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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.

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Vacunas contra el dengue

El dengue es una enfermedad aguda febril ocasionada por un virus (arbovirus) transmitido por mosquitos de la familia Aedes, específicamente el mosquito *Aedes aegypti* el cual presenta características biológicas que lo convierten en un vector importante en el ciclo de transmisión de diferentes patógenos, en especial arbovirus. Durante la última década, la carga de dengue y otras enfermedades tales como la fiebre del zika o fiebre chikungunya se han incrementado. De hecho, el dengue es la arbovirosis más frecuente del mundo ya que se estima que hasta 3900 millones de personas pueden estar expuestas en zonas urbanas y semiurbanas de más de 128 países de zonas tropicales y subtropicales. Actualmente no existen fármacos antivirales específicos frente a la enfermedad.

Un largo recorrido hacia la vacuna contra el dengue

Las vacunas contra el dengue se utilizan para prevenir la fiebre del dengue en humanos.

El desarrollo de una vacuna contra esta enfermedad ha llevado muchos años de investigaciones y su historia está marcada por avances y retrocesos. Esta vacuna tiene cuestiones complicadas ya que la enfermedad del dengue puede desencadenar en una forma grave o hemorrágica y los mecanismos por los cuales esto ocurra están mediados por los propios anticuerpos.

Tras 20 años de investigaciones, el laboratorio Sanofi Pasteur registró la primera vacuna contra el dengue en el mundo -llamada Dengvaxia- en 2015.

En 2024 una nueva vacuna TAK-003, bajo la marca Qdenga, fue precalificada por la OMS. Esta vacuna fue desarrollada por TAKEDA (Japón).

Hay otros candidatos vacunales en desarrollo, incluidos vacunas vivas atenuadas, inactivadas, de ADN y de subunidades.

<u>CYD-DTV (Dengvaxia)</u>

CYD-DTV vendida bajo la marca Dengvaxia y fabricada por Sanofi Pasteur, es una vacuna quimérica tetravalente de virus vivos atenuados, hecha usando tecnología de ADN recombinante al reemplazar los genes estructurales PrM (premembrana) y E (envoltura) de la vacuna de la cepa 17D atenuada con fiebre amarilla de los cuatro serotipos del dengue.

Se administra en tres inyecciones separadas, con la dosis inicial seguida de dos inyecciones adicionales administradas seis y doce meses después.

Según su ficha técnica, esta vacuna está indicada para prevenir el dengue causado por los cuatro serotipos del virus del dengue en personas de 9 a 45 años de edad y que residen en áreas endémicas. Sin embargo, la evidencia indica que CYD-TDV es parcialmente efectiva para prevenir la infección, ya que puede conducir a un mayor riesgo de

enfermedad grave en aquellos que no han sido infectados previamente.

Dengvaxia se comercializó en 2016 en 11 países: México, Filipinas, Indonesia, Brasil, El Salvador, Costa Rica, Paraguay, Guatemala, Perú, Tailandia y Singapur.

En 2017, el fabricante recomendó que la vacuna solo se use en personas que previamente han tenido una infección por dengue, ya que los resultados pueden empeorar en aquellos que no han sido infectados. Esto condujo a la controversia sobre la vacunación contra el dengue en Filipinas durante el 2017-18 en la que se vacunaron más de 733,000 niños y más de 50,000 voluntarios adultos, independientemente del estado serológico.

Los ensayos en fase III en América Latina y Asia involucraron a más de 31,000 niños entre las edades de dos y 14 años. En los primeros informes de los ensayos, la eficacia de la vacuna fue de 56,5 % en el estudio asiático y de 64,7 % en el estudio latinoamericano en pacientes que recibieron al menos una inyección de la vacuna. La eficacia varió según el serotipo. En ambos ensayos, la vacuna redujo en aproximadamente un 80 % el número de casos de dengue grave. Un análisis de los estudios latinoamericanos y asiáticos al tercer año de seguimiento mostró que la eficacia de la vacuna fue del 65,6 % para prevenir la hospitalización en niños mayores de nueve años, pero considerablemente mayor (81,9 %) para los niños que eran seropositivos (lo que indica una infección previa por dengue) al inicio del estudio. La serie de vacunación consta de tres inyecciones a los 0, 6 y 12 meses. La vacuna fue aprobada en México, Filipinas y Brasil en diciembre de 2015, y en El Salvador, Costa Rica, Paraguay, Guatemala, Perú, Indonesia, Tailandia y Singapur en 2016. Dengvaxia, está aprobada para su uso en personas de nueve años o más y puede prevenir los cuatro serotipos.

La Administración de Drogas y Alimentos de los Estados Unidos (FDA) otorgó la solicitud de designación de revisión prioritaria de Dengvaxia y un cupón de revisión prioritaria de enfermedades tropicales. La aprobación de Dengvaxia fue otorgada a Sanofi Pasteur. Es la única vacuna disponible en Estados Unidos hasta el momento.

Esta vacuna fue aprobada en la Unión Europea en diciembre de 2018.

La OMS recomienda que los países consideren la vacunación con la vacuna contra el dengue CYD-TDV sólo si el riesgo de dengue grave en personas seronegativas puede minimizarse a través de una evaluación previa a la vacunación o documentación reciente de altas tasas de seroprevalencia en el área (al menos 80% a la edad de nueve años).

La OMS actualizó sus recomendaciones con respecto al uso de Dengvaxia en septiembre de 2018, basándose en la evidencia de que los receptores seronegativos de vacunas, tienen un riesgo excesivo de dengue grave en comparación con las personas seronegativas no vacunadas. No está claro por qué la población seronegativa vacunada tiene resultados adversos más graves. Una hipótesis plausible es el fenómeno de la mejora dependiente de anticuerpos.

A partir de 2021, una versión está disponible comercialmente, conocida como CYD-TDV, y que se vende bajo la marca Dengvaxia. Esta vacuna sólo se recomienda en aquellos que previamente han tenido fiebre del dengue o poblaciones en las que la mayoría de las personas han sido infectadas previamente.

TAK-003 (Qdenga)

Qdenga®, desarrollada originalmente en la Universidad de Mahidol en Bangkok y luego financiada por Inviragen (DENVax) y Takeda (TAK-003), contiene virus vivos atenuados del dengue. El principal mecanismo de acción de esta vacuna es replicarse localmente y provocar anticuerpos neutralizantes para conferir protección contra la enfermedad del dengue causada por cualquiera de los cuatro serotipos del virus del dengue. Qdenga® activa múltiples brazos del sistema inmunitario, incluidos los anticuerpos de unión, los anticuerpos de fijación del complemento, los anticuerpos funcionales contra la proteína no estructural del dengue 1 (NS1) y las respuestas inmunitarias mediadas por células (CD4+, CDB+ y células asesinas naturales).

Esta vacuna, que se administra en esquemas de dos dosis con un espaciamiento de tres meses entre la primera y la segunda dosis, lleva varios años de investigación y desarrollo. Durante ese periodo se ha logrado confirmar su seguridad y eficacia, pudiendo ser administrada independientemente de que la persona haya tenido o no dengue previamente.

Los ensayos de fase I y II se llevaron a cabo en Estados Unidos, Colombia, Puerto Rico, Singapur y Tailandia. Según los datos de 18 meses publicados en la revista *Lancet Infectious Diseases*, indicó que TAK-003 produjo respuestas de anticuerpos sostenidas contra las cuatro cepas de virus, independientemente de la exposición previa al dengue y el programa de dosificación. Los datos del ensayo de fase III, que comenzó en septiembre de 2016, muestran que TAK-003 fue eficaz contra el dengue sintomático. TAK-003 parece no carecer de eficacia en personas seronegativas o potencialmente causarles daño, a diferencia de CYD-TDV. Los datos parecen mostrar solo una eficacia moderada en otros serotipos de dengue distintos del DENV2.

En 5 países de América Latina (Brasil, Colombia, República Dominicana, Nicaragua y Panamá) y en 3 países de Asia (Sri Lanka, Tailandia y Filipinas) se ha realizado un estudio clínico pivotal de fase III, doble ciego, aleatorizado y controlado con un grupo placebo (que no recibió la vacuna Qdenga).

El estudio incluyó a 20.099 niños de entre 4 y 16 años aleatorizados en una proporción de 2:1 para recibir Qdenga o placebo, indistintamente de la infección previa por dengue. Sus resultados mostraron que, en aquellos que recibieron la vacuna se produjo una reducción del 80% en el número de casos de fiebre causada por la infección por dengue confirmada (61 casos en 12.700 niños) en comparación con aquellos que recibieron el placebo (149 casos en 6.316 niños). La vacuna mostró también ser capaz de reducir la hospitalización debido al dengue en un 90%.

En marzo de 2021, la Agencia Europea de Medicamentos (EMA, por sus siglas en inglés) aceptó el paquete de presentación de TAK-003 destinado a mercados fuera de la UE.

Además de la EMA, la vacuna también fue aprobada por las agencias regulatorias del Reino Unido, Islandia, Brasil, Indonesia y Tailandia.

Precalificada por la OMS en mayo de 2024, se recomienda el uso de la vacuna de Takeda, para niños y adolescentes de entre 6 y 16 años, aproximadamente uno o dos años antes del pico de incidencia de

hospitalizaciones por dengue específico para cada edad.

Así como recomienda la introducción de la vacuna para entornos con alta carga de enfermedad por dengue y alta intensidad de transmisión, para aumentar el impacto en la salud pública y reducir cualquier riesgo potencial en poblaciones seronegativas. La introducción debe estar acompañada de un plan bien diseñado de estrategia de comunicación y participación comunitaria.

Otras vacunas en desarrollo

TV-003/005

Es una mezcla tetravalente de vacunas monovalentes, que fue desarrollada por NIAID, que se probaron por separado para determinar su seguridad e inmunogenicidad. La vacuna pasó los ensayos de fase I y los estudios de fase II en Estados Unidos, Tailandia, Bangladés, India y Brasil. Los Institutos Nacionales de Salud de los Estados Unidos (NIH, por sus siglas en inglés) han realizado estudios de fase I y fase II en más de 1000 participantes en Estados Unidos. También han realizado estudios de desafío humano y han realizado con éxito estudios de modelos de NHP. Los NIH han licenciado su tecnología para un mayor desarrollo y fabricación a escala comercial a Panacea Biotec, Instituto Butantan, Merck y Medigen. En Brasil, el Instituto Butantan en colaboración con NIH está realizando estudios de Fase III. Panacea Biotec está realizando estudios clínicos de fase II en India. Una empresa de Vietnam (VABIOTECH) está realizando pruebas de seguridad y desarrollando un plan de ensayos clínicos. Las cuatro compañías están involucradas en estudios de una vacuna TetraVax-DV en conjunto con los Institutos Nacionales de Salud.

TetraVax-DV (V180)

Merck & Co., Instituto Butantan y Medigen Vaccine Biologics (MVB) desarrollaron conjuntamente TetraVax-DV (V180), candidato vacunal contra el dengue de subunidad tetravalente con adyuvante que comprende formas truncadas de proteínas de envoltura (DEN-80E), derivadas de cepas de los cuatro serotipos del virus del dengue (cepa DEN-1 258848, cepa PR159 S1 de DEN-2, cepa CH53489 de DEN-3 y cepa H241 de DEN -4). Las subunidades DEN-80E se expresan a partir de plásmidos en el sistema de expresión de células S2 de Drosophila y se formulan con ISCOMATRIX (adyuvante de saponina, colesterol y fosfolípidos; CSL) o Alhydrogel (adyuvante de gel de hidróxido de aluminio; Brenntag Nordic).

En 2024, según un estudio clínico de fase III realizado en Brasil, V180 demostró tener una eficacia del 79,6% en la prevención del dengue. Durante este período, no se notificaron casos graves de dengue entre los participantes. El resultado positivo es el resultado de más de diez años de trabajo con socios internacionales. En el ensayo clínico de fase 2, los resultados se publicaron en un artículo en *The Lancet Infectious Diseases*. Según el informe del estudio clínico, no se observaron eventos adversos graves relacionados con la vacuna en 54 sujetos de entre 20 y 70 años. Los datos de inmunogenicidad demuestran que el grupo vacunado produjo títulos más altos de anticuerpos neutralizantes (GMT de PRNT50) y tuvo una mayor tasa de seropositividad contra los tipos de virus del dengue que el grupo de control. Además, el grupo vacunado siguió expresando respuestas neutralizantes el día 180 y el día 365 después de la vacunación, este resultado revela que la vacuna contra el dengue de MVC muestra inmunogenicidad no solo en sujetos de 20 a 50 años, sino también en el grupo de mayor edad de 51 a 70 años.

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Noticias en la Web

Sanidad (España) realiza una importante apuesta por las vacunas de proteínas para la próxima campaña de vacunación COVID-19

17 jul. El Ministerio de Sanidad incorporará vacunas de proteínas recombinantes en la próxima campaña de vacunación frente a la COVID-19. En este sentido, "no habrá excesivas novedades" más allá de esta fuerte apuesta por las vacunas proteicas, según han confirmado fuentes ministeriales a GM

Así, Sanidad adquirirá, aproximadamente, 3 millones de dosis de la vacuna de proteínas de HIPRA (Bimervax). "La compra de HIPRA se realizará en el marco de compra conjunta europea (mecanismo JPA) que este año existe para la compra de esta vacuna", apuntan desde el Ministerio. Además, también comprará cerca de 6,5 millones de dosis de la vacuna de ARNm de Pfizer (Comirnaty), para dar continuidad al contrato adquirido previamente.

De hecho, el secretario de Estado de Sanidad, Javier Padilla, ha confirmado que el Ministerio está en fase de adquisición de vacunas y se contará con "un portfolio variado". Asimismo, ha asegurado que ya se ha tomado la decisión de que los criterios y los grupos de población a vacunar van a ser similares a los del año anterior.

Una compra importante

Para Ángel Gil, catedrático de Medicina Preventiva de la Universidad Rey Juan Carlos de Madrid, la adquisición de la vacuna de proteínas se trata de "una buena noticia". "Pensaba que iba a ser más tarde, porque como el contrato que se había firmado con Pfizer a través de la Unión Europea era hasta el 2027, la vacuna de HIPRA podría no tener cabida en esta próxima campaña, pero si la adquiere el Ministerio, las comunidades autónomas no tienen que desembolsar dinero y eso está bien", ha expuesto en declaraciones a GM.

Tal y como recuerda Gil, ya hay otros países europeos que se han hecho con vacunas de proteínas, pero "con un número de dosis menor". "Bélgica, por ejemplo, ya compró el año pasado, pero la compra de España es la más grande", ha especificado.

Precisamente, la Ponencia de Vacunas se reunió el pasado 10 de julio para abordar cuestiones relacionadas con la próxima campaña de vacunación en España y esa apuesta por las vacunas de proteínas se llevará a la Comisión de Salud Pública.

Beneficios de las vacunas de proteínas

"Como lo que estamos haciendo en este momento es vacunar a los más vulnerables, hacerlo con una vacuna que es de proteínas no supone ningún problema y tiene menos efectos secundarios", ha asegurado Ángel Gil. Además, otra de las ventajas que menciona el experto es que HIPRA finalmente ha conseguido que sean viales monodosis, lo que permite "limitar el desperdicio de dosis".

Asimismo, la vacuna de proteínas no requiere conservación en congelador. "Se puede conservar perfectamente en las neveras que hay en los centros de salud", ha indicado Gil. Y, por otro lado, ha apuntado que la pauta heteróloga (combinar vacunas de distintas tecnologías) siempre "viene bien para el sistema inmunológico".

En este sentido, el catedrático ha afirmado que las vacunas de la síntesis proteica como la de HIPRA aportan una protección más duradera. “Siempre se hablaba de que las vacunas de ARNm podían proteger entre 6 y 8 meses y por eso hay que vacunar cada ciertos meses, mientras que estas vacunas confieren una protección más a largo plazo”, ha recalcado.

Insistir en la vacunación

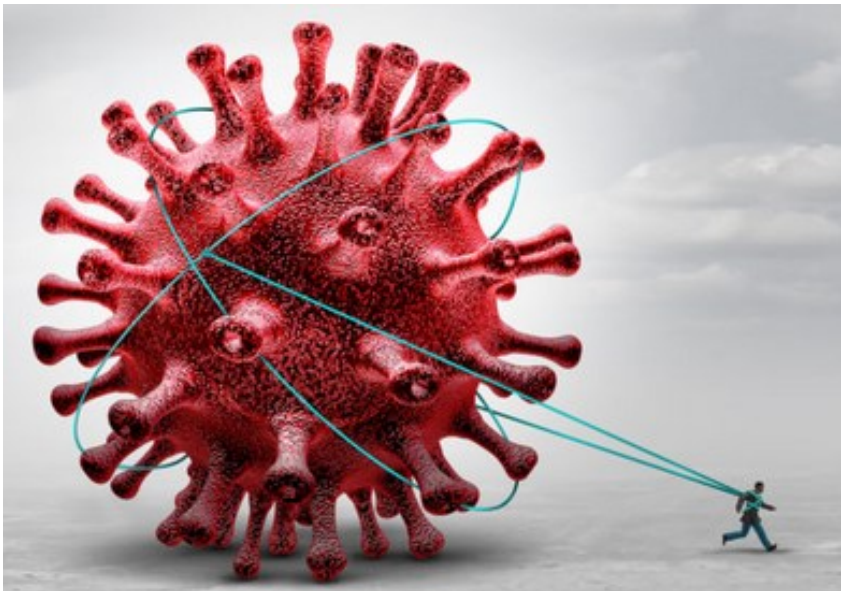
El hecho de que la pandemia de COVID-19 haya quedado atrás, no significa que el virus haya desaparecido. “Sigue circulando“, ha advertido Ángel Gil. Si bien es cierto que este año ha habido una onda epidémica más definida de VRS y luego de gripe, y la COVID-19 no la ha tenido durante el invierno, “hay que dejar claro que este virus no es estacional como la gripe o el VRS“, tal y como ha recordado.

De hecho, el catedrático ha indicado que en el pasado mes de junio se produjo una pequeña onda epidémica de COVID-19 y, por tanto, “necesitamos tener vacunas con una protección más amplia en el tiempo y que vaya más allá de los 6 meses”.

A ello se suma la conocida como fatiga pandémica, pues la población “está cansada de vacunarse”, y la menor percepción de riesgo. Sin embargo, es necesario concienciar de la importancia de continuar vacunando frente al virus y, en este contexto, será fundamental vacunar a los grupos de mayor riesgo. “La indicación para COVID-19 es un poco la misma que tiene la población para gripe, es decir, decir mayores de 65 años y grupos de riesgo“, ha afirmado Gil. “No se espera una recomendación de toda la población”, ha añadido.

Fuente: Gaceta Médica. Disponible en https://acortar.link/Uoxti2

Las vacunas reducen el riesgo de COVID persistente, según un estudio



18 jul. Un nuevo estudio a gran escala aporta algunas de las evidencias más sólidas hasta la fecha de que las vacunas reducen el riesgo de desarrollar COVID persistente o prolongada.

Los científicos analizaron a las personas infectadas en Estados Unidos durante los dos primeros años de la pandemia y descubrieron que el porcentaje de personas vacunadas que desarrollaron COVID persistente era mucho menor que el porcentaje de personas no vacunadas que sí lo hicieron.

Los expertos médicos han afirmado anteriormente que las vacunas pueden reducir el riesgo de COVID persistente, en gran parte porque ayudan a prevenir enfermedades graves durante el periodo de infección y las personas con infecciones graves tienen más probabilidades de presentar síntomas a largo plazo.

Pero muchos individuos con infecciones leves también desarrollan COVID persistente, y el estudio, publicado el miércoles en *The New England Journal of Medicine*, descubrió que la vacunación no eliminaba todo el riesgo de desarrollar la enfermedad, que sigue afectando a millones de personas en Estados Unidos.

“Existía un riesgo residual de COVID persistente entre las personas vacunadas”, escribió en un editorial adjunto Clifford Rosen, científico principal del Instituto de Investigación MaineHealth, quien no participó en el estudio. Por ello, añadió Rosen, los nuevos casos de COVID persistente “pueden seguir sin disminuir”.

El estudio evaluó los historiales médicos de millones de pacientes del sistema de salud del Departamento de Asuntos de los Veteranos. Involucró a casi 450.000 personas que tuvieron COVID-19 entre el 1 de marzo de 2020 y el 31 de enero de 2022, y alrededor de 4,7 millones de personas que no se infectaron durante ese tiempo.

La población del estudio de veteranos era significativamente menos diversa que la población general estadounidense. Casi tres cuartas partes de los participantes eran blancos, alrededor del 91 por ciento eran varones y su edad media era de 64 años.

Los investigadores analizaron los historiales médicos para calcular el porcentaje de pacientes de COVID-19 que tenían COVID persistente un año después de infectarse. La tasa más baja de COVID persistente en el estudio, el 3,5 por ciento, se produjo entre las personas vacunadas que se infectaron durante el último período del estudio, entre mediados de diciembre de 2021 y enero de 2022.

Eso se compara con una tasa del 7,8 por ciento para los pacientes no vacunados en el estudio que fueron infectados durante el mismo período.

“Encontramos que gran parte de la disminución es atribuible a la vacunación”, dijo el autor principal del estudio, Ziyad Al-Aly, el jefe de investigación y desarrollo en el Sistema de Atención a la Salud de Asuntos de los Veteranos de St. Louis y epidemiólogo clínico de la Universidad de Washington en St. Louis.

Aun así, dijo, “la eficacia de las vacunas disminuye considerablemente con el tiempo, y la gente no está al día con las vacunas anuales”.

Y añadió: “No podemos tenerlo todo. No podemos decir que la COVID a largo plazo ha bajado gracias a las vacunas y luego abandonar la vacunación. Esto hará que vuelvan a aumentar los casos”.

Para descartar otras posibles causas, los investigadores tuvieron en cuenta comparaciones entre personas no infectadas que desarrollaron síntomas similares, dijo Al-Aly.

Por ejemplo, los principales síntomas de COVID persistente, como la fatiga y la niebla cerebral, también pueden afectar a pacientes con cáncer y otras afecciones, por lo que los autores restaron la tasa de esos síntomas en la población no infectada de la tasa en las personas infectadas para calcular el porcentaje atribuible a COVID persistente, dijo.

El estudio abarcó el periodo comprendido entre la aparición inicial del coronavirus y la llegada de dos variantes cada vez más contagiosas —delta y ómicron— tras el despliegue de las vacunas. Los autores compararon los resultados entre pacientes vacunados y no vacunados, pero no calcularon una tasa para ambos grupos juntos.

Los investigadores descubrieron que entre las personas no vacunadas infectadas entre el 19 de junio y el 18 de diciembre de 2021, cuando delta era la variante dominante, la tasa de COVID persistente un año después disminuyó ligeramente al 9,5 por ciento desde el 10,4 por ciento entre los infectados en los primeros 15 meses de la pandemia.

La tasa disminuyó aún más —hasta el 7,8 por ciento— entre las personas no vacunadas infectadas entre el

19 de diciembre de 2021 y el 31 de enero de 2022, durante la oleada de ómicron.

Entre las personas vacunadas que se habían infectado, las tasas de COVID persistente fueron notablemente inferiores. Las diferencias en las variantes y otros aspectos de los periodos de las variantes delta y ómicron desempeñaron un papel, dijeron los autores, pero atribuyeron alrededor del 72 por ciento de la disminución a las vacunas.

Alrededor del 5,3 por ciento de los infectados durante el periodo de la variante delta tenían COVID persistente un año después, y el 3,5 por ciento de los infectados durante el periodo de la variante ómicron lo tenían.

“Esto es más bajo que en fases anteriores, pero no es bajo”, dijo Al-Aly. “Multiplicado por el enorme número de personas que siguen infectándose y reinfectándose, el 3,5 por ciento por cada 100 adultos infectados se traducirá en millones de casos adicionales de COVID persistente”.

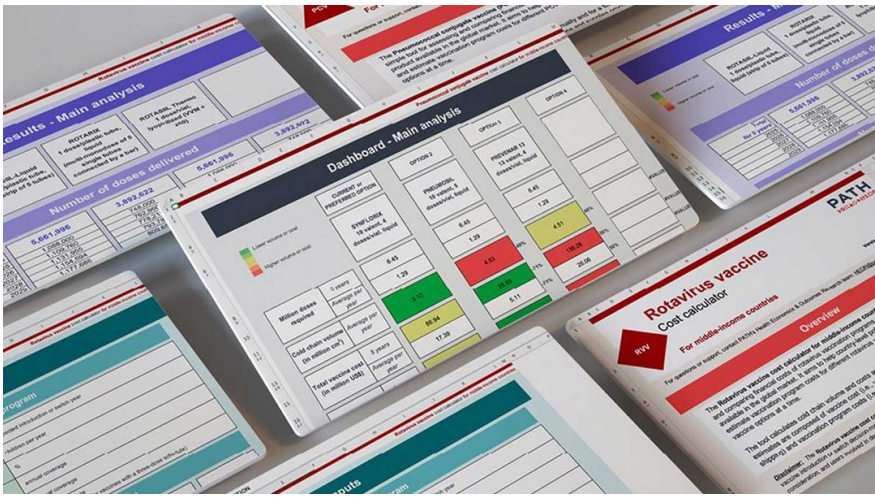
Los investigadores no analizaron periodos de tiempo posteriores, pero una encuesta reciente de los Centros para el Control y la Prevención de Enfermedades informó de que alrededor del 5,3 por ciento de los adultos de Estados Unidos —unos 13,7 millones de personas— padecen actualmente COVID persistente.

Los autores señalaron que los síntomas de COVID persistente en la mayoría de las categorías, incluidos los problemas cardiovasculares y renales, disminuyeron durante los dos primeros años de la pandemia, pero los problemas gastrointestinales, metabólicos y musculoesqueléticos aumentaron durante la era de la variante ómicron en las personas no vacunadas, probablemente como reflejo de cambios en el virus y otros factores.

Fuente: The New York Times. Disponible en https://acortar.link/CD4hHj

New tools to help middle-income countries make vaccination decisions

Jul 19. Global recognition of the vaccine access challenges facing middle-income countries is increasing. The introduction and sustained coverage of newer vaccines—e.g., pneumococcal conjugate vaccine (PCV), rotavirus vaccine, and human papillomavirus (HPV) vaccine—is lagging in many of these countries, largely due to cost constraints.



Decision-makers in middle-income countries can use PATH's new Vaccine Cost Calculators for pneumococcal and rotavirus vaccines to compare the vaccination program costs and cold chain volumes associated with different product options. Photo: PATH

PATH’s new Vaccine Cost Calculators for PCV and rotavirus vaccine aim to help country-level decision-makers specifically in middle-income countries compare products and estimate vaccination program costs for different vaccine options. These simple, Excel-based tools aim to help with decision-making to support the introduction and continued use of these important vaccines.

For middle-income countries that have already introduced PCV or rotavirus vaccine, the calculators can also help with decision-making about potential switches to a new vaccine product or scenario planning for using a combination of products.

Unique vaccination challenges

Millions of under immunized children live in middle-income countries that are no longer eligible for donor support for immunization. While some international funding is available to these countries, overall donor support remains limited, placing the responsibility for routine immunization and new vaccine introduction financing squarely on local policymakers. This is on top of numerous other costly challenges they must give their attention to, such as climate change, economic crises, and rapid urbanization.

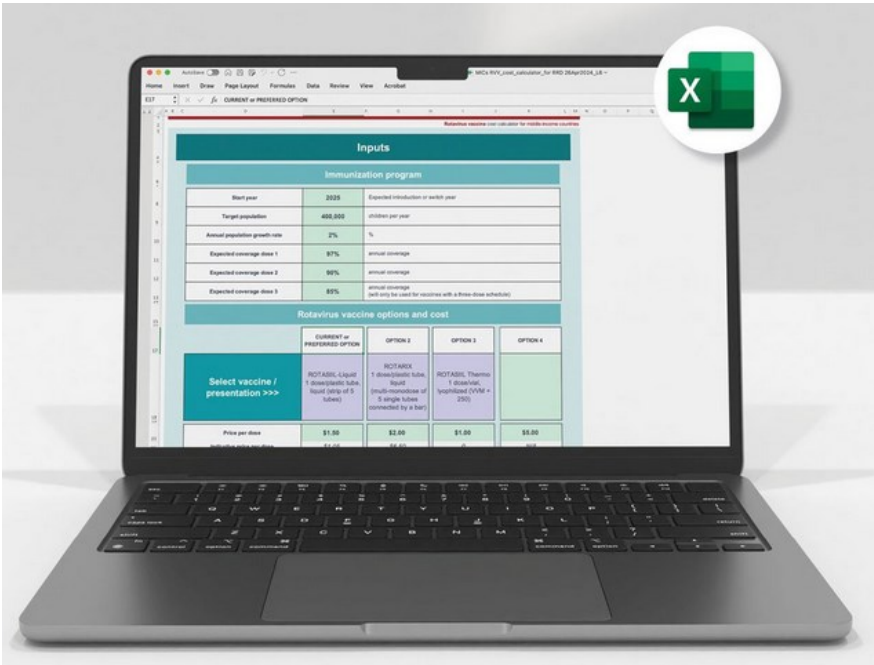
The potential impact of improving immunization in middle-income countries, particularly those not eligible for or that have transitioned out of support from Gavi, the Vaccine Alliance, is substantial. Modeling suggests that the introduction of PCV, rotavirus vaccine, and HPV vaccine in these countries in 2020 could have saved an estimated 70,000 lives if 90 percent coverage was reached. And approximately 29 million children living in non-Gavi-eligible middle-income countries do not have access to at least two of these three vaccines.

“Our original suite of Vaccine Cost Calculators, launched in 2020, were designed to be useable by any country, whether or not they were eligible for Gavi support,” said Frédéric Debellut, a senior health economist in PATH’s Center for Vaccine Innovation and Access. “However, we realized that the needs of middle-income countries differed from those of Gavi-eligible countries, and that more flexible tools tailored to their unique needs would be helpful.”

Fit-for-purpose features

PATH’s new Vaccine Cost Calculators aim to help middle-income country policymakers with important vaccine introduction and product switch decisions by calculating cold chain volume and costs annually and for a total period of five years.

The calculators are currently available for PCVs and rotavirus vaccines and can be downloaded in English, French, and Spanish.



This visual of the Rotavirus Vaccine Cost Calculator for Middle-Income Countries shows some of the fields where users are able to input their own data. Photo: PATH

These new tools offer a fresh, streamlined design and allow users to compare the financial costs of PCV or rotavirus vaccination programs with each vaccine product available in the global market (including those no longer available to Gavi-eligible countries). Up to four different vaccine options can be explored at the same time, some of which policymakers may not even have known were an available option.

“One important new feature is the ability to add a vaccine option that isn’t available in the global market,” says Debellut. “Some middle-income countries have robust in-country vaccine development and manufacturing capabilities, which means they may have domestically produced vaccine options to consider that aren’t available in other countries. This new level of flexibility is tailor-made for countries who aren’t limited to the Gavi vaccine menu.”

Another new, optional feature of these calculators is the ability to compare costs for up to three different scenarios of multi-vaccine use. Some countries may anticipate using more than one product in their vaccination program at the same time. These calculators offer the ability to compare the cost of programs involving up to four different vaccine options with varying proportions for each vaccine product.

Results are displayed in a summary dashboard for both the main analysis and optional scenarios, as well as more detailed year-by-year estimates for the number of doses delivered, doses and cold chain volume required, vaccine cost, and vaccination program costs. Both the dashboard and detailed results incorporate conditional formatting to visually highlight which vaccine options will be most and least beneficial for the country as far as overall volume or cost.

“It’s important to note that cost is only one consideration when selecting a vaccine product, and users involved in decision-making around new vaccine introductions and switches should always consider other dimensions as well,” cautions Debellut. “In addition, while these modeling tools can provide helpful insights into the potential costs of alternative product choices, this exercise should not replace detailed budget planning once a product has been selected.”

Supporting informed vaccine decision-making

When a country’s status shifts to middle-income designation, this suggests positive economic progress. However, for some countries, this change can come with a host of new challenges, including ensuring continued growth of their national immunization programs in an affordable way. Many middle-income countries continue to need donor support to maintain and grow their immunization programs.

PATH’s newest set of Vaccine Cost Calculators provide a valuable tool to support independent and informed decision-making in middle-income countries around implementing and optimizing PCV and rotavirus vaccination programs.

Fuente: Gavi. Disponible en https://acortar.link/qAQJgH

The mRNA-1345 Vaccine Elicits Broad Protection Against RSV in Older Adults

Jul 19. The mRNA-1345 encoding prefusion F (preF) glycoprotein vaccine increases respiratory syncytial virus (RSV) neutralizing antibodies (nAbs) and preF binding antibodies among older adults, including those at increased risk for severe RSV disease. These study results were published in The Journal of Infectious Diseases.

The mRNA-1345 vaccine demonstrated high vaccine efficacy for preventing acute respiratory disease and lower respiratory tract infection (LRTI) among older adults in a randomized, double-blinded, phase 2/3 trial (ClinicalTrials.gov Identifier: NCT05127434).

In an immunogenicity analysis of that trial, researchers evaluated the per-protocol subset of patients who were randomly assigned 5:1 to receive either a single 50-µg dose of the mRNA-1345 vaccine (n=1515) or placebo (n=333). Study patients were aged 60 years and older, and those with stable chronic conditions were eligible for enrollment. The researchers stratified patients by age (60-74 vs ≥75 years) and relevant risk factors, such as congestive heart failure and chronic obstructive pulmonary disease. The immunogenicity endpoints were RSV-A and RSV-B nAb and preF bAb levels at baseline and day 29 following vaccination.

Among patients included in the mRNA-1345 and placebo groups, the mean ages were 71.9 (range, 60-94)

and 72.9 (range, 60-94) years, 55.0% and 54.7% were men, 77.4% and 80.2% were White, 38.6% and 45.0% had LRTI-related risk factors, and 57.2% and 58.6% had comorbid conditions, respectively.

"These immunogenicity data are consistent with the demonstrated efficacy of mRNA-1345 in the prevention of RSV across a spectrum of disease populations…"

Between baseline and day 29, the researchers observed a greater increase in nAb geometric mean titers (GMTs) against RSV-A among patients who received mRNA-1345 (from 2552.8 to 21,475.4) compared with those who received placebo (from 2403.7 to 2417.2). Patients in the mRNA-1345 group also exhibited an increase in GMT nAbs against RSV-B during this time (from 1425.84 to 7246.0), whereas placebo recipients exhibited similar levels (from 1350.3 to 1304.7). Overall, patients who received mRNA-1345 experienced an 8.4- and 5.1-fold increase in RSV-A and RSV-B nAb levels, respectively.

In regard to preF bAb levels, patients who received mRNA-1345 vs placebo had similar bAb geometric mean concentrations (GMCs) at baseline (10,729; 95% CI, 10,310.6-11,165.5 vs 10,194.3; 95% CI, 9,374.5-11,085.7). However, there was an increase in bAb GMCs observed among mRNA-1345 recipients at day 29 (81,884; 95% CI, 78,644.2-85,257.6), compared with a decrease in placebo recipients (10,060; 95% CI, 9258.9-10,930.7).

In subgroup analyses, mRNA-1345 vaccination was associated with similar nAb responses for both RSV-A and RSV-B, as well as similar preF bAb responses, among patients with frailty and those at high risk for severe disease. Immune responses following mRNA-1345 vaccination were generally comparable across subgroups, with no clinically meaningful differences observed by sex, race/ethnicity, age, or RSV-associated LRTI risk.

Study limitations include the short follow-up duration, the lack of immunocompromised patients, and the lack of data on the relationship between immunogenicity and efficacy.

According to the researchers, "These immunogenicity data are consistent with the demonstrated efficacy of mRNA-1345 in the prevention of RSV across a spectrum of disease populations…"

Disclosure: This study was supported by Moderna, Inc., and multiple study authors declared affiliations with biotech, pharmaceutical, and/or device companies. Please see the original reference for a full list of disclosures.

Fuente: Infectious Disease Advisor. Disponible en https://acortar.link/K3cACO

Iranian Scientists Work on Dengue Fever Vaccine

Jul 20. Iranian scientists are making strenuous efforts to study different methods to find an effective vaccine for the dengue fever, a viral infection that spreads from mosquitoes to people.

Parviz Shayan, the head of the center for studying ticks and diseases transmitted by them, emphasized the production of dengue fever vaccine at the Faculty of Veterinary Medicine of University of Tehran.

"The Biotechnology Research Center of the University of Medical Sciences of the Islamic Republic of Iran's Army and the Research Institute of Molecular Biological System Transfer (MBST) are trying to apply biotechnology methods to improve the capability of molecular diagnosis in the country," he said.

Although the most common way to prevent viral diseases is the injection of a vaccine, according to experts, the injection of the dengue vaccine is only for those who have been once infected with this disease.

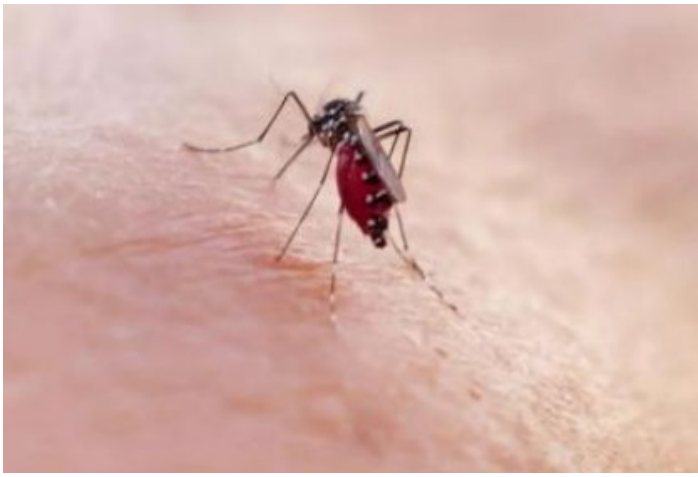
Muhammadreza Nazer, an Iranian specialist in infectious and tropical diseases, explained that although one of the ways to prevent dengue fever is vaccination, it is prescribed for people who have been infected with the disease once, but people who have not been infected and receive the injection will get the fatal type of the disease.

Dengue spreads to people through the bite of an infected mosquito.

There is no widely available dengue vaccine to prevent dengue infection. The best way to prevent dengue is to protect yourself from mosquito bites by using insect repellent, wear loose-fitting, long-sleeved shirts and pants, and take steps to control mosquitoes in and around your home.

Fuente: Kayhan. Disponible en https://acortar.link/xDb9qA

Los mosquitos modificados biológicamente buscan terminar con el dengue



22 jul. El dengue se está convirtiendo en un grave problema en América Latina y el Caribe, según advirtió la Organización Panamericana de la Salud (OPS). Sin embargo, gracias a la modificación biológica de los mosquitos transmisores de esta enfermedad, el *World Mosquito Program* está consiguiendo reducir los casos a pasos agigantados en algunas regiones del mundo.

Tras años de duros esfuerzos, el *World Mosquito Program* redujo los casos de dengue en un 95 % en la región de Antioquia, Colombia. ¿Cómo? Criando y más tarde liberando mosquitos nacidos con la bacteria Wolbachia, que "impide la transmisión" de esta enfermedad endémica de zonas tropicales, que provoca dolores de cabeza, vómitos y, en algunos casos, hasta la muerte.

A pesar de estos resultados prometedores, la OPS advierte que este año América Latina y el Caribe vivirán su "peor temporada de dengue" con unos 9,3 millones de casos y al menos 4.500 muertes entre enero y junio debido al cambio climático, ausencia de servicios de agua y sobrepoblación.

Nelson Grisales, responsable de este proyecto en Medellín, nos explica que el primer paso para resolver el problema es concienciar a los Gobiernos.

Cuando se empiece a entender y aceptar que los métodos de control biológico, particularmente este que es un método natural donde no hay ninguna manipulación, los gobiernos van a comenzar a requerir. Esa voluntad de entendimiento es algo que lleva tiempo para algo tan revolucionario, pero creo que vamos por muy buen camino.

Otro factor que impide la implementación de este sistema de prevención es la falta de recursos para adoptarlo en países tropicales y subtropicales en vías de desarrollo. "Todos sabemos que los recursos disponibles para salud pública y enfermedades como dengue, que no necesariamente son muy letales, son enfermedades olvidadas", afirmó Morales, quien aseguró que estas naciones "no disponen de mucho

presupuesto" para poder controlarlas.

Por ello, el especialista destacó la importancia de "la cooperación internacional y los donantes" para poder apoyar el trabajo que pueden hacer los gobiernos, a la vez que estos también pueden asignar o reasignar algunos recursos para que esto se lleve a cabo.

El riesgo de la desinformación

Por último, el experto señala la desinformación como un elemento que impide la integración del programa en algunas regiones. Por ejemplo, en septiembre del año pasado, un puñado de personas protestaron frente a su laboratorio argumentado que Bill Gates, uno de los financiadores del proyecto, libera chips a través de los mosquitos para controlar las mentes.

"La desinformación, en este momento, es un problema a nivel de salud pública: las campañas antivacunas, antimedicamentos, antimedicina en términos generales, son grandes y afectan a todos los países", sostuvo el responsable. A su juicio, esto genera "un entendimiento equivocado" de muchos factores, que por más que resulten intuitivos o normales, con una narrativa errada pueden manejar campañas de desinformación.

Puede que todos estos obstáculos retrasen la implementación del proyecto en algunos países, pero el experto está convencido de que pronto el *World Mosquito Program* llegará a ser una medida de salud pública. Ya que asegura que su misión no terminará hasta erradicar el dengue.

Fuente: Radio Cadena Agramonte. Disponible en https://acortar.link/0kztCi

El Consell (España) aprueba la adquisición de 500.000 dosis de vacunas frente al neumococo

23 jul. El Consell ha autorizado la tramitación del contrato para la adquisición y suministro de vacunas frente al neumococo destinadas al desarrollo de las campañas de inmunización de la Conselleria de Sanidad.

Vacunación infantil en un colegio de Benidorm / David Revenga

En concreto, se van a adquirir 500.000 dosis de la vacuna antineumocócica para garantizar la vacunación de la población infantil, así como de la población adulta y en los grupos de riesgo en los que está indicada.

La vacuna que se va a adquirir es la conjugada de 20 serotipos, que sustituirá una vez formalizado el contrato a la vacuna conjugada de 13 serotipos, que es la que se está administrando actualmente en el primer año de vida. Estos siete serotipos de más de la vacuna aumentarán de una manera significativa la protección de la población infantil.

Neumonía

En los últimos cinco años la neumonía fue la manifestación más común de la enfermedad neumocócica invasiva (ENI) en menores de 5 años, representando el 41,2 % de los casos, seguida de la sepsis (24 %). Han generado más 700 ingresos en hospitales con 7,11 días de estancia media, según datos de la Generalitat.

Asimismo, en los mayores de 65 años, la neumonía fue la manifestación más común de esta patología, que

representó el 52,8 % de los casos. Además, la mayoría de los casos (94,2 %) requirieron hospitalización, con una estancia promedio de 12,2 días.

Grupos indicados

En este sentido, los grupos indicados son personas de entre 18 años y 64 años con determinados factores de riesgo, las personas sanas en el primer año de vida y de 65 años y más, y la población mayor de residencias.

El valor estimado del contrato, que consta de un único lote, asciende a 47,9 millones de euros y tiene una duración de dos años, con posibilidad de prórroga hasta otros dos años más.

Las dosis de estas vacunas se distribuirán en los centros sanitarios de la Conselleria de Sanidad para el desarrollo de las campañas de vacunación una vez se haya formalizado este contrato.

Esta inmunización es para las personas un escudo contra las bacterias que causan la enfermedad neumocócica, una severa infección bacteriana provocada por el *Streptococcus pneumoniae*. Esta bacteria también puede causar neumonía, meningitis o una infección del torrente sanguíneo (bacteriemia).

Tres dosis

Las recomendaciones de vacunación acordadas en el Consejo Interterritorial del Sistema Nacional de Salud, formado por el Ministerio de Sanidad y las comunidades autónomas, incluyen la administración de tres dosis de vacuna conjugada a los 2, 4 y 11 meses, es decir, en el primer año de vida; y la vacunación a partir de los 65 años. En esta franja de edad hay más de 390.000 personas en la provincia de Alicante. También se indica a grupos de riesgo.

Fuente: Información Alicante. Disponible en https://acortar.link/1osoIp

¿Qué significa contar con una vacuna propia contra el neumococo?

24 jul. El proceso de obtención de la vacuna enfrentó una elevada complejidad científica, química, analítica y tecnológica, lo cual resalta aún más el logro de este resultado de la biotecnología cubana.

Recientemente, y tras concluir todos los ensayos clínicos requeridos, desarrollados a lo largo de casi 13 años –que demostraron suficientes evidencias de calidad, seguridad y eficacia–, la vacuna cubana antineumocócica Quimi-Vio recibió el registro sanitario otorgado por el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (Cecmed), para su empleo en niños de uno a cinco años.

Creada y producida por el Instituto Finlay de Vacunas (IFV), perteneciente al Grupo Empresarial BioCubaFarma, se trata de una vacuna conjugada que protege contra siete de los serotipos más frecuentes a nivel mundial y de mayor circulación en Cuba, de la bacteria *Streptococcus pneumoniae* (Neumococo), causante de sinusitis, otitis media, neumonías complicadas con derrame pleural, además de infecciones del sistema nervioso central y del torrente sanguíneo, que pueden tener un curso severo y causar la muerte.

Foto: Tomada del sitio del IFV

La doctora Dagmar García Rivera, vicedirectora de Investigaciones y Desarrollo del ifv, subrayó que el proceso de obtención de la vacuna enfrentó una elevada complejidad científica, química, analítica y tecnológica, lo cual resalta aún más el logro de este resultado de la biotecnología cubana.

Según afirmó a Granma el doctor Rinaldo Puga Gómez, especialista de i y ii grado en Pediatría, e Investigador clínico principal del proyecto que condujo finalmente a su registro, durante los ensayos clínicos el inyectable demostró ser muy seguro, pues solo ocasionó, en un porciento pequeño de los sujetos participantes, ligero dolor y enrojecimiento de la piel circundante al área, del pinchazo.

«Cuando el Ministerio de Salud Pública y el Grupo Nacional de Inmunización lo determinen, la vacuna comenzaría a aplicarse, en una sola dosis, al grupo etario para el cual fue registrada».

Está previsto, asimismo, iniciar nuevos ensayos clínicos en las provincias de Cienfuegos, Santiago de Cuba y La Habana, con una variante de la Quimi-Vio contra 11 serotipos del neumococo, puntualizó.

El doctor Rinaldo Puga resaltó que la vacuna cubana antineumocócica contiene toxoide tetánico como proteína portadora, y en términos de seguridad e inmunogenicidad, muestra perfiles de no inferioridad a los de las vacunas Prevenar 13 y Synflorix 10, tomando en cuenta la actividad opsono fagocítica (índice OPA), y la concentración de anticuerpos efectivos frente a cada serotipo que desarrolla, requisitos indispensables para autorizar su aplicación en grandes grupos poblaciones.

Las dos vacunas mencionadas son producidas por grandes compañías farmacéuticas y dominaron el mercado internacional durante mucho tiempo, hasta la aparición más reciente de una vacuna de la India, que ha hecho bajar los precios de ambos fármacos, aseveró.

Acerca de los impactos esperados de su introducción en el Programa Nacional de Inmunización, el también especialista de II Grado en Inmunología mencionó, en primer lugar, la disminución de las tasas de hospitalizaciones por enfermedades invasivas vinculadas al neumococo y, en un plazo posterior, la reducción de la mortalidad infantil.

Mencionó, al respecto, los resultados observados en la provincia de Cienfuegos, donde después de vacunarse en diferentes momentos, de 2017 a 2023, a más del 90 % de los niños de uno a cinco años con posibilidad de ser inmunizados, la cantidad de pequeños ingresados en las salas de pediatría por esas dolencias es ínfima en la actualidad.

Para el profesor Puga Gómez, la Quimi-Vio concede soberanía tecnológica al país en el enfrentamiento a las enfermedades producidas por el neumococo, que de acuerdo con los estimados de la Organización Mundial de la Salud (OMS), causan anualmente alrededor de 1,6 millones de defunciones en todo el orbe, incluyendo cerca de 800 000 niños menores de cinco años. La mayor cantidad ocurre en países en vías de desarrollo.

En Cuba, la cuarta causa de muerte es la neumonía e influenza, y una gran parte de esos fallecimientos obedece a esa agresiva bacteria, aseveró.

Al nombrar Quimi-Vio a la vacuna cubana antineumocócica, se rindió merecido tributo a la memoria de la científica Violeta Fernández Santana, una de las principales investigadoras y promotoras de este proyecto, fallecida en noviembre de 2011.

Fuente: Granma. Disponible en https://acortar.link/chaqzz

Dengue: el Gobierno negocia contra reloj la compra de 160.000 vacunas para aplicar en áreas de alto riesgo

25 jul. La compra de vacunas para dengue que se incluirán en Argentina, en la vacunación focalizada a partir del mes que viene, dentro del plan oficial para evitar una nueva epidemia el próximo verano, no sería a través de la Organización Panamericana de la Salud (OPS), como se había informado inicialmente. Hace dos meses, el Gobierno empezó a negociar la adquisición de manera directa con el laboratorio productor, según pudo conocer este medio en las últimas semanas.

Ante la consulta, el Ministerio de Salud de la Nación confirmó esas conversaciones y que, de llegar a una definición, señalaron que "sería esta semana" para emitir una orden de compra por 160.000 dosis, cantidad que tiene que ver también con la garantía de suministro de parte del productor. A la par, está abierta la posibilidad de adquirirlas a través de la OPS a un valor cuatro veces menor que en un vacunatorio privado, según había trascendido, por lo que el precio a pagar por unidad (un esquema son dos dosis) tenía que ser similar.

La vacunación dentro del Plan de Abordaje Integral del Dengue 2024-2025 alcanza a la población de entre 15 y 39 años en los departamentos con alta incidencia de la enfermedad ubicados en las provincias del noroeste, el noreste y el centro del país. Pero la aplicación será escalonada por edades: el primer grupo será el de entre 15 y 19 años, en línea con las recomendaciones redactadas por la Comisión Nacional de Inmunizaciones (Conain).

La entrega a las provincias será programada de acuerdo con la cobertura que las provincias vayan ingresando online en el Registro Federal de Vacunación Nominalizado (Nomivac). El uso de esa partida de 80.000 esquemas completos, que prevén aplicar entre septiembre y diciembre, se hará dentro de un ensayo clínico de fase 4, incluido el seguimiento de los efectos adversos asociados y una medición de la adherencia a la vacunación, según explicaron desde la cartera sanitaria nacional, que dirige Mario Russo. Se suma a las campañas definidas por los ministerios provinciales.

Por su parte, desde Takeda, que es el laboratorio productor del inmunizante que se comercializa en el país, respondieron que se encuentran "en conversaciones permanentes" con funcionarios del Ministerio de Salud. "Contamos con el volumen necesario para entregar en tiempo y forma la cantidad de dosis solicitada en el marco del programa anunciado –indicaron–. El laboratorio cuenta con capacidad suficiente para garantizar continuidad a los procesos de adquisición ya iniciados en 2024 en las provincias de noroeste y el noreste del país [citaron a Tucumán, Salta, La Rioja y Catamarca], así como, eventualmente, requerimientos de la región centro".

Fuente: LA NACIÓN. Disponible en https://acortar.link/lGoIJn

¿Cómo un laboratorio guanacasteco podría salvar cientos de miles de vidas en el mundo?

27 jul. Guanacaste (Costa Rica) no solo ofrece al mundo sus playas, su cultura y su gastronomía, también tiene un importante centro de innovación e investigación que busca salvar cientos de miles de vidas en el mundo, amenazadas por el virus del papiloma humano (VPH).

A 12 kilómetros del centro de Liberia, la Asociación Costarricense de Investigaciones Biomédicas, en conjunto con la Fundación Inciensa (ACIB-FUNIN), trabaja codo a codo con la Organización Mundial de la

Salud (OMS).

“La investigación ESCUDDO pretende demostrar la eficacia de una sola dosis de la vacuna contra el VPH, en mujeres de 12 a 16 años. Para el estudio participan más de 20 mil mujeres.

"Tenemos un segundo estudio sobre el tema: PRISMA. Este busca probar la eficacia de una sola dosis de la vacuna, pero en mujeres de 18 a 30. Más de cinco mil mujeres participan en este estudio”, aseguró la doctora Carolina Porras, directora de Investigaciones Biomédicas.

El proyecto ya dio frutos en 2021, cuando a partir de datos preliminares de la investigación desarrollada en Costa Rica y otras dos que se llevan a cabo en África, la OMS recomendó que los países pueden escoger si le dan a su población una o dos dosis de la vacuna, lo cual tiene un impacto significativo para las naciones en vías de desarrollo.

“Al nosotros dar la evidencia de que una sola dosis podría ser suficiente, se ha seguido con la investigación y la OMS, finalmente, dio la recomendación. Esto es muy bueno porque los países que no habían introducido la vacuna a sus programas ya están acelerando el proceso, porque con una sola dosis bajan los costos y se puede aprovechar la otra dosis para expandir la cobertura a otros grupos de edad”, afirma la investigadora.

Según la OMS, actualmente el cáncer de cuello uterino, provocado por el VPH, es el cuarto tipo de cáncer más común entre las mujeres en el mundo, con una incidencia de 600.000 nuevos casos, aproximadamente, en 2022.

La entidad explica que este cáncer provoca alrededor de 350 mil muertes al año, de las cuales el 94% ocurren en países de ingreso bajo y mediano.

Investigación ESCUDDO tendrá sus resultados definitivos este año

ACIB-FUNIN empezó a indagar la eficacia de la vacuna contra el VPH en el 2004, y la clave para el éxito de la investigación actual es el compromiso de las mujeres que participaron en aquel entonces.

"Las mujeres que participaron en el 2004 han continuado con nosotros a lo largo de 20 años y gracias a su invaluable participación es que nosotros hemos podido aportar los datos sobre cuánto duran los anticuerpos una vez que se ha recibido una sola dosis", explicó la doctora Porras.

Para cumplir con los plazos, una parte de las muestras viajan hasta el Instituto Nacional del Cáncer de Estados Unidos, donde las analizan y así trabajan desde dos frentes.

“Con cada año que pasa, siguen muriendo las mujeres”, reflexionó la investigadora, quien se muestra optimista ante los resultados de un estudio con capacidad de influir en la salud mundial.

De acuerdo con datos del Ministerio de Salud, a noviembre de 2023, 14 de cada 100 mil mujeres son diagnosticadas con cáncer de cuello uterino, además, es la segunda causa más común de muerte por cáncer en mujeres ticas.

Fuente: Teletica.com. Disponible en https://acortar.link/O5R9uW

Pfizer, GSK y Moderna reordenan su estrategia de mercado de vacunas contra el VSR

29 jul. Los tres gigantes emprenden su segundo año desarrollando el fármaco que sirve para tratar el virus respiratorio sincitial, tras el anuncio de los reguladores de Estados Unidos de administrar la vacuna a mayores de 75 años.

Nueva carrera entre los gigantes de la vacunación. Pfizer, Moderna y GSK compiten ahora por la participación de mercado en el segundo año de vacunas contra el virus respiratorio sincitial (VRS) y frente a la nueva regulación de Estados Unidos de quiénes deben recibir el fármaco.

El mercado aguarda con ansias la presentación de resultados de estas tres empresas a finales de esta semana. Los inversores y analistas avisaron que esperan los detalles sobre las negociaciones de los grupos con las farmacias, así como las tácticas que utilizarán para ganar participación.

En efecto, la competencia se ha encendido tras el anuncio de los reguladores estadounidenses que limitaron la recomendación sobre qué adultos deberían recibir la vacuna contra el VRS. El pasado junio, los Centros Para el Control y la Prevención de Enfermedades de Estados Unidos (CDC) comunicaron que los adultos de 75 años o más deberían recibir esta vacuna.

A este grupo etario se le suma también por recomendación todos aquellos que comprendan entre los 60 años y 74 años con un mayor riesgo de contraer VRS debido a otras patologías médicas. El año pasado, la edad efectiva para recibirlas era a partir de los 60 años.

La CDC de Estados Unidos elevó este año el rango etario de individuos que deberían recibir la vacuna, pasando de los 60 años a los 75 años

GSK, por su parte, ganó dos tercios del mercado en el último año, el primero en que estaban disponibles las vacunas. El crecimiento estuvo vinculado a sus contratos con farmacias minoristas.

En otras ocasiones, los analistas habían sugerido que ampliar la vacuna contra el VSR a adultos de 50 años a 59 años con mayor riesgo de contraer la enfermedad, un grupo de edad para el que sólo GSK tiene la aprobación de la *Food and Drug Administration* (FDA). Tras el nuevo anuncio de la CDC, las acciones de GSK cayeron un 6%.

Los reguladores de Estados Unidos también avanzaron que los vacunados en 2023 no deberían recibir una dosis de recuerdo. Para este año, los analistas prevén que las ventas para GSK y Pfizer se sitúen en 1.200 millones de dólares, mientras que las de Moderna, que obtuvo la aprobación de la vacuna el pasado mayo, ascenderán a 370 millones de dólares.

Por otra parte, Pfizer, acusó de “decepción” el lanzamiento de su vacuna Abrysvo, aprobada el año pasado. La empresa prometió mejorar sus contactos y su ejecución comercial este año. Sin embargo, los analistas remarcan que es la única vacuna aprobada hasta ahora para mujeres embarazadas. La compañía recibió recientemente el visto bueno para suministrar cerca de cinco millones de dosis de esta vacuna en Reino Unido.

Moderna, en cambio, fue de las últimas en sumarse a la lucha contra el VSR, pero cuenta con la ventaja de ser la única disponible en jeringa precargada. Los analistas anticipan que el grupo podría quedar tercero en cuanto a participación de mercado.

Fuente: PlantaDoce. Disponible en https://acortar.link/UNO5cb

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Estrategia de búqueda*: (Vaccine) AND DP:([17.07.2024 TO 31.07.2024]) as the publication date 54 records.*

1.WO/2024/152998USE OF CPG ADJUVANT IN PREPARATION OF NOVEL CORONAVIRUS VACCINE

WO - 25.07.2024

Clasificación Internacional A61K 39/39Nº de solicitud PCT/CN2024/071939Solicitante PARR BIOTECHNOLOGY (HEBEI) CO., LTD.Inventor/a WANG, Ligong

Use of a CpG adjuvant in the preparation of a novel coronavirus vaccine. Provided is a composite adjuvant, comprising the CpG adjuvant and an A1 adjuvant. The nucleotide sequence of the CpG adjuvant is SEQ ID NOs: 1-5. Provided is a novel coronavirus vaccine, consisting of a novel coronavirus antigen, and the CpG adjuvant and the A1 adjuvant in a first aspect. Provided is a composition (vaccine) for stimulating or eliciting an immune response against SARS-CoV-2. The immune response includes, but is not limited to, an immune response that generates a neutralizing antibody against SARS-CoV-2 and is biased towards Thl. CpGODN is a fully phosphorothioated oligodeoxynucleotide containing non-methylated CG dinucleotide (CpG) linked by phosphorus (p), and has an immunostimulatory effect.

2.WO/2024/152533RECOMBINANT CHIMERIC ANTIGEN FOR POXVIRUS, SUBUNIT VACCINE COMPRISING SAME AND USE THEREOF

WO - 25.07.2024

Clasificación Internacional C07K 14/065Nº de solicitud PCT/CN2023/107061Solicitante PEKING UNIVERSITYInventor/a XI, Jianzhong Jeff

Provided are a recombinant chimeric antigen for a poxvirus, in particular for a Mpoxvirus, a subunit vaccine comprising the recombinant chimeric antigen, and a use thereof. The recombinant chimeric antigen of the present application comprises two immunogens arranged in a specific manner: a Mpoxvirus A35 protein or an antigenic fragment thereof or derivative peptides of same, and a Mpoxvirus M1 protein or an antigenic fragment thereof or derivative peptides of same, and can excite an immune response to two infectious virus particles of intracellular mature virus (IMV) particles and extracellular enveloped virus (EEV) particles.

3.WO/2024/153793NUCLEIC ACID MOLECULES

WO - 25.07.2024

Clasificación Internacional A61K 39/12Nº de solicitud PCT/EP2024/051250Solicitante ASTRAZENECA ABInventor/a LOO, Yueh-Ming

The present disclosure relates to a nucleic acid molecule comprising 5'-UTR and/or 3'-UTR sequences that yield high translation levels. Aspects of the disclosure further relate to nucleic acid molecules suitable for use as a vaccine in the treatment and prevention of infectious diseases, including those caused by a coronavirus,

compositions comprising said nucleic acid molecules and methods of treating or preventing infectious diseases.

4.20240247033SARS-COV-2 RBD CONSTRUCTS

US - 25.07.2024

Clasificación Internacional C07K 14/005Nº de solicitud 18002611Solicitante The Scripps Research InstituteInventor/a William SCHIEF

The present invention relates to glycan-masked and membrane-tethered SARS-CoV-2 RBD vaccine constructs and methods for making and administering the same. The present invention also encompasses a general vaccine platform for coronaviruses.

5.WO/2024/152844PROTEIN AND VACCINE FOR RESISTING INFECTION FROM SARS-COV-2 OMICRON MUTANT STRAIN AND SUBTYPE THEREOF

WO - 25.07.2024

Clasificación Internacional C07K 14/165Nº de solicitud PCT/CN2023/140715Solicitante WESTVAC BIOPHARMA CO., LTD.Inventor/a WEI, Xiawei

The present invention relates to the field of medicines, and relates to a protein and vaccine for resisting infection from a SARS-CoV-2 Omicron mutant strain and a subtype thereof. In order to solve the problem of lack of drugs for effective prevention and treatment for infections from the SARS-CoV-2 Omicron mutant strain and the subtype thereof, the present invention provides the protein and the vaccine for resisting infection from the SARS-CoV-2 Omicron mutant strain and the subtype thereof. The vaccine is optimally designed on the basis of an RBD sequence in an S protein of the SARS-CoV-2 Omicron mutant strain and substrains BA.4/5, BQ.1.1, and XBB.1.5, can help a host to resist a coronavirus infection, and particularly has a relatively good prevention and treatment effect on a cross infection caused by a SARS-CoV-2 Omicron mutant strain and subtype viruses thereof.

6.WO/2024/152845PREPARATION AND USE OF MRNA VACCINE AND RECOMBINANT PROTEIN SUBUNIT VACCINE AGAINST SARS-COV-2 OR MUTANT

WO - 25.07.2024

Clasificación Internacional A61K 39/215Nº de solicitud PCT/CN2023/140745Solicitante WESTVAC BIOPHARMA CO., LTD.Inventor/a WEI, Xiawei

Provided in the present invention is a recombinant protein vaccine and/or an mRNA vaccine for preventing and/or treating infections of SARS-CoV-2 or a mutant thereof, and particularly provided is a method of using the mRNA vaccine and the recombinant protein vaccine. The vaccine can induce the generation of an antibody response and a cellular immune response in vivo to block the binding of the S protein of SARS-CoV-2 to the ACE2 receptor of host cells, so that the host resists coronavirus infections.

7.WO/2024/154061COMPOSITIONS AND METHODS FOR STABILIZING RNA

WO - 25.07.2024

Clasificación Internacional C12N 15/67Nº de solicitud PCT/IB2024/050424Solicitante PFIZER INC.Inventor/a BENNETT, Eric Matthew

Described herein are compositions and methods for stabilizing RNA molecules. Also described herein a 5' and 3' untranslated regions for use in therapeutic and vaccine applications.

8.WO/2024/155561ENGINEERED PARAMYXOVIRUS SOLUBLE FUSION (F) PROTEINS AND RELATED VACCINES

WO - 25.07.2024

Clasificación Internacional C07K 14/115Nº de solicitud PCT/US2024/011566Solicitante THE SCRIPPS RESEARCH INSTITUTEInventor/a HE, Linling

The present invention provides engineered soluble F proteins of paramyxoviruses such as respiratory syncytial viruses (RSVs), human metapneumoviruses (hMPVs), and human parainfluenza viruses (hPIVs). These engineered proteins are stabilized via specific modifications in the wildtype soluble F sequences, e.g., substitutions in the 023 strand and/or introducing an engineered disulfide bond in a 0 hairpin in the Fl subunit. Also provided in the invention are nanoparticle vaccines that contain the engineered soluble F immunogens displayed on self-assembling nanoparticles. The invention also provides methods of using such vaccine compositions in various therapeutic applications, e.g., for preventing or treating viral infections such as RSV, MPV and PIV infections.

9.WO/2024/152996SELF-REPLICATING MESSENGER RIBONUCLEIC ACID VACCINE

WO - 25.07.2024

Clasificación Internacional C12N 15/86Nº de solicitud PCT/CN2024/071926Solicitante VIROGIN BIOTECH (SHANGHAI) LTD.Inventor/a GONG, Yue

A messenger ribonucleic acid (mRNA) molecule, comprising: an expression cassette 1 containing a coding sequence of RNA replicase, and an expression cassette 2 containing a coding sequence of an antigen. Further provided are a mRNA vaccine, which is obtained by encapsulating the mRNA molecule into lipid nanoparticles (LNPs); a DNA molecule, which can be transcribed into the mRNA molecule; and the use of the mRNA molecule in preparing a mRNA vaccine capable of eliciting an anti-HER2 immune response. Further provided is a method for preparing the mRNA molecule, comprising: (1) on the basis of the DNA sequence of the genome of a virus, replacing in a coding sequence of a structural polyprotein the moiety following the promoter of the structural polyprotein with the coding sequence of the antigen; (2) adding a promoter site of RNA polymerase to the 5'-end of 5'-UTR; (3) adding poly-A to the 3'-end of 3'-UTR; and (4) transcribing into a mRNA molecule the DNA molecule constructed by steps (1)-(3).

10.20240245766PYRIMIDINE COMPOUND

US - 25.07.2024

Clasificación Internacional A61K 39/39Nº de solicitud 18420017Solicitante Sumitomo Pharma Co., Ltd.Inventor/a Hidenori Kimura

The present invention provides a compound of the formula (1):

wherein X, R^1, R^2, R^3, R^4, R^5, R^6, Y^1, Y^2, L, and m are as defined in the description, and a pharmaceutically acceptable salt thereof, which are useful as a vaccine adjuvant.

11.WO/2024/153794VACCINE

WO - 25.07.2024

Clasificación Internacional C12N 15/62Nº de solicitud PCT/EP2024/051253Solicitante ASTRAZENECA ABInventor/a LOO, Yueh-Ming

The present disclosure relates to methods of inducing a pan-sarbecoronavirus variant immune response for the treatment and prevention of coronavirus infections.

12.WO/2024/155613SMALLPOX VACCINATION DEVICE

WO - 25.07.2024

Clasificación Internacional A61M 5/32Nº de solicitud PCT/US2024/011654Solicitante RETRACTABLE TECHNOLOGIES, INC.Inventor/a SHAW, Thomas, J.

Various embodiments of a safe, inexpensive and disposable medical device useful for administering vaccinations are generally characterized by a needle having a bifurcated needle tip with a solid core that is attached in fixed relation to a needle holder, dipped in or coated with a vaccine or other similar medicament, and reciprocated multiple times with or without a tubular barrel and a compression spring to effectuate sufficient intradermal penetration to transfer a medically effective dose to an identified skin area of a recipient. An active or passive safety feature operable to guard the bifurcated needle tip against accidental contact with another person or object is also disclosed.

13.WO/2024/152974DIRECTIONALLY ATTENUATED VACCINIA VIRUS VACCINE

WO - 25.07.2024

Clasificación Internacional C12N 7/01Nº de solicitud PCT/CN2024/071739Solicitante NATIONAL INSTITUTE OF PATHOGEN BIOLOGY, CHINESE ACADEMY OF MEDICAL SCIENCES & PEKING UNION MEDICAL COLLEGEInventor/a GUO, Fei

The present invention relates to a recombinant vaccinia virus and the use thereof. Compared with vaccinia virus Tiantan strain, the recombinant vaccinia virus does not comprise at least one of TK gene, F4L gene and B2R gene. The recombinant vaccinia virus of the present invention has characteristics of low toxicity, capability of being completely replicated and higher immunogenicity. Thus, the recombinant vaccinia virus provided by the present invention has higher safety and enhanced immunogenicity. The recombinant vaccinia virus provided by the present invention has higher application values as a vaccine, can be used for preventing infection of viruses of family poxviridae, and can be used as a viral vector for constructing other infectious-disease vaccines, tumor vaccines and the like.

14.WO/2024/155854SYSTEMS AND METHODS FOR MULTIPLEX DETECTION OF BIOMARKERS

WO - 25.07.2024

Clasificación Internacional G01N 33/543Nº de solicitud PCT/US2024/012072Solicitante VERAVAS, INC.Inventor/a SOLDO, Joshua Caine

Provided herein are methods and systems for multiplex detection and/or measurement of biomarkers of a sample. The methods and systems can be used for rapid disease detection and/or monitoring, vaccine efficacy and immune response monitoring, therapeutic drug monitoring, and/or therapeutic safety and efficacy monitoring.

15.WO/2024/152870MONKEYPOX VIRUS NUCLEIC ACID VACCINE AND USE THEREOF

WO - 25.07.2024

Clasificación Internacional C12N 15/39Nº de solicitud PCT/CN2023/142779Solicitante INSTITUTE OF MICROBIOLOGY, CHINESE ACADEMY OF SCIENCESInventor/a GAO, Fu

Provided are a polynucleotide encoding a chimeric or mixed antigen of poxvirus multiple immunogens, a related nucleic acid product thereof, and the use thereof in the preparation of a vaccine for preventing and/or treating poxvirus (in particular monkeypox virus) infection. The chimeric or mixed antigen of the poxvirus multiple immunogens encoded by the polynucleotide comprises two immunogens: a monkeypox virus A35R protein or an antigenic fragment thereof (or an appropriate variant thereof) and a monkeypox virus M1R protein or an antigenic fragment thereof (or an appropriate variant thereof). The immunogen components of the chimeric or mixed nucleic acid vaccine based on the polynucleotide are clear, and the chimeric or mixed nucleic acid vaccine can efficiently stimulate specific immune responses (for example, generating a protective antibody) against poxvirus (in particular monkeypox virus), can be used for preventing and/or treating poxvirus (in particular monkeypox virus), and has high clinical application prospects.

16.4401769CORONAVIRUS-IMPFSTOFF, HEFESTÄMME, NACHWEISVERFAHREN, BEHANDLUNGSVERFAHREN UND VERWENDUNGEN DAVON

EP - 24.07.2024

Clasificación Internacional A61K 39/215Nº de solicitud 22870656Solicitante CONSEJO NACIONAL DE INVESTIGACIONES CIENTIFICAS Y TECN CONICETInventor/a IDROVO HIDALGO TOMMY

The invention refers to a vaccine and a method to obtain coronavirus antibodies, yeast strains, methods of detection, methods of treatment and uses thereof. A coronavirus vaccine comprising the deglycosylated RBD domain of the coronavirus spike protein and one or more adjuvants, wherein the RBD domain is produced in *P. pastoris*. Among others, the amino acid sequence of the RBD domain may be the sequence set forth in SEQ ID NO. 1 or SEQ ID NO. 2, wherein the vaccine may further comprise one or more adjuvants.

17.4401761RNA-IMPFSTOFF MIT EINEM AUS EINEM DOPPELSTRÄNGIGEN DNA-POOL ERZEUGTEN RNA-POOL

EP - 24.07.2024

Clasificación Internacional A61K 39/00Nº de solicitud 22786889Solicitante ONCODNAInventor/a DETIFFE JEAN-POL

A process for producing a RNA vaccine comprising a plurality of epitopes specifically deduced from a target comprising the steps of: obtaining a plurality of synthetic DNA constructs in pool encoding (i) a plurality of different epitopes deduced from the said target, and of transcribing in vitro the said plurality of synthetic DNAs into a corresponding plurality of RNAs, wherein the said target is a peptide from an infectious agent or cancer neoepitopes specifically identified in one patient and having an amino acid sequence different, by at least one amino acid, from the amino acid sequences naturally present in normal cells of the patient.

18.4404211INTELLIGENTES IMPFSTOFFVERNEBLERSYSTEM UND VERWENDUNGSVERFAHREN

EP - 24.07.2024

Clasificación Internacional G16H 40/67Nº de solicitud 21957337Solicitante QINGDAO FUTURE MEDICAL TECH CO LTDInventor/a WANG QIXU

An intelligent vaccine nebulization system, and a usage method, which are characterized in that the intelligent vaccine nebulization system comprises an intelligent vaccine nebulization apparatus, a mist storage tank and a cloud server, wherein the intelligent vaccine nebulization apparatus comprises a host case body, and an intelligent main control module and functional modules on the host case body. The functional modules comprise an identity information input module, a vaccine information input module, a vaccine temporary storage module, a quantitative pipetting module, an aerosol output module, a mist storage tank management module, a human-computer interaction module and a communication interface. The intelligent main control module is connected to the functional modules, and exchanges information with the cloud server, so as to guarantee strict and accurate vaccination and management. Control is performed by the intelligent main control module, and by means of the steps of identity information and vaccine information input, vaccine temporary storage, quantitative pipetting, aerosol output, mist storage tank management, etc., access to the cloud server for vaccine recipients and nebulization-related information records thereof is achieved, such that automatic, efficient and convenient vaccine nebulization and vaccination can be achieved..

19.4401767IMPFSTOFFZUSAMMENSETZUNGEN

EP - 24.07.2024

Clasificación Internacional A61K 39/12Nº de solicitud 22785904Solicitante EMERGENT PRODUCT DEV GAITHERSBURG INCInventor/a LATA JAMES PAUL

The present invention relates to a vaccine composition comprising an influenza Type A hemagglutinin stabilized stem nanoparticle (HA-ss-np); an aluminum hydroxide; a synthetic oligodeoxynucleotide adjuvant containing at least one CpG motif (CpG ODN); and a phosphate salt, wherein the HA-ss-np is not substantially adsorbed to the aluminum hydroxide, and wherein at least a portion of the CpG ODN is adsorbed to the aluminum hydroxide in the composition. The present disclosure also provides a method of inducing an immunological response against an influenza virus in a subject in need thereof, comprising administering an immunologically effective amount of the vaccine composition described herein. The present disclosure further provides a method of inducing an immunological response against an influenza virus in a subject in need thereof, comprising administering a dose of about 20 μg to about 300 μg of an HA-ss-np in a vaccine composition, wherein the vaccine composition further comprises an aluminum hydroxide; CpG ODN; and a phosphate salt, and wherein the HA-ss-np is not substantially adsorbed to the aluminum hydroxide, and wherein at least a portion of the CpG ODN is adsorbed to the aluminum hydroxide. Also provided herein is a method of producing a vaccine composition, comprising combining HA-ss-np with an

adjuvant mixture, wherein the adjuvant mixture comprises a diluent solution comprising a phosphate salt; aluminum hydroxide; and CpG ODN, wherein the adjuvant mixture comprises CpG ODN-adsorbed aluminum hydroxide, and wherein the HA-ss-np is not substantially adsorbed to the aluminum hydroxide.

20.4402155HERV-K-ANTIKÖRPER, ZELLE, IMPFSTOFF UND ARZNEIMITTELTHERAPEUTIKA

EP - 24.07.2024

Clasificación Internacional C07K 14/005Nº de solicitud 22871002Solicitante SUNNYBAY BIOTECH INCInventor/a WANG-JOHANNING FENG

The invention relates to peptides, proteins, nucleic acids, and cells for use in immunotherapeutic methods. In particular, the invention relates to the immunotherapy of cancer. The invention provides T cell receptors (TCRs), tumor infiltrating lymphocytes (TILs), and vaccines that recognize HERV-K. The invention provides TCR sequences generated from tumor infiltrating lymphocytes that recognize HERV-K antigens as peptides bound to the Major Histocompatibility Complex (MHC), resulting in an interaction between the HLA-peptide complex and the CDS TCR. Peptides bound to molecules of the MHC, or peptides as such, can also be targets of antibodies, soluble TCRs, and other binding molecules.

21.4401768MRNA IMPFSTOFFE GEGEN HANTAVIRUS

EP - 24.07.2024

Clasificación Internacional A61K 39/12Nº de solicitud 22870680Solicitante UNIV TEXASInventor/a BUKREYEV ALEXANDER

One solution to the problem of Hantavirus pathology is design, production, and administration of a nucleic acid vaccine (NAV). In certain aspect the NAV is an mRNA vaccine. Certain embodiments are directed to the use of a polyprotein, which is cleaved to produce Gn (N-terminal) and Gc (C-terminal) glycoproteins, the Gn glycoprotein, the Gc glycoprotein, or the Gn and Gc glycoproteins hantaviruses as protective antigen(s) for development of hantavirus vaccines. The Gn/Gc protein, which is cleaved post-translationally to individual Gn and Gc proteins, can be used as an antigen for vaccines. In case of DNA and RNA-based vaccines, the complete M gene, which encodes the complete single open reading frame, which is cleaved post-translationally in the Gn and Gc proteins or individual open reading frames encoding either Gn or Gc, is used.

22.12042590ONCODIALYSIS SYSTEM AND METHOD FOR PERSONALIZED CANCER VACCINE AND BLOOD PURIFICATION

US - 23.07.2024

Clasificación Internacional A61M 1/34Nº de solicitud 18129866Solicitante David MichaeliInventor/a David Michaeli

A system for preparing a cancer vaccine (and optionally purifying the blood) has a blood filtration system, controlled by a processing unit, for filtering exogenous blood plasma to isolate tumor cells, tumor stem cells and tumor breakdown products. The blood filtration system filter includes multiple layers having differently sized apertures to retain differently sized materials (from among (i) tumor cells of different sizes, (ii) tumor stem cells and (iii) tumor DNA or other breakdown products. A device directs electromagnetic radiation at the isolated tumor cells, tumor stem cells and tumor DNA (or other breakdown products). The electromagnetic radiation may cause at least one of the (i) isolated tumor cells, (ii) isolated tumor stem cells, (iii) isolated tumor protein or breakdown products of the cells such as DNA to have a coagulated outer layer or a coagulated

outer surface. The electromagnetic radiation may have a UV wavelength. A conical coil improves blood flow rate uniformity.

23.20240238410SAFER VACCINES

US - 18.07.2024

Clasificación Internacional A61K 39/215Nº de solicitud 18561617Solicitante B & H Biotechnologies, LLCInventor/a Huiru Wang

The invention provides safer vaccines that induce less adverse reactions particular the serious adverse reactions in a host. Also provided are compositions including these safer vaccines, as well as polynucleotides, vectors, host cells, methods, and kits related thereto. Further provided are methods and kits for preventing or treating infectious diseases, infection-relating diseases, and adverse reactions of vaccines in an individual by administering to the individual a safer vaccine that induce less adverse reactions, or by administering to the individual a pathogenic antigen that neutralize pathogenic antibodies. Yet further provided are methods for identification of the presence of pathogenic antibodies inducible by a pathogen or the vaccines relating to the pathogen.

24.WO/2024/149109PERTUSSIS TOXIN DETOXIFICATION METHOD AND DIPHTHERIA, TETANUS AND ACELLULAR PERTUSSIS COMBINED VACCINE

WO - 18.07.2024

Clasificación Internacional C07K 14/195Nº de solicitud PCT/CN2024/070120Solicitante CANSINO BIOLOGICS INC.Inventor/a LIAN, Hongyu

The present invention provides a pertussis toxin (PT) detoxification method, a detoxified PT antigen prepared by the method, and a diphtheria, tetanus and acellular pertussis combined vaccine. Formaldehyde and glutaraldehyde are used as detoxification agents for a PT antigen, and the detoxification sequence is as follows: formaldehyde is used for treatment and detoxification first, and then glutaraldehyde is used for detoxification. The diphtheria, tetanus and acellular pertussis combined vaccine adsorbed prepared after detoxification has good immunogenicity and titer, and is low in toxicity, safe, effective and controllable in quality.

25.20240238402METHOD FOR PRODUCING RNA COMPOSITIONS

US - 18.07.2024

Clasificación Internacional A61K 39/145Nº de solicitud 18349294Solicitante CureVac Manufacturing GmbHInventor/a Thorsten MUTZKE

The present invention relates to a method for producing a liquid composition comprising a nanoparticle comprising at least one RNA and at least one cationic or polycationic compound, advantageously on a large scale suitable for pharmaceutical applications. The present invention further concerns the use of the inventive method in the manufacture of a medicament or a vaccine. Furthermore, the invention relates to compositions containing the RNA-comprising nanoparticle, and to pharmaceutical compositions comprising the same.

26.WO/2024/151586PREFUSION-STABILIZED HUMAN PARAINFLUENZA VIRUS 3 F PROTEINS

WO - 18.07.2024

Clasificación Internacional A61K 39/155Nº de solicitud PCT/US2024/010814Solicitante BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEMInventor/a MCLELLAN, Jason

Provided herein are engineered parainfluenza virus fusion protein (PIV F) polypeptides. In some aspects, the engineered PIV F polypeptides exhibit enhanced conformational stability and/or antigenicity. Methods are also provided for use of the engineered PIV F polypeptides as diagnostics, in screening platforms, and/or in vaccine compositions.

27.20240238407HTLV-1 NUCLEIC ACID LIPID PARTICLE VACCINE

US - 18.07.2024

Clasificación Internacional A61K 39/21Nº de solicitud 18562059Solicitante NATIONAL INSTITUTES OF BIOMEDICAL INNOVATION, HEALTH AND NUTRITIONInventor/a Ken ISHII

Provided is a vaccine for preventing and/or treating infection with human T-cell leukemia virus type 1 (HTLV-1).

A lipid particle encapsulating a nucleic acid expressing a gp46 antigen or a Tax antigen of human T-cell leukemia virus type 1 (HTLV-1), wherein the lipid comprises a cationic lipid represented by general formula (Ia):

or a pharmaceutically acceptable salt thereof,

wherein

R^1 and R^2 each independently represent a C_1-C_3 alkyl group;

L^1 represents a C_{17}-C_{19} alkenyl group optionally having one or more C_2-C_4 alkanoyloxy groups;

L^2 represents a C_{10}-C_{19} alkyl group optionally having one or more C_2-C_4 alkanoyloxy groups, or a C_{10}-C_{19} alkenyl group optionally having one or more C_2-C_4 alkanoyloxy groups; and

p is 3 or 4.

28.20240238409SARS-COV-2 MULTI-EPITOPE VACCINES

US - 18.07.2024

Clasificación Internacional A61K 39/215Nº de solicitud 18558241Solicitante THE UNIVERSITY OF BRITISH COLUMBIAInventor/a Wilfred JEFFERIES

The present invention provides multi-epitope vaccines comprising or capable of expressing one or more concatemers of epitopes from a viral pathogen, namely, SARS-COV-2. wherein at least a portion of the epitopes are from conserved viral proteins and wherein the vaccine comprises or expresses epitopes for all MHC I and MHC II alleles with a frequency >1% in the target population.

29.WO/2024/150837PORTABLE SOLAR POWERED VACCINE REFRIGERATOR

WO - 18.07.2024

Clasificación Internacional Nº de solicitud PCT/KE2023/050006Solicitante DROP ACCESS LIMITEDInventor/a MAGERO, Norah

This invention discloses a portable solar powered vaccine refrigerator, system, sensors and process of real-time remote monitoring of temperature, location, status of the door and voltage, and management of the stock in the fridge using mobile application, web platform, Bluetooth, WIFI and GSM during transportation of vaccines and related products. The refrigerator comprises a stainless steel exterior body with two layers of lid panels, fiberglass interior having a freezing compartment and phase change material or ice packs, telescopic handle, wheels, inbuilt battery storage, solar and AC charging ports with an automatic changeover and selection of power source. The system comprises a smart temperature sensing system, transmitter, receiver and computing system interfaced to a receiver, alert mechanism and printed circuit board designed to determine, predict, monitor and manage the stock in real time during transportation.

30.WO/2024/149832RECOMBINANT MODIFIED SARNA (VRP) FOR CANCER VACCINE

WO - 18.07.2024

Clasificación Internacional A61K 31/7105Nº de solicitud PCT/EP2024/050567Solicitante BAVARIAN NORDIC A/SInventor/a MEDINA ECHEVERZ, José

The present invention provides self-amplifying RNA (saRNA) for use in the treatment of tumors. The treatment is provided by using saRNA, in particular a VRP comprising a nucleic acid encoding a tumor-associated antigen (TAA) as well as IL-12. In some embodiments of the invention, methods comprise injecting these saRNAs intratumorally. In some embodiments, the saRNAs are injected intraperitoneally to stimulate an immune response to peritoneal tumors.

31.WO/2024/151767SOLID TUMOR THERAPY

WO - 18.07.2024

Clasificación Internacional C12N 15/74Nº de solicitud PCT/US2024/011090Solicitante HEALTH SCIENCE FUNDING, LLCInventor/a POHL, J., Mark

Colonizing the human bladder with a non -pathogenic bacterium (i.e., that is able to colonize the human bladder asymptomatically), and that optionally harbors a human gene for e.g., interferon-gamma or GM-CSF under the control of a eukaryotic expression cassette, reduces the risk of recurrence of low-risk, non-muscle invasive bladder cancer tumors - while eliminating the risk of serious adverse side effects common to BCG vaccine and intravesical chemotherapy.

32.20240238403INFLUENZA VIRUS REPLICATION FOR VACCINE DEVELOPMENT

US - 18.07.2024

Clasificación Internacional A61K 39/145Nº de solicitud 18511485Solicitante Wisconsin Alumni Research FoundationInventor/a Yoshihiro Kawaoka

As described herein, influenza A viruses were developed that replicate to high titers in cultured cells and/or embryonated chicken eggs. Mutations were identified that resulted in higher virus titers in cultured cells and/or

embryonated chicken eggs, allowing more efficient influenza virus growth and more cost-effective vaccine production. Replication-enhancing residues include, but are not limited to, PB2 439H, PB1 577R, PB1 640V, M1 35R, PB1 62E, and/or PB1 624I, or combinations thereof.

33.2022435931A LIVE ATTENUATED SARS-COV-2 AND A VACCINE MADE THEREOF

AU - 18.07.2024

Clasificación Internacional A61K 39/12Nº de solicitud 2022435931Solicitante FREIE UNIVERSITÄT BERLINInventor/a KUNEC, Dusan

34.WO/2024/149383ANTIBIOTIC-FREE MINIPLASMID, AND PREPARATION METHOD THEREFOR AND USE THEREOF

WO - 18.07.2024

Clasificación Internacional C12N 15/85Nº de solicitud PCT/CN2024/072052Solicitante MAXIRNA (SHANGHAI) PHARMACEUTICAL CO., LTD.Inventor/a ZHANG, Pingjing

Provided is an antibiotic-free miniplasmid comprising a nucleotide sequence encoding an antitoxin protein and a replicon. The antibiotic-free miniplasmid has a small backbone controlled within 1000 bp, redundant and useless fragments are reduced and the miniplasmid does not contain a resistance gene expression cassette, so that the utilization rate of a target sequence in the plasmid is increased, and the production burden is reduced. The miniplasmid has higher efficiency and safety in genetic engineering such as plasmid DNA-mediated non-viral vector delivery, gene therapy, vaccine immunization, virus production, antibody production, etc. Further provided is a system for producing a plasmid on the basis of a toxin-antitoxin system. The bacterial host cell contains a gene expression cassette capable of inducing expression of a toxin protein, and the antibiotic-free miniplasmid contains a gene expression cassette for expressing the antitoxin protein, which is used for efficiently maintaining replication and amplification of the antibiotic-free miniplasmid.

35.WO/2024/151501NOVEL IMIDAZOPYRIMIDINE COMPOUND AND USES THEREOF

WO - 18.07.2024

Clasificación Internacional A61K 31/519Nº de solicitud PCT/US2024/010632Solicitante THE CHILDREN'S MEDICAL CENTER CORPORATIONInventor/a DOWLING, David, J.

The present disclosure provides Compound (1), and pharmaceutically acceptable salts, solvates, hydrates, polymorphs, co-crystals, tautomers, stereoisomers, isotopically labeled derivatives, and compositions thereof. Compound (1) is used as an enhancer and/or modifier of an immune response (e.g., innate and/or adaptive immune response), and is useful in treating and/or preventing a disease, as an adjuvant in a vaccine for a disease, (e.g., a proliferative disease, an inflammatory disease, an autoimmune disease, an infectious disease, an allergy, a fibrotic disease, a cardiovascular disease, a graft rejection, graft- versus-host disease, chronic disease, or addiction), or as stand alone anti-infective or immune response modifying agents. Also provided in the present disclosure are vaccines, pharmaceutical compositions, kits, methods, and uses including or using Compound (1).

36.20240238342A VACCINE COMPOSITION FOR PLASMA CELL DISORDERS INCLUDING MULTIPLE MYELOMA AND METHODS TO INDUCE IMMUNITY USING SAME

US - 18.07.2024

Clasificación Internacional A61K 35/17Nº de solicitud 18574219Solicitante MERIDIAN THERAPEUTICS, INC.Inventor/a Kimberly A. Noonan

A vaccine composition is described that is composed of 3 cells lines, the U266, H929, and K562. Methods are described for using the vaccine composition in methods of immunizing against plasma cell disorders, including multiple myeloma and related disorders.

37.WO/2024/151577GLYCOPROTEIN D VARIANTS AS VACCINE ADJUVANTS

WO - 18.07.2024

Clasificación Internacional A61K 39/12Nº de solicitud PCT/US2024/010802Solicitante VIRION THERAPEUTICS, LLCInventor/a ERTL, Hildegund CJ

Disclosed herein are compositions for increasing the immunogenicity of a vaccine antigen and methods of inducing an immune response in a subject using the compositions described herein. Disclosed herein are compositions for a therapeutic vaccine to HPV- associated cancers and methods of inducing an immune response to HPV in a subject using the compositions described herein.

38.20240239910BI-SPECIFIC ACTIVATORS FOR TUMOR THERAPY

US - 18.07.2024

Clasificación Internacional C07K 16/28Nº de solicitud 18472418Solicitante MEMORIAL SLOAN KETTERING CANCER CENTERInventor/a Danny Nejad Khalil

The present invention provides various compositions and methods useful for the treatment of cancer, including, but not limited to, cancers that are resistant to immune checkpoint blockade and/or are resistant to treatment with PD-1, PD-L1 or CTLA-4 inhibitors. In some embodiments the present invention provides compositions comprising “bi-specific activators”—which are nanoparticles having both a CD40 agonist antibody and an antibody specific for a tumor-associated antigen on their surface. In some embodiments such nanoparticles comprise one or more vaccine adjuvants, for example inside the nanoparticles. The present invention also relates to the use of such compositions in the treatment of tumors.

39.20240238404INFLUENZA VIRUS NUCLEIC ACID LIPID PARTICLE VACCINE

US - 18.07.2024

Clasificación Internacional A61K 39/145Nº de solicitud 18561868Solicitante DAIICHI SANKYO COMPANY, LIMITEDInventor/a Takanori TOMOZAWA

Provided is a vaccine for preventing and/or treating an infection with an influenza virus. The vaccine comprises lipid particles containing a nucleic acid capable of expressing a haemagglutinin (HA) protein of the influenza virus, wherein a lipid is a cationic lipid having general formula (Ia), or a pharmaceutically acceptable salt thereof.

[In the formula, R^1, R^2, p, L^1 and L^2 are as defined in the specification.]

40.202402384 12PANCORONAVIRUS VACCINES

US - 18.07.2024

Clasificación Internacional A61K 39/215Nº de solicitud 18622497Solicitante Gritstone bio, Inc.Inventor/a Leonid Gitlin

Disclosed herein are vaccine compositions that include Pancorona receptor binding domain (RBD) encoding cassettes and/or MHC epitope-encoding cassettes. Also disclosed are nucleotides, cells, and methods associated with the compositions including their use as vaccines.

41.20240238369CONFORMATIONALLY SPECIFIC VIRAL IMMUNOGENS

US - 18.07.2024

Clasificación Internacional A61K 38/16Nº de solicitud 18455787Solicitante CALDER BIOSCIENCES INC.Inventor/a Christopher Patrick Marshall

The present invention provides methods of making engineered viral proteins and protein complexes that are useful as vaccine immunogens, engineered viral proteins and protein complexes made using such methods, and pharmaceutical compositions comprising such engineered viral proteins and protein complexes. Such engineered viral proteins and protein complexes may comprise one or more cross-links that stabilize the conformation of an antibody epitope, such as a quaternary neutralizing antibody, and may exhibit an enhanced ability to elicit a protective immune response when administered to a subject as a component of a vaccine.

42.20240238411ADJUVANTED INACTIVATED RECOMBINANT RABIES VIRUS VECTORED CORONAVIRUS VACCINE FORMULATIONS

US - 18.07.2024

Clasificación Internacional A61K 39/215Nº de solicitud 18565210Solicitante BHARAT BIOTECH INTERNATIONAL LIMITEDInventor/a Krishna Mohan VADREVU

The invention discloses an adjuvanted inactivated recombinant rabies virus vectored coronavirus vaccine formulation comprising SEPIVAC SWE or MemVax as adjuvant/s. The invention provides vaccine compositions, formulation 1 comprising combination of inactivated recombinant rabies virus vectored antigen and SEPIVAC SWE as an adjuvant and formulation 2 comprising combination of inactivated recombinant rabies virus vectored antigen and MemVax as an adjuvant. The said adjuvanted inactivated recombinant rabies virus vectored (rDNA-CoroRab) vaccine formulation prepared using SEPIVAC SWE or MemVax induces robust humoral, and cell mediated responses against SARS-CoV-2 compared to antigen alone and provides long term immunity.

43.WO/2024/149989PHAGE VECTOR

WO - 18.07.2024

Clasificación Internacional C12N 15/86Nº de solicitud PCT/GB2024/050043Solicitante IMPERIAL COLLEGE INNOVATIONS LIMITEDInventor/a HAJITOU, Amin

The invention relates to phage vectors, and to novel phage vectors comprising transgenes, in particular conventional mammalian transgene cassettes. The invention extends to the use of such phage vectors as a research tool, and for the delivery of transgenes in a variety of gene therapy applications, DNA and/or peptide vaccine delivery and imaging techniques.

44.WO/2024/149165TRIPLE MRNA VACCINE FOR PREVENTING FELINE RHINOTRACHEITIS, FELINE CALICIVIRUS DISEASES, AND FELINE PANLEUKOPENIA, AND PREPARATION METHOD THEREFOR

WO - 18.07.2024

Clasificación Internacional A61K 39/295Nº de solicitud PCT/CN2024/070795Solicitante ZHEJIANG UNIVERSITYInventor/a TANG, Jianbin

A triple mRNA vaccine for feline rhinotracheitis, feline calicivirus diseases, and feline panleukopenia, and a preparation method therefor. The triple mRNA vaccine is prepared by mixing mRNA expressing a feline herpesvirus gB protein, mRNA expressing a feline herpesvirus gD protein, mRNA expressing a feline calicivirus VP1 protein, and mRNA expressing a feline parvovirus VP2 protein in combination with a liposome encapsulating solution, and is used for preventative immunity against feline rhinotracheitis, feline calicivirus disease, and feline panleukopenia. The prepared triple mRNA vaccine can effectively activate a specific antibody, simplifies an inoculation procedure, and can achieve the purpose of preventing and controlling feline rhinotracheitis, feline calicivirus disease, and feline panleukopenia at the same time by one immunization.

45.WO/2024/148700AKABANE DISEASE VIRUS STRAIN AND USE THEREOF

WO - 18.07.2024

Clasificación Internacional C12N 7/00Nº de solicitud PCT/CN2023/088654Solicitante JINYUBAOLING BIO-PHARMACEUTICAL CO., LTDInventor/a ZHANG, Yanting

Provided are an Akabane disease virus strain and a use thereof. The Akabane disease virus strain is Akabane disease virus AKAV/JL/2022, and the accession number thereof is CGMCC No. 45375. The Akabane disease virus strain has excellent passage stability, high pathogenicity and excellent immunogenicity, can induce a body to generate high-titer neutralizing antibodies, can target epidemic Akabane disease after being prepared into a vaccine, and can be used in the control and treatment of Akabane disease in a pasturing region.

46.20240241109METHODS TO IDENTIFY MUTATION SPECIFIC B CELLS AND RESTORE THERAPEUTIC ANTIBODY EFFICACY AGAINST VIRAL VARIANTS

US - 18.07.2024

Clasificación Internacional G01N 33/50Nº de solicitud 18405350Solicitante National Jewish HealthInventor/a Haolin Liu

Disclosed herein are methods of restoring therapeutic antibody efficacy against a viral variant, of identifying wild-type specific memory B cells, cross-reactive memory B cells and mutation specific memory B cells in a subject following viral vaccination, and of monitoring a subject's memory B cell response against a vaccine antigen and/or a viral variant thereof.

47.20240238417METHODS OF PRODUCING TUMOR VACCINES AND USES THEREOF

US - 18.07.2024

Clasificación Internacional A61K 39/00Nº de solicitud 18563241Solicitante BEYOND AIR, INC.Inventor/a Amir AVNIEL

Methods of producing tumor vaccine and uses thereof are provided. Accordingly there is provided a method of producing a tumor vaccine, the method comprising ex-vivo exposing a tumor sample to gaseous nitric oxide

(gNO); suspending said tumor sample in a medium or buffer subsequent to said exposing, so as obtain tumor cells in suspension; and titrating a pH of said suspension to 6-8. Also provided is provided a method of producing a tumor vaccine, the method comprising ex-vivo exposing a tumor sample to gaseous nitric oxide (gNO); and culturing said tumor sample in a medium comprising antibiotic at a concentration of at least 2 fold higher than the gold standard concentration for culturing primary cells of the same type as said tumor sample. Also provided are vaccines obtainable by the method and uses thereof.

48.20240238534SMALLPOX VACCINATION DEVICE

US - 18.07.2024

Clasificación Internacional A61M 5/32Nº de solicitud 18155963Solicitante Retractable Technologies, Inc.Inventor/a Thomas J. Shaw

Various embodiments of a safe, inexpensive and disposable medical device useful for administering vaccinations are generally characterized by a needle having a bifurcated needle tip with a solid core that is attached in fixed relation to a needle holder, dipped in or coated with a vaccine or other similar medicament, and reciprocated multiple times with or without a tubular barrel and a compression spring to effectuate sufficient intradermal penetration to transfer a medically effective dose to an identified skin area of a recipient. An active or passive safety feature operable to guard the bifurcated needle tip against accidental contact with another person or object is also disclosed.

49.WO/2024/151612COMPOSITIONS FOR INDUCING IMMUNE RESPONSES

WO - 18.07.2024

Clasificación Internacional A61K 39/04Nº de solicitud PCT/US2024/010848Solicitante DERMATA THERAPEUTICS, INC.Inventor/a PROEHL, Gerald, Thomas

The present disclosure is drawn to compositions, methods, and kits for inducing immune responses in a subject in need thereof. In some embodiments, the disclosure is drawn to a pharmaceutical agent for inducing an immune response in a subject, wherein the agent comprises a first composition comprising Spongilla; and a second composition comprising one or more biological macromolecules. In some embodiments, the second composition comprises a vaccine agent to treat or prevent infectious disease. In some embodiments, the second composition comprises a vaccine agent to treat or prevent cancer.

50.2024204598MESENCHYMAL STEM CELLS AS VACCINE ADJUVANTS AND METHODS FOR USING THE SAME

AU - 18.07.2024

Clasificación Internacional A61K 35/28Nº de solicitud 2024204598Solicitante 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.

51.2023258397HEAT-RESISTANT PROTECTIVE AGENT FOR LIVE VACCINE, AND PREPARATION METHOD AND APPLICATION THEREOF

AU - 18.07.2024

Clasificación Internacional A61K 47/36Nº de solicitud 2023258397Solicitante JINYUBAOLING BIO-PHARMACEUTICAL CO., LTDInventor/a CHEN, Jian

Abstract KHP221124604.2 The present invention relates to the technical field of biological medicine, and specifically discloses a heat-resistant protective agent for a live vaccine, and a preparation -ethod and application thereof. The protective agent for the live vaccine in the present ivention comprises: inulin, gelatin, glycine, polyvinyl pyrrolidone, bovine serum albumin, enzyme hydrolysed casein, D-sorbitol, water-soluble phospholipid, pine pollen and)copherol, wherein the mass ratio of the pine pollen and the tocopherol is (1-2): 1. The rotective agent provided by the present invention has simple and effective composition, and afe and easily available raw materials. The preparation method is convenient, can be used Dr preparing the mycoplasma bovis live vaccine, can effectively reduce the loss of the viable acterial rate of each mycoplasma in the freeze-drying process, can prolong the storage eriod, and can induce the body to produce immune response with long duration and high fficiency.

52.4398935BIOLOGISCH HERGESTELLTE NUKLEINSÄURE ZUR IMPFSTOFFHERSTELLUNG

EP - 17.07.2024

Clasificación Internacional A61K 39/12Nº de solicitud 22783448Solicitante UNIV BASEL VIZEREKTORAT FORSCHUNGInventor/a KIPFER ENJA TATJANA

The invention relates to a biologically produced nucleic acid sequence comprising two or three primary nucleic acid sequence parts of SARS-CoV-2 and not more than three secondary nucleic acid sequence parts, wherein a secondary nucleic acid sequence part encodes an amino acid sequence having the function of a SARS-CoV-2 amino acid sequence encoded by ORF3a, ORF6, ORF7a or ORF8. The invention further relates to a host cell or a kit for producing the nucleic acid of the invention, a vector encoding the nucleic acid of the invention and products that can be obtained by the expression of the nucleic acid of the invention such as virus envelopes. The invention further relates a pharmaceutical composition comprising the nucleic acid of the invention or products derived thereof, preferably for use in the prevention of SARS-CoV-2.

53.4399219CORONAVIRUS-FUSIONSPROTEIN

EP - 17.07.2024

Clasificación Internacional C07K 14/005Nº de solicitud 22776928Solicitante UNIV TOURSInventor/a AUBREY NICOLAS

The present invention relates to a fusion protein comprising fragments of the spike (S) protein and of the nucleoprotein (N) of a coronavirus. The present invention further relates to a vaccine, a composition, a pharmaceutical composition, or a diagnostic kit comprising the fusion protein, to a method for diagnosing an infection by a coronavirus and to a method for preventing or treating a coronavirus infection based on the use of the fusion protein.

54.4398884UNIVERSELLER INFLUENZAIMPFSTOFF UND VERFAHREN ZUR VERWENDUNG

EP - 17.07.2024

Clasificación Internacional A61K 9/127Nº de solicitud 22868255Solicitante UNIV PENNSYLVANIAInventor/a HENSLEY SCOTT

Provided is a twenty-hemagglutinin antigen (HA) universal influenza vaccine comprising HA antigens from each known influenza A and influenza B lineage and methods of use thereof to treat or prevent influenza.

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