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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.

- Noticias más recientes en la Web sobre vacunas.
- Artículos científicos más recientes de Medline sobre vacunas.
- Patentes más recientes en Patentscope sobre vacunas.

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Latest COVID-19 vaccine offers strong protection against symptomatic infection, including from JN.1, early CDC data shows

Feb 1. A shot of the latest COVID-19 vaccine can help cut the chances of getting a symptomatic infection by half, early data from the US Centers for Disease Control and Prevention suggests.

Vaccine manufacturers updated their formulations to target the Omicron variant XBB.1.5, which was the predominant circulating strain for much of 2023. But the new CDC data shows that the latest vaccines are similarly effective against JN.1, which has been causing most COVID-19 infections in the United States since late December.

"Updated Covid-19 vaccines provided 54% protection against symptomatic infection among immunocompetent adults who were recently vaccinated compared with those who did not receive an updated vaccine, a new report says."

For this analysis, researchers analyzed trends among more than 9,000 adults who were tested for COVID-19 at Walgreens and CVS Pharmacy locations between mid-September and mid-January. For some of the patients with positive tests, the researchers were able to test for a specific "quirk" in the virus that allowed them to differentiate between specific strains.

Overall, the updated Covid-19 vaccines provided 54% protection against symptomatic infection among immunocompetent adults who were recently vaccinated compared with those who did not receive an updated vaccine, according to the report published Thursday by the CDC.

"Everything from this study is reassuring that the vaccines are providing the protection that we expected," said Ruth Link-Gelles, lead author of the new study who heads the CDC's vaccine effectiveness program for COVID-19 and RSV. "While we don't have an estimate of vaccine effectiveness specific to immunocompromised people, the fact that the vaccine is working in the general population provides, I think, reassurance for the whole population."

Generally, the goal of the US COVID-19 vaccination program is to prevent severe disease, but measuring vaccine effectiveness against symptomatic infection offers an extra early look at how well the vaccines are working. It's often the first estimate that's available because more people get an infection than are hospitalized, so there's a large enough population to study sooner, Link-Gelles said.

"That's a really nice feature of this analysis, that it checks that box: Yes, the vaccine is working, it's providing protection, it's providing protection for JN.1, which is the current most common variant," she said.

The latest COVID-19 vaccines have only been available since September, after a recommendation from the CDC's independent vaccine advisory committee and official signoff from the agency and the US Food and Drug Administration, so this analysis was only able to track trends through about four months after vaccination.

Based on the trends from COVID-19 vaccines, it's expected that protection from the latest vaccine will wane over time. A very slight "hint" of that was observed in the new study, Link-Gelles said. But the CDC plans to continue to monitor the effectiveness of the latest vaccine, and additional analysis at later dates will help determine how well vaccines are working to prevent severe disease and how quickly protection may wane.

The US doesn't have a system in place to track Covid-19 cases, but wastewater data suggests that

COVID-19 continues to circulate at high levels in the US and there are still tens of thousands of COVID-19 hospitalizations and hundreds of deaths each week. During the week ending January 13, there were nearly 31,000 COVID-19 hospitalizations and more than 1,800 deaths, according to CDC data.

Still, only about 1 in 5 adults and 1 in 9 children have gotten the latest COVID-19 vaccine, which is recommended for everyone ages 6 months and older, the CDC estimates.

By comparison, nearly half of adults and children have gotten the flu vaccine this season. And a flu season where the vaccine matches the circulating strain with 50% effectiveness would be considered a really good match, Link-Gelles said.

“There’s never a bad time to get a Covid vaccine,” she said. “Even with relatively low levels of hospitalization right now … that extra protection is going to go a long way.”

Fuente: CNN Health. Disponible en https://acortar.link/xgziiu

Single-dose dengue vaccine protects 79.6% of those vaccinated, study shows

Feb 1. A single-dose dengue vaccine produced by Butantan Institute in São Paulo state (Brazil) prevents development of the disease in 79.6% of those vaccinated, according to an article published in The New England Journal of Medicine.

Called Butantan-DV, the vaccine contains attenuated versions of all four dengue virus serotypes. The results of the ongoing Phase 3 trial show that it is safe and effective for all age groups between 2 and 59, and for people with or without a prior history of infection by dengue virus.

"Publication of the article in the world's leading medical journal attests to the rigor and quality of the work done by researchers at 16 Brazilian centers located in all five regions of the country, and coordinated by Butantan Institute," infectious disease specialist Esper Kallás, first author of the article, told Agência FAPESP. "In June, we'll complete the five-year follow-up period. Once the data has been consolidated, we'll know how long the protection induced by the vaccine will last."

Also according to Kallás, who heads Butantan Institute, the researchers plan to submit a report to ANVISA, Brazil's health surveillance agency, in the second half of this year in order to apply for registration of the vaccine.

"If all goes well, we'll win definitive approval for the vaccine in 2025. We already have the infrastructure to produce it at Butantan Institute, although it can still be perfected. After all, it's tetravalent, corresponding to four vaccines in one," he said.

The article published today describes the results of the first two years of the Phase 3 clinical trial, which began in February 2016 and involves 16,235 participants in 13 states. Preliminary data disclosed by Butantan

Institute in December 2022 pointed to overall efficacy of 79.6%. The results for each subgroup evaluated have now been detailed.

Vaccine efficacy was 80.1% for participants aged 2-6, 77.8% for those aged 7-17, and 90.0% for 18-59 age group. Stratification by serological status showed protection for 73.6% of participants with no evidence of prior infection by dengue virus and 89.2% of those previously exposed to the virus. Efficacy was 89.5% against dengue serotype 1 (DENV-1) and 69.6% against serotype 2 (DENV-2).

It was not possible to assess the vaccine's efficacy against serotypes 3 and 4 because they were not circulating during the follow-up period. Most adverse side effects were classified as mild or moderate. The main reactions were pain and redness at the injection site, headache, and fatigue. Severe adverse events relating to the vaccine were recorded for under 0.1% of all those vaccinated, and all of them recovered.

"Findings from Phase 2 [the previous clinical trial] showed that the four attenuated viral serotypes in Butantan-DV multiply in the human organism and induce a balanced response in terms of antibody production. This leads us to conclude that its efficacy against DENV-3 and DENV-4 will also be good," said virologist Maurício Lacerda Nogueira, one of the coordinators of the trials.

"It should be stressed that Butantan Institute's vaccine has also proved extremely safe for people who have never had dengue, which is an advantage over the vaccines now available on the market. Furthermore, it can be administered to a broader age group and a single dose is sufficient." Nogueira is a professor at the São José do Rio Preto Medical School (FAMERP), one of the centers that are running the trials.

Two dengue vaccines have been approved in Brazil to date. One is Dengvaxia, produced by Sanofi Pasteur. This vaccine requires three applications and is indicated for people aged 9–45 who have had dengue. The other is Qdenga, produced by Takeda. Application in Brazil will begin this month, for people aged 4–60, regardless of serological status. Two doses will be needed for full immunization in this case.

Butantan-DV's single-dose scheme has several advantages, the authors write in the article. In addition to the logistical and economic benefits, rapid protection may be important in the event of an outbreak and for travelers without immunity to places where the disease is endemic.

In Brazil, dengue is considered hyperendemic, meaning its high prevalence remains constant from one year to the next. According to the Health Ministry, 1.6 million probable cases were notified in the first 11 months of 2023. So far this year, the number of probable cases has reached 217,841, according to data disclosed on Tuesday, January 30. Fifteen deaths have been confirmed, and 149 are under investigation. Based on these numbers, the current incidence rate in Brazil is calculated as 107.1 cases per 100,000 inhabitants, and the fatality rate is 0.9%.

Secondary benefits

Development of the tetravalent dengue vaccine began at Butantan Institute in 2010, using a formulation created by researchers affiliated with the US National Institutes of Health (NIH). Clinical trials in Brazil began in 2013, under the aegis of the project "Development of a tetravalent dengue vaccine," led by Neuza Frazatti Gallina, winner of the 2023 Péter Murányi Prize. The Phase 3 trial, which is set to end in June, may be the largest clinical trial of a vaccine ever conducted solely in Brazil.

"The cost of dengue in Brazil is absurd," Nogueira said. "The vaccine is expected to reduce mortality and hospitalizations due to the disease, so investment of several hundred million reais by the Brazilian

government in the development of an indigenous vaccine will have a huge impact on public health.

"Secondary benefits can already be observed. The scientists in charge of the trial reported in the article conducted clinical trials of CoronaVac during the COVID-19 pandemic. So we were prepared. Formation of this vaccine research network is a valuable achievement that the Brazilian government must preserve. It will enable us to respond rapidly to future challenges of a similar kind."

Fuente: Medical Xpress. Disponible en https://acortar.link/hcBZpx

Beyfortus May Dominate China's RSV Prevention Market

Feb 1. GlobalData confirmed today that Beyfortus™ (nirsevimab), a long-acting monoclonal antibody (mAb), has been approved in China for the prevention of respiratory syncytial virus (RSV) lower respiratory tract infection (LRTI) in neonates and infants entering or during their first RSV season.

With the first approved preventive option for RSV, AstraZeneca and Sanofi's Beyfortus will dominate the market in China, says GlobalData, a leading data and analytics company.

GlobalData's RSV Forecast in Asia-Pacific Markets (India, Urban China, Australia, South Korea, and Japan) to 2028 reveals that Urban China will lead the Asia-Pacific market for RSV in 2028, accounting for 34.8% of the overall market size.

Nelluri Geetha, Pharma Analyst at GlobalData, commented in a press release on January 31, 2024, "RSV infection is a leading cause of viral lower respiratory tract infections, with a higher rate seen in children than adults. RSV infection occurs most commonly in children below six months of age in China."

"Beyfortus is the first approved drug for RSV in a broad infant population, which includes healthy term, late preterm, and preterm infants, as well as infants with specific health conditions that make them vulnerable to severe RSV disease."

"Hence, the approval addresses an urgent need for novel prophylactic treatment options for the pediatric population in China."

Geetha concludes: "Beyfortus is the only preventive option for RSV in the infant population, meaning that the drug will continue to dominate the Chinese market shortly."

"However, competition may intensify over the long term as other drugs are in late-stage development for the pediatric population in this market. These include Merck & Co's clesrovimab and Zhuhai Trinomab Biotechnology's TNM-001 in Phase III development."

"These are mAbs in Phase III development for the prevention of RSV among pediatric patients."

As of February 1, 2024, Beyfortus is available in the U.S., U.K., and European markets for the 2024 RSV season. In 2023, Beyfortus sales reached €547 million in 2023.

Fuente: Precision Vaccinations. Disponible en https://acortar.link/Mxswze

GSK supera las previsiones de crecimiento impulsada por Arexvy y Shingrix

Feb 1. Los resultados de la farmacéutica británica GSK para el ejercicio 2023 han superado las estimaciones de mercado. Las ventas totales de la compañía fueron de 30.300 millones de libras, lo que supone un 5% más que en el ejercicio anterior , y un 14% más, sin contar con los productos COVID. Lo que refleja el potencial de su vacuna contra el virus respiratorio sincitial (VRS) Arexvy y la demanda constante de su vacuna contra el herpes zóster (Shingrix) y sus medicamentos contra el VIH, tal y como ha expresado la compañía.

GSK BENEFICIOS

Las ventas de las vacunas se incrementaron un 25%, (+24% fuera de COVID). Destacando, Shingrix, (3.400 millones de libras +17%), y Arexvy 1.200 millones de libras. Las ventas de medicamentos especializados descendieron, sin embargo, un 8% (+15% ex COVID con VIH +13%), mientras que las ventas de medicamentos generales subieron un 5%.

El beneficio de explotación total y el BPA total continuado para 2023 reflejan un fuerte crecimiento, con menores gastos por reevaluación de pasivos por contraprestaciones contingentes. El beneficio de explotación ajustado fue de +12% (con un impacto positivo adicional de +4% ex COVID) y BPA ajustado +16% (con un impacto positivo adicional de +6% ex COVID).

«Los resultados reflejan la fortaleza de las ventas ex COVID y el aumento de los ingresos por cánones, compensados en parte por el aumento de la inversión en I+D y el lanzamiento de nuevos productos», según ha indicado la farmacéutica. «En conjunto, 2023 nos proporciona un buen impulso, que ahora continuaremos con este año», dijo la directora ejecutiva de GSK, Emma Walmsley, en la conferencia de accionistas.

«En 2021, establecimos una serie de compromisos con los accionistas, incluido un cambio radical en el desempeño luego de la importante transformación en la estrategia estructural, la asignación de capital y la cultura de GSK. Desde entonces, hemos logrado diez trimestres consecutivos de crecimiento de ventas fuera de COVID, y nuestra prioridad de invertir en nuevas vacunas y medicamentos especializados para remodelar la cartera de GSK ahora es muy evidente: alrededor de dos tercios de las ventas ahora se generan a partir de estas dos áreas de productos», añadió la directora.

«HEMOS LOGRADO DIEZ TRIMESTRES CONSECUTIVOS DE CRECIMIENTO DE VENTAS FUERA DE COVID».

Al mismo tiempo, aseguró que siguen fortaleciendo su cartera. La mayoría de los activos en etapa avanzada que emprendieron en 2021 han avanzado positivamente. «Hemos agregado múltiples oportunidades nuevas a esta cartera, incluso a través del desarrollo comercial específico, donde aseguramos más de 16 adquisiciones y alianzas para activos innovadores y nuevas tecnologías. Hemos logrado todo esto,

manteniendo al mismo tiempo un fuerte enfoque en los márgenes operativos, el flujo de efectivo y la asignación de capital. Siempre conscientes de la necesidad de invertir para el futuro y ofrecer retornos atractivos a los accionistas».

«Nuestra labor en 2023 refleja todo esto. Las ventas y los beneficios de las soluciones ex-COVID crecieron a niveles de dos dígitos durante el año. Las ventas aumentaron un 14% hasta superar los 30.000 millones de libras esterlinas, destacando claramente el lanzamiento excepcional de Arexvy. La utilidad operativa ajustada aumentó un 16% y las EPS ajustadas aumentaron un 22%. Las tres áreas que trabajamos demostraron un buen crecimiento con ventas de nuevos productos desde 2017 que contribuyeron con más de 11 mil millones de libras esterlinas en 2023. Este nivel de desempeño ayudó a lograr dos actualizaciones de las previsiones en 2023 y condujo a un mayor dividendo».

Entre los aspectos del año que destacan hacen mención al hecho de pasar a la Fase III de su programa de inhaladores Ventolin con bajas emisiones de carbono, alcanzar sus ambiciones de diversidad de liderazgo, dos años antes de lo previsto y ampliar el lanzamiento de su vacuna contra la malaria a 12 nuevos países en África.

PREVISIONES

La previsiones para 2024 son buenas y se espera un crecimiento significativo. En concreto, se prevé un incremento de las ventas del 5% al 7%, un crecimiento del beneficio operativo ajustado del 7% al 10% y crecimiento del BPA ajustado del 6% al 9%. Para el período 2021 a 2026, tiene pensado que las ventas crezcan más del 7% en términos de tasa de crecimiento anual compuesto (CAGR) y que las ganancias operativas ajustadas aumenten más del 11% en CAGR.

LA PREVISIONES PARA 2024 SON BUENAS Y SE ESPERA UN CRECIMIENTO SIGNIFICATIVO.

«Conn el progreso que hemos logrado en nuestra cartera creemos que podremos generar más de 38 mil millones de libras esterlinas en ventas para 2031. Esto es un aumento de 5 mil millones de libras esterlinas con respecto a la estimación que dimos en 2021, aunque no hemos incluido aquí ninguna posible contribución a ventas futuras de Blenrep (tratamiento para el mieloma múltiple). Por lo que este nuevo panorama representa una marcada aceleración de las ventas. Ahora esperamos alcanzar nuestro objetivo original para 2031 de más de 33.000 millones de libras esterlinas para 2026, es decir, cinco años antes».

Más allá de las ventas, GSK tiene previsto un fuerte enfoque continuo en las mejoras de los márgenes durante este período, manteniendo al mismo tiempo la flexibilidad para invertir en crecimiento. Aunque reconoce que probablemente tendrá que enfrentar la pérdida de exclusividad de dolutegravir desde el 2028 hasta el 2030. «También podemos decir que esperamos que los márgenes operativos sean ampliamente estables durante ese período de tres años».

VACUNAS

El director comercial de GSK, Luke Miels, añadió que las ventas aumentaron un 24 % durante el año y el

excelente rendimiento del lanzamiento de Arexvy contribuyó con más de 1.200 millones de libras esterlinas, junto con el sólido desempeño de Shingrix y su cartera de meningitis. «Seguimos esperando un fuerte crecimiento para Shingrix este año y generar más de 4 mil millones de libras esterlinas en ventas anuales».

«En los EE. UU., la tasa de inmunización es del 35% en las personas de 50 años o más, lo que significa que cerca de 80 millones de personas que son candidatas no están vacunadas y más de 4 millones de personas se unen a este grupo cada año. Pensamos que el crecimiento en 2024 se impulsará fuera de EE. UU., ya que la vacuna ya está aprobada en 39 países, en la mayoría de los cuales tiene menos del 4 % de penetración, y estamos muy entusiasmados con nuestra nueva asociación con Zhifei en China».

«El lanzamiento de Arexvy ha sido excepcional y esperamos un buen crecimiento este año, impulsado principalmente por una mayor penetración en los Estados Unidos, pero también por una adopción temprana a partir del lanzamiento internacional de la vacuna. Los datos muestran además una fuerte preferencia de marca y los datos del mercado nos dicen que dos de cada tres profesionales sanitarios se decantan por Arexvy». El director comercial añadió que están muy seguros de que esta vacuna puede alcanzar más de 3 mil millones de libras esterlinas en ventas máximas con el tiempo.

«LAS VENTAS DE BEXSERO Y MENVEO AUMENTARON UN 14 % Y UN 12 % EN 2023».

Igualmente, su cartera de meningitis continúa contribuyendo de manera importante al crecimiento de la compañía. «Las ventas de Bexsero y Menveo aumentaron un 14 % y un 12 % en 2023. También estamos ilusionados por presentar nuestra principal vacuna ABCWY para su aprobación en los Estados Unidos. este año. En conjunto, se espera que esta franquicia genere alrededor de 2 mil millones de libras esterlinas en ventas máximas no ajustadas al riesgo», aseguró Luke Miels.

Del mismo modo, desde GSK esperan ver más avances en 2024 de su vacuna de ARNm con datos de Fase II y contra la gripe, el desarrollo de sus candidatas a vacuna neumocócica MAP y su posible vacuna terapéutica contra el VHS.

Fuente: Merca2. Disponible en https://acortar.link/BE4YKv

UN NUEVO ESTUDIO DEMUESTRA LA EFICACIA DE LA VACUNA CONJUGADA CONTRA LA TIFOIDEA

Feb 2. La fiebre tifoidea es causada por *Salmonella typhi.* Es una bacteria altamente prevalente que infecta a los humanos, generalmente después de consumir agua o alimentos contaminados. Los países de bajos ingresos siguen sufriendo casos de tifoidea, especialmente en zonas de Asia y África que no tienen acceso adecuado a agua potable y saneamiento.

Las vacunas contra la fiebre tifoidea se desarrollaron en el pasado, pero tienen limitaciones.

Para agravar el problema, la aparición de resistencia a los antibióticos ha provocado una disminución de la eficacia de los tratamientos actuales. Las cepas de tifoidea multirresistentes están aumentando en Asia, lo que pone de relieve la necesidad de una vacunación eficaz contra la tifoidea en zonas endémicas para proteger la salud pública.

Malawi, un pequeño país del sur de África, había 32.747 casos de tifoidea En 2017, una tasa de 191 casos por 100.000 personas. Aproximadamente el 61% de estos casos ocurrieron en niños menores de 15 años. Además, ese año hubo 435 muertes por tifoidea, el 66% de las cuales ocurrieron en niños menores de 15 años.

Un estudio publicado el 25 de enero en la revista The Lancet, "*Efficacy of typhoid conjugate vaccine: final analysis of a 4-year, phase 3, randomised controlled trial in Malawian children*" reveló la eficacia de una vacuna antitifoidea conjugada de dosis única. El ensayo de fase III de cuatro años de duración evaluó la eficacia de la vacuna para prevenir la fiebre tifoidea en niños de Malawi. La Fundación Bill y Melinda Gates financió el estudio.

Kathleen Neuzil, MD, MPH, profesora de vacunología de la Facultad de Medicina de la Universidad de Maryland, directora del Centro para el Desarrollo de Vacunas y una de las autoras del estudio, dijo en el artículo "*Single dose typhoid conjugate vaccine (TCV) provides lasting efficacy in children*" «El estudio recientemente publicado respalda los efectos a largo plazo de una dosis única de TCV, incluso en niños más pequeños, y brinda esperanza para prevenir la fiebre tifoidea en los niños con mayor riesgo».

En el estudio participaron más de 28.000 niños de entre 6 meses y 12 años que fueron asignados aleatoriamente para recibir la vacuna antitifoidea conjugada (Vi-TT) o la vacuna meningocócica conjugada A (MenA) como grupo de control. Luego, los investigadores monitorearon a los participantes para detectar casos de fiebre tifoidea durante el transcurso del experimento. La medida de resultado primaria fueron los casos de tifoidea confirmados mediante hemocultivo.

Los resultados mostraron que la vacuna conjugada contra la fiebre tifoidea era muy eficaz para prevenir la fiebre tifoidea. La vacuna mostró una eficacia global del 80% en el análisis por protocolo, con una reducción del riesgo de infección tifoidea de 6,1 por cada 1.000 niños vacunados. De los 13.945 casos de tifoidea confirmados mediante hemocultivos en el grupo de Vi-TT, solo hubo 22 casos, en comparación con 109 casos en el grupo de MenA. La eficacia de la vacuna se mantuvo constante en los diferentes grupos de edad.

«Las vacunas contra la fiebre tifoidea anteriores requerían múltiples dosis y/o no funcionaban bien en niños pequeños», afirmó Newzeal en un correo electrónico.

«Hemos demostrado que la vacuna conjugada antitifoidea de dosis única es eficaz para niños de todas las edades y durante más de cuatro años, lo que hace posible su uso generalizado en países de bajos recursos», dijo.

El Gobierno de Malawi comenzó a administrar la vacuna a niños menores de 15 años en mayo de 2023. A partir de ahora, todos los niños de Malawi recibirán la vacuna TCV a los nueve meses de edad como parte de la inmunización de rutina.

Fuente: En Cambio Quintana Roo. Disponible en https://acortar.link/8OE5Oj

La vacuna argentina contra la COVID-19 fue destacada por la revista Nature y se consolida de cara al mundo

Feb 2. Desde sus inicios, el desarrollo de la vacuna bivalente 100% argentina Arvac Cecilia Grierson contra la COVID-19 marcó un hito disruptivo y exitoso dentro de la ciencia nacional. Se trata de un inoculante contra el virus que paralizó al mundo hecho íntegramente en nuestro país gracias a la alianza de las mentes brillantes del sistema científico público y privado.

Ahora, Infobae accedió en exclusiva a la publicación de un nuevo reconocimiento internacional -nada más y nada menos que un estudio publicado en la prestigiosa revista Nature, un faro de validación para la comunidad científica global- que muestra la importancia de una vacuna *made in* Argentina que ya es una patente nacional.

Arvac Cecilia Grierson, una vacuna proteica bivalente diseñada para ser usada como refuerzo en mayores de 18 años, es un producto innovador de la ciencia argentina que se venderá al mundo y generará regalías para la economía de nuestro país.

La investigación y el desarrollo del inoculante, aprobado por la ANMAT en octubre de 2023, es fruto del trabajo conjunto de científicos del CONICET, la Universidad Nacional de San Martín (UNSAM) y el Laboratorio Cassará, con apoyo de los entonces ministerios de Salud y de Ciencia, Tecnología a Innovación (MinCyT), junto a la Agencia Nacional de Promoción de la Investigación, el Desarrollo Tecnológico y la Innovación (Agencia I+D+i), sumados al esfuerzo conjunto de más de 20 instituciones públicas y privadas.

A más de tres meses de su aprobación por la agencia reguladora nacional, aún falta que el Gobierno Nacional, a través de la ANMAT, apruebe el primer lote de dosis bivalentes producido por la planta del Laboratorio Cassará en la Ciudad de Buenos Aires. Confirmado ese paso, las dosis se podrán distribuir en farmacias y centros vacunatorios de todo el país.

ARVAC integra las llamadas vacunas de segunda generación o dosis de refuerzo destinadas a personas ya inmunizadas porque aparece en una etapa en la que la mayoría de las personas han recibido una o dos dosis contra la COVID-19.

El estudio publicado en Nature

En diálogo con Infobae, Juliana Cassataro, la bióloga y doctora en Inmunología que lideró el equipo UNSAM-CONICET que desarrolló la vacuna, se refirió al estudio de flamante publicación: “Esta versión bivalente, que es la primera que va a salir de ARVAC, muestra que los antígenos de la variante Gamma de la COVID-19 brindan una excelente respuesta inmune y que, al incluir esa versión y no incluir la ancestral, no emerge el problema del imprinting inmunológico, que se produce cuando el organismo sigue respondiendo a la cepa de coronavirus original a la que fue expuesto por primera vez”.

La revista Nature, que ya había publicado los primeros ensayos de Fase I de ARVAC en humanos y que Infobae había anticipado, presentó ahora la etapa previa e inicial del desarrollo: el ensayo preclínico mediante el cual las investigadoras de la UNSAM y del CONICET eligieron el antígeno Gamma para inducir la respuesta inmune contra SARS-CoV-2.


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Artículo | Acceso abierto | Publicado:02 febrero 2024

Una vacuna de subunidades adaptada a gamma induce anticuerpos ampliamente neutralizantes contra las variantes del SARS-CoV-2 y protege a los ratones de la infección

Lorena M. Coria, Juan Manuel Rodríguez, Agostina Demaría, Laura A Bruno, Mayra Ríos Medrano, Celeste Pueblas Castro, Eliana F. Castro, Sabrina A. Del Priore, Andrés C. Hernando Insúa, Ingrid G. Kaufmann, Lucas M. Saposnik, William B. Piedra, Lineia Prado, Ulises S. Notaro, Ayelén N. Amweg, Pablo U. Díaz, Martín Ávaro, Hugo Ortega, Ana Ceballos, Valeria Krum, Francisco M. Zurvarra, Johanna E. Sidabra, Ignacio Drehe, Jonathan A. Baqué ... Juliana Cassataro + Mostrar autores

Comunicaciones de la naturaleza 15, Número de artículo: 997 (2024) | Citar este artículo

Métrica

El nuevo *paper* reveló las razones detrás de la elección de la variante Gamma del virus SARS-CoV-2 para el desarrollo de la vacuna y destacó la evidencia respaldada por el equipo liderado por Cassataro,

investigadora del CONICET en la Escuela de Bio y Nanotecnologías de la UNSAM.

El artículo publicado en Nature da a conocer a la comunidad científica internacional el minucioso proceso de construcción que garantiza la seguridad e inmunogenicidad de la vacuna argentina ARVAC.

La clave reside en la selección de la plataforma vacunal, es decir, la tecnología empleada, que en este caso se basa en la proteína recombinante. Sin embargo, más allá de la tecnología, el desafío radicó en la elección de la proteína que estimularía la respuesta del sistema inmunológico.

Para superar este obstáculo, el equipo de científicos argentinos llevó a cabo ensayos preclínicos in vitro e in vivo, lo que permitió identificar un primer prototipo de vacuna seguro y con capacidad para generar una respuesta inmunológica.

Los resultados sobresalientes de este prototipo facilitaron la obtención de financiamiento para las fases subsiguientes, y el laboratorio Cassará, con capacidad de producción de la vacuna, expresó su interés en asociarse al desarrollo del proyecto.

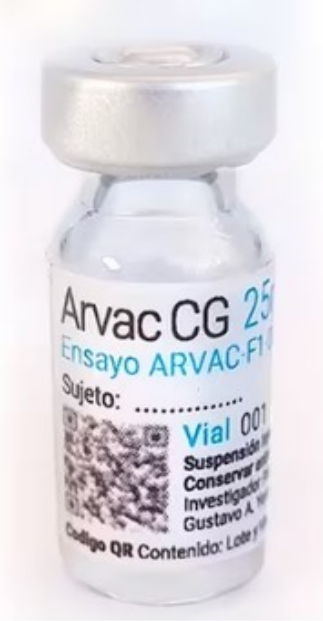
La primera autora del artículo, Lorena Coria, también investigadora del CONICET en la UNSAM explicó a Infobae que, “una vez que decidimos desarrollar la vacuna a partir de la tecnología de proteína recombinante el desafío fue elegir qué proteína y cuál variante del virus utilizar”.

“Podíamos por ejemplo utilizar fragmentos purificados del virus en su variante ancestral, que era la de Wuhan, o pedacitos de la variante que más circulaba en ese momento que era la Gamma. Hicimos ensayos para elegir el pedacito que más respuesta inmunogénica generaba, es decir, la que inducía mayor título de anticuerpos neutralizantes. Y lo que encontramos es que el prototipo con Gamma se desempeñaba mejor”, completó Coria.

Los detalles de la vacuna ARVAC

La vacuna 100% argentina contra el COVID, se basa en la tecnología de proteína recombinante, una

tecnología muy segura y conocida que se utiliza desde hace tres décadas para fabricar la vacuna contra la Hepatitis B, que se utiliza en niños recién nacidos, o contra el HPV, que se aplica a adolescentes.



Una de sus grandes ventajas es que se puede almacenar y transportar refrigerada (2 – 8 ° C), lo que representa una gran ventaja en términos logísticos respecto a las vacunas alternativas en base a ARN mensajero que requieren almacenarse congeladas a -70°C.

"ARVAC no posee el antígeno versión ancestral por lo cual no tiene el problema del imprinting inmunológico que las vacunas bivalentes de ARN poseen. Además, fue diseñada para que su principio activo pueda actualizarse en cuatro meses para hacer frente a nuevas variantes del virus que escapen a la respuesta inmunológica de la población. Al ser producida en el país garantiza la respuesta más veloz frente a una nueva emergencia", explicaron desde la UNSAM en un comunicado.

Los ensayos preclínicos publicados en Nature Communications contaron con la participación de estas instituciones: Instituto de Investigaciones Biotecnológicas de la UNSAM y del CONICET; Escuela de Bio y Nanotecnologías (EByN) de la UNSAM; Laboratorio Pablo Cassará; Fundación Pablo Cassará; Department of Entomology, College of Agriculture and Life Sciences, Fralin Life Science Institute, Virginia Polytechnic Institute and State University; Centro de Medicina Comparada, ICiVet - Litoral, Universidad Nacional del Litoral - CONICET; Servicio Virosis Respiratorias, Laboratorio de Referencia de Influenza, SARS-CoV-2 y otros Virus Respiratorios, Centro Nacional de Influenza de OPS/OMS, Departamento de Virología, Instituto Nacional de Enfermedades Infecciosas - ANLIS "Dr. Carlos G. Malbrán"; Instituto de Investigaciones Biomédicas en Retrovirus y SIDA, INBIRS - CONICET, Facultad de Medicina UBA; Center for Emerging, Zoonotic, and Arthropod-borne Pathogens, Virginia Polytechnic Institute and State University.

Además hay que sumar a la Agencia I+D+i y al Ministerio de Ciencia de la Nación, que desde 2020 co-financiaron el desarrollo junto con el Laboratorio Cassará.

Fuente: INFOBAE. Disponible en https://acortar.link/Sj4WiJ

Scottish Study On HPV Vaccine Shows Remarkable Reduction In Cervical Cancer Incidence

Feb 4. A Scottish observational study on the effectiveness of the human papillomavirus vaccine shows that no cases of cervical cancer were recorded in women immunized at 12 or 13 years of age. In addition, researchers observed a significant reduction in incidence of cervical cancer in the 14 to 22 age group compared with unvaccinated women.

The population-based study linked screening, vaccination and cancer registry data collected across Scotland to assess HPV vaccine efficacy. Researchers extracted data for women born between January 1988 and June 1996.

The types of vaccine administered to the cohorts of women monitored in the study changed over time as newer ones became available. Each newer generation vaccine targets more types of HPV. Until 2012, the vaccine most in use was the bivalent Cervarix. Subsequently, the quadrivalent Gardasil was administered until last year when the 9-valent Gardasil was introduced.

Scotland began routine immunization in schools in 2008. Illustrative of the success of the school campaign is the fact that by the time students in the 2022-2023 school year were in their fourth form of secondary school (equivalent to 10th grade in the U.S.), nearly 90% had received at least one dose of the vaccine.

By contrast, in the U.S., where HPV vaccines are not administered in school, uptake among adolescents is considerably lower at around 60%.

HPC causes six types of cancer, including cervical cancer. The virus also causes genital warts. HPV is the most common sexually transmitted disease among women.

In the U.S. about 14,000 new cases of invasive cervical cancer are diagnosed annually and almost 4,400 women die from the disease.

Worldwide the disease burden is substantial. According to data posted by the World Health Organization, cervical cancer is the fourth most common cancer in women globally with an estimated 604,000 new cases and 342,000 deaths in 2020. The highest rates of cervical cancer incidence and mortality are in low- and middle-income countries, which is driven by lack of access to HPV vaccines, cervical screening and treatment services.

The vaccines prevents more than 90% of HPV-attributable cancers. Prophylactic vaccination against HPV, as well as evaluation and treatment of possibly precancerous lesions are effective ways to prevent cervical cancer. HPV vaccination is given as a series of either two or three doses, depending on age at initial vaccination.

The U.S. Centers for Disease Control and Prevention recommends routine vaccination at ages 11 or 12 and immunization for everyone through age 26 provided they haven't been adequately vaccinated when younger. But vaccination is generally not recommended for those older than 26. A main reason for this is that a large number of people in this age range have already been exposed to HPV.

According to an NBC News report, owing to early detection and treatment, rates of cervical cancer have descended in the U.S. by more than 50% since the 1960s. Rates are declining particularly fast among women in their early 20s, the first generation to benefit from HPV vaccines.

However, it's worrisome that among women in their 30s and early 40s, incidence has recently been ticking up. Diagnosis of cervical cancer among women ages 30 to 44 rose almost 2% annually from 2012 to 2019.

What's especially unsettling is that in America more than 50% of women diagnosed with cervical cancer have either never been screened or haven't been evaluated in the past five years, according to the CDC. During screening exams, doctors can identify the presence of HPV and find, remove and analyze possibly precancerous lesions.

Overall, the National Cancer Institute estimates that the number of women ages 21 to 65 who have been screened fell from 87% in 2000 to 72% in 2021.

The U.S. Preventive Services Task Force recommends screening women ages 21-29 with Pap smears every three years. The Pap smear looks for abnormal cells in the cervix. Women ages 30 to 65 can be screened either every three years with a Pap smear or every five years with a cervical screening test used to detect HPV or a combination of a Pap smear and HPV test.

After screening, it's vital that those who have abnormal results receive follow-up care. However, in a study published last year in the American Journal of Preventive Medicine, researchers found that only 73% of women did.

There are subtle differences between the U.S. and Scottish approaches to screening. In Scotland, the National Health Service invites women between the ages of 25 and 64 for routine screening every five years. If a previous test detected HPV, the frequency of screening is increased and samples of cells from the cervix are tested for abnormality. But it is no longer standard for such samples to be examined under a microscope for abnormal cells.

The much bigger distinction in course of action is the incorporation of routine HPV immunization in Scottish schools, something that is not done in the U.S. Judging from the study findings, Scotland's method appears to be having a positive health impact.

Fuente: Forbes. Disponible en https://acortar.link/RRss3A

GSK's RSV vaccine for adults 50-59 at increased risk accepted by FDA for Priority Review

Feb 6. GSK plc has announced that the US Food and Drug Administration (FDA) has accepted under priority review an application to extend the indication of its adjuvanted respiratory syncytial virus (RSV) vaccine to adults aged 50-59 who are at increased risk for RSV disease. If approved, GSK's RSV vaccine would be the first vaccine available to help protect this population. Arexvy is currently approved in the US in adults aged 60 and over for the prevention of lower respiratory tract disease (LRTD) caused by RSV.

⇒ Application supported by positive results of a phase III trial showing immune response and acceptable tolerability profile in this population.

⇒ Adults aged 50 and above with underlying medical conditions are at increased risk for RSV disease.

⇒ GSK is the first company to file for regulatory approval to extend RSV vaccination to adults aged 50-59 at increased risk.

⇒ US FDA has set a Prescription Drug User Fee Act action date of 7th June 2024.

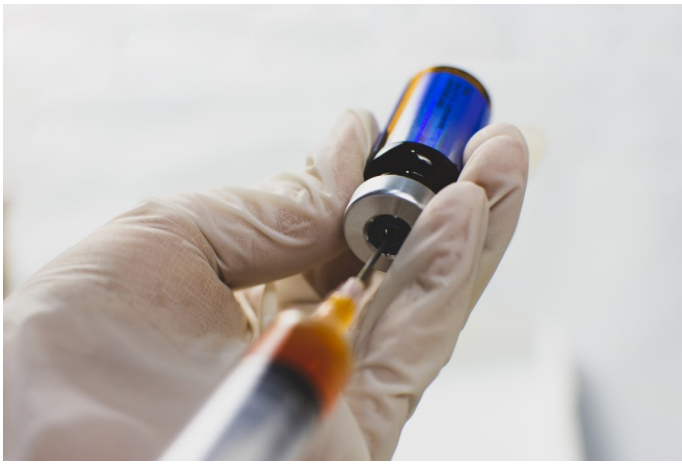
The application is supported by positive results from a phase III trial [NCT05590403] evaluating the immune response and safety of GSK's RSV vaccine in adults aged 50-59, including those at increased risk for RSV-LRTD due to underlying medical conditions. GSK used a Priority Review Voucher to reduce the US FDA review period of a supplemental Biologics License Application

(sBLA) by four months. The Prescription Drug User Fee Act date, the FDA action date for their regulatory decision is 7 June 2024.

The burden of RSV disease in adults is likely to be underestimated due to lack of awareness, a lack of standardised testing, and under-detection in surveillance studies. People with underlying medical conditions, such as chronic obstructive pulmonary disease (COPD), asthma, chronic heart failure and diabetes, are at increased risk for RSV disease. RSV can exacerbate these conditions and lead to pneumonia, hospitalisation, or death.

Fuente: Directors Talk Interviews. Disponible en https://acortar.link/xW6pik

El CHMP recomienda la aprobación de la vacuna antineumocócica conjugada 20-valente de Pfizer para lactantes y niños



7 feb. El Comité de Medicamentos de Uso Humano (CHMP, por sus siglas en inglés) de la Agencia Europea de Medicamentos (EMA, por sus siglas en inglés) ha adoptado una opinión positiva, recomendando la concesión de una autorización de comercialización, para la vacuna antineumocócica conjugada 20valente (VNC-20) de Pfizer para la inmunización activa contra la prevención de enfermedades invasivas, neumonía y otitis media aguda causadas por *Streptococcus pneumoniae* (neumococo) en lactantes, niños y adolescentes desde seis semanas hasta menos de 18 años de edad.

"Pfizer tiene una larga trayectoria en el desarrollo de vacunas antineumocócicas conjugadas innovadoras para ayudar a proteger a los niños y sus familias de infecciones potencialmente mortales", ha destacado José Chaves, director médico de Pfizer en España. "La opinión positiva del CHMP representa un importante paso hacia adelante en nuestros continuos esfuerzos y, si se aprueba, VNC-20 tiene el potencial de cubrir mayor carga de enfermedad que cualquier otra vacuna antineumocócica conjugada pediátrica disponible en la Unión Europea", según ha indicado.

La opinión positiva del CHMP será revisada ahora por la Comisión Europea (CE) para decidir si aprueba la vacuna. Se espera que esta decisión se adopte en las próximas semanas y se aplicará a los 27 estados miembros de la UE más Islandia, Liechtenstein y Noruega. El CHMP ha emitido su opinión positiva basándose en la evidencia del Programa de Estudios Clínicos Fase III de Pfizer para la indicación pediátrica de VNC-20. En 2020, Pfizer inició un Programa de Estudios Clínicos Fase III para la indicación pediátrica de VNC-20, compuesto por cuatro estudios pediátricos Fase III que ayudaron a ampliar los datos sobre la seguridad, tolerabilidad e inmunogenicidad de VNC-20. Estos estudios, que en conjunto evaluaron aproximadamente 4700 lactantes y 800 niños pequeños y niños de todas las edades, incluyeron:

La vacuna candidata pediátrica VNC-20 de Pfizer incluye 13 serotipos ya incluidos en PREVENAR 13: 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F y 23F. Los siete nuevos serotipos incluidos en VNC-20 (8, 10A, 11A, 12F, 15B, 22F y 33F) son responsables de enfermedad neumocócica invasiva (ENI) a nivel global y están asociados con altas tasas de letalidad, resistencia a los antibióticos y/o meningitis.

En conjunto, los 20 serotipos incluidos en VNC-20 son responsables de la mayoría de los casos de enfermedad neumocócica actualmente en la Unión Europea y en todo el mundo.

En febrero de 2022, se adoptó la Decisión de la Comisión Europea para APEXXNAR (VNC-20) para la prevención de enfermedades invasivas y neumonía causadas por los 20 serotipos de *S. pneumoniae* (neumococo) incluidos en la vacuna para adultos de 18 años o más.

Fuente: El Global. Disponible en https://acortar.link/WdkMRx

Vaccine makers seek a role in the fight against antibiotic resistance

Feb 7. In the offices of a biotech incubator hub just off University Avenue in St. Paul, Minnesota, the seeds of a vaccine that could prevent a common bacterial infection that affects millions of women and reduce infant deaths in low-resource countries are being carefully tended.

That's where Syntiron Managing Director Lisa Herron-Olson, PhD, and her colleagues are working on developing a vaccine that targets the iron receptor proteins of *Escherichia coli* and *Klebsiella pneumoniae*, two bacterial pathogens that cause most urinary tract infections (UTIs). The vaccine is designed to induce immunity by teaching the immune system to rapidly recognize proteins, such as the iron receptors, that all strains of E coli and K pneumoniae need to survive.

UTIs affect more than 150 million people—predominantly women—annually and are a primary driver of antibiotic prescribing worldwide. And for the estimated 25% to 30% of women who get repeated UTIs, that can mean several weeks, if not months, on antibiotics.

A vaccine that could prevent, or at least reduce, UTIs caused by *E coli* and *K pneumoniae* would be a huge medical advance in its own right, especially at a time when those pathogens are becoming increasingly resistant to first-line antibiotics.

Interrupting the UTI cycle

"The primary goal of our vaccine right now is to understand if we can prevent the cycle of recurrent UTIs," Herron-Olson told CIDRAP News. "And the reason why we really focused on that is because it's arguably the single largest reason why people use antimicrobials right now."

But the pathogens targeted by Syntiron's Alloy-EK vaccine are also two of the leading causes of neonatal sepsis, which causes roughly 2.5 million infant deaths each year, predominantly in low- and middle-income countries (LMICs).

If given to expecting mothers—who are at increased risk of UTIs—in these settings, the vaccine in theory could prevent UTIs and help boost the immune systems of newborns against *E coli* and *K pneumoniae*, which

can be transmitted during childbirth. While newborns are too young to be immunized, they would receive the antibodies in utero and through breast milk. This would not only provide a substantial health benefit to mothers and babies, but also reduce antibiotic use and the selection pressure that drives antimicrobial resistance (AMR).

It's that potential that led CARB-X (the Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator) to award Syntiron $1.7 million to help the company develop Alloy-EK as a maternal vaccine to help prevent neonatal sepsis in LMICs.

And while it still remains to be seen whether the vaccine will be effective, or safe, in people, Herron-Olson believes the potential of the Alloy technology—the platform for all of the bacterial vaccines Syntiron is developing—is enormous.

"It took time to figure this one out, and we're really excited about what we are seeing," she said.

Bacterial vaccine pipeline

Alloy-EK is among the 61 vaccine candidates identified by the World Health Organization (WHO) in a 2022 analysis of the clinical and preclinical pipeline of bacterial vaccines. The aim of that report was to fill the data gap in the vaccine research landscape and optimize the development and use of vaccines in reducing the spread of AMR. With the pipeline for new antibiotics as weak as it is, the WHO said, vaccines have become a "highly attractive" option.

That's because vaccines could help reduce or prevent the infections, both susceptible and resistant, that lead to antibiotic use and misuse. And along with reducing the burden of those infections, that could affect AMR in a number of ways, WHO technical officer Mateusz Hasso-Agopsowicz, PhD, explained.

"If you reduce the number of infections, and you reduce the antibiotic use that is associated with these infections, you also actually reduce chances of resistance being developed," he said. "This is because you have fewer infections, but also because you have fewer bacteria and you have less development and transmission of resistance genes between the bacteria."

"In terms of the very simple basics of how vaccines work, it's a prevention-is-better-than cure game," said vaccinologist Cal MacLennan, BM, BCh, PhD, founder and director of the Bacterial Vaccines Network (BactiVac), a group focused on accelerating bacterial vaccine development.

The proof of concept already exists. Among the groups of priority pathogens with vaccine candidates in different stages of development, the WHO report identified several with already licensed vaccines, including *Streptococcus pneumoniae*, *Salmonella* enterica serovar *Typhi* (typhoid), and *Haemophilus influenzae* type b (Hib). The vaccines targeting these bacteria, said MacLennan, have universally been very successful.

Take the current pneumococcal conjugate vaccines (PCV), which have been highly effective in reducing the prevalence of drug-resistant S pneumoniae infections. Five years after the PCV vaccine was introduced in the United States, invasive pneumococcal disease caused by drug-resistant strains in children under 2 was reduced by 84%; in South Africa, the rate of penicillin-resistant pneumococcal disease in children fell by 82%.

"In the case of the pneumococcal vaccine, we've seen there is significant potential to reduce the burden of resistant infections," said One Health Trust Director Ramanan Laxminarayan, PhD, MPH.

But global uptake of licensed bacterial vaccines needs to be higher; uptake of the PCV vaccine, for example, is only at 60%. In a study published in BMJ Global Health, Hasso-Agopsowicz and colleagues from the International Vaccine Institute, the Novo Nordisk Foundation, and the London School of Hygiene & Tropical Medicine estimated that getting to 90% global coverage for the PVC vaccine could avert 59,000 AMR deaths.

"I think this is precisely why we wanted to highlight that these vaccines already exist, and that we can do so much more already with the existing tools," Hasso-Agopsowicz said. "We still have 40% of children who do not get vaccinated [with] this important vaccine."

Current *S pneumoniae* vaccines in the pipeline aim to increase serotype coverage and reduce manufacturing costs, which could boost uptake.

The typhoid conjugate vaccine (TCV) is another bacterial vaccine with high efficacy but low uptake. More than 110,000 deaths from typhoid fever occur each year, and multidrug-resistant strains have become prevalent in parts of South Asia and Africa. A One Health Trust report estimated that an infant TCV program could prevent approximately 53.5 million cases of drug-resistant typhoid in 73 LMICs over 10 years.

"Improving vaccine coverage with existing, licensed vaccines, like PCV and TCV, is a priority—both to reduce the overall mortality associated with these infections, as well as to reduce AMR," Padmini Srikantiah, MD, MPH, who leads the AMR strategy at the Gates Foundation, said in an email.

The problem of endemic bacteria

Then there are several pathogens for which no licensed vaccine exists, but which have drawn interest from vaccine developers because of their potential impact on morbidity, mortality, and antibiotic use.

Among them is Shigella, one of the leading causes of diarrheal disease in children under 5 and a common cause of antibiotic use in LMICs. A recent study published in PLOS Medicine found that a 2-dose Shigella vaccine modeled on the candidates in the pipeline and with 60% efficacy, given at 9 and 12 months, could cut antibiotic course for Shigella diarrhea by 34.5% in low-income settings.

"These kids get a lot of Shigella, and they have a lot of antibiotic use for Shigella," said lead study author Elizabeth Rogawski McQuade, PhD, MSPH, of Emory University's Rollins School of Public Health. "In terms of absolute magnitude, this is an important and I think significant reduction."

In addition to driving antibiotic use, Shigella is one of the endemic bacterial pathogens that contribute to high childhood mortality rates in LMICs, and it caused an estimated 93,000 deaths in children under 5 in 2019.

"Shigella is the biggest cause of diarrheal deaths that doesn't currently have a vaccine," MacLennan said.

MacLennan, who's also a clinician with experience working in hospitals in Kenya and Malawi, says the child deaths caused by Shigella and other endemic bacteria are commonplace in these settings, though they don't get the same attention as those that occur during "in-your-face" epidemics like Ebola. These are the deaths that MacLennan believes bacterial vaccines could help prevent.

"It's an absolute tragedy if you lose a child in a hospital in a high-income country, but it happens all the time in LMIC settings," he said. "And a lot of this is endemic bacterial disease."

Shigella, *E coli* and *K pneumoniae* are among the pathogens with vaccine candidates listed in the third group (Group C) of the WHO pipeline report, based on the fact that the candidates are still in the early stages of clinical development and the feasibility for development is considered moderate. In other words, they're a long way off.

"Vaccines against these pathogens might be available in the long term, however, short term solutions to prevent resistance should focus on other interventions to reduce AMR," the WHO wrote.

A chance to protect newborns from deadly infections

But even though it could be many years until such a vaccine exists, the Gates Foundation believes that a maternal vaccine that could target K pneumoniae could have a profound impact.

"Klebsiella pneumoniae is the leading cause of neonatal sepsis and related deaths in low- and middle-income countries," Srikantiah said. "Because of the outsize burden of Klebsiella pneumoniae infections in neonates in these geographies, we have prioritized the development of a maternal vaccine that could be given to a pregnant woman in the second or third trimester to provide protective antibodies to the newborn infant."

One of the reasons neonatal sepsis is so deadly in LMICs is that the K pneumoniae, E coli, and other bacterial pathogens that newborns are infected with are frequently multidrug-resistant, according to Phoebe Williams, PhD, MSc, a pediatrician and infectious disease physician at the University of Sydney.

"In some of the healthcare settings that we're working in in Southeast Asia…three-quarters of babies that have a positive blood culture will die in those settings," Williams told CIDRAP's Superbugs & You podcast. "And that's because they are almost always due to multidrug-resistant pathogens. And there is just no access to antibiotics that work for those bugs."

"The treatment options are extremely, extremely limited, especially in countries where access to last-resort antibiotics is extremely limited and challenging," Hasso-Agopsowicz said. "As a result, a lot of neonates die, because they just do not have access to appropriate medications."

The lack of access to antibiotics that might treat those infections is what makes vaccines—which could prevent those infections from occurring—such an intriguing option.

Srikantiah was part of a team of researchers that estimated, in a May 2023 modeling study in PLOS Medicine, that a maternal vaccine conferring protection against K pneumoniae infection could reduce neonatal sepsis deaths in many LMICs by 15%. The study projected that the regions with the greatest reduction in neonatal sepsis deaths—sub-Saharan Africa and southeast Asia—would likely see the greatest reduction in newborn deaths from drug-resistant K pneumoniae.

Laxminarayan, who led that study, said that a vaccine that could protect newborns against Klebsiella is crucial for driving down neonatal deaths in LMICs.

"Without really tackling [Klebsiella], we don't have a way of reaching the UN Sustainable Development Goals for child survival and newborn mortality," he said. "So we need this."

That's why a vaccine that could target the pathogens that cause neonatal sepsis has been a priority both for CARB-X and the Gates Foundation, which is one of CARB-X's funders. In its most recent round of awards, CARB-X has made maternal vaccines for neonatal sepsis one of its funding priorities.

"If you can vaccinate the mother, in a way that's compatible with other vaccine regimens for pregnant women, that could really forestall the transmission of an infection that can kill a baby," CARB-X research and development chief Erin Duffy, PhD, told CIDRAP News in 2022.

A long road ahead

Back in St. Paul, Herron-Olson is pondering the many hurdles, both scientific and financial, that will need to

be cleared before Alloy-EK could be given to pregnant women to help protect their newborns against those deadly infections.

"The CARB-X award gets us to phase one," she said. "Vaccine clinical development is very long and expensive, so additional investments will be needed."

Furthermore, bacterial vaccines are particularly challenging to develop, because bacteria are more complex organisms than viruses and possess a variety of antigens that could be potential targets.

"There's plenty of challenges in the bacterial vaccine space, perhaps more so than viral vaccines, where there are a number of different technologies and limited number of targets that you can go after," said MacLennan.

First, Syntiron will have to prove that Alloy-EK is safe and effective in women who experience recurrent UTIs. Testing in animal models of infection, Herron-Olson said, has shown a reduction in the severity of UTIs with the vaccine.

But the question is whether the underlying technology will work in people. Vaccines containing iron receptors have been very successful in the animal health industry, where Syntiron's affiliate veterinary company, Vaxxinova, has several bacterial vaccines on the market for livestock species. The biochemical and immunologic requirements for human vaccines, however, are different than for animal health vaccines. That required Herron-Olson and her team to re-engineer the technology.

In addition, the history of drug and vaccine development is littered with compounds that worked well in small animals, such as rodents, but not in people. On the other hand, Herron-Olson believes the lessons learned from livestock animals that are physiologically more similar to humans and naturally infected by the same bacteria give Syntiron a competitive edge.

The first-in-human trials will test whether the vaccine is safe and measure the immune response stimulated by the vaccine. Depending on the result, the next step would potentially be two phase 2 trials: one would test the efficacy of Alloy-EK in women who have recurrent UTIs, the other would look at efficacy in pregnant women.

"We really believe that the design and engineering that went into this vaccine is superior to past approaches," Herron-Olson said. "But the only way we'll really know its potential is to evaluate it in humans."

And if Alloy-EK proves successful, there are other bacterial pathogens that Syntiron hopes to target, including Salmonella and Staphylococcus aureus.

"We're really interested in getting this vaccine into clinical trials and then continuing to work on the other vaccines," Herron-Olson said. "Because AMR keeps us up at night."

Fuente: CIDRAP. Disponible en https://acortar.link/aKpai7

Trabajan científicos en vacuna universal contra varios coronavirus como COVID-19

8 feb. Investigadores de la Universidad de Guadalajara, del Instituto La Jolla de Inmunología y de la Universidad de Carolina del Norte en Estados Unidos, ayudarán a los científicos a diseñar y mejorar vacunas contra varios coronavirus, incluido el SARS-CoV-2 y sus variantes, asegura uno de los investigadores del Centro Universitario de Ciencias de la Salud y también uno de los autores de la publicación, José Ángel Regla Nava, quien dijo que esa vacuna sería Universal.

Los científicos también realizaron un importante hallazgo y confirmaron que la exposición a los coronavirus

del resfriado común puede proporcionar cierta inmunidad para combatir el SARS-CoV-2, es decir, quien contraiga ese tipo de gripe desarrollará defensas para enfrentar a la COVID-19.

Según los hallazgos la exposición previa a un coronavirus de resfriado común parece proteger parcialmente a los ratones del daño pulmonar y de desarrollar neumonía durante una infección posterior por SARS-CoV-2.

Descubrieron que uno de los cuatro coronavirus que provocan el resfriado común puede generar inmunidad y descartar síntomas graves al contagiarse de COVID-19.

El diseño de nuevas vacunas podría ser posible gracias a este hallazgo ya que demostraron que dentro de esta inmunidad las células involucradas en mediar esta protección son las llamadas células T, específicamente las llamadas células CD4.

Por lo tanto podrían desarrollar nuevas vacunas, con esta información se podría desarrollar nuevas vacunas pero más universales en contra del coronavirus como SARS-CoV-2 y sus variantes, además del SARS-COV1, al MERS si volviera a emerger o incluso otros coronavirus que causan solo. resfriados comunes.

Estos resultados fueron publicados en la revista especializada *Nature Communication* en donde demostraron que el virus del coronavirus OC-43 responsable de resfriados comunes confiere protección contra Covid19 y esto lo demostramos en ratones transgénicos.

Se sabe que existen cuatro tipos de Coronavirus que causan el 30 por ciento de los resfriados comunes y uno de estos es capaz de crear una inmunidad cruzada, pero ¿qué significa esto?

Que es inmunidad cruzada

Es cuando nuestro organismo es expuesto a un microorganismo y nosotros adquirimos una inmunidad a este microorganismo, entonces nosotros somos expuestos a un segundo microorganismo que en este caso vendría siendo el SARS-CoV-2 este tiene una inmunidad previa proporcionada por la exposición al primer microorganismo y nos demuestra una ligera protección.

Este hallazgo es tan trascendente ya que de momento las vacunas de Pfizer, Moderna entre otras utilizan como diana para el diseño de vacunas la proteína S, sin embargo, nosotros hemos demostrado que la proteína M y la proteína N del virus adquieren una posible protección , es decir, podrían ser el diseño para nuevas vacunas

El equipo multidisciplinario del virólogo Regla Nava inició la investigación a través de ratones genéticamente modificados para producir las mismas células T (linfocitos) que los humanos.

A partir de esto comenzó a buscar similitudes dentro de los distintos tipos de coronavirus y encontraron que la genética del COVID-19 y los cuatro tipos de resfriado común cuentan con una estructura similar, principalmente el OC43, cuyas proteínas pueden brindar inmunidad, lo que causa. una disminución de los síntomas y de la tasa de mortalidad por esta enfermedad en el sujeto de estudio.

“Infectamos ratones transgénicos con OC43; en una primera infección, éstos generan inmunidad, y esta inmunidad protege a los ratones al infectarse del virus SARS-CoV-2”

Los resultados de este experimento muestran un menor daño en las vías respiratorias y, por lo tanto, menor probabilidad de desarrollar neumonía o daño pulmonar, que es algo muy importante en la enfermedad del COVID-19.

Este descubrimiento puede explicar, en parte, por qué algunas personas desarrollaron un cuadro clínico ligero o asintomático, pues su exposición al coronavirus OC43 les ayudó a generar una mayor inmunidad frente al COVID-19.

Fuente: METEORED. Disponible en https://acortar.link/AiDfUO

Moderna's mRNA vax shows promise against virus that causes birth defects

Feb 11. An experimental mRNA vaccine by US-drug maker Moderna has shown promise against human cytomegalovirus (CMV) — a common virus that can infect babies during pregnancy.

While the virus rarely causes serious illness in healthy adults, it can cause birth defects and brain damage in newborns infected in utero and deadly infections in immune-compromised adults.

Though healthy adults are largely asymptomatic, one in every 200 newborns worldwide is infected with CMV during the mother's pregnancy.

"It is the most common congenital infection worldwide," said Dr. Sallie Permar, the chair of the Department of Pediatrics and Nancy C. Paduano, Professor in Pediatrics at Weill Cornell Medicine.

The study, published in The Journal of Infectious Diseases, provided evidence that the new mRNA vaccine candidate may protect adults against CMV.

Thus, it could potentially prevent women from passing the harmful infection to their babies during pregnancy.

The new mRNA vaccine-elicited responses that were better at preventing the CMV virus from infecting epithelial cells that line the mouth and nose and provide the first line of defence against viral infection, compared with a previously moderately successful vaccine candidate called gB/MF59, from Sanofi and Novartis, revealed the study by the team at Weill Cornell Medicine of Cornell University.

The mRNA vaccine was also more effective at triggering the immune system to destroy CMV-infected cells.

"We learned that the newer vaccine has the potential to be more effective than a previous CMV vaccine candidate because some of the functional immune responses it elicits are higher in magnitude," Permar said.

The team used the data and patient samples from the gB/MF59 phase 2 trial in adolescent girls as a benchmark to assess the new mRNA-based vaccine.

Moderna used mRNA technology for the CMV vaccine and added a second target — a five-unit protein complex that allows the virus to infect the epithelial cells that line the nose and mouth — in addition to glycoprotein B used by Sanofi and Novartis.

In the study, Permar and her team compared the immune responses of individuals vaccinated with gB/MF59 in the phase 2 trial with those immunised with Moderna's mRNA-based CMV vaccine in a phase 1 clinical trial that ended in 2020.

Specifically, the team compared the immune responses in people who were protected against CMV infection after receiving the older vaccine.

The Moderna vaccine has moved on to the first-ever phase 3 clinical study for a CMV vaccine candidate, which will help determine if these differences in immune responses will lead to stronger protection against CMV.

“After more than 50 years of research, we are closer than ever to having a licensed CMV vaccine,” Permar said.

“The new mRNA platform has a lot of potential.”

Fuente: The Statesman. Disponible en https://acortar.link/Q6iHNA

mRNA-based RSV Vaccine Candidate's Efficacy Fades Over Time

Feb 12. Throughout the 2023-2024 respiratory syncytial virus (RSV) season, newly approved vaccines have been offered to pregnant women and older adults. As with all vaccines, it takes time to appreciate their ability to protect people from disease fully.

According to a report by TD Cowen's analyst Tyler Van Buren on February 8. 2024, Moderna Inc.'s mRNA-based RSV vaccine candidate may not be as effective as its competitors.

The Wall Street firm's report cites a Phase 3 clinical trial, which found that Moderna's mRNA-1345 vaccine candidate has an overall efficacy of 63.3% against two-symptom RSV disease after a follow-up of 8.6 months.

This is a significant change from a January 2023 reading, which showed mRNA-1345 had an efficacy of 84%.

"In the absence of head-to-head clinical trials, comparative conclusions regarding the safety and efficacy of mRNA-1345 relative to other RSV vaccines cannot be made," Moderna said in this abstract.

Moderna has previously confirmed it has submitted regulatory filings to the FDA for its RSV vaccine, indicating potential approvals ahead of the 2024-2025 RSV season in the U.S.

As of February 9, 2024, the U.S. CDC estimated the percentage of adults 60+ receiving an RSV vaccine was 22.4%. As of January 27, 2024, certain pregnant women's overall RSV vaccination rate was 16.2%.

Fuente: Precision Vaccinations. Disponible en https://acortar.link/NvZEIJ

México recibe 4.5 millones de vacunas Abdala contra COVID-19 procedente de Cuba

Feb 12. El Ministerio de Salud de México recibió 4.530.600 dosis de la vacuna Abdala contra COVID-19, para reforzar la Campaña Nacional de Vacunación Invernal 2023 -2024. Los biológicos llegaron a la base Aérea Militar en Santa Lucia, Estado de México, en una aeronave Hércules de la Fuerza Aérea Mexicana, procedente de La Habana, Cuba.

Cabe recordar que el 29 de diciembre de 2021, la Comisión Federal para la Protección contra Riesgos Sanitarios (Cofepris) aprobó la autorización para el uso de emergencia de la vacuna Abdala en México. Esta vacuna, desarrollada por el Centro de Ingeniería Genética y Biotecnología (CIGB) del Ministerio de Salud Pública de Cuba, lleva el nombre distintivo de "proteína recombinante del dominio de la unión al receptor del virus SARS-CoV-2".

Estas vacunas son suministradas a la población que forma parte de los grupos objetivo de la Campaña Nacional de Vacunación contra influenza estacional y Covid-19 para la temporada invernal que inició el pasado 16 de octubre de 2023 y finaliza el 31 de marzo de 2024. Asimismo, estos biológicos se suministran a la población con más riesgo de presentar cuadros graves de la enfermedad, entre los que se incluyen las personas mayores de 60 años, embarazada, con comorbilidades, así como personas de atención médica.

Específicamente, las personas con comorbilidades, candidatas a recibir esta vacuna contra COVID-19, son quienes vive con el virus de la inmunodeficiencia humana (VIH), diabetes mellitus, obesidad mórbida, cardiopatías agudas o crónicas, cáncer, insuficiencia renales e inmunosupresión desarrollad por enfermedad o tratamiento médico.

Efectividad de la vacuna Abdala contra COVID-19

En julio de 2021, el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED) autorizo el uso de emergencia de Abdala, la primera vacuna anti-SARS-CoV-2 desarrollada y producida en América Latina.

Abdala es una vacuna subunitaria de proteína recombinante que en su formulación incluye el dominio de unión al recepto de proteína recombinante de SARS-CoV-2 con gel de hidróxido de aluminio como adyuvante. Este biológico desarrollado por el Centro de Ingeniería Genética y Biotecnología del Ministerio de Salud Pública de Cuba ha demostrado una gran efectividad.

De hecho, en un ensayo clínico de fase 3 que incluyo la participación de 48.290 personas a las cuales se suministró el biológico, determino que la vacuna tiene una eficiencia de 92.28% contra COVID-19 sintomática y de 92.88% contra las formas moderadas o graves de la enfermedad.

Asimismo, el esquema de vacunación de tres dosis administradas a los 0.14 y 28 días cumplió con el perfil que establece la Organización de la Naciones Unidad (OMS) Para los biológicos contra esta enfermedad. Según la entidad, la vacuna a administrar debe contra en un mínimo del 50%, preferiblemente más de 70% de eficacia.

Entre los resultados más destacados del ensayo de efectividad de la vacuna Abdala se evidenció que la incidencia de reacciones adversas a la aplicación intramuscular fue de 5.1% para el grupo de placebo y de

6.7% para el de Abdala. Tan solo el 19% de los individuos reportó algún evento adverso posterior a la administración del biológico y ningu8n efecto adverso grave demostró una relación causa-efecto con la vacuna investigada.

Fuente: Consultor Salud. Disponible en https://acortar.link/qUHbyQ

Indonesia Mulls to Collaborate with Brazil's Fiocruz Institute in Developing Dengue Vaccine

Feb 12. The Indonesian Health Ministry is exploring opportunities to collaborate with the Fiocruz Institute from Brazil to reduce dengue cases in Indonesia through the development of Wolbachia mosquito technology and vaccines.

Indonesian Health Minister Budi Gunadi Sadikin (forefront, left, wearing eyeglass) during his visit to Fiocruz Institute in Brazil. (ANTARA/HO-Health Ministry/rst)

The ministry's Head of the Communications and Public Services Bureau, Siti Nadia Tarmizi, stated on Monday that the opportunity for collaboration arose when Health Minister Budi Gunadi Sadikin visited the Fiocruz Institute, with the focus on collaboration related to technology and vaccine development.

"In Brazil, they have already implemented Wolbachia mosquito technology through the World Mosquito Program," Tarmizi explained.

She noted that the Indonesia-Fiocruz collaboration to eradicate dengue was earlier established through the role of Gadjah Mada University (UGM), with the first introduction of Wolbachia mosquitoes in Indonesia in 2012.

Tarmizi explained that results of the Wolbachia Application for Dengue Elimination (AWED) study in Yogyakarta using a Cluster Randomized Controlled Trial (CRCT) design showed that Aedes aegypti mosquitoes containing Wolbachia were able to reduce dengue cases by 77.1 percent and reduce hospitalization due to dengue by 86 percent.

"The result came from the first collaboration with UGM," she remarked.

Fiocruz is one of the several global partners to start the release of Wolbachia mosquitoes to reduce the rate of dengue cases in a population.

During his visit to the Fiocruz Institute, Minister Sadikin reviewed the Wolbachia breeding process at the research center to combat diseases transmitted by the Aedes aegypti mosquito.

On that occasion, he also discussed with representatives from Fiocruz regarding future collaboration on technology and vaccine development.

The visit also included an exploration of the Fiocruz library, where they discovered a rare book from 1703 written by a Catholic Monk on medicine.

However, Tarmizi and the ministry's Director General of Disease Prevention and Control, Maxi Rein Rondonuwu, did not provide further information on this rare book's treatment methods.

Tarmizi stated that the visit also emphasized the importance of collaboration in developing innovative health solutions as well as a reminder that knowledge from the past remains valuable in humanity's journey towards a healthier future.

Fuente: TEMPO.CO. Disponible en https://acortar.link/zSf3hf

Flu, pneumonia shots make Jan vaccine sales jump by 56%

Feb 13. The changing seasons and sudden chill in Ahmedabad has led to a spurt in cases of viral infections over the last month. Consequently, vaccine sales rose significantly in this period. According to data from Pharmarack, vaccine sales increased by 56% in January. In absolute terms, vaccine sales in the state stood at Rs 4 crore against Rs 3 crore in Jan last year.

Vaccines against bacterial and viral infections, particularly influenza and pneumonia, accounted for most sales.

“The lion’s share of vaccine demand is for pneumonia, namely the pneumococcal adult vaccine and the H1N1 vaccine, which is often taken in this season to prevent severe upper respiratory infections. Awareness levels are rising among people and adult vaccination is growing in a big way, which has been driving demand,” said Utkarsh Bhatt, a pharma distributor here.

Cases of viral infections precipitating upper respiratory infections like cold, cough, seasonal flu, pneumonia and H1N1 were on the rise throughout Jan. This was attributed to the sudden dips in temperature.

More recently distributors have been flooded with inquiries about the latest HPV vaccine, which protects against genital warts and most cases of cervical cancer.

“The launch of the vaccine created a lot of buzz around HPV. The major push came after the government announced vaccination for women in the 9-14 years age group. People who can afford the vaccine are inquiring about availability and after consulting their doctors,” a pharma distributor said.

With the price of the HPV vaccine going down as more pharma companies enter the market, inquiries are increasing.

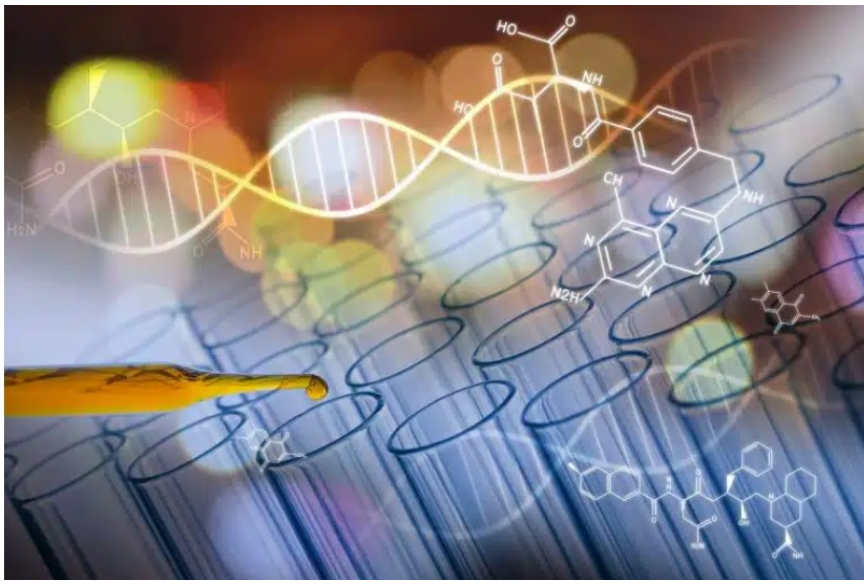
Senior members of the Federation of Gujarat State Chemists and Druggists’ Association (FGSCDA) said that elderly people or those with co-morbidities tend to take precautionary flu shots. With the threat of H1N1 and H9N2 looming over the globe, doctors are encouraging vulnerable people to get vaccinated.

Fuente: Times of India. Disponible en https://acortar.link/1of879

Un nuevo anticuerpo logra bloquear todas las variantes del SARS-CoV-2 en modelos preclínicos

Feb 14. Un estudio del Instituto de investigación de Hospital del Mar, el Instituto de Investigación del Sida IrsiCaixa, centro impulsado conjuntamente por la Fundación ‘la Caixa’ y el Departamento de Salud de la Generalidad de Cataluña, el Centro Nacional de Biotecnología, que pertenece al Consejo Superior de Investigaciones Científicas (CNB-CSIC), y la Unidad de Tecnologías de Proteínas del Centro de Regulación Genómica (CRG) ha permitido desarrollar un nuevo anticuerpo que está activo ante todas las variantes existentes del SARS-CoV-2 , incluidas las subvariantes de ómicron que circulan actualmente. Se

trata de un anticuerpo monoclonal -una proteína del sistema inmunitario desarrollada en el laboratorio- llamado 17T2. El trabajo, en el que también ha participado un equipo científico del CIBER de Enfermedades Infecciosas (Ciberinfec), lo acaba de publicar la revista *Nature Communications*.



El aislamiento del nuevo anticuerpo ha sido posible gracias a las muestras de sangre de un paciente infectado por el SARS-CoV-2 en marzo de 2020, durante la primera ola de la pandemia. A partir de estas muestras, se seleccionaron algunos linfocitos B, las células de la sangre encargadas de producir los anticuerpos. En concreto, se escogieron aquellos que generaban anticuerpos específicos contra la proteína de la espícula, que es la que permite al virus infectar a las células humanas, multiplicarse y desencadenar la COVID-19.

El personal investigador reprodujo, utilizando técnicas de ingeniería genética, estos anticuerpos en el laboratorio. Una vez logrado esto, evaluaron in vitro su actividad neutralizante -es decir, su capacidad de unirse al virus y bloquearlo- frente a las diferentes variantes del SARS-CoV-2 existentes hasta el momento. Así, pudieron seleccionar el anticuerpo que conseguía neutralizarlas todas, incluyendo XBB.1.16 y BA.2.86, de las que derivan las variantes más preocupantes actualmente. Como apunta la Dra. Giuliana Magri, líder del estudio y que era investigadora del Hospital del Mar Research Institute durante su realización, "nuestro anticuerpo mantiene la actividad neutralizante frente a todas las variantes del SARS-CoV-2". A su vez, el Dr. Benjamin Trinité, uno de los primeros autores del estudio e investigador senior de IrsiCaixa, destaca la importancia del hallazgo y menciona que "las últimas variantes del virus han incorporado decenas de mutaciones que dificultan la labor de los anticuerpos desarrollados con anterioridad, ya que no se pueden unir con tanta eficacia. Contar con un tratamiento que sea eficaz aunque aparezcan nuevas variantes del SARS-CoV-2 puede cambiar las reglas del juego a la hora de combatir la infección".

Capacidad profiláctica

El estudio analizó en un modelo de ratón la capacidad terapéutica del anticuerpo, pero también la actividad profiláctica, es decir, preventiva, del nuevo tratamiento, certificando su capacidad para reducir de forma significativa las lesiones en los pulmones y la carga viral. En este sentido, la Dra. Magri destaca que el estudio "demuestra que el anticuerpo desarrollado muestra actividad profiláctica y no sólo terapéutica, lo que le identifica como un candidato potencial para intervenciones clínicas preventivas y de tratamiento de la infección".

Por último, el equipo llevó a cabo un análisis detallado de la estructura del anticuerpo unido a la proteína espícula, para poder entender su funcionamiento y cómo consigue mantener la actividad neutralizante, a pesar de las mutaciones acumuladas por el virus del SARS-CoV-2. Este estudio estructural, llevado a cabo en el CNB-CSIC por el equipo de la Dra. Rocío Arranz, colíder del estudio, permite afirmar que "este anticuerpo tiene la capacidad de unirse a una amplia zona de la espícula del virus, lo que le confiere la habilidad de neutralizar todas las variantes y prevenir que nuevas mutaciones evadan esta neutralización.

Esto sugiere que, en esta área de interacción, existe una región conservada en la espícula, la cual podría ser esencial para la capacidad del virus de infectar células humanas".

Antes de su desarrollo para uso en pacientes, será necesario llevar a cabo un ensayo clínico en humanos. Por el momento, existe una patente europea activa asociada a este proyecto.

"Contar con anticuerpos como el 17T2 es clave para poder proteger a personas inmunocomprometidas y con un riesgo elevado de desarrollar una COVID-19 grave. Los resultados obtenidos nos demuestran que es posible diseñar herramientas capaces de bloquear todas las variantes de un mismo virus. hecho, abre el camino al diseño de anticuerpos y/o vacunas pan-coronavirus, es decir, con capacidad para combatir diferentes tipos de coronavirus", concluye el dr. Julià Blanco, co-líder del estudio e investigador IGTP en IrsiCaixa.

Este proyecto de investigación ha recibido el apoyo de las ayudas de la convocatoria COVID-19 de la Generalidad de Cataluña, así como del programa de investigación Miguel Servet, y ha sido parcialmente financiado por la campaña de mecenazgo #YoMeCorono y la Fundació Glòria Soler.

Fuente: DiarioFarma. Disponible en https://acortar.link/FQNfDK

Lo que hay que saber de Patria, la vacuna mexicana contra COVID-19

Feb 15. Cuatro años después del primer caso de COVID-19 en territorio nacional, México comenzará a producir su propia vacuna contra el virus. Se trata de AVX/COVID-12, bautizada por el Gobierno como Patria, un proyecto inicial del laboratorio farmacéutico Avimex impulsado con financiamiento público y una red de alianzas entre universidades, hospitales y centros de investigación que resultó decisiva para su desarrollo. Tras superar con éxito los ensayos clínicos que comenzaron en mayo de 2021, Patria recibió el aval de la autoridad sanitaria para uso de emergencia en enero de 2024, uno de los requisitos necesarios para comenzar con su producción.

La idea de desarrollar una vacuna contra COVID-19 en México, sin embargo, comenzó a tomar fuerza entre Samuel Ponce de León y su círculo de colegas más cercano mucho antes, en marzo de 2020, cuando los ecos de un nuevo virus que comenzó en China y ponía de cabeza Europa con los primeros confinamientos masivos comenzaban a resonar en Latinoamérica. En aquel entonces, la vacuna mexicana “era más un sueño guajiro que otra cosa”, admite a EL PAÍS Ponce de León, exmiembro del Comité de Emergencia Pandémica de la OMS. El experto en enfermedades infecciosas y encargado del Programa de respuesta a la pandemia de la UNAM revela que tras una serie de conversaciones con Alejandro Macías, médico infectólogo que fungió como zar de la pandemia de influenza H1N1 en 2009, decidieron contactar con Bernardo Lozano Dubernard, director general de Avimex, laboratorio líder en la producción de vacunas para animales. La empresa era conocida por ambos desde 2009, cuando desarrolló un biológico contra influenza H1N1 que culminó su fase clínica con éxito, sin embargo, no fue elegida por el Gobierno en turno.

¿Una vacuna mexicana? El origen de Patria

El contraste entre el tono nacionalista utilizado por el Gobierno al referirse a la vacuna y el origen de la tecnología que permitió su desarrollo han envuelto en polémica a Patria desde el inicio. Si bien la plataforma es un desarrollo atribuido a la Escuela de Medicina Icahn de Monte Sinaí, en Nueva York, definido por Avimex como un "aliado tecnológico" con el que trabaja desde 2003, las fases clínicas se han llevado a cabo en su totalidad en México.

Al respecto, Ponce de León alude a la naturaleza del conocimiento científico para zanjar la discusión: "No podemos decir que es un desarrollo mexicano cuando el conocimiento es global, está disperso y todos utilizamos conocimientos y colaboraciones de múltiples partes del mundo", mientras enumera el trabajo que, desde universidades e instituciones públicas y privadas como el Instituto Nacional de Enfermedades Respiratorias (INER), la Facultad de Medicina de la UNAM y el Hospital Médica Sur, ha sido clave para el avance de la vacuna. El impulso decisivo, sin embargo, llegó desde la financiación del Gobierno: "el proyecto fue cobijado por el Estado con un apoyo político y económico que desde luego permitió llegar a donde estamos y difícilmente hubiera podido ser de otra manera si no hubiéramos contado con ese apoyo", asegura.

Cómo funciona la vacuna Patria

Patria está basada en un vector conocido como rNDV, un virus recombinante de la enfermedad de Newcastle, una clase de virus aviar que no posee la capacidad para replicarse en células de mamíferos, pero es efectivo para desencadenar una respuesta inmune. A partir de su experiencia con el vector y la seguridad demostrada en humanos para tratar otras enfermedades, Avimex eligió la tecnología rNDV para desarrollar la vacuna y recibió una licencia de uso exclusivo de parte de la Escuela de Medicina Icahn de Monte Sinaí. "Utilizamos por primera vez un biológico de una manera que no se había utilizado en humanos, el virus de Newcastle modificado genéticamente para que expresara la proteína S [del coronavirus]", explica Ponce de León.

Qué tan efectiva y segura es Patria

"La vacuna ha demostrado una muy alta eficacia en estimular la producción de anticuerpos. Los detalles clínicos de una eficacia más amplia en términos de prevenir enfermedad los podemos inferir a través de los resultados hasta el momento de las fases 2 y 3, que reclutaron a más de 3.000 sujetos y ninguno de ellos tuvo ningún problema en relación a covid. Entonces se puede decir que para prevenir enfermedad grave y muerte es altamente efectiva", explica el experto, que participó ampliamente en la fase clínica inicial, donde se evalúa tanto la seguridad de una vacuna como su capacidad para producir una respuesta inmune. "Probamos con diferentes esquemas y diferentes dosis, pues nuestro interés era estar seguros, ciertos, de que la vacuna era segura administrada a humanos y estar listos para cualquier complicación que ocurriera, misma que no tuvimos. Obtuvimos unas tasas de molestias relacionadas similares a cualquier otro biológico", asegura.

Una plataforma para nuevas vacunas

Cinco años después de su irrupción la evidencia científica disponible sugiere que covid-19 se comportará como un virus estacional cuya frecuencia aumentará durante el invierno, tal y como sucede con la influenza o el virus sincitial respiratorio. En los próximos años, la plataforma utilizada para desarrollar Patria podría resultar útil para añadir nuevas moléculas y realizar modificaciones al biológico original con el fin de ofrecer

una mayor protección contra nuevas variantes en circulación: “Llegará un momento en donde se haga un consenso de expertos y consideren conveniente hacer ciertas modificaciones y usar nuevas variantes o subvariantes virales para tomar sus nuevos segmentos e introducirlos a la nueva plataforma para que expresen algo diferente”, explica Ponce de León.

La capacidad de la plataforma no se limita al nuevo coronavirus: también puede ser eficaz para desarrollar otras vacunas contra virus como la hepatitis B o el sarampión. “[Patria] nos deja en capacidad de producir otros biológicos. La plataforma de producción de este virus que se utiliza para que exprese la proteína S del SARS-CoV-2 eventualmente se puede hacer para producir otras vacunas que vayamos requiriendo” asegura el experto. “Podríamos entonces tener una autonomía en el ámbito de la vacunación, que es fundamental para la seguridad nacional”.

Una vez que el fabricante obtenga el certificado de buenas prácticas de manufactura de manos de Cofepris, Patria comenzará a producirse en México a un ritmo de entre 1.7 y 2.5 millones de dosis en los primeros tres meses, de acuerdo con el titular de la agencia sanitaria, Alejandro Svarch Pérez. La aplicación masiva de Patria está prevista para el inicio de la próxima temporada invernal, a finales de 2024. Una vez definidas las pautas y dosis, la vacuna se aplicará por vía intramuscular, aunque también ha sido probada la aplicación intranasal como refuerzo.

Fuente: El País. Disponible en https://acortar.link/BtC4IN

Las vacunas bivalentes protegen incluso a los niños con antecedente de infección por SARS-CoV-2

16 feb. Bienvenidos a Factor de Impacto, su dosis semanal de comentarios sobre un nuevo estudio en medicina. Soy el Dr. F. Perry Wilson, de la Facultad de Medicina de Yale.

Hace solo tres años que llamábamos "nCOV-19" al patógeno al que ahora nos referimos como coronavirus. Era, en muchos sentidos, más descriptivo que lo que tenemos hoy. La pequeña "n" significaba "nuevo" y fue esa pequeña "n" la que nos causó todos los problemas.[1]

En realidad, los coronavirus no eran nuevos para nosotros. Poco estudiados, quizá, pero con cuatro cepas recorriendo el planeta todo el tiempo, dando lugar al resfriado común, eran virus que nuestro cuerpo entendía.

Pero el coronavirus descubierto en 2019 era nuevo, no solo para el mundo, sino para nuestro propio sistema inmunitario. Era lo suficientemente diferente a sus parientes circulantes como para que las células de memoria inmunitaria lo reconocieran. En lugar de actuar como un resfriado, actuó como nada que hubiéramos visto antes, al menos en nuestra vida. La historia de la pandemia es en gran medida un relato sobre el sistema inmunitario, una historia de cómo creció nuestra inmunidad.

La diferencia entre principios de 2020 y ahora, cuando las infecciones por coronavirus siguen siendo frecuentes pero no tan mortales, puede medirse en términos de educación inmunitaria. Algunos de nuestros sistemas inmunitarios fueron educados por la infección, otros por la vacunación y muchos por ambas.

Cuando aparecieron las primeras vacunas en diciembre de 2020, la oportunidad de educar nuestros sistemas inmunitarios era aún enorme. Aunque, en aquel momento, se calculaba que 20 millones se habían infectado en Estados Unidos y 350.000 habían muerto, había una gran población que seguía siendo inmunológicamente no expuesta. Yo era uno de ellos.

Si de 2020 a principios de 2021 fue la era de la educación inmunológica, el periodo posvacuna fue la era de la variante. De una cepa de COVID a dos, a cinco, a innumerables, nuestra memoria inmunitaria —entrenada en una versión específica del virus o de su proteína de la espícula— volvió a ser imperfecta. No se trata de falta de exposición previa; estas variantes no eran "nuevas", como la COVID-19, pero sí eran diferentes. Y lo suficientemente diferentes como para causar infección.

Siguiendo el ejemplo de otro virus al que le encanta disfrazarse con diferentes trajes, el virus de la gripe, nos encontramos en la era de los refuerzos, un mundo en el que las dosis anuales de una vacuna, idealmente adaptadas a las variantes que circulan cuando esta se administra, son la recomendación, si no es que la norma.

Pero sigue habiendo dudas sobre el programa de vacunación, especialmente sobre quién debe recibirla; las dudas recaen principalmente sobre dos poblaciones:1) las personas que ya han sido infectadas y 2) los niños, porque su riesgo de malos resultados es mucho menor.

A inicios de febrero, por fin tuvimos algunos datos que pueden esclarecer el asunto. El estudio que nos ocupa, publicado en JAMA, trata de analizar la capacidad de la vacuna bivalente —que fue la segunda en salir, en septiembre de 2022— para proteger a la población infantil de la COVID-19.

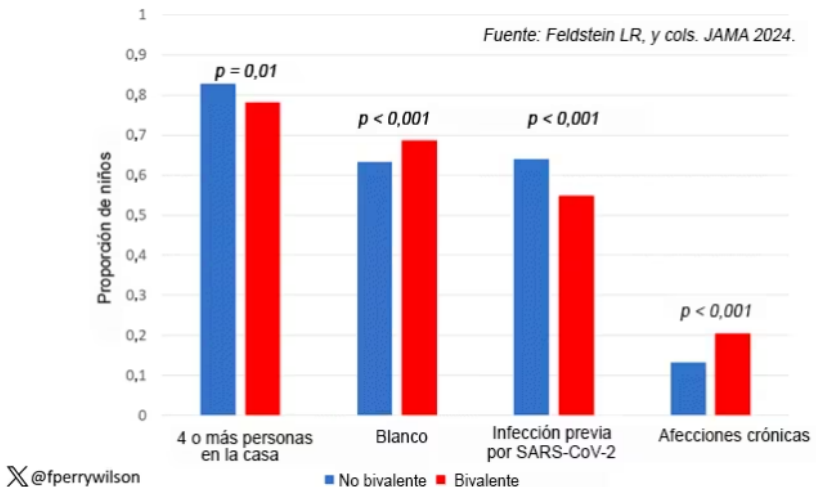
De entrada, no fue un ensayo aleatorizado. Los estudios que establecieron la viabilidad de la plataforma de la vacuna de ácido ribonucleico mensajero (ARNm) sí lo fueron, se llevaron a cabo antes de que se autorizara la vacuna. Pero los ensayos de la vacuna bivalente se limitaron principalmente a probar la respuesta inmunitaria, no la protección frente a la enfermedad.

No obstante, con algunos buenos métodos de observación y algunas estadísticas, podemos intentar averiguar si las vacunas bivalentes funcionaron en la población infantil.

En el estudio se combinan tres estudios de cohortes prospectivos. Los detalles están en el documento, pero lo que hay que saber es que el componente especial de estos estudios fue que la población infantil se sometió a pruebas de COVID-19 semanalmente, tuviera o no síntomas. Esto resulta fundamental porque las infecciones asintomáticas pueden transmitir COVID-19.

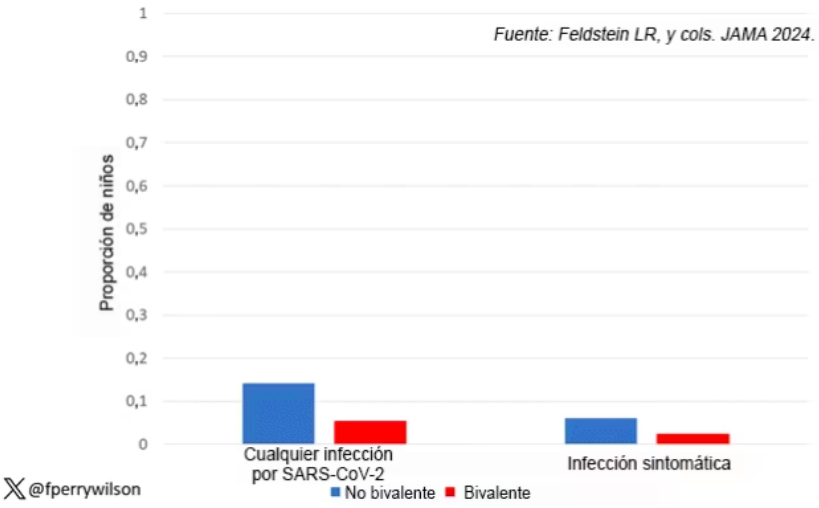
Veamos las variables de interés. Primera y principal, la vacuna bivalente. Algunos de estos niños recibieron la vacuna bivalente, otros no. Otras variables clave son la vacunación previa con la vacuna monovalente. Algunos habían sido vacunados antes con la vacuna monovalente, otros no. Y, por supuesto, la infección previa. Algunos se habían infectado antes (según frotis nasales o análisis de sangre).

Centrémonos primero en la exposición primaria de interés: recibir la vacuna bivalente. Una vez más, esto no se asignó de forma aleatorizada; la población infantil que recibió la vacuna bivalente era diferentes de la que no la recibió. En general, vivían en hogares más pequeños, tenían menos probabilidades de haber tenido una infección previa por SARS-CoV-2, más probabilidad de que fueran blancos y bastantes más de padecer al menos una enfermedad crónica.

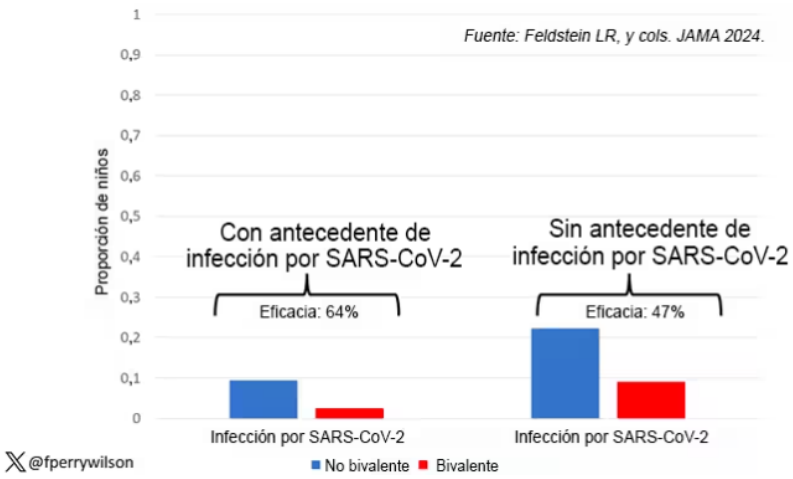


A mi entender, esta constelación de factores describe un grupo de riesgo ligeramente superior; tiene sentido que tuvieran más probabilidades de recibir la segunda vacuna.

Teniendo en cuenta estos factores, ¿cuáles fueron las tasas de infección por SARS-CoV-2? Tras casi un año de seguimiento, alrededor de 15% de la población infantil que no había recibido la vacuna bivalente se infectó, frente a 5% de los sí vacunados. Las infecciones sintomáticas representaron aproximadamente la mitad de todas las infecciones en ambos grupos.



Tras el ajuste con respecto a los factores que diferían entre los grupos, esta diferencia se tradujo en una eficacia de la vacuna de alrededor de 50% para esta población. Ese es nuestro primer dato. Sí, la vacuna bivalente funcionó. No de forma asombrosa, por supuesto, pero funcionó.



¿Qué ocurrió con la población infantil que había tenido una infección previa por SARS-CoV-2? De forma un tanto sorprendente, la vacuna fue igual de eficaz, a pesar de que su sistema inmunitario ya habían estado expuestos antes a COVID. De las y los niños no vacunados, 10% se infectaron, a pesar de haber estado infectados anteriormente. Solo 2,5% de quienes recibieron la vacuna bivalente se infectaron, lo que indica cierta sinergia entre la infección previa y la vacunación.

Estos datos indican que la vacuna bivalente redujo el riesgo de infección por SARS-CoV-2 en la población infantil. Todo esto es bueno, pero lo que falta saber es la gravedad de las infecciones. No parece que ninguna de las 426 infecciones documentadas en este estudio diera lugar a hospitalización o muerte, afortunadamente. Y no se presentan datos sobre la incidencia del síndrome inflamatorio multisistémico pediátrico, aunque dada la rareza, me sorprendería que alguno de ellos lo tuviera.

¿En qué punto nos encontramos? Bueno, parece que la narrativa que afirma que "las vacunas no funcionan" o que "las vacunas no funcionan si ya estuviste infectado" probablemente no sea cierta. Sí funcionan. Este estudio y otros realizados en adultos lo demuestran. Si funcionan para reducir las infecciones, como aquí se expone, también funcionarán para reducir las muertes. Lo que ocurre es que, afortunadamente, los decesos son tan poco frecuentes en niños, que el número necesario de vacunaciones para evitar una muerte es muy elevado. En este escenario, la decisión de vacunar gira en torno a los riesgos asociados a la vacunación. Hasta ahora, esos riesgos parecen mínimos.

Tal vez adoptar un calendario de vacunación anual, similar al de la gripe, no sea simplemente el resultado de viejos hábitos que se niegan a morir. Quizá no sea una mala idea.

Fuente: MedScape. Disponible en https://acortar.link/HYWaWM

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Patentes registradas en Patentscope

Estrategia de búqueda: *Vaccine in the title or abstract AND 20240201:20240216 as the publication date 82 records*

1.4317177NEUARTIGER TRIMERER CORONAVIRUS-S-RBD-PROTEINIMPFSTOFF, HERSTELLUNGSVERFAHREN DAFÜR UND ANWENDUNG DAVON
EP - 07.02.2024
Clasificación Internacional C07K 14/165 Nº de solicitud 22778407 Solicitante NAT VACCINE AND SERUM INSTITUTE NVSI Inventor/a LI QIMING
Disclosed is a novel coronavirus S-RBD trimeric protein. The trimeric protein is composed of amino acid fragments of positions 319-537 in an RBD region of a novel coronavirus S protein in a trimeric form. A vaccine prepared by the present invention uses the S-RBD trimeric protein as an antigen; once an adjuvant is added, the body can be immunized and high-titer protective neutralizing antibodies against the

novel coronavirus can be produced. The vaccine can be used for the treatment and/or prevention of novel coronavirus (SARS-CoV-2) infections and/or novel coronavirus diseases.

2.4314300HERSTELLUNG VON VACCINIA-KAPPING-ENZYM
EP - 07.02.2024
Clasificación Internacional C12N 15/67 Nº de solicitud 22782004 Solicitante GINKGO BIOWORKS INC Inventor/a BOBER JOSEF
Aspects of the disclosure relate to production of vaccinia capping enzyme (VCE) in host cells. For example, host cells may comprise: a promoter; a ribosome binding site (RBS); a nucleic acid encoding a vaccinia capping enzyme (VCE) or VCE subunit; and a terminator.

3.4316511NANOGELBESCHICHTETER IMPFSTOFF
EP - 07.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 22780676 Solicitante UNIV TOKYO Inventor/a KIYONO HIROSHI
It is an object of the present invention to provide: a complex of an antigen that is not encapsulated in a nanogel, and a nanogel; and a vaccine preparation comprising the complex. Specifically, the present invention provides a complex of a nanogel and a vaccine antigen, in which the vaccine antigen is coated with the nanogel

4.4316515INFLUENZAIMPFSTOFF
EP - 07.02.2024
Clasificación Internacional A61K 39/145 Nº de solicitud 22780974 Solicitante DENKA COMPANY LTD Inventor/a MITSUMATA RYOTARO
Provided is an influenza vaccine that has high immunogenicity in children and elderly people and has a higher efficacy than conventional split vaccines. An influenza vaccine composition to be administered to children and/or elderly people, comprising, as a virus antigen, inactivated whole particles subjected to inactivation treatment with beta-propiolactone.

5.4313046IMPFSTOFFADJUVANS
EP - 07.02.2024
Clasificación Internacional A61K 31/454 Nº de solicitud 21722530 Solicitante CELLERON THERAPEUTICS LTD Inventor/a LA THANGUE NICHOLAS
The present invention relates to the therapeutic use of the HDAC inhibitor compound, N–(2-aminophenyl)-4-(1-[(1,3-dimethyl-1H-pyrazol-4-yl)methyl]piperidin-4-yl)benzamide, or a pharmaceutically acceptable salt or solvate thereof, as a vaccine adjuvant. The present invention also relates to the combination of N–(2-aminophenyl)-4-(1-[(1,3-dimethyl-1H- pyrazol-4-yl)methyl]piperidin-4-yl)benzamide and a vaccine and the therapeutic uses thereof

6.WO/2024/023790VACCINE CONSTRUCTS COMPRISING TUBERCULOSIS ANTIGENS
WO - 01.02.2024
Clasificación Internacional A61K 39/04 Nº de solicitud PCT/IB2023/057700 Solicitante UNIVERSITY OF CAPE TOWN Inventor/a MUSVOSVI, Munyaradzi N
The present invention relates to polygenic nucleic acid constructs comprising nucleotide sequences encoding Mycobacterium tuberculosis antigens and to mRNA vaccine constructs transcribed or obtained therefrom. Also provided are lipid nanoparticles including the mRNA vaccine constructs and vaccine compositions comprising the constructs described. The constructs, lipid nanoparticles containing them, and vaccine compositions described may be useful in methods for eliciting a protective immune response against Mycobacterium tuberculosis in a subject.

7.20240033339STREPTOCOCCUS SUIS (S. SUIS) VACCINE

US - 01.02.2024
Clasificación Internacional A61K 39/09 Nº de solicitud 18272371 Solicitante JIANGSU ACADEMY OF AGRICULTURAL SCIENCES Inventor/a Qi XIAO
A *Streptococcus suis* (*S. suis*) vaccine is provided. For the *S. suis* vaccine, an antigen is a protein with an amino acid sequence shown in SEQ ID NO: 2. A preparation method of the *S. suis* vaccine is provided, including the following steps: mixing a white oil and aluminum stearate to obtain a white oil adjuvant; adding poly sorbate 80 to an aqueous solution of the protein with the amino acid sequence shown in SEQ ID NO: 2, and thoroughly mixing to obtain an antigen solution; and mixing the antigen solution with the white oil adjuvant according to a volume ratio of (0.5-1.5):2, and emulsifying to obtain the *S. suis* vaccine. An animal immunized with the *S. suis* vaccine of the present disclosure can effectively resist the attack of *S. suis* serotype 2, 3, and 31, with a vaccine protection rate as high as 100%.

8.20240042011CORONAVIRUS VACCINE
US - 08.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud 18186914 Solicitante BioNTech SE Inventor/a Alexander Muik
This disclosure relates to the field of RNA to prevent or treat coronavirus infection. In particular, the present disclosure relates to methods and agents for vaccination against coronavirus infection and inducing effective coronavirus antigen-specific immune responses such as antibody and/or T cell responses. Specifically, in one embodiment, the present disclosure relates to methods comprising administering to a subject RNA encoding a peptide or protein comprising an epitope of SARS-CoV-2 spike protein (S protein) for inducing an immune response against coronavirus S protein, in particular S protein of SARS-CoV-2, in the subject, i.e., vaccine RNA encoding vaccine antigen.

9.20240033337VACCINE FOR MYCOPLASMA BOVIS
US - 01.02.2024
Clasificación Internacional A61K 39/02 Nº de solicitud 18264330 Solicitante INTERVET INC. Inventor/a Johanna Jacoba Elisabeth BIJLSMA
Currently, there is no effective vaccination against M. bovis on the market, and treatment options become increasingly limited due to restrictions in the use of, and resistance to antibiotics. This is complicated by results that demonstrate the induction of vaccine-enhanced disease, upon the use of certain M. bovis proteins as a vaccine. Thus, there is an urgent need for an effective and safe M. bovis vaccine. A novel vaccine composition was found that comprises one or more recombinant proteins which (combined) contain one or more epitopes from each of a set of specific M. bovis proteins. Vaccines based on these recombinant proteins were found to be safe, and were effective in protecting ruminants against infection and disease resulting from a severe challenge infection with M. bovis, as was apparent from a strong reduction of lung damage and colonisation of the trachea.

10.4316516INFLUENZA-IMPFSTOFF ZUR TRANSNASALEN VERABREICHUNG
EP - 07.02.2024
Clasificación Internacional A61K 39/145 Nº de solicitud 22780975 Solicitante DENKA COMPANY LTD Inventor/a MITSUMATA RYOTARO
Provided is an influenza vaccine for intranasal administration that is efficiently taken up through a nasal mucosa. An influenza vaccine composition to be intranasally administered, comprising an influenza antigen to which TGDK is linked via a chemical bond.

11.20240033338Vaccine Composition for Preventing Tuberculosis Comprising Chorismate Mutase
US - 01.02.2024
Clasificación Internacional A61K 39/04 Nº de solicitud 18021258 Solicitante SEOUL NATIONAL UNIVERSITY R&DB FOUNDATION Inventor/a Bum Joon Kim

An aspect provides a vaccine composition for preventing *tuberculosis* comprising chorismate mutase. The vaccine composition alone may induce immunity specific to *Mycobacterium tuberculosis*, and when provided together with an immune adjuvant, the vaccine composition may induce immunity specific to *tuberculosis* more effectively. Furthermore, when an existing vaccine for *tuberculosis* is used as a prime and the vaccine composition according to an aspect including chorismite mutase is provided as a booster, the immunity specific to *tuberculosis* may be induced significantly more effectively.

12.20240033350LIPIDATED FLIPR AND USES THEREOF IN VACCINE
US - 01.02.2024
Clasificación Internacional A61K 39/39 Nº de solicitud 18229010 Solicitante National Health Research Institutes Inventor/a Hsin-Wei CHEN
The present disclosure relates to a vaccine composition, comprising a recombinant lipidated FLIPr (rLF), and the use thereof in enhancing humoral and cellular immune responses. The recombinant lipidated FLIPr of present invention may be used as a vaccine candidate that can induce anti-FLIPr responses to overcome FLIPr-mediated inhibition. And unexpectedly, the recombinant lipidated FLIPr may be used as an adjuvant that can enhance other vaccine immune responses, especially in subunit vaccines and inactivated virus vaccines.

13.4313132IMPFSTOFFZUSAMMENSETZUNGEN FÜR TRYPANOSOMATIDE
EP - 07.02.2024
Clasificación Internacional A61K 39/005 Nº de solicitud 22714463 Solicitante VIB VZW Inventor/a STIJLEMANS BENOIT
The present invention provides vaccines and compositions, methods and uses of immunogenic vaccine compositions for eliciting an immune response to members of trypanosomatids such as *Trypanosoma brucei*, *T. cruzi* and *Leishmania* species.

14.20240042037REDUCED FOAMING VACCINE COMPOSITIONS
US - 08.02.2024
Clasificación Internacional A61K 47/26 Nº de solicitud 18483149 Solicitante Abic Biological Laboratories Ltd. Inventor/a Noel Yves Henri Jean Genin
The present invention relates to novel stable compressed vaccine composition comprising at least one anhydrous antigenic component comprising a stabilizer susceptible to foaming when the composition is mixed with liquid diluent; and an effective amount of a sugar alcohol.

15.20240033346VACCINE COMPOSITION FOR CHICKENPOX OR VARICELLA ZOSTER AND METHOD OF USING SAME
US - 01.02.2024
Clasificación Internacional A61K 39/25 Nº de solicitud 18023580 Solicitante EUBIOLOGICS CO., LTD. Inventor/a Chan Kyu LEE
Provided are a vaccine composition for Varicella Zoster virus (VZV) including a glycoprotein E (gE) antigen of VZV and monophosphoryl lipid A (MLA), and a method of using the same. The vaccine composition according to an aspect of the invention may significantly improve a production yield by including the gE antigen having an optimized signal peptide sequence, may enhance immunogenicity by including MLA, and may further enhance the immunogenicity enhanced by MLA by further adding saponin such as QS-21, and may be prepared in a form of CoPoP liposomes so that vaccine antigens may be presented on the surface of the liposomes for better absorption by antigen-presenting cells, and vaccine efficacy may be maximized by inclusion of the vaccine antigens and immune adjuvants in a formulation. Therefore, the vaccine composition may be useful as an alternative to current vaccines in the art for prevention or treatment of VZV infection.

16.WO/2024/027810REPLICATION INCOMPETENT HERPES SIMPLEX VIRUS TYPE 1 VIRAL VACCINE
WO - 08.02.2024
Clasificación Internacional A61K 39/245 Nº de solicitud PCT/CN2023/111125 Solicitante IMMVIRA BIOPHARMACEUTICALS CO., LIMITED Inventor/a LIU, Yuanyuan
Disclosed is a replication incompetent HSV-1 viral vaccine comprising a modified genome of HSV-1 and at least one antigen. The modification comprises a deletion of internal repeats, an inactivating mutation in ICP47 and an inactivating mutation in the other copy of ICP4. A first antigen of the at least one antigen is driven by a promoter of an immediate early gene, such as ICP4. In a specific example, the HSV-1 viral vaccine expresses antigens from SARS-Cov, SARS-Cov-2 and variants thereof and is used for inducing immune responses against sarbecoviruses in a subject to which the vaccine is administered.

17.4316497MESENCHYMALE STAMMZELLEN ALS IMPFSTOFFADJUVANTIEN UND VERFAHREN ZUR VERWENDUNG DAVON
EP - 07.02.2024
Clasificación Internacional A61K 35/28 Nº de solicitud 23199388 Solicitante LONGEVERON INC Inventor/a HARE JOSHUA M
The present invention provides a method of enhancing an immune response to a vaccine by administering a vaccine and a population of isolated allogeneic human mesenchymal stem cells. The present invention also provides kits comprising a vaccine in a first container and a population of isolated allogeneic human mesenchymal stem cells in a second container.

18.WO/2024/021817VACCINE AGAINST SARS-COV-2, METHOD FOR PREPARING SAME, AND USE THEREOF
WO - 01.02.2024
Clasificación Internacional A61K 39/295 Nº de solicitud PCT/CN2023/096148 Solicitante LIVERNA THERAPEUTICS INC. Inventor/a PENG, Yucai
The present disclosure provides a vaccine against SARS-CoV-2, a method for preparing same, and use thereof, and relates to the technical field of vaccines. The vaccine against SARS-CoV-2 comprises a nucleic acid molecule that encodes the SARS-CoV-2 Delta variant S protein and a nucleic acid molecule that encodes the SARS-CoV-2 Omicron subvariant BA.5S protein, and is a multivalent vaccine.

19.4313138SARS-COV-2-UNTEREINHEIT-IMPFSTOFF
EP - 07.02.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 22719530 Solicitante VIRAVAXX AG Inventor/a GATTINGER PIA
An immunogenic subunit vaccine antigen which comprises at least two receptor-binding domains (RBDs) of the spike (S) protein of SARS-CoV-2 which are fused to a heterologous immunogenic carrier protein, wherein each of said at least two RBDs has a folded structure in an accessible conformation to bind the human angiotensin-converting enzyme 2 (ACE2) receptor protein.

20.20240042013USE OF VACCINE COMPOSITIONS BASED ON SARS-COV-2 RECEPTOR BINDING DOMAIN IN DELIVERING PROTECTIVE IMMUNITY
US - 08.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud 18266486 Solicitante Instituto Finlay de Vacunas Inventor/a Vicente Guillermo Verez Bencomo
This invention relates to the field of Biotechnology and Medicine. It describes the use of vaccine compositions based on the receptor binding domain of SARS-CoV-2 virus in the treatment of patients recovered from COVID-19 and in subjects vaccinated with vaccine platforms other than subunit vaccines, who fail to develop effective protective immunity or where immunity has decreased over time and a

booster with the same vaccine used in primary vaccination is not recommended. Particularly, this use is described for vaccine compositions comprising a covalent conjugate of the receptor binding domain (RBD) and a carrier protein such as tetanus toxoid, diphtheria toxoid and diphtheria toxoid mutant CRM197, vaccine compositions having the RBD as antigen, with or without the immunopotentiator outer membrane vesicles of serogroup B *Neisseria meningitidis.*

21.20240041994CMV VACCINE AND METHOD OF MAKING AND USING THE SAME
US - 08.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 18311557 Solicitante The Regents of the University of California Inventor/a Lewis L. LANIER
The present invention provides vaccine compositions for preventing and/or treating cytomegalovirus (CMV) infection and methods of making and using the same.

22.4317176IMPFSTOFFZUSAMMENSETZUNG AUF BASIS EINES ABGESCHWÄCHTEN REOVIRUS UND VERWENDUNG DAVON
EP - 07.02.2024
Clasificación Internacional C07K 14/005 Nº de solicitud 22776058 Solicitante VIROCURE INC Inventor/a YOO HAENG JUN
The present invention relates to an attenuated reovirus-based vaccine composition and a use thereof, the attenuated reovirus, according to the present invention, having the 251st to 455th amino acids of a sigma-1 protein of a capsid truncated such that when an epitope of an antigenic protein inducing cancer or infectious disease is introduced to the truncated site of the sigma-1 protein, the epitope of the antigenic protein is stably expressed in a cell, and thus the effect is gained of exhibiting an immune response such as producing a neutralizing antibody or inducing cell-mediated immunity. As such, the present invention is expected to be usefully employable as a vaccine composition for cancer or infectious disease by introducing the epitope of the antigenic protein to the truncated site of the sigma-1 protein of the attenuated reovirus according to the present invention.

23.WO/2024/026362PSEUDOVIRUS BASED NEUTRALIZATION ASSAY FOR EVALUATING VACCINE IMMUNOGENICITY
WO - 01.02.2024
Clasificación Internacional C12Q 1/70 Nº de solicitud PCT/US2023/071047 Solicitante NOVAVAX, INC. Inventor/a CAI, Zhaohui
Provided herein are pseudoviruses expressing a SARS-CoV-2 S glycoprotein. Also provided herein are assays that employ the pseudoviruses to evaluate the immunogenicity of a biological sample against a SARS-CoV-2 virus or variant thereof. Also provided herein are methods of evaluating the immunogenicity of a COVID-19 vaccine using the assays.

24.20240042014NUCLEIC ACID VACCINE AGAINST THE SARS-COV-2 CORONAVIRUS
US - 08.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud 18465414 Solicitante INSTITUT PASTEUR Inventor/a Etienne SIMON-LORIERE
The invention relates to an immunogenic or vaccine composition against the 2019 novel coronavirus (SARS-CoV-2), comprising a nucleic acid construct encoding a SARS-CoV-2 coronavirus Spike (S) protein antigen or a fragment thereof comprising the receptor-binding domain, wherein the nucleic acid construct sequence is codon-optimized for expression in human.

25.20240042008VACCINE COMPOSITION FOR PREVENTION OR TREATMENT OF SARS-CORONAVIRUS-2 INFECTION
US - 08.02.2024

Clasificación Internacional A61K 39/215 Nº de solicitud 18034141 Solicitante SK BIOSCIENCE CO., LTD. Inventor/a Ki-weon SEO
The present invention provides a recombinant antigen protein for preventing SARS-coronavirus-2 infection, comprising a polypeptide derived from an S1 subunit of a spike protein of SARS-coronavirus-2 and a polypeptide constituting a tetanus toxin (TT) epitope P2 domain, and a vaccine composition comprising the same.

26.2621127Vaccine constructs comprising tuberculosis antigens
GB - 07.02.2024
Clasificación Internacional C12N 15/85 Nº de solicitud 202211137 Solicitante UNIV JOHANNESBURG WITWATERSRAND Inventor/a MUNYARADZI MUSVOSVI
A polygenic nucleic acid construct comprising at least two nucleotide sequences selected from nucleotide sequences encoding a WbbL antigen having the amino acid sequence of SEQ ID NO 1, a CFP-10 antigen having the amino acid sequence of SEQ ID NO 2, a PPE18 antigen having the amino acid sequence of SEQ ID NO 3, and a PE13 antigen having the amino acid sequence of SEQ ID NO 4. The construct can comprise all four antigens. The nucleotide sequences can be separated by linkers. The linkers can be a glycine-serine flexible linker, a glycine flexible linker, and a 2A-derived peptide. The construct can comprise a leader nucleotide sequence encoding a secretory peptide signal. A further aspect is an mRNA construct transcribed from the nucleic acid construct. The mRNA can be capped at the 5' end. The mRNA can include modified nucleotides (e.g., N1-methyl-pseudouridine and pseudouridine). A further aspect is a lipid nanoparticle comprising the mRNA construct. A further aspect is a Mycobacterium tuberculosis vaccine composition comprising the polygenic nucleic acid construct, the mRNA construct, or the lipid nanoparticle.

27.4316510HÄMATOPOIETISCHE WACHSTUMSFAKTOREN ABREICHERNDE IMPFSTOFFZUSAMMENSETZUNGEN ZUR BEHANDLUNG VON ENTZÜNDLICHEN ERKRANKUNGEN
EP - 07.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 22718850 Solicitante CT INMUNOLOGIA MOLECULAR Inventor/a LAGE DÁVILA AGUSTÍN BIENVENIDO
The present invention is related to the fields of Biotechnology and Medicine. Particularly, it describes therapeutic vaccine compositions able to produce an autoimmune reaction against haemopoietic growth factors such as G-SCF and/or GM-CSF bounded to other molecules or a fragment thereof by chemical conjugation or fusion. Such vaccines compositions are useful for the treatment of inflammatory diseases, especially wherein a pathological increasing of the circulating neutrophils occurs.

28.4316514VEKTOREN AUF MVA-BASIS UND IHRE VERWENDUNG ALS IMPFSTOFF GEGEN SARS-COV-2
EP - 07.02.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 22382754 Solicitante CONSEJO SUPERIOR INVESTIGACION Inventor/a BLASCO LOZANO RAFAEL
The present invention is directed to recombinant modified vaccinia virus Ankara (MVA) vectors containing a Vaccinia virus codon optimized gene sequence encoding the Spike protein or fragment thereof of at least a SARS-CoV-2 virus. The present invention is further directed to a composition containing said recombinant MVAs as well as to a vaccine for eliciting T cell and humoral immune responses in a mammal against COVID19.

29.WO/2024/029469METHOD FOR MANUFACTURING INACTIVATED SARS-COV-2 VACCINE, INACTIVATED SARS-COV-2 VACCINE, METHOD FOR PURIFYING SARS-COV-2 OR INACTIVATED

SARS-COV-2, AND SARS-COV-2 ANTIGEN COMPOSITION OR INACTIVATED SARS-COV-2 ANTIGEN COMPOSITION
WO - 08.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/JP2023/027808 Solicitante KM BIOLOGICS CO., LTD. Inventor/a OKUMURA Minako
The present invention pertains to a method for manufacturing an inactivated SARS-CoV-2 vaccine, the method comprising a step for bringing a SARS-CoV-2-containing solution or an inactivated SARS-CoV-2-containing solution into contact with a cellulose sulfate ester gel at a pH of 8-10 inclusive to cause the SARS-CoV-2 or the inactivated SARS-CoV-2 to be adsorbed by the gel, then removing impurities, then eluting and recovering the SARS-CoV-2 or the inactivated SARS-CoV-2.

30.20240041760VACCINATION FOR PROTECTING POULTRY AGAINST A POULTRY PATHOGEN
US - 08.02.2024
Clasificación Internacional A61K 9/00 Nº de solicitud 18264446 Solicitante Intervet Inc. Inventor/a Willem Pieter Cornelis Pulskens
The invention pertains to a vaccine comprising non-live antigen of a poultry pathogen and a mucoadhesive adjuvant, for use in boosting an immune response in a poultry animal directed against the poultry pathogen by administering the vaccine mucosally to the poultry animal. The invention also pertains to a vaccine comprising a liquid pharmaceutically acceptable carrier, a non-live antigen of a poultry pathogen and a mucoadhesive adjuvant, as well as a method of boosting an immune response in a poultry animal, which immune response is directed against a poultry pathogen, by administering a vaccine mucosally to the poultry animal, the vaccine comprising a non-live antigen of the said poultry pathogen and a mucoadhesive adjuvant.

31.4314824VERFAHREN ZUR CHARAKTERISIERUNG DER IMMUNREAKTION EINER PERSON AUF EINE DENGUE-VIRUS-ZUSAMMENSETZUNG
EP - 07.02.2024
Clasificación Internacional G01N 33/543 Nº de solicitud 22718439 Solicitante TAKEDA VACCINES INC Inventor/a TSUJI ISAMU
The present invention relates to a method for characterizing the immune response of a subject to a tetravalent dengue virus composition by performing the method for determining affinity, binding kinetics and/or concentration of an antibody or of an antibody mixture and at least one other method. In a further embodiment, the present invention relates to a method for characterizing the immune response of a subject to a virus-containing vaccine composition by performing a combination of assays. In a further embodiment, the present invention relates to a method for predicting protective efficacy of a dengue vaccine candidate. In another embodiment the present invention relates to a method for preparing a vaccine formulation.

32.WO/2024/025932METHOD AND APPARATUS FOR DETECTING CONDITIONS FROM PHYSIOLOGY DATA
WO - 01.02.2024
Clasificación Internacional A61B 5/00 Nº de solicitud PCT/US2023/028665 Solicitante PHYSIQ INC. Inventor/a SEKARIC, Jadranka
A computerized system for measuring and/or detecting responses or conditions in human beings based on data from wearable sensors worn in a natural free-living context. Based upon the measurements and/or detection, various actions can be taken. Physiological data is taken and instructions are transmitted to a vaccine manufacturer to alter a composition and/or dosage of a vaccine.

33.4313140TRIMERE CLADE-C-HIV-1-HÜLLIMMUNOGENE, ZUSAMMENSETZUNGEN MIT DEN TRIMEREN CLADE-C-HIV-1-HÜLLIMMUNOGENEN UND VERWENDUNGEN DAVON

EP - 07.02.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 22782096 Solicitante UNIV NOVA SOUTHEASTERN Inventor/a CAYABYAB MARK J
The invention encompasses a non-naturally occurring clade C human immunodeficiency virus type-1 (HIV-1) 1086.C envelope (ENV) SOSIP trimer protein. This trimer protein contains broadly neutralizing epitopes and epitopes that induce anti-V1/V2 antibodies and thus is an immunogen for creation of HIV-1 vaccines. The invention also includes prophylactic or therapeutic vaccine compositions/kits and methods for using the trimer protein as a component of a vaccine against HIV-1 infection.

34.4313072KEUCHHUSTENIMPFSTOFF
EP - 07.02.2024
Clasificación Internacional A61K 31/7105 Nº de solicitud 22776712 Solicitante MODERNATX INC Inventor/a HIMANSU SUNNY
The disclosure relates to pertussis nucleic acid vaccines, diphtheria nucleic acid vaccines, tetanus nucleic acid vaccines, and combination vaccines, as well as methods of using the vaccines and compositions comprising the vaccines.

35.WO/2024/025936DEVELOPMENT OF CARBOHYDRATE-BASED ANTI-SALMONELLA VACCINES
WO - 01.02.2024
Clasificación Internacional A61K 39/02 Nº de solicitud PCT/US2023/028672 Solicitante BOARD OF TRUSTEES OF MICHIGAN STATE UNIVERSITY Inventor/a HUANG, Xuefei
Provided herein are vaccine composition comprising a Salmonella antigen conjugated to a capsid, wherein the capsid comprises wild type or native sequence. Provided herein are also vaccine composition comprising a Salmonella antigen conjugated to a capsid, wherein said capsid comprises at least one mutation, such as a non-natural mutation. Such compositions are useful in the treatment and prevention of preventing or treating a Salmonella infection (salmonellosis), gastroenteritis, typhoid fever, and/or paratyphoid fever; and may be effective against multiple strains of Salmonella.

36.4313011KOMBINATIONSTHERAPIE FÜR COVID-19-IMPFUNG
EP - 07.02.2024
Clasificación Internacional A61K 31/085 Nº de solicitud 22720365 Solicitante DOMPE FARM SPA Inventor/a ALLEGRETTI MARCELLO
The present invention relates to the combination of a Selective Estrogen Receptor Modulator (SERM) and a COVID-19 vaccine.

37.4313124THERAPEUTISCHE KOMBINATION ZUR BEHANDLUNG VON KREBS
EP - 07.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 22719226 Solicitante NYKODE THERAPEUTICS ASA Inventor/a FREDRIKSEN AGNETE
This invention relates to methods and kits for treating a subject having cancer, e.g. a patient, by administering to the subject an anticancer vaccine in combination with one or more checkpoint inhibitors.

38.4313143CORONAVIRUS-IMPFSTOFF-FORMULIERUNGEN
EP - 07.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud 22776366 Solicitante NOVAVAX INC Inventor/a SMITH GALE
Disclosed herein are coronavirus Spike (S) proteins and nanoparticles comprising the same, which are suitable for use in vaccines. The nanoparticles present antigens from pathogens surrounded to and associated with a detergent core resulting in enhanced stability and good immunogenicity. Dosages, formulations, and methods for preparing the vaccines and nanoparticles are also disclosed.

39.WO/2024/026329EGFR VACCINE CASSETTES
WO - 01.02.2024
Clasificación Internacional C12N 15/85 Nº de solicitud PCT/US2023/070981 Solicitante GRITSTONE BIO, INC. Inventor/a JOOSS, Karin
Disclosed herein are compositions that include antigen-encoding nucleic acid sequences having multiple iterations of EGFR neoepitope-encoding sequences. Also disclosed are nucleotides, cells, and methods associated with the compositions including their use as vaccines.

40.20240033341HIV VACCINE IMMUNOGENS
US - 01.02.2024
Clasificación Internacional A61K 39/21 Nº de solicitud 18340008 Solicitante California Institute of Technology Inventor/a Harry Gristick
Provided herein are HIV immunogens and uses thereof for generating an immune response in a subject. This disclosure further provides a method for treating or preventing a human immunodeficiency type I (HIV-I) infection in a subject using the disclosed HIV immunogens and/or antibodies generated by any of the methods disclosed herein.

41.WO/2024/031027CTA VACCINE CASSETTES
WO - 08.02.2024
Clasificación Internacional C07K 14/705 Nº de solicitud PCT/US2023/071623 Solicitante GRITSTONE BIO, INC. Inventor/a JOOSS, Karin
Disclosed herein are compositions that include antigen-encoding nucleic acid sequences having multiple iterations of CTA epitope-encoding sequences or Cancer Testis Antigen (CTA)-encoding nucleic acid sequences and KRAS-encoding nucleic acid sequences. Also disclosed are nucleotides, cells, and methods associated with the compositions including their use as vaccines.

42.4313128IMPFSTOFFE UND IMMUNGLOBULINE GEGEN DAS AFRIKANISCHE SCHWEINEPESTVIRUS, VERFAHREN ZUR HERSTELLUNG DAVON UND VERFAHREN ZUR VERWENDUNG DAVON
EP - 07.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 22774459 Solicitante IGY IMMUNE TECH AND LIFE SCIENCE INC Inventor/a NGUYEN HUAN HUU
The present disclosure provides a method of isolating and preparing live African Swine Fever (ASF) viruses (ASFV) and an ASFV vaccine composed of ASF virus particles, ASF viral components, and/or immunosuppressive protein factors. The ASFV vaccine can be used to immunize pigs and wild boars, or can be used to immunize species other than pig or wild boar, such as fowl, bovine, goat, rabbit, donkey or horse, to generate polyclonal immunoglobulins with broad-spectrum specificity to the ASFV. The ASFV-specific immunoglobulins then can be extracted and purified. The ASFV-specific immunoglobulins can provide acute treatment of ASF-infected pigs or wild boars or preventative treatment for pigs or wild boars at risk of ASF, for example that may have been exposed to ASFV or ASFV-infected subjects.

43.WO/2024/026378HSV GENE EXPRESSION VECTOR AND BxB1 INTEGRASE-MEDIATED RECOMBINATION SYSTEM FOR HIGH-THROUGHPUT CLONING
WO - 01.02.2024
Clasificación Internacional A61K 39/245 Nº de solicitud PCT/US2023/071074 Solicitante ALBERT EINSTEIN COLLEGE OF MEDICINE Inventor/a JACOBS, JR., William R.
A herpes simplex virus (HSV) gene vaccine and expression vector and/or vaccine vector comprising an HSV genome comprising: a complete deletion of glycoprotein G-encoding gene, glycoprotein J-encoding gene, glycoprotein D-encoding gene, and glycoprotein I-encoding gene; a heterologous nucleic acid comprising an expression cassette and inserted in a region of the genome from which the glycoprotein G-

encoding gene, glycoprotein J-encoding gene, glycoprotein D-encoding gene, and glycoprotein I-encoding gene have been deleted; an attL sequence; and an attR sequence, wherein the attL sequence is adjacent to a first end of the expression cassette and the attR sequence is adjacent to a second end of the expression cassette, and wherein the expression cassette comprises in operable communication a promoter and at least one gene encoding a heterologous protein.

44.20240043870MODIFIED PARAPOXVIRUS HAVING INCREASED IMMUNOGENICITY
US - 08.02.2024
Clasificación Internacional C12N 15/86 Nº de solicitud 18258508 Solicitante Eberhard Karls Universitaet Tuebingen Medizinische Fakultaet Inventor/a Ralf AMANN
The present invention relates to a modified *Parapoxvirus*, preferably a *Parapoxvirus* vector, having an increased munogenicity, a biological cell containing said modified *Parapoxvirus*, a pharmaceutical composition, preferably a vaccine, containing said modified *Parapoxvirus* vector and/or said cell, and a new use of said modified *Parapoxvirus.*

45.20240047009NANT CANCER VACCINE STRATEGIES
US - 08.02.2024
Clasificación Internacional G16B 30/00 Nº de solicitud 18480149 Solicitante Nant Holdings IP, LLC Inventor/a Patrick Soon-Shiong
A patient having cancer can be treated using coordinated treatment regimens based on at least two omics data sets obtained from a solid tumor and a liquid biopsy that may indicates a plurality of tumor status in the patient's body. The treatment regimens can use various compounds and compositions that drive a tumor from the escape phase of cancer immunoediting to the elimination and equilibrium phase of cancer immunoediting.

46.20240033342COMPOSITIONS FOR TREATING GASTROINTESTINAL ADENOCARCINOMAS BY ALTERING THE TUMOR MICROENVIRONMENT
US - 01.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud 18020210 Solicitante Nordic Science Group ApS Inventor/a Lars Otto Uttenthal
The present invention provides compositions comprising a vaccine against the SARS-CoV-2 virus for promoting an antitumor immune response in a subject with an accessible adenocarcinoma tumor who has previously been exposed to said virus by infection or vaccination, by the direct injection of the composition into the tumor.

47.4313303IMPFSTOFFZUSAMMENSETZUNGEN AUS STAPHYLOCOCCUS AUREUS
EP - 07.02.2024
Clasificación Internacional A61P 31/04 Nº de solicitud 22782187 Solicitante JANSSEN PHARMACEUTICALS INC Inventor/a MORROW BRIAN
The present disclosure relates to immunogenic compositions for inducing an immune response in a subject for the treatment and/or prevention of a *Staphylococcus aureus* infection. The immunogenic compositions disclosed herein comprise a *S. aureus* protein A (SpA) polypeptide and a *S. aureus* *L*eukocidin A (LukA) and/or Leukocidin B (LukB) variant polypeptide. The present disclosure further relates to methods of generating an immune response against *S. aureus* in a subject that involve administering the disclosed immunogenic compositions.

48.20240041997VACCINE ADJUVANTS AND FORMULATIONS
US - 08.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 18342190 Solicitante The Cleveland Clinic Foundation Inventor/a Vincent K. Tuohy

Compositions comprising an antigen, a carbohydrate, and a metabolizable oil, methods of administering such compositions to a subject, methods of making such compounds, and related compositions, methods, and uses.

49.WO/2024/029707CHIMERIC STRAIN OF NORTH AMERICAN AND EUROPEAN PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS, AND METHOD FOR PRODUCING SAME
WO - 08.02.2024
Clasificación Internacional C12N 15/86 Nº de solicitud PCT/KR2023/007215 Solicitante EULJI UNIVERSITY INDUSTRY ACADEMY COOPERATION FOUNDATION Inventor/a PARK, Chang Hoon
The present invention uses reverse genetics to provide: a chimeric strain of North American and European porcine reproductive and respiratory syndrome viruses, wherein the chimeric strain simultaneously expresses antigens of the genetically different North American PRRSV and European PRRSV, and thus can defend against various PRRSV and provide significantly wider cross-immunity than existing live vaccine viruses; and a method for producing the chimeric strain.

50.20240044895IDENTIFICATION OF SARS-COV-2 EPITOPES DISCRIMINATING COVID-19 INFECTION FROM CONTROL AND METHODS OF USE
US - 08.02.2024
Clasificación Internacional G01N 33/569 Nº de solicitud 18245868 Solicitante WISCONSIN ALUMNI RESEARCH FOUNDATION Inventor/a Irene ONG
The present invention is directed to peptides for use in the detection of antibodies against SARS-CoV-2, which are indicative of past SARS-CoV-2 infections. Additionally, assays and methods of distinguishing patients having had a prior infection from those vaccinated patients are also provided. Additionally, vaccine compositions for use in eliciting anti-SARS-CoV-2 immune response are provided along with methods of producing antibodies and methods of eliciting an immune response.

51.20240044896METHODS AND SYSTEMS FOR DETECTION AND ANALYSIS OF ANGIOTENSIN BINDING ANTIBODIES
US - 08.02.2024
Clasificación Internacional G01N 33/569 Nº de solicitud 18266381 Solicitante The University of Chicago Inventor/a Melody SWARTZ
Aspects of the disclosure are directed to methods, systems, and compositions for detecting antibodies capable of binding to angiotensin II. Certain aspects comprise detection of antibodies capable of binding to angiotensin II in a sample from a subject, where the subject has or has had a coronavirus infection, such as a SARS-CoV-2 infection. Also disclosed are vaccine compositions comprising a portion of SARS-CoV-2 Spike protein, where such compositions do not induce generation of angiotensin II-binding antibodies.

52.WO/2024/028416NEW DNA SARS-COV-2 VACCINE
WO - 08.02.2024
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2023/071471 Solicitante CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS (CSIC) Inventor/a ALCOLEA ALCOLEA, Pedro José
The invention relates to combinations, pharmaceutical compositions and kits comprising polynucleotides encoding the spike (S) glycoprotein and the nucleocapsid (N) protein of SARS- CoV-2, either in a single or two separate vectors (e.g., a DNA plasmid), and their use in the prophylactic or therapeutic treatment of COVID-19.

53.4316513NEUER DNA-SARS-COV-2-IMPFSTOFF
EP - 07.02.2024

Clasificación Internacional A61K 39/12 Nº de solicitud 22382749 Solicitante CONSEJO SUPERIOR INVESTIGACION Inventor/a ALCOLEA ALCOLEA PEDRO JOSÉ
The invention relates to combinations, pharmaceutical compositions and kits comprising polynucleotides encoding the spike (S) glycoprotein and the nucleocapsid (N) protein of SARS-CoV-2, either in a single or two separate vectors (e.g., a DNA plasmid), and their use in the prophylactic or therapeutic treatment of COVID-19.

54.4317441NEUER REKOMBINANTER STAMM VON MYCOBACTERIUM SMEGMATIS UND VERWENDUNG DAVON
EP - 07.02.2024
Clasificación Internacional C12N 15/74 Nº de solicitud 22776010 Solicitante CLIPSBNC CO LTD Inventor/a KIM BUM-JOON
The present invention relates to a recombinant Mycobacterium strain co-expressing MIF and IL-7, and a composition for preventing or treating cancer containing the same as an active ingredient. The present invention induces a maximized anticancer immune response by stably expressing MIF and IL-7 through a mycobacteria-derived replicable plasmid, specifically, a pMyong2 shuttle vector developed by the present inventors. Accordingly, the present invention may be usefully used as an efficient anticancer live vaccine composition that induces multiple cellular and humoral immune responses through single administration of the recombinant strain.

55.20240035003METHODS OF PRODUCING ADENOVIRUS
US - 01.02.2024
Clasificación Internacional C12N 7/02 Nº de solicitud 18256484 Solicitante ASTRAZENECA UK LIMITED Inventor/a JINLIN JIANG
Methods for the production of adenoviruses which are suitable for use in a vaccine, and methods for increasing the yield of adenoviruses during production. These methods include adding an adenovirus to a cell population in culture; culturing the cell population under conditions which are permissive for infection of the cell population with the adenovirus to provide a cell population comprising adenovirus-infected cells; culturing the cell population comprising adenovirus-infected cells under conditions which are permissive for replication of the adenovirus; and harvesting the adenovirus from the culture.

56.20240042000CARBOHYDRATE STRUCTURES AND USES THEREOF
US - 08.02.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 18379752 Solicitante AOA Dx Inventor/a Horacio Uri Saragovi
The present invention provides methods and compositions related to multivalent carbohydrate antigen structures comprising cancer or infection associated ganglioside carbohydrate antigens. Said carbohydrate structures may be used to induce immunity against said carbohydrate antigens. In some embodiments, carbohydrate structures may be administered to a subject thereby inducing immunity in the subject, for example, the administration of a vaccine comprising said carbohydrate structure. Also provided are methods to induce an immune response in a subject in need thereof by administering said carbohydrate structure. Further provided are methods of producing an antibody or TCR that bind said carbohydrate antigens.

57.20240042004Attenuated Virus of Flavivirus Virus and Use Thereof
US - 08.02.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 18268661 Solicitante BEIJING SHUNLEI BIOTECHNOLOGY CO. LTD. Inventor/a Bo ZHANG
Provided are an attenuated virus of a flavivirus virus and the use thereof. The attenuated virus comprises a polyadenylic acid (poly(A)) sequence, wherein the polyadenylic acid (poly(A)) is used for replacing a

part of the nucleotide sequence of a 3' untranslated region (3'UTR) of the flavivirus virus, so that the 3' untranslated region (3'UTR) of the attenuated virus obtained after the part of the nucleotide sequence of the flavivirus virus is replaced at least retains a 3'-end stem loop region (3'SL). The attenuated virus can be used for preparing safe and effective attenuated vaccine strains.

58.20240034769NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST OVARIAN CANCER AND OTHER CANCERS
US - 01.02.2024
Clasificación Internacional C07K 14/74 Nº de solicitud 18192743 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.

59.WO/2024/023331PEPTIDES AND COMBINATIONS OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OPSCC) AND OTHER CANCERS
WO - 01.02.2024
Clasificación Internacional C07K 16/18 Nº de solicitud PCT/EP2023/071063 Solicitante EBERHARD KARLS UNIVERSITAET TUEBINGEN MEDIZINISCHE FAKULTAET Inventor/a LABAN, Simon
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, in particular of oropharyngeal squamous cell carcinoma (OPSCC). The present invention furthermore relates to tumor-associated T-cell peptide epitopes 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.

60.WO/2024/026376METHODS AND SYSTEMS FOR MULTIOMIC ANALYSIS
WO - 01.02.2024
Clasificación Internacional C12N 15/10 Nº de solicitud PCT/US2023/071068 Solicitante BIOSKRYB GENOMICS, INC. Inventor/a WEST, Jay A.A.
The present disclosure provides methods and systems for performing experiments and computational methods for generating, analyzing, and using multi-omics data and leveraging such multiomics data and computational analysis for applications such as identifying biomarkers, diagnostics, prognostics, drug and vaccine discovery and development, personalized and precision medicine, and any combination thereof. In some aspects, a correlation between genomics data and transcriptomics/proteomics data are used to determine the effects of a genetic event on a transcriptomics/proteomics effect and/or the effect of a genomics event in development of the course of a disease. Such information and analyses are then used for the aforementioned applications.

61.4316597NEUARTIGE PEPTIDE UND KOMBINATION AUS PEPTIDEN ZUR VERWENDUNG IN DER IMMUNTHERAPIE GEGEN LUNGENKREBS, EINSCHLIESSLICH NSCLC, SCLC UND ANDERE KREBSARTEN
EP - 07.02.2024
Clasificación Internacional A61P 35/00 Nº de solicitud 23216393 Solicitante IMMATICS BIOTECHNOLOGIES GMBH Inventor/a FRITSCHE JENS

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.

62.WO/2024/025480RECOMBINANT YEAST FOR PORCINE INTERFERON-ALPHA 1 PRODUCTION AND METHOD OF RECOMBINANT PORCINE INTERFERON-ALPHA 1 PRODUCTION FROM SAID YEAST
WO - 01.02.2024
Clasificación Internacional C07K 14/56 Nº de solicitud PCT/TH2023/000017 Solicitante NATIONAL SCIENCE AND TECHNOLOGY DEVELOPMENT AGENCY Inventor/a JARU-AMPORNPAN, Peera
The present invention relates to the recombinant yeast for porcine interferon-alpha 1 production (recombinant polFN-al) comprises yeast host cell, porcine interferon-alpha 1 gene and methanol-inducible protein expression vector comprising a methanol-inducible promoter which is at least one promoter selected from the group consisting of alcohol oxidase (AOX), methanol oxidase (MOX), formate dehydrogenase (FMD), wherein the porcine interferon-alpha 1 gene and the methanol-inducible protein expression vector is transferred into the yeast host cell. Additionally, the method for recombinant porcine interferon-alpha 1 production from the recombinant yeast for high yield expression. The recombinant polFN-al has several intended uses, such as an immune stimulant for pigs or other mammals, a broad-spectrum antiviral agent, or as a vaccine adjuvant.

63.20240033349VACCINE AND METHOD OF PROTECTION AGAINST CORONAVIRUS INFECTION
US - 01.02.2024
Clasificación Internacional A61K 39/39 Nº de solicitud 18016652 Solicitante Musa Tazhudinovich ABIDOV Inventor/a Musa Tazhudinovich ABIDOV
The invention is related to medical and biological applications and is intended to prevent and treat coronavirus infections by applying phthalhydrazide derivatives, including Tamerit, with immunomodulatory activity independently or in combination with antiviral drugs of different chemical structure.
A method for the prevention of coronavirus infection is presented, characterized by the fact that to increase the clinical and laboratory efficacy achieved by antiviral agents of the azoloazine series (Triazavirin®, Maktavirin®), antimalarials and preparations of interferon, in combination with the above preparations a preparation of aminophthalhydrazide derivatives salt, in the form of dihydrate, monohydrate, anhydrate, in any crystalline form, including Tamerit, in a dose from 0.01 to 4000 mg/kg to a subject in need is used. This pattern of using the drug, (according to the results of preclinical studies) showed that Tamerit provides an aggregate level of protection to 100%, exceeding the level of protection using only antiviral drugs by 30-50% and by 1.5-2 weeks reduces the duration of the acute course and the disease as a whole.

64.WO/2024/026360ACE2 INHIBITION ASSAY FOR EVALUATION OF VACCINE IMMUNOGENICITY
WO - 01.02.2024
Clasificación Internacional C12Q 1/70 Nº de solicitud PCT/US2023/071044 Solicitante NOVAVAX, INC. Inventor/a PLESTED, Joyce S.
Disclosed herein is an assay for measuring inhibition of binding between SARS-CoV-2 Spike (S) glycoproteins and hACE2. Also provided herein are methods of using the assay to evaluate the efficacy of COVID-19 vaccines.

65.4317446REKOMBINANTER CHIMÄRER ADENOVIRALER VEKTOR, DER DURCH DAS KNOPFGEN DES CHIMPANSE-ADENOVIRUS-SEROTYPS 6 SUBSTITUIERT IST, UND ANWENDUNG DAVON
EP - 07.02.2024
Clasificación Internacional C12N 15/86 Nº de solicitud 22781492 Solicitante GENEMATRIX INC Inventor/a KIM SOO-OK
The present invention is a chimeric adenovirus vector in which the knob domain of the end of the fiber protein of human adenovirus type 5 is replaced with the knob gene of chimpanzee adenovirus serotype 6 and/or in addition the hexon protein of human adenovirus type 5 is replaced with hypervariable regions 1-7 of human adenovirus serotype 28. The present invention not only provides the optimal adenovirus vector in the development of treatments or vaccines for various diseases, but also when the chimeric adenovirus vector produced in the present invention is infected with a host cell for production, it can contribute to improved productivity by exhibiting superior cell infection ability compared to the recombinant HAdV-5 vector-based vaccine.

66.WO/2024/030345COMPOSITIONS, KITS, AND METHODS FOR DETECTION OF VARIANT STRAINS OF AFRICAN SWINE FEVER VIRUS
WO - 08.02.2024
Clasificación Internacional C12Q 1/6851 Nº de solicitud PCT/US2023/029005 Solicitante LIFE TECHNOLOGIES CORPORATION Inventor/a MARTIN, Elise
Disclosed are compositions, methods, systems, and kits for the detection of African swine fever virus (ASFV) in a test sample, and in particular for distinguishing between wild/reference type ASFV and mutant/variant strains of ASFV. A variant ASFV assay includes a first set of primers and a first probe that correspond to a first ASFV target, and a second set of primers and a second probe that correspond to a second ASFV target. The first and second probes are differentially labelled. The first ASFV target is a MGF360 gene and the second ASFV target is the CD2v gene. Absence of these targets, in conjunction with a positive determination for another generic ASFV target such as the p72 gene, is indicative of a vaccine-associated variant strain of ASFV.

67.WO/2024/031045DOMINANT NEGATIVE ANTIGEN APPROACH FOR PROPHYLACTIC AND POST-INFECTION TREATMENT OF SWINE AGAINST AFRICAN SWINE FEVER VIRUS
WO - 08.02.2024
Clasificación Internacional C07K 16/10 Nº de solicitud PCT/US2023/071659 Solicitante MALCOLM, Thomas Inventor/a MALCOLM, Thomas
The disclosed invention pertains and encompasses a composition comprising modified ASFV outer-membrane protein antigen mutants (termed dominant negatives) that exhibit non-binding affinity to RBCs while inducing an antibody-mediated response capable of neutralizing unmodified proteins found on infectious outer-membrane-laden ASFV virions. Additionally, a method for the treatment and/or prevention of ASFV is provided, involving the administration of a dominant negative antigenic composition to animals, thereby averting RBC aggregation caused by said antigen and concurrently treating and/or preventing ASFV. Furthermore, the invention encompasses an ASFV vaccine composition containing the dominant negative antigen as a constituent. Moreover, the invention covers a formulation incorporating these dominant negative antigens in conjunction with antigens derived from capsid-based proteins, which collectively target both lysogenic and lytic viral replication cycles, thereby achieving optimal immune stimulatory protection.

68.4313160TARGETING MEHRERER T-ZELLTYPEN UNTER VERWENDUNG EINER SPHÄRISCHEN NUKLEINSÄUREIMPFSTOFFARCHITEKTUR
EP - 07.02.2024

Clasificación Internacional A61K 47/64 Nº de solicitud 22782129 Solicitante UNIV NORTHWESTERN Inventor/a MIRKIN CHAD A
The disclosure is generally related to spherical nucleic acids (SNAs), nanostructures with a core surrounded by a radial presentation of oligonucleotides, that can target multiple classes of immune cells. Methods of making and using the nanoparticles are also provided herein. In some aspects, the disclosure provides a spherical nucleic acid (SNA) comprising: (a) a nanoparticle core; (b) a shell of oligonucleotides attached to the external surface of the nanoparticle core, the shell of oligonucleotides comprising one or more immunostimulatory oligonucleotides; and (c) a first antigen that is a major histocompatibility complex type I (MHC-I) antigen, and a second antigen that is a major histocompatibility complex type II (MHC-I I) antigen.

69.20240042016NANOEMULSION VACCINE COMPOSITIONS AND METHODS FOR SUPPRESSING REACTIVITY TO MULTIPLE FOOD ALLERGENS
US - 08.02.2024
Clasificación Internacional A61K 39/35 Nº de solicitud 18267640 Solicitante The Regents of the University of Michigan Inventor/a James R. Baker, JR.
The disclosure is directed to compositions and methods for inhibiting an allergic reaction to two or more food allergens. The compositions comprise a nanoemulsion and at least one of the two or more food allergens.

70.4313134IMMUNOGENES FUSIONSPROTEIN
EP - 07.02.2024
Clasificación Internacional A61K 39/09 Nº de solicitud 22713429 Solicitante MINERVAX APS Inventor/a PEDERSEN FISCHER PER BO
The present invention relates to an immunogenic fusion protein comprising or consisting of an amino acid sequence consisting of: i. a first amino acid sequence part consisting of 170 to 178 amino acids, preferably 174 to 175 amino acids, and having at least 90% sequence identity with the amino acid sequence shown in SEQ ID NO: 7; ii. a second amino acid sequence part consisting of 165 to 174 amino acids, preferably 169 to 170 amino acids, and having at least 90% sequence identity with the amino acid sequence shown in SEQ ID NO: 14; and optionally: iii. a linker amino acid sequence part consisting of 1 to 20 amino acids and separating the first amino acid sequence part from the second amino acid part. The immunogenic fusion protein preferably consists of 335 to 372 amino acids, preferably 343 to 353 amino acids, more preferably 343 to 347 amino acids. The invention further pertains to nucleic acid molecule encoding the immunogenic fusion protein; a vector; a host cell; a vaccine; and a method of vaccination against group B Streptococcus infection or treating a group B Streptococcus infection. It is suggested that Fig. 3 be published with the abstract.

71.4314306HOCHATTENUIERTE REPLIKATIONSKOMPETENTE REKOMBINANTE POCKENVIREN ALS IMPFSTOFFPLATTFORM UND VERFAHREN ZUR VERWENDUNG
EP - 07.02.2024
Clasificación Internacional C12N 15/86 Nº de solicitud 22782089 Solicitante UNIV ARIZONA STATE Inventor/a JACOBS BERTRAM
Recombinant poxvirus expressing severe acute respiratory syndrome coronavirus 2 structural proteins and virus-like particles are described, along with methods of making and using the same.

72.WO/2024/032782VACCINE ADJUVANTS AND USES THEREOF
WO - 15.02.2024
Clasificación Internacional A61K 39/39 Nº de solicitud PCT/CN2023/112638 Solicitante JACOBIO PHARMACEUTICALS CO.LTD. Inventor/a YE, Yang

Provided is a vaccine adjuvant containing a STING agonist and a use thereof. The vaccine adjuvant containing a STING agonist provided by the present invention can enhance an immune response, and is especially suitable for the prevention and treatment of diseases or disorders.

73.WO/2024/035185PLATFORM FOR PREPARING NUCLEIC ACID VACCINE
WO - 15.02.2024
Clasificación Internacional C12N 15/62 Nº de solicitud PCT/KR2023/011892 Solicitante ST PHARM CO., LTD. Inventor/a KIM, Kyungjin
The present invention relates to a platform for preparing a nucleic acid vaccine and, specifically, to a nucleic acid molecule comprising a polynucleotide encoding a signal peptide, a polynucleotide encoding a Th cell epitope, a polynucleotide encoding a membrane protein and/or a polynucleotide encoding an antigenic protein. In addition, the present invention relates to a vaccine composition for preventing or treating viral infections, containing the nucleic acid molecule. The platform for preparing an mRNA vaccine, according to the present invention, enables rapid preparation of an mRNA vaccine for a new mutant virus. In addition, a nucleic acid molecule prepared by the platform has excellent intracellular antigen protein expression and extracellular secretion of an antigen protein, and allows an individual to acquire immunity to a virus, and thus can be effectively used for preventing and treating viral infections.

74.WO/2024/032360LUMPY SKIN DISEASE VIRUS STRAIN, INACTIVATED VACCINE PREPARED FROM SAME, AND METHOD FOR PREPARING VACCINE
WO - 15.02.2024
Clasificación Internacional C12N 7/00 Nº de solicitud PCT/CN2023/108904 Solicitante JINYUBAOLING BIO-PHARMACEUTICAL CO., LTD. Inventor/a XIN, Junli
The present invention relates to the technical field of veterinary biological products, and specifically, to a lumpy skin disease virus strain, an inactivated vaccine prepared from the strain, and a method for preparing the vaccine. The lumpy skin disease virus strain LSDV/CH/JY/2021 features high virulence, good immunogenicity, high homology with existing strains, and suitability for producing broad-spectrum inactivated vaccines. The inactivated LSDV vaccine features high safety, high immune potency, and suitability for industrial massive production, and is favorable for the prevention and control of lumpy skin disease.

75.WO/2024/032365RECOMBIANT MULTIVALENT VACCINE
WO - 15.02.2024
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/CN2023/109037 Solicitante SHANGHAI PUBLIC HEALTH CLINICAL CENTER Inventor/a YAN, Huimin
Provided is a recombinant multivalent vaccine, comprising a recombinant protein. The recombinant protein comprises a first antigen peptide, an N-polypeptide (SEQ ID NO. 1), a second antigen peptide, a C-polypeptide (SEQ ID NO. 3) and a third antigen peptide from an N-terminus to a C-terminus. The N-polypeptide and the C-polypeptide are polypeptides formed by intramolecular skeletons, and are used for supporting and stabilizing intramolecular skeletons NC of the conformations of the first antigen peptide, the second antigen peptide and the third antigen peptide. Provided are recombinant multivalent vaccines 3Ro-NC (SEQ ID NO. 17) and 3Rs-NC (SEQ ID NO. 19) for SARS-CoV-2 variants. The use of 3Ro-NC and KFD as a preventive mucosal SARS-CoV-2 vaccine can provide protection against Omicron infection at the upper respiratory tract and the lower respiratory tract.

76.WO/2024/032626CHIMPANZEE ADENOVIRUS VECTOR-BASED LIQUID VACCINE FORMULATION AND PREPARATION METHOD
WO - 15.02.2024
Clasificación Internacional A61K 9/08 Nº de solicitud PCT/CN2023/111795 Solicitante CANSINO BIOLOGICS INC. Inventor/a MA, Chao

Provided are a vaccine auxiliary material and use thereof. A formulation comprises an effective component and an auxiliary material. The effective component is a recombinant chimpanzee adenovirus expressing an antigen protein. The auxiliary material comprises a protective agent. The protective agent comprises one or more of ethanol, glycerol or propylene glycol. Preferably, the protective agent comprises ethanol and glycerol. Preferably, the protective agent comprises propylene glycol and glycerol. The formulation has no animal-derived components and is high in safety. The formulation can keep good stability of the chimpanzee adenovirus vector–based liquid vaccine formulation. The formulation can be stably stored for more than 12 months at the temperature of 2-8 °C, and the abnormal toxicity test thereof is qualified, so that use is safe.

77.WO/2024/032468PREPARATION AND USE OF RECOMBINANT FIVE-COMPONENT SARS-COV-2 TRIMER PROTEIN VACCINE CAPABLE OF INDUCING BROAD-SPECTRUM NEUTRALIZATION ACTIVITY
WO - 15.02.2024
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2023/111051 Solicitante SINOCELLTECH LTD Inventor/a XIE, Liangzhi
The present invention relates to the field of molecular vaccinology. Provided is a recombinant multi-component SARS-CoV-2 trimer protein vaccine capable of inducing broad-spectrum neutralization activity. The components of a recombinant protein comprise, but are not limited to, a homotrimer protein which is formed by introducing mutation sites and trimerization auxiliary structures into the extracellular domains (ECD) of spike proteins (S protein) of Alpha (B.1.1.7), Beta (B.1.351), Delta (B.1.617.2) and Omicron (BA.1, BA.4/BA.5). The multi-component vaccine comprises the ECD trimer protein of a single component or any combined components of the variants and a pharmaceutically acceptable adjuvant. The vaccine combination shows excellent immunogenicity in mice, and can maintain long-term humoral immune and cellular immune responses. The multi-component SARS-CoV-2 trimer protein vaccine can be used for preventing infection-related diseases caused by infection of SARS-CoV-2 and the variants thereof.

78.WO/2024/036308METHODS AND SYSTEMS FOR PREDICTION OF HLA EPITOPES
WO - 15.02.2024
Clasificación Internacional G16B 30/00 Nº de solicitud PCT/US2023/072085 Solicitante BIONTECH US INC. Inventor/a ADDONA, Theresa A.
Methods for preparing a personalized cancer vaccine and a method to train a machine-learning HLA-peptide prediction model.

79.WO/2024/036184A HUMAN VH-BASED SCAFFOLD FOR THE PRODUCTION OF SINGLE DOMAIN ANTIBODIES AND THEIR USE
WO - 15.02.2024
Clasificación Internacional C07K 16/28 Nº de solicitud PCT/US2023/071893 Solicitante INTERNATIONAL AIDS VACCINE INITIATIVE Inventor/a JARDINE, Joseph
Provided herein are a human VH-based scaffold for the production of single domain antibodies and their use.

80.WO/2024/036128ANTI-VENOM ANTIBODIES AND USES THEREOF
WO - 15.02.2024
Clasificación Internacional C07K 16/40 Nº de solicitud PCT/US2023/071814 Solicitante INTERNATIONAL AIDS VACCINE INITIATIVE Inventor/a JARDINE, Joseph
In one aspect, provided herein is a method for the synthetic production of a human antibody that can neutralize three-finger neurotoxins from various snakes across continents. In one aspect, provided herein is an antibody that binds long-chain three-finger α-neurotoxins from diverse species of snakes with high

affinity, blocks toxin binding to the nicotinic acetylcholine receptor in vitro, and protects mice from lethal venom challenge. In one aspect, provided herein is a treatment of snakebite envenoming comprising administering a therapeutically effective amount of an antibody described herein.

81.WO/2024/033684COMPOSITIONS, METHODS AND USES OF EXTRACELLULAR VESICLES OF GIARDIA SPP
WO - 15.02.2024
Clasificación Internacional A61K 39/002 Nº de solicitud PCT/IB2022/057466 Solicitante UNIVERSIDADE DE COIMBRA Inventor/a RODRIGUES DE SOUSA, Maria Do Céu
The present disclosure relates to extracellular vesicles of Giardia spp, preferably Giardia lamblia, for use in medicine or veterinary. The present invention also relates to a composition and vaccine comprising a therapeutically effective amount of extracellular vesicles of Giardia spp, as is or encapsulated in a capsule comprising polysaccharide particles, preferably glucan.

82.WO/2024/035710STEROL BASED IONIZABLE LIPIDS AND LIPID NANOPARTICLES COMPRISING THE SAME
WO - 15.02.2024
Clasificación Internacional C07J 41/00 Nº de solicitud PCT/US2023/029742 Solicitante ADVANCED RNA VACCINE (ARV) TECHNOLOGIES, INC. Inventor/a XU, Jiangsheng
Described are compounds, compositions, and methods for delivery of therapeutic, diagnostic, or prophylactic agents (for example, a nucleic acid).

Edición: Annia Ramos Rodríguez aramos@finlay.edu.cu
Randelys Molina Castro rmolina@finlay.edu.cu
Irina Crespo Molina icrespo@finlay.edu.cu
Yamira Puig Fernández yamipuig@finlay.edu.cu

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