are fast-acting, orally active acylated amino-substituted heterocyclyl compounds effective to control this virus. In one aspect, described herein is a method of treating an influenza infection in a subject comprising administering to the subject the compounds described herein.

36.WO/2022/192657BIOENGINEERED IMMUNOMODULATORY FUSION PROTEIN COMPOSITIONS
WO - 15.09.2022
Clasificación Internacional Nº de solicitud PCT/US2022/019926 Solicitante JANSSEN BIOTECH, INC. Inventor/a TAMOT, Ninkka

Provided herein, in some embodiments, are bioengineered immunomodulatory fusion proteins and uses thereof for modulating immune responses, as well as improving a response of a subject to a vaccine, or treating a disease or disorder, such as cancer or a pathogen infection.

37.20220288189INFLUENZA HEMAGGLUTININ PROTEINS AND METHODS OF USE THEREOF
US - 15.09.2022
Clasificación Internacional A61K 39/145 Nº de solicitud 17485705 Solicitante CALDER BIOSCIENCES INC. Inventor/a Christopher Patrick Marshall
In some embodiments the present invention provides influenza hemagglutinin ("HA") polypeptides, proteins, and protein complexes that comprise a stalk domain that is engineered to facilitate maintenance of its native trimeric conformation, even if the head domain of the HA protein is removed or disrupted. In some embodiments, the present invention provides compositions comprising such polypeptides, proteins, and protein complexes, and methods of use of such proteins and compositions, for example as vaccine immunogens.

38.WO/2022/192604BIODEGRADABLE NANOCOMPLEX VACCINES, METHODS FOR RIBONUCLEIC ACID AND DEOXYRIBONUCLEIC ACID VACCINES
WO - 15.09.2022
Clasificación Internacional C08B 37/08 Nº de solicitud PCT/US2022/019846 Solicitante ASCENDO BIOTECHNOLOGY, INC. Inventor/a LEE, Frank Wen-Chi
A vaccine containing RNA or DNA encapsulated in nanocomplexes, wherein the nanocomplexes includes poly-ϒ-glutamic acid (ϒ-PGA) and chitosan, wherein the nanocomplexes are positively charged on nanoparticle surfaces, have zeta potentials of from about +30 mV to about +60 mV, and have an average particle size ranging from about 100 nm to about 800 nm.

39.4056197TUMORSPEZIFISCHE POLYPEPTIDSEQUENZ UND DEREN VERWENDUNG
EP - 14.09.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 19951972 Solicitante SHENZHEN GINO BIOTECHNOLOGY CO LTD Inventor/a LI BO
Provided are a tumor-specific polypeptide sequence and use thereof. The polypeptide includes at least one polypeptide in a first peptide group, and optionally, at least one polypeptide in a second peptide group, the first peptide group includes polypeptides having amino acid sequences set forth in SEQ ID NO: 1 to SEQ ID NO: 4, the second peptide group includes derivative peptides of the amino acid sequences set forth in SEQ ID NO: 1 to SEQ ID NO: 4, the derivative peptide includes a front peptide segment, a middle peptide segment, and a back peptide segment that are connected in sequence, the middle peptide segment has at least 80% homology with the amino acid sequences set forth in SEQ ID NO: 1 to SEQ ID NO: 4, and a sum of lengths of the front peptide segment and the back peptide segment ranges from 17 amino acids to 19 amino acids. Further provided are a nucleic acid, a construct, an expression vector, a pharmaceutical composition, an antigen-presenting cell, an immune effector cell, a tumor vaccine, use of the polypeptide in the preparation of drugs for preventing or treating tumors, and a method for treating a patient suffering from tumors.

40.WO/2022/192093METHODS FOR TREATING CORONAVIRUS INFECTION AND RESULTING INFLAMMATION-INDUCED LUNG INJURY
WO - 15.09.2022
Clasificación Internacional A61K 39/395 Nº de solicitud PCT/US2022/019028 Solicitante HUMANIGEN, INC. Inventor/a DURRANT, Cameron
The present invention provides methods for treating a subject infected with 2019 coronavirus (SARS-CoV-2) comprising administering to the subject a therapeutically effective amount of a GM-CSF antagonist or a

therapeutically effective amount of a GM-CSF antagonist and a second drug, including an anti-viral agent, an anti-SARS-CoV-2 vaccine, and serum containing human polyclonal antibodies to SARS-CoV-2.

41.20220288185CHIKUNGUNYA VACCINE FORMULATIONS
US - 15.09.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 17632943 Solicitante Valneva SE Inventor/a Christoph Reinisch

The present invention is related to novel liquid and lyophilized formulations of Chikungunya virus useful as vaccines and methods for their preparation.

42.4054562IMPFSTOFFE UND VERWANDTE VERFAHREN ZUR BEHANDLUNG VON PSEUDOMONAS-BAKTERIENINFEKTIONEN
EP - 14.09.2022
Clasificación Internacional A61K 31/407 Nº de solicitud 20885994 Solicitante MARSHALL UNIV RESEARCH CORPORATION Inventor/a YU HONGWEI D
Methods of treating a *Pseudomonas* bacterial infection and/or eliciting an immune response in a subject are provided and include administering to the subject a vaccine including a modified *Pseudomonas* bacterium missing or deficient in alpha-1,3-rhamnosyltransferase and/or one or more other virulence factors. Vaccines comprising a modified *Pseudomonas* bacterium missing or deficient in alpha-1,3-rhamnosyltransferase are further provided.

43.WO/2022/189639TUMOR NEOANTIGENIC PEPTIDES AND USES THEREOF
WO - 15.09.2022
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/EP2022/056353 Solicitante MNEMO THERAPEUTICS Inventor/a AMIGORENA, Sebastian
The present disclosure provides tumor neoantigenic peptide sequences and nucleotide sequences encoding such peptide sequences; a vaccine or immunogenic composition capable of raising a specific T-cell response comprising one or more of the neoantigenic peptides, or comprising nucleic acid encoding one or more of the neoantigenic peptides; an antibody, or an antigen-binding fragment thereof, a T cell receptor (TCR), or a chimeric antigen receptor (CAR) that specifically binds such neoantigenic peptides; methods of producing such antibodies, TCRs or CARs; polynucleotides encoding such neoantigenic peptides, antibodies, CARs or TCRs, optionally linked to a heterologous regulatory control sequence; immune cells that specifically bind to such neoantigenic peptides; and dendritic cells or antigen presenting cells that have been pulsed with one or more of the neoantigenic peptides; and methods of using such products in particular therapeutic uses of these products.

44.WO/2022/188784CONSTRUCTION OF H-GENE-REPLACED CHIMERIC MEASLES ATTENUATED STRAIN
WO - 15.09.2022
Clasificación Internacional C12N 7/04 Nº de solicitud PCT/CN2022/079777 Solicitante SHANGHAI KING-CELL BIOTECHNOLOGY CO. LTD. Inventor/a AN, Qi
Provided are a construction method for an H-gene-replaced chimeric measles attenuated strain and an application thereof. The attenuated strain is a measles virus rMV/H(H1a) having an accession number of CCTCCNO: V202074. Further provided are a vaccine composition containing the H-gene-replaced chimeric measles attenuated strain or a derivative virus strain thereof as an active ingredient, and a preparation method therefor.

45.WO/2022/192752VACCINE METHOD AND COMPOSITION FOR BACTERIAL DISEASES IN INVERTEBRATES
WO - 15.09.2022

Clasificación Internacional A61K 39/02 Nº de solicitud PCT/US2022/020066 Solicitante DALAN ANIMAL HEALTH, INC. Inventor/a KLEISER, Annette
The disclosure provides compositions and methods for vaccinating invertebrates and invertebrate populations from diseases. The disclosure further provides compositions and methods for prophylactically immunizing honeybee hive to protect from infection with Foulbrood disease. In embodiments, the disclosure further provides compositions and methods for prophylactically immunizing honeybee hive to protect from infection with European foulbrood or American foulbrood caused by Melissococcus plutonius using a non¬ disease causing bacterium.

46.WO/2022/189626TUMOR NEOANTIGENIC PEPTIDES
WO - 15.09.2022
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/EP2022/056332 Solicitante MNEMO THERAPEUTICS Inventor/a AMIGORENA, Sebastian
The present disclosure provides tumor neoantigenic peptide sequences and nucleotide sequences encoding such peptide sequences; a vaccine or immunogenic composition capable of raising a specific T-cell response comprising one or more of the neoantigenic peptides, or comprising nucleic acid encoding one or more of the neoantigenic peptides; an antibody, or an antigen-binding fragment thereof, a T cell receptor (TCR), or a chimeric antigen receptor (CAR) that specifically binds such neoantigenic peptides; methods of producing such antibodies, TCRs or CARs; polynucleotides encoding such neoantigenic peptides, antibodies, CARs or TCRs, optionally linked to a heterologous regulatory control sequence; immune cells that specifically bind to such neoantigenic peptides; and dendritic cells or antigen presenting cells that have been pulsed with one or more of the neoantigenic peptides; and methods of using such products in particular therapeutic uses of these products.

47.20220288188NOVEL ADENOVIRAL VECTOR SYSTEM FOR GENE DELIVERY
US - 15.09.2022
Clasificación Internacional A61K 39/145 Nº de solicitud 17199972 Solicitante Purdue Research Foundation Inventor/a Suresh Kumar Mittal
Disclosed herein a unique cell line system to generate a novel bovine adenovirus vector that provides more gene insertion capabilities and better immunogenicity for inserted antigens. The unique cell line is used for generating and growing of the new adenovirus vectors for gene delivery or recombinant vaccine production.

48.4056983VORRICHTUNG ZUM BEWERTEN DER NEUROVIRULENZ VON MUMPS-VIRUS
EP - 14.09.2022
Clasificación Internacional G01N 1/28 Nº de solicitud 20885871 Solicitante SHANGHAI KING CELL BIOTECHNOLOGY CO LTD Inventor/a TIAN DAYONG
A device for evaluating the neurovirulence of a mumps virus, comprising: (I) a virus inoculation module, which is used for performing virus inoculation of a mumps virus to be evaluated on the lateral ventricle of a rat; (II) a processing module, which is used for performing vibration slicing on the fixed rat brain; (III) an imaging module, which is used for scanning and imaging the obtained rat brain slices; and (IV) an analysis module, which is used in the obtained imaging for calculating a neurovirulence index by using a formula I: the neurovirulence index = S1/ S0 × 100 (formula I) according to the cross-sectional area S1 of a cavity formed by hydrocephalus in the longitudinal section of the rat brain and the total cross-sectional area SO of the rat brain. Multiple results show that the results are stable, repeatability is high, and a wild strain may be distinguished from a vaccine strain. In addition, relative to a current monkey body neurovirulence model, animal cost and difficulty of operation are greatly reduced.

49.20220289797TRI-SEGMENTED PICHINDE VIRUSES AS VACCINE VECTORS
US - 15.09.2022

Clasificación Internacional C07K 14/005 Nº de solicitud 17751319 Solicitante Hookipa Biotech GmbH Inventor/a Weldi Bonilla
The present application relates to Pichinde viruses with rearrangements of their open reading frames ("ORF") in their genomes. In particular. described herein is a modified Pichinde virus genomic segment, wherein the Pichinde virus genomic segment is engineered to carry a viral ORF in a position other than the wild-type position of the ORF. Also described herein are trisegmented Pichinde virus particles comprising one L segment and two S segments or two L segments and one S segment. The Pichinde virus, described herein may be suitable for vaccines md/or treatment of diseases and/or for the use in immunotherapies.

Patentes registradas en la United States Patent and Trademark Office (USPTO)

Results Search in US Patent Collection db for: (ABST/vaccine AND ISD/20220912->20220920), 4 records.

	PAT. NO.	Title
1	11,446,368	Vaccine comprising epitope of heat shock protein, and use thereof
2	11,446,367	Immunization with polyvalent venom vaccines
3	11,446,250	Lyophilization of RNA
4	11,440,947	Peptides and combination of peptides for use in immunotherapy against various tumors

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