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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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Mercado de vacunas antineumocócicas: tendencias de crecimiento y pronósticos

Las vacunas antineumocócicas se aplican para proteger contra las infecciones de la bacteria *Streptococcus pneumoniae*, también conocida como neumococo. Solemos asociar el neumococo con la neumonía, sin embargo, esta bacteria también puede causar infecciones en otras áreas del cuerpo, que incluyen:

⇒ el torrente sanguíneo (afección médica llamada bacteriemia);

⇒ la membrana alrededor del cerebro y la médula espinal (meningitis);

⇒ la otitis media u oído medio (infección de oído).

Existen dos tipos de vacunas antineumocócicas: las conjugadas y las polisacáridas, que proporcionan protección contra la mayoría de los serotipos conocidos de *S. pneumoniae*. Generalmente, las conjugadas se administran a bebés y niños. De hecho, la OMS recomienda la inclusión de esta vacuna, en los programas de inmunización infantil en todo el mundo, para niños de hasta 6 semanas de edad. Por su parte, las polisacáridas se recomiendan para adultos de 65 años o más.

La elevada carga de morbilidad impulsa la expansión del mercado. Las enfermedades neumocócicas, como la neumonía, la meningitis y la septicemia, tienen un efecto negativo considerable en la salud pública, provocando morbilidad y muerte, especialmente en grupos susceptibles, incluidos los niños pequeños y los ancianos. La vacunación neumocócica tiene una gran demanda como estrategia preventiva eficaz debido a la elevada carga de morbilidad. Por ejemplo, según datos de UNICEF, cada año mueren más niños que cualquier otra enfermedad infecciosa a causa de la neumonía, matando a unos 700.000 niños menores de cinco años, o más de 2.000 personas cada día. Se incluyen más de 200.000 bebés. Casi todas estas muertes podrían evitarse. La neumonía afecta a más de 1.400 niños en todo el mundo por cada 100.000, cada año. Es por ello que las vacunas antineumocócicas conjugadas impulsan aproximadamente el 91 % de la demanda mundial de vacunas neumocócicas; la mayor parte de la demanda proviene de programas de vacunación infantil y una demanda más limitada de PCV surge del uso en adultos, principalmente en 12 países de ingresos altos. El 9 % restante de la demanda es para las vacunas antineumocócicas polisacáridas.

La creciente conciencia de este problema ofrece una oportunidad atractiva para el incremento de este mercado. Con el objetivo de abordar la mortalidad relacionada con la neumonía, la OMS ha creado un grupo de trabajo y ha adoptado varias medidas coordinadas adicionales con UNICEF. "Acción Global contra la Neumonía y la Diarrea" es el nombre del programa. El plan también aborda las tres áreas cruciales de PROTEGER, PREVENIR y TRATAR. En el marco del programa, la OMS exige que los adultos y niños vulnerables reciban vacunas neumocócicas. La designación del 12 de noviembre como Día Mundial de la Neumonía también promueve la conciencia y la estabilidad lo que tributa al crecimiento de la industria de vacunas neumocócicas y, por ende, su mercado.

A partir de la revisión de diversos informes de pronósticos, se ha podido constatar que, debido a la alta demanda de esas vacunas, su mercado global muestra una tendencia hacia el crecimiento.

En un informe prospectivo de la industria de vacunas neumocócicas realizado en 2022 para el periodo 2023-2030, se estimó que el tamaño del mercado mundial de este tipo de vacunas, valía alrededor de 5.400 millones de dólares en 2022 y se previó que creciera hasta alrededor de 7.500 millones de dólares en 2030 con una tasa de crecimiento anual compuesta (CAGR) de aproximadamente el 4,2% para el periodo analizado.

Según este reporte, se espera que el segmento de vacunas conjugadas neumocócicas capture la mayor cuota de mercado, así como que la región de América del Norte lo domine durante el período de pronóstico, debido a factores como la existencia de grandes empresas, un aumento previsto de la incidencia de neumonía en la región y una mayor inversión en el desarrollo de vacunas neumocócicas que respaldan la expansión del mercado.

Sin embargo, se espera que Asia-Pacífico crezca al CAGR más alto durante el período previsto. El crecimiento del mercado en la región se atribuye a las crecientes iniciativas gubernamentales. Varios países de Asia Pacífico han adoptado programas nacionales de inmunización que incluyen la vacunación neumocócica. Estos programas suelen contar con el apoyo de organizaciones internacionales y tienen como objetivo aumentar las tasas de cobertura de vacunación, especialmente entre los lactantes. La prevalencia de enfermedades neumocócicas en niños ha disminuido significativamente con la introducción de la vacuna neumocócica conjugada (PCV). Por lo tanto, se espera que esto impulse el crecimiento del mercado en la región.

También consideran que los principales actores que dominan el mercado de vacunas neumocócicas son los siguientes:

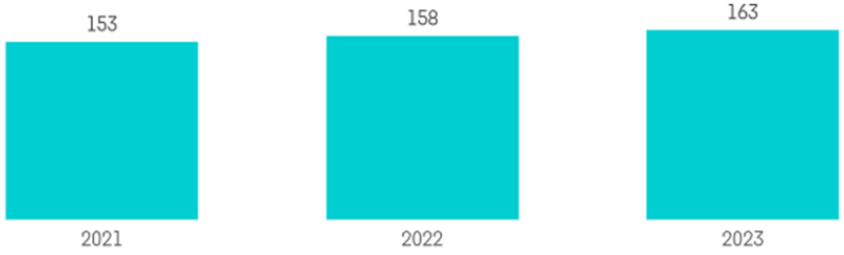
⇒ Yuxi Walvax Biotechnology Co., Ltd.
⇒ SK Bioscience
⇒ Panacea Biotec
⇒ Shenzhen KANGTAI Food Co., ltd. Biological E. Limited
⇒ (Beijing Minhai Biotechnology Corporation Limited)
⇒ Serum Institute of India Pvt. Ltd.
⇒ Merck & Co.
⇒ Pfizer Inc.
⇒ LG Chem
⇒ PnuVax Incorporated
⇒ GSK

De acuerdo a un reporte de Mordor Intelligence que cubre el periodo de 2024-2029, el tamaño del mercado de vacunas neumocócicas se estima en 8,80 mil millones de dólares en 2024 y se espera que alcance los 11,20 mil millones de dólares en 2029, creciendo a una tasa compuesta anual del 4,83% durante el período previsto.

Según estos analistas, la pandemia de COVID-19 tuvo un efecto dramático en todo el mundo, especialmente en los países en desarrollo y en los sistemas de salud de sus países, con impactos significativos no solo en los pacientes infectados con SARS-CoV-2 sino también en otros, lo que resultó en la interrupción de las actividades de investigación y desarrollo. El brote de COVID-19 mostró un impacto ligeramente positivo en el mercado de vacunas neumocócicas ya que también se pueden aplicar en el tratamiento

de COVID-19. Sin embargo, durante el cierre inicial, se detuvieron los programas de inmunización, lo que posteriormente aceleró el ritmo y afectó el crecimiento del mercado. Además, el mayor uso de la vacuna neumocócica en pacientes con COVID-19 ha impulsado el crecimiento del mercado. Por ejemplo, el artículo publicado en *Vaccine Journal* en diciembre de 2021, concluyó que las condiciones médicas subyacentes de los pacientes de cualquier edad con *S. pneumoniae* aumentan el riesgo de enfermedad grave; la COVID-19 se consideró un factor de riesgo primario para la neumonía neumocócica y la enfermedad neumocócica invasiva. También sugirió que la vacunación neumocócica durante la pandemia de COVID-19 era más crítica que nunca. Además, los estudios mostraron resultados positivos de la vacunación neumocócica en pacientes con COVID-19 y afecciones médicas subyacentes. Estos estudios impulsaron el crecimiento del mercado durante la pandemia. En los próximos años, se espera que el mercado sea testigo de un crecimiento significativo debido al aumento de las actividades de investigación y los estudios en desarrollo para las vacunas neumocócicas en todo el mundo.

Estimated Research Funding for Pneumonia (in USD Million), United States, 2021-2023



Source: National Institute of Health 2023

Se espera que factores como la creciente carga de casos de neumonía, el aumento de los programas de concienciación gubernamental sobre los esquemas de inmunización contra la neumonía y la introducción de nuevas vacunas neumocócicas impulsen el crecimiento del mercado durante el período previsto.

También coinciden con el informe antes mencionado que, se están llevando a cabo muchos programas de vacunas en todo el mundo, lo que está impactando positivamente el crecimiento del mercado, así como un incremento de las actividades estratégicas por parte de los actores clave y de las actividades de investigación e iniciativas gubernamentales.

Igual consideran que América del Norte mantenga una participación de mercado significativa teniendo en cuenta el aumento de la inversión en el desarrollo de vacunas neumocócicas y de los casos de neumonía en la región.

Para ellos, el mercado de vacunas neumocócicas está muy consolidado y consta de unos pocos actores.

Algunas empresas que actualmente dominan el mercado son:

GSK plc;

Pfizer Inc.;

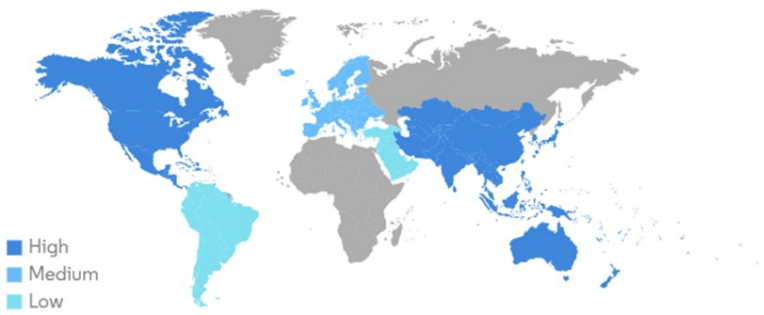
CSL Ltd.;

Merck KGaA;

Serum Institute of India Pvt. Ltd;

Sanofi.

Pneumococcal Vaccines Market - Growth Rate By Region



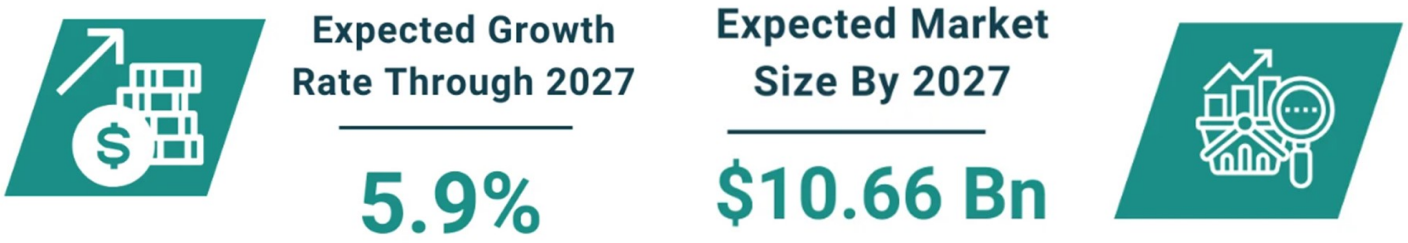
Source: Mordor Intelligence

En otro de los reportes revisados sobre el mercado de vacunas neumocócicas de IMARC Group, se plantea que el tamaño del mercado mundial de vacunas neumocócicas alcanzó los 9,4 mil millones de dólares en 2023. De cara al futuro, espera que el mercado alcance los 14,4 mil millones de dólares para 2032, exhibiendo una tasa de crecimiento (CAGR) del 4,7% durante 2024-2032.

También han identificado entre los principales factores que impulsan el crecimiento de este mercado, el creciente número de tasas de natalidad, la creciente población geriátrica, el creciente número de fumadores y personas que viven con enfermedades crónicas.

De acuerdo a un reporte global de vacunas neumocócicas publicado en enero del presente año por The Business Research Company, el mercado de estas vacunas debería crecer de 8.47 mil millones de dólares en 2023 a 9.04 mil millones en 2024 a una tasa de crecimiento anual compuesta (CAGR) de 6.7 %. Consideran a la preocupación por la salud pública, los esfuerzos por la vacunación previa, los avances en los cuidados de la salud y los cambios en las políticas de inmunización, como los factores que más han influido en el crecimiento de este mercado.

Según este reporte, se espera que el tamaño del mercado experimente un fuerte crecimiento en los próximos años. Crecerá a 11.36 mil millones de dólares en 2028 a una tasa de crecimiento anual compuesta (CAGR) del 5,9%. El crecimiento en el período previsto se puede atribuir a la evolución de las cepas de neumococo, la investigación y el desarrollo continuos, las prioridades de inmunización, el mayor acceso a las vacunas y el envejecimiento de la población. Las principales tendencias en el período incluyen el desarrollo de vacunas



multivalentes, la vacunación en grupos de riesgo, el aumento de la eficacia de las vacunas, y campañas de educación y sensibilización dirigidas a la inmunización infantil.

Y en cuanto a las principales empresas que operan en el mercado de vacunas neumocócicas destacan:

⇒ Pfizer Inc.;

⇒ Johnson & Johson;

⇒ Merck & Co. Inc.;

⇒ Novartis International AG;

⇒ Sanofi S.A.;

⇒ Astrazeneca PLC;

- ⇒ GlaxoSmithKline PLC;
- ⇒ Eli Lilly and Company;
- ⇒ Astellas Pharma Inc.;
- ⇒ CSL Limited;
- ⇒ Anhui Zhifei Longcom Biopharmaceutical Co. Ltd.;
- ⇒ Serum Institute of India Private Limited;
- ⇒ Emergent Biosolutions Inc.;
- ⇒ Walvax Biotechnology Co. Ltd.;
- ⇒ Biological E Limited.;
- ⇒ Hualan Biological Engineering Inc.;
- ⇒ Valneva SE;
- ⇒ Beinging Minhai Biotechnology Limited Company;
- ⇒ NPO Petrovax Pharm LLC;
- ⇒ Vaxcyte Inc.;
- ⇒ Panacea Biotec Ltd;
- ⇒ Inventprise LLC;
- ⇒ Tergene Biotech Private Limited;
- ⇒ PnuVax Incorporated;
- ⇒ SK Bioscience Co Ltd.

Estas empresas están innovando nuevos productos para aumentar su rentabilidad en el mercado. Por ejemplo, en julio de 2023, Merck & Co Inc., una empresa farmacéutica con sede en EE. UU., lanzó la vacuna V116, la cual está destinada a ocho serotipos distintos de *S. pneumoniae*.

Otras empresas se centran en el desarrollo de vacunas conjugadas, que mejoran la protección al atacar múltiples serotipos y están ganando prominencia. En el caso de Pfizer una empresa farmacéutica con sede en Estados Unidos, lanzó PREVNAR 20 una vacuna conjugada para la prevención de la enfermedad neumocócica invasiva. Esta vacuna puede ayudar a proteger a los niños contra los 20 serotipos de neumococo que están actualmente en circulación y que representan la mayor parte de la enfermedad neumocócica.

En agosto de 2022, GSK PLC, una empresa biofarmacéutica con sede en el Reino Unido, adquirió Affinivax, Inc., una empresa biofarmacéutica en fase clínica con sede en Cambridge. Con esta adquisición, GSK PLC tiene acceso al Sistema de Presentación de Antígenos Múltiples (MAPS), novedosa tecnología desarrollada por Affinivax que admite una valencia más alta que las tecnologías de conjugación convencionales, lo que permite una cobertura más amplia contra los serotipos neumocócicos predominantes y, además, crea potencialmente una inmunogenicidad más alta que las vacunas actuales. También puede acceder al candidato vacunal (AFX3772) que incluye 24 polisacáridos neumocócicos más dos proteínas neumocócicas conservadas.

Con relación al alcance regional, América del Norte fue la región más grande en el mercado de vacunas neumocócicas en 2023. Se espera que Asia-Pacífico sea la región de más rápido crecimiento en el período previsto.

De manera general, se puede concluir que se prevé un incremento del mercado de las vacunas neumocócicas en los próximos años a nivel mundial. También que las vacunas neumocócicas conjugadas tienen una mayor demanda para la población infantil. Entre los principales actores en este mercado destacan Pfizer, Merck, GSK, Serum Institute of India, SK Bioscience y Sanofi. América del Norte sobresale como la región de mayor tamaño del mercado, así como Asia-Pacífico como la de más rápido crecimiento.

Fuentes:

- Vacuna antineumocócica: Preguntas y respuestas. Disponible en https://www.breastcancer.org/es/organizar-la-vida/sistema-inmunitario/vacunas/antineumococica
- Global market study pneumococcal conjugate (PCV) and polysaccharide (PPV) vaccines. Disponible en https://cdn.who.int/media/docs/default-source/immunization/mi4a/pneumococcal_vaccine_market_study-june2020.pdf?sfvrsn=46d2f32f_6&download=true
- Pneumococcal Vaccine Market Trends Research Report [2023-2030]. Disponible en https://www.linkedin.com/pulse/pneumococcal-vaccine-market-trends-research-report-2023-2030-torase/
- Análisis de participación y tamaño del mercado de vacunas antineumocócicas tendencias de crecimiento y pronósticos (2024-2029). Disponible en https://www.mordorintelligence.com/es/industry-reports/pneumococcal-vaccines-market
- Pneumococcal Vaccine Market Report by Vaccine Type (Pneumococcal Conjugate Vaccine; Pneumococcal Polysaccharide Vaccine); Product Type (Prevnar 13; Synflorix; Pneumovax 23); Distribution Channel (Distribution Partner Companies; Non-Governmental Organizations (NGO); Government Authorities); End User (Pediatrics; Adults); and Region 2024-2032. Disponible en https://www.imarcgroup.com/pneumococcal-vaccine-market
- Pneumococcal Vaccine Global Market Report 2024. Market Size, Trends, And Global Forecast 2024-2023. Disponible en https://www.thebusinessresearchcompany.com/report/pneumococcal-vaccine-global-market-report
- GSK adquiere la compañía biofarmacéutica Affinivax. Disponible en https://www.consalud.es/salud35/internacional/gsk-adquiere-compania-biofarmaceutica-affinivax_115477_102.html

Noticias en la Web

Indispensable aumentar la cobertura de vacunación infantil en México

22 abr. Este año México se une nuevamente a la Semana de Vacunación en las Américas, en su 22da jornada, promovida por la Organización Panamericana de la Salud (OPS), con grandes retos para fortalecer los programas de atención a su población en esta materia y contribuir a erradicar enfermedades prevenibles mediante la vacunación.

Esta iniciativa, que convoca a más de 40 países de la región del 20 al 27 de abril con el lema *Actúa ahora para proteger tu futuro*, se centrará en la protección que ofrecen las vacunas para garantizar una vida activa. "Nuestros países tendrán como objetivo alcanzar más de 83,5 millones de personas con aproximadamente 156 millones de dosis", expuso en conferencia de prensa virtual desde la sede de la OPS en Washington, Estados Unidos, el Dr. Jarbas Barbosa da Silva, director del organismo.

El especialista enfatizó que desde hace una década la cobertura de vacunación en la región ha disminuido significativamente debido a factores como falsa percepción de que las enfermedades controladas ya no representan un riesgo, inconsistencia y falta de acceso a los programas de vacunación e insuficiente formación de profesionales de salud en estos temas, así como a desinformación y movimientos de vacilación a la vacunación.

El Dr. Barbosa puntualizó que en algunos casos han logrado recuperar las tasas de vacunación que existían antes de la pandemia por SARS-CoV-2, por ejemplo, con la primera dosis de vacuna antitetánica, antidiftérica y antitosferina, que ha alcanzado una cobertura de 91 % en la región. A pesar de esto, reconoció que "en 2016 aproximadamente 1,2 millones de niños menores de un año nunca habían recibido una dosis de vacuna, mientras que dos millones de menores de un año, es decir, 15 de cada 100, siguen estando solo parcialmente protegidos contra enfermedades prevenibles mediante vacunación en la región".

El Dr. Daniel Salas Peraza, gerente ejecutivo del Programa Especial de Inmunización Integral de la OPS, alertó sobre la amenaza que representa la transmisión de virus como el del sarampión, del cual hasta el momento se han reportado 188 casos importados en el continente americano y cuatro en México.

"El virus puede venir de cualquier parte del mundo y especialmente en territorios donde hay grupos de personas que no están adecuadamente vacunadas (clusters) puede provocar un brote. Lo importante es que si tenemos coberturas constantes mayores a 95% se va a crear un círculo de protección para toda la población, de tal forma que no trascienda a una transmisión de persona a persona no vacunada", explicó el Dr. Salas.

Fuente: Medscape. Disponible en https://acortar.link/sLb3bL

Tratamiento oral de Pfizer contra COVID-19 obtiene visto bueno de Cofepris

22 abr. La Comisión Federal para la Protección contra Riesgos Sanitarios (COFEPRIS), a través de su Comité de Moléculas Nuevas, emitió una opinión favorable para el tratamiento antiviral oral contra el SARS-CoV-2 desarrollado por la farmacéutica Pfizer.

La noticia fue celebrada por Pfizer México, quienes reconocieron la importancia de este visto bueno para continuar combatiendo a la enfermedad:

"La opinión emitida por el Comité de COFEPRIS es, definitivamente, un paso adelante en el cuidado y protección de la población dado que necesitamos todas las herramientas que tengamos a nuestro alcance para disminuir los riesgos del COVID-19", señaló Daniel Bustos, Director Médico de Pfizer.

Bustos resaltó que este tratamiento puede auxiliar, sobre todo, a personas mayores de 50 años y con factores de riesgo ante el COVID-19, quienes continúan siendo las más susceptibles a padecer la enfermedad.

El antiviral oral de Pfizer para el tratamiento del COVID-19 ya cuenta con aprobación para su uso de emergencia en México, lo que ha permitido su aplicación en casos seleccionados.

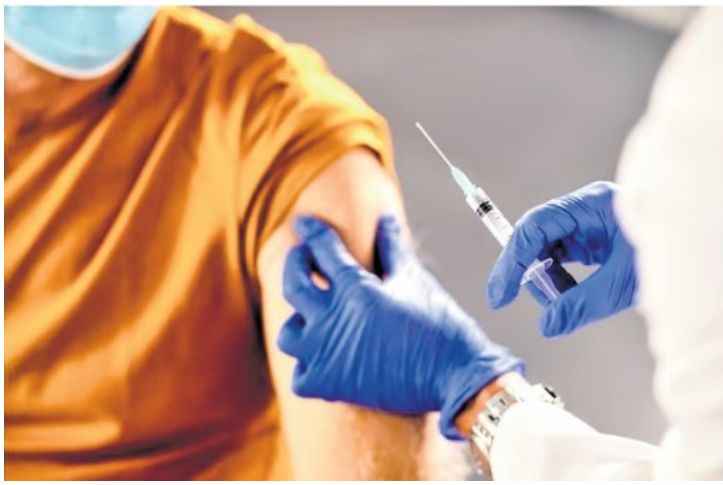
Ahora, con esta opinión favorable, se abre la puerta para su comercialización en todo el territorio nacional a través del sometimiento del registro sanitario.

Se espera que la determinación final por parte de COFEPRIS se anuncie en las próximas semanas, para que el tratamiento antiviral obtenga su registro sanitario.

A la fecha, México suma más de 7.7 millones de casos confirmados de COVID-19 desde que llegó el virus a nuestro país a finales de febrero de 2020. Además, el país suma 355 mil muertes por esta enfermedad, aunque no se han presentado decesos recientes.

Fuente: El Sol de México. Disponible en https://acortar.link/X0S7c0

Health experts stress the need for adult vaccination during World Immunisation Week



Apr 24. From polio to the coronavirus, vaccines play a pivotal role in protecting human health against a range of perilous diseases. As researchers strive to comprehend viruses and innovate new vaccines, it's imperative to emphasise the significance of immunisation. Hence, World Immunisation Week is observed annually from April 24 to 30. During this week, let's explore the significance of both traditional and emerging vaccines that are essential for everyone.

Dr Sandeep Reddy Koppula, HOD, Internal Medicine at Arete Hospitals, elucidates the essence of immunisation and vaccination: "Immunisation involves administering a vaccine to develop immunity against a specific disease. The objective of vaccines is to bolster the body's defenses against illnesses and infections. For instance, vaccines against smallpox stimulate the production of antibodies, enabling the body to recognise and combat illnesses effectively."

Dispelling the misconception that vaccination is solely for children, Dr Koppula emphasises its equal importance for adults: "Vaccination is as critical for adults as it is for children, yet many adults are not adequately vaccinated." The vaccination needs of adults vary based on factors such as age, lifestyle, underlying medical conditions, travel plans, and previous immunisations.

Some recommended vaccinations for adults:

COVID-19

The COVID-19 vaccine can prevent infection or severe illness from the coronavirus.

Influenza (Flu)

Annual flu vaccination is recommended for everyone aged 6 months or older by the CDC. Adults aged 50 and above should avoid the nasal spray vaccine due to potential complications.

Hepatitis B

The Hepatitis B vaccine is advised for all adults aged 19 to 59 and those aged 60 and above with risk factors for Hepatitis B. It's particularly important for diabetics due to the risk of infection from contaminated needles.

Human Papillomavirus (HPV)

The HPV vaccine is recommended for girls and boys aged 11 or 12. Teens and young adults up to age 26 should receive three doses. Gardasil 9 is FDA-approved for males and females aged 9 to 45 to prevent HPV-related cancers.

Pneumococcal Vaccine

Adults aged 65 and above should receive pneumococcal vaccines, with younger adults at increased risk also potentially needing vaccination against pneumococcal diseases.

Tetanus, Diphtheria, Pertussis (Tdap)

A single dose of Tdap is typically given at ages 11 or 12, with a booster every 10 years. Pregnant individuals should also receive one dose during each pregnancy.

Following vaccines were recommended by Dr Santosh Rajeev P, Consultant & Lead, Neonatology, Fernandez Hospital:

Shingles Vaccine

Essential for aging immune systems, the shingles vaccine guards against the varicella-zoster virus, averting nerve pain and rashes.

Meningococcal Vaccine

Critical for children, particularly those with HIV or compromised immune systems, the vaccine protects against meningitis and septicaemia caused by meningococcal bacteria strains. It's especially vital for individuals over 11 and families travelling to high-risk areas.

Consultation with healthcare professionals for timely vaccination is crucial for optimal adult protection.

Fuente: The New Indian Express. Disponible en https://acortar.link/6KHtv6

Científicos podrían haber descubierto una "vacuna universal"

24 abr. Científicos de la Universidad de California (Estados Unidos) han dado a conocer una nueva estrategia de vacuna basada en ARN que es eficaz contra cualquier cepa de un virus y segura incluso para bebés y personas con sistemas inmunitarios debilitados.

La vacuna, su funcionamiento y una demostración de su eficacia en ratones se describen en un artículo publicado en la revista científica *Proceedings of the National Academy of Sciences*, señala un comunicado de la Universidad de California en Riverside (UCR).

"Lo que quiero destacar de esta estrategia vacunal es que es amplia (...) aplicable a cualquier número de virus, (...) eficaz contra cualquier variante de un virus y segura para un amplio espectro de personas. Esta podría ser la vacuna universal que hemos estado buscando", dijo Rong Hai, virólogo de la UCR y autor del artículo, citado en el comunicado de prensa.

Predecir cepas de virus

Cada año, los investigadores intentan predecir las cuatro cepas del virus de la gripe con más probabilidades de prevalecer en la próxima temporada gripal, y la vacuna actualizada debe administrarse anualmente.

Lo mismo ha ocurrido con las vacunas contra el SARS-CoV-2, el coronavirus causante de COVID-19, que se han reformulado para dirigirse a subvariantes de las cepas dominantes en circulación.

Al dirigirse a una parte del genoma viral que es común a todas las cepas de un virus, la nueva estrategia eliminará la necesidad de crear vacunas diferentes.

"Tradicionalmente, las vacunas contienen una versión viva, muerta o modificada de un virus. El sistema inmunitario del organismo reconoce una proteína del virus y organiza una respuesta inmunitaria", produciendo "células T que atacan al virus y detienen su propagación" y "células B de memoria que entrenan al sistema inmunitario" para prevenir futuros ataques.

Dependiente de pequeñas moléculas de ARN

La vacuna presentada ahora "utiliza una versión viva modificada de un virus", pero "no depende" de esta respuesta inmunitaria –por lo que pueden tomarla bebés con un sistema inmunitario incipiente o personas inmunodeprimidas–, sino de pequeñas moléculas de ARN que silencian los genes causantes de la enfermedad.

"Un huésped –una persona, un ratón, quienquiera que esté infectado– producirá pequeños ARN de interferencia como respuesta inmunológica a la infección viral. Estos ARNi matan entonces al virus", explica Shouwei Ding, catedrático de Microbiología de la UCR y autor principal del artículo, citado en el comunicado de prensa.

Dado que los virus causan enfermedades porque producen proteínas que bloquean la respuesta de ARNi del huésped, crear un virus mutante que no pueda producir la proteína para suprimir el ARNi debilita al virus.

"Puede replicarse hasta cierto punto, pero luego pierde la batalla contra la respuesta ARNi del huésped", dijo Ding, y añadió: "Un virus debilitado de esta manera puede utilizarse como vacuna para reforzar nuestro sistema inmunitario ARNi".

Moléculas de ARNi en ratones mutantes

La nueva estrategia se probó en ratones mutantes, carentes de células T y B, y se comprobó que con una sola inyección de vacuna los ratones quedaban protegidos de una dosis letal del virus no modificado durante al menos 90 días (algunos estudios muestran que nueve días en ratones equivalen aproximadamente a un año humano). Incluso los ratones recién nacidos producen pequeñas moléculas de ARNi, por lo que la vacuna también los protegió.

La UC Riverside ya ha obtenido una patente estadounidense para esta tecnología de vacunas de ARNi y el siguiente paso de los investigadores es crear una vacuna contra la gripe para proteger a los niños.

"Si lo conseguimos, ya no dependerán de los anticuerpos de sus madres", afirma Ding.

Los científicos también afirman que la posibilidad de que un virus mute para evitar esta estrategia de vacunación es pequeña.

"Los virus pueden mutar en zonas que no son objetivo de las vacunas tradicionales. Sin embargo, en este caso, el objetivo de los miles de pequeños ARN es todo su genoma. No pueden escapar", afirma Hai.

Con una estrategia de "cortar y pegar", los investigadores también creen que pueden fabricar una vacuna única para cualquier tipo de virus.

"Hay varios patógenos humanos bien conocidos, como el dengue y el SARS. Todos ellos tienen funciones virales similares", por lo que la nueva estrategia "debería ser adecuada para estos virus", dijo Ding.

Fuente: DW. Disponible en https://acortar.link/rT6dTY

Ecuador recibe lotes de 250 mil vacunas contra la COVID-19

25 abr. Ecuador recibió un lote de 250 mil vacunas contra el virus Sars-CoV-2, causante de la COVID-19, en medio de un déficit del inyectable hoy en el país andino.

De acuerdo con el Ministerio de Salud Pública, estos fármacos fortalecerán la inmunización de los grupos más sensibles, como adultos mayores o pacientes con alguna patología de fondo.

El pasado mes de marzo, en declaraciones a la emisora Radio Pichincha, el epidemiólogo Marcelo Aguilar detalló que, aunque el número de casos ha bajado considerablemente en los últimos meses, es importante la vacunación en esta época invernal que ha provocado el aumento de enfermedades gastrointestinales y el dengue.

Eso, además de la COVID-19 puede ser mortal, advirtió.

De acuerdo con el especialista, el Ministerio de Salud destinó un presupuesto de ocho millones de dólares para la adquisición de los inyectables contra la COVID-19, a fin de que sean integradas al esquema regular.

Actualmente, dicho fármaco forma parte del esquema regular y su aplicación debería realizarse una vez al año.

Desde noviembre de 2023, Ecuador acogió las recomendaciones de la Organización Mundial de la Salud y sus ciudadanos reciben una dosis estacionaria de la vacuna contra dicha enfermedad.

Fuente: Prensa Latina. Disponible en https://acortar.link/7RswiW

Nigeria is pioneering a new vaccine to fight meningitis - why this matters

Abr 25. Nigeria recently became the first country to roll out a new vaccine (called Men5CV) recommended by the World Health Organization (WHO), which protects people against five strains of meningococcus bacteria.

The Conversation Africa asked Idris Mohammed, a professor of infectious diseases and immunology and former board chair of Nigeria's National Programme on Immunisation, to explain the new vaccine and its likely impact.

What is meningitis?

Meningitis is the inflammation of the tissues surrounding the brain and spinal cord, usually caused by infection. It can be fatal. Meningitis can be caused by several species of bacteria, viruses, fungi and parasites.

The highest global burden is seen with bacterial meningitis. Around one in six people who get this type of meningitis die. One in five have severe complications.

The main bacteria responsible for the disease are Neisseria meningitidis, Haemophilus influenzae and Streptococcus pneumoniae. The main symptoms are sudden high fever, backache, stiff neck, headaches, nausea, vomiting and intense dislike for sunlight (photophobia).

Patients with a severe infection can experience confusion, delirium and loss of consciousness. Meningitis can affect people of any age.

Meningitis bacteria are transmitted from person to person through droplets of respiratory or throat secretions from carriers. Kissing, sneezing or coughing on someone, or living in close quarters with an infected person, facilitates its spread. The average incubation period is four days but can range between two and 10 days.

Epidemics of meningitis are seen across the world, particularly in sub-Saharan Africa. The so-called "African meningitis belt" consists of 26 contiguous countries from Senegal and The Gambia in the west to Ethiopia in the east.

Outbreaks have also been reported in countries outside Africa like Canada, Belgium, France, Brazil and Denmark.

Why does Nigeria have a high burden of meningitis?

Nigeria's 19 northern states are within the African meningitis belt. A few southern states such as Osun, Ogun and Anambra are also affected. The major factors that determine meningitis infection include a hot and dry environment and dusty atmospheric conditions.

Between 1 October 2022 and 16 April 2023, Nigeria reported 1,686 suspected cases of meningitis, including 124 deaths, for a case fatality ratio of 7%. The highest proportion of reported cases is among children aged 1 to 15 years.

Factors that contribute to meningitis are all present in northern Nigeria. Low or no vaccination; presence of carriers; under-nutrition; overcrowding; scarce rainfall; low humidity; high temperatures. It's often over 35°C, sometimes as high as 45°C.

The general population can't afford nutritious foods that can boost the immune system. Add to these factors the level of education, poor hygienic conditions and overcrowding, and perfect conditions for an epidemic outbreak are complete.

Although the burden of epidemic meningitis is highest in the north of Nigeria, there is sporadic infection countrywide.

What's specific about the meningitis strains in Nigeria?

There are five strains of meningitis in Africa: serotypes A, C, W, X and Y.

Infectivity and clinical features (symptoms and signs) are the same with the strains. These features were established by serotype A, which was the first and dominant strain in the country.

The severity of the infection may be higher with the new variants, such as group C meningococcal, as seen in some cases in north-western Nigeria.

Serotypes W, X and Y may have similarly higher severity because the organisms are new to the country. Immunity to them is therefore not strong enough.

What makes this new 5-in-1 vaccine so special?

For more than a century, epidemics of meningococcal meningitis have ravaged the African meningitis belt. Some of the earliest prevention attempts involved the use of sulphur drugs and penicillin based antibiotics.

But these were not successful in preventing outbreaks. Mass use of sulphur-based drugs for prevention had to be abandoned because by the 1970s Neisseria meningitides had become resistant to these drugs.

The next obvious line was to consider vaccination with available polysaccharide vaccines. These use specific pieces of the disease-causing germ, like its protein, sugar, or the casing around it. They give a very strong immune response that targets key parts of the germ.

There was only one such vaccine available at the time. This was the A+C vaccine (Institut Meriuex), which had never been used routinely or on a large scale until an epidemic in Bauchi in 1978. The vaccine terminated that epidemic within a few weeks.

Since then, several researchers like John Robbins have advocated intensified mass vaccinations with the polysaccharide vaccines. But the WHO was reluctant, with fairly good reason.

Polysaccharide vaccines are poorly immunogenic, meaning not able to elicit protective immunity to the disease – particularly in young children, because they do not have immune memory. So the vaccines are not cost-effective or sufficiently protective.

The 1996 outbreak in northern Nigeria affecting over 120,000 people and causing 12,000 deaths – and described by the WHO as the largest in recorded history – changed the narrative. A joint WHO/PATH "Meningitis Vaccine Project" facilitated by the Bill and Melinda Gates Foundation produced the highly effective conjugate meningitis A vaccine (known as MenAfriVac). Over 260 million people in the African meningitis belt were vaccinated with it. This led to the virtual elimination of meningococcal A serotype.

But serotypes C, W, X and Y then emerged. Hence the critical importance of the 5-in-1 (also known as MenFive, or Men5CV). Proper and sustained vaccination with the 5-in-1 vaccine should put paid to epidemics of meningococcal meningitis in Africa.

What impact will the new vaccine have on meningitis control in Nigeria?

By containing the five most important serotypes causing meningitis in Nigeria, this vaccine is bound to have a far reaching positive impact on control of the disease. Among all the 26 African countries within the African meningitis belt, Nigeria is by far the most populous. Thus an epidemic of the disease affects many people.

Before the year 2000 hardly a case of serotype C, W, X, or Y had been reported in Nigeria. The success of group A conjugate MenAfriVac introduced in 2010 in Burkina Faso has changed the pattern and periodicity of epidemic meningitis, and the real challenge and menace of replacement serotypes underscores the critical importance of the 5-in-1 conjugate meningitis vaccine. Its impact will be huge.

Fuente: THE CONVERSATION. Disponible en https://acortar.link/CdHRU3

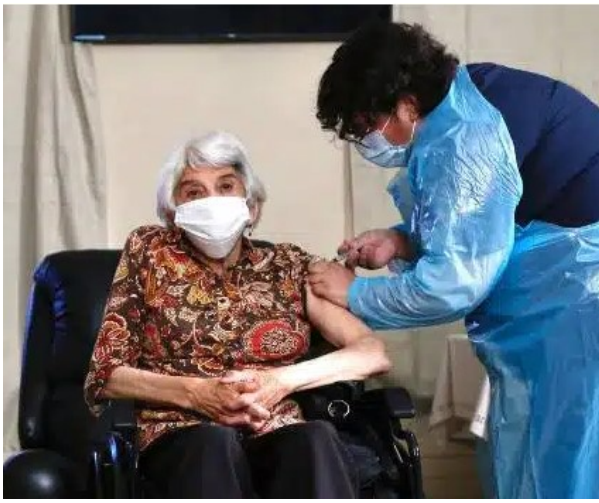
Virus sincicial: Investigarán nueva vacuna en adultos mayores

25 abr. Durante este 2024, se busca el desarrollo de una vacuna contra el Virus Respiratorio Sincicial (VRS) específicamente diseñada para adultos mayores de 60 años.

Este es un hito para la medicina preventiva, donde en la Universidad San Sebastián ha lanzado su Centro de Investigaciones Clínicas (CICUSS), ubicado dentro de su Facultad de Medicina y Ciencia.

Este centro emerge como un faro de innovación en el desarrollo de nuevas vacunas y medicamentos, destacándose por su

participación en la lucha contra enfermedades como la COVID-19, el neumococo, y la influenza.



Esta iniciativa, que se desarrolla en colaboración con el laboratorio Sanofi-Pasteur, incluirá a cerca de 200 participantes y se focaliza en una población especialmente vulnerable a este virus.

Aunque el VRS se conoce por su impacto en lactantes y niños pequeños, su efecto en adultos mayores y personas con enfermedades crónicas es igualmente grave.

El Dr. Carlos Pérez, coautor de un estudio publicado en *Pulmonary Therapy*, destaca la necesidad de comprender mejor el rol del VRS en adultos mayores y desarrollar estrategias de prevención específicas para esta población.

Un Avance Significativo con la Vacuna de ARNm

El CICUSS, a través de su estudio en colaboración con Sanofi-Pasteur, busca evaluar la seguridad y eficacia de una nueva vacuna que utiliza la tecnología de ARNm, similar a las vacunas de Pfizer y Moderna para la COVID-19.

Este enfoque representa un avance significativo en la protección contra el VRS en la población de adultos mayores, ofreciendo una solución potencialmente más efectiva que las vacunas actuales basadas en partículas virales.

Se seleccionó a Chile, junto con países como Honduras, México, Colombia, la República Dominicana, Argentina, y Australia, para formar parte de este estudio multinacional.

Esta elección subraya la reputación de Chile como un destino atractivo para la investigación clínica a nivel mundial, gracias a la eficiencia de sus científicos y la rapidez de sus procesos regulatorios.

Antes de que se aprueben las vacunas y estén disponibles en el mercado, deben demostrar su seguridad y eficacia. La participación de Chile en este estudio no solo es un privilegio, sino también una oportunidad para contribuir a la solución global contra las enfermedades respiratorias en la población de mayor edad.

Prevención del Virus Sincicial en Adultos Mayores

Mientras avanzan los estudios y la implementación de nuevas vacunas, sigue siendo crucial adoptar medidas generales de prevención contra el VRS y otros virus respiratorios.

El lavado frecuente de manos, el uso de mascarillas en situaciones de riesgo, y la consulta temprana ante síntomas graves son acciones esenciales para proteger a los más vulnerables.

La iniciativa del CICUSS y la Universidad San Sebastián de desarrollar una vacuna contra el VRS para adultos mayores es un reflejo del compromiso con la innovación en salud pública y la protección de las poblaciones vulnerables.

A medida que el mundo enfrenta desafíos sanitarios cada vez más complejos, proyectos como este subrayan la importancia de la investigación clínica y la colaboración internacional en la búsqueda de soluciones eficaces y seguras.

Fuente: Agricultura. Disponible en https://acortar.link/vv6R1J

CanSinoBIO CSO Shares Latest Results of the Company's Globally Innovative Pneumococcal Vaccine

Apr 26. On April 20, the 2024 National Vaccines and Health Conference organized by the Chinese Preventive Medicine Association (CPMA) and the Chinese Center for Disease Control and Prevention (China CDC) took place in the Xiong'an New Area of Hebei Province. Dr Tao Zhu, Chief Scientific Officer (CSO) of CanSino Biologics Inc. (CanSinoBIO), was invited to give a presentation at the conference.

Dr Zhu introduced the latest progress and breakthrough made in the development of pneumococcal vaccines both in China and abroad, focusing on sharing the latest results from the clinical trials of the company's globally innovative protein-based pneumococcal vaccine (PBPV). He said that the PBPV is unique in terms of its broader coverage, serotype-independent and simpler production process while triggering good immune memories, and is expected to further improve the protection against pneumococcal diseases. Positive results have been obtained from Phase I clinical trials of the PBPV.

The results of Phase Ia and Phase Ib clinical trials showed that PBPV has a good safety profile in adults aged over 18 years old (including the elderly over 50 years old). A single dose of vaccination was found to induce significant binding antibody and functional bactericidal antibody responses against cross-family/clade of *Streptococcus pneumoniae*, which further demonstrated the broad spectrum and potential public health value of this vaccine candidate.

When talking about the platforms for the development of innovative vaccines as well as the development of multi-valent vaccines and conjugate vaccines, Dr Zhu said that CanSinoBIO has built five such platforms and a highly competitive pipeline, including multiple vaccine candidates targeting 10-plus indications like meningitis, pneumonia, DPT, shingles, and tuberculosis.

Dr Zhu emphasized the company has developed a comprehensive strategy to combat pneumonia-related illness. He said that CanSinoBIO has laid a solid foundation for the subsequent development of those candidates and their launch in overseas markets with its unique vectors and animal component-free media (ACFM). The company is committed to developing pneumococcal vaccines, especially higher-valency serotype vaccines to improve the effectiveness of vaccines.

In the future, CanSinoBIO will continue to drive the innovation and development of vaccines with a global vision by enhancing collaboration with international partners, and contribute more to public health around the world.

About PBPV

PBPV is a globally innovative pneumococcal vaccine candidate. Unlike the 23-valent pneumococcal polysaccharide vaccine (PPV23) and the 13-valent pneumococcal conjugate vaccine (PCV13), PBPV is not serotype-dependent. It mainly adopts antigens that are based on the pneumococcal surface protein A or PspA, which is a highly-conserved protein expressed by virtually all pneumococci. Compared with currently marketed PPV23 and PCV13, PBPV has broader coverage (at least 98% coverage of pneumococcal strains), which can effectively prevent serotype replacement. Meanwhile, this product has a simpler production process than polysaccharide vaccines and conjugate vaccines, facilitating scale-up and quality control.

About CanSinoBIO

Incorporated in 2009, CanSino Biologics Inc. (SSE: 688185, HKEX: 06185) commits to providing high-quality, innovative, and affordable vaccines for global public health security. It possesses five integrated platform

technologies upon which the company has established a rich portfolio of pipeline products preventing more than 10 diseases, including the Aisa's first and only vaccine for Ebola virus disease Ad5-EBOV, the Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector) Convidecia® approved in over 10 countries and granted EUL by the WHO, the Asia's first Group ACYW135 Meningococcal Conjugate Vaccine (CRM197) Menhycia® and the Group A and Group C Meningococcal Conjugate Vaccine (CRM197) Menphecia® approved by NMPA in China. The world's first inhaled COVID-19 vaccine Convidecia Air® has been approved as a booster dose in China, Morocco, and Indonesia.

Fuente: JCN NEWSWIRE. Disponible en https://acortar.link/RXPF8h

Nuevas y prometedoras vacunas de 'circRNA' se exploran en preparación a la próxima pandemia

28 abr. El avance más revolucionario se produjo con su validación por primera vez durante la pandemia de COVID-19

La Coalición para la Innovación en la Preparación contra Epidemias (CEPI, por sus siglas en inglés), se está asociando con los principales científicos del Hospital Houston Methodist para el desarrollo de un prometedor tipo de tecnología de defensa contra enfermedades que podría allanar el camino para nuevas vacunas de "ARN circular" que sean más estables, duraderas y rentables que las actuales.

El equipo de vacunología del Houston Methodist tiene como objetivo avanzar en su plataforma 'circRNA', una innovación de alto impacto que ofrece un potencial significativo más allá de las vacunas de ARNm para defender a las poblaciones contra futuras amenazas epidémicas y pandémicas. El proyecto se centra en el diseño y la evaluación preclínica de candidatos prioritarios a vacunas 'circRNA', como, por ejemplo: virus del Chikungunya, virus del Ébola, virus de Lassa, coronavirus del síndrome respiratorio de Oriente Medio, virus Nipah, virus de la fiebre del Valle del Rift y SARS-CoV-2).

"Estamos entusiasmados de trabajar con el desarrollo de la tecnología de vacunas de ARN circular para proteger al mundo contra las amenazas virales emergentes", dijo H. Dirk Sostman, M.D., presidente y director ejecutivo del Instituto Académico del Hospital Houston Methodist.

La actual tecnología de vacunas de ARN, que utiliza la propia maquinaria del cuerpo para producir proteínas antigénicas en lugar de inyectar un antígeno del virus en el receptor, ha logrado avances significativos en los últimos años. El avance más revolucionario se produjo con su validación por primera vez durante la pandemia de COVID-19, cuando se utilizó para desarrollar nuevas vacunas en menos de un año que salvaron millones de vidas y redujeron el número de casos graves de COVID-19.

Si bien ahora se espera que las vacunas de ARNm desempeñen un papel crucial en la prevención y el control de futuros brotes y pandemias, también tienen algunas limitaciones, por ejemplo, en comparación con otros tipos de vacunas, actualmente son caras de fabricar y requieren una infraestructura de almacenamiento y transporte de cadena de frío costosa y compleja.

Por otro lado, su nombre indica, la tecnología de vacunas de ARN circular utiliza un ARN de circuito cerrado, lo que podría permitir que las vacunas candidatas sean más estables y más duraderas que las actuales de ARNm, cuya estructura química es lineal. La tecnología también podría ofrecer una mayor eficacia y en dosis más pequeñas.

"La plataforma de circRNA del Hospital Houston Methodist aún se encuentra en las primeras etapas de desarrollo, pero tiene el potencial de ser eficaz en regímenes de dosis única, reducir la cantidad de ARN necesaria por dosis y reducir el costo de las vacunas basadas en ARN, lo que podría contribuir en conjunto a la accesibilidad de las vacunas en amplios sectores de la población mundial", afirma el Dr. Dr. John Cooke, director del Centro de Terapias de ARN del Hospital Houston Methodist.

Las mejoras en este tipo de tecnologías de ARNm de respuesta rápida pueden contribuir a la "Misión de los 100 Días" (2), un objetivo respaldado por los líderes del G7 y el G20, para comprimir los plazos de desarrollo de vacunas a 100 días.

Facilitar el acceso equitativo a las vacunas y a la comunidad científica mundial

CEPI y el Hospital Houston Methodist, se comprometen a permitir el acceso equitativo a los resultados de este programa. Esto significa que las vacunas estarán disponibles primero para las poblaciones en riesgo cuando y donde se necesiten a un precio asequible. Los resultados, incluidos los datos generados como parte de este proyecto, se publicarán en acceso abierto en beneficio de toda la comunidad científica mundial.

Fuente: Formato7. Disponible en https://acortar.link/LqL9I5

21-Valent Pneumococcal Conjugate Vaccine for Adults Presents Positive Data

Apr 29. Merck today announced results from STRIDE-10, a Phase 3 trial evaluating V116, the company's investigational, adult-specific 21-valent pneumococcal conjugate vaccine.

Key results from the study include:

V116 elicited immune responses that were noninferior compared to PPSV23 for the 12 serotypes (or strains) common to both vaccines, as measured by serotype-specific opsonophagocytic activity (OPA) geometric mean titers (GMTs) at Day 30.

Immune responses elicited by V116 were superior for the nine serotypes included in V116 but not PPSV23, as measured by OPA GMT ratios at Day 30, and superior for eight of nine serotypes unique to V116 compared to PPSV23, as measured by the proportions of participants with ≥4-fold rise in immune responses.

V116 had a safety profile comparable to PPSV23.

"Invasive pneumococcal disease and pneumococcal pneumonia represent significant public health challenges, particularly among older adult populations and those with risk conditions," said Dr. Walter Orenstein, professor emeritus of medicine, epidemiology, global health and pediatrics at Emory University and member of Merck's Scientific Advisory Committee, in a press release on April 29, 2024.

"These positive results show that V116 has the potential to help prevent invasive pneumococcal disease among adult populations."

In addition to the clinical data on V116, Merck also presented findings that suggest V116 may help to reduce the health and economic burden associated with invasive pneumococcal disease and non-bacteremic pneumococcal pneumonia among adults in France, Sweden, Spain, and the Netherlands.

Fuente: Precisión Vaccinations. Disponible en https://acortar.link/GD8ieG

AstraZeneca admite que su vacuna contra la COVID-19 puede causar un efecto secundario raro y potencialmente letal

30 abr. La farmacéutica AstraZeneca admitió que su vacuna contra el coronavirus puede provocar un inusual efecto secundario relacionado con una irregularidad en la coagulación de la sangre, informó este domingo The Telegraph, citando un documento judicial.

Se trata del síndrome de trombosis con trombocitopenia (TTS, por sus siglas en ingles), que ocasiona que las personas presenten coágulos en los vasos sanguíneos del cerebro u otras partes del cuerpo, junto con un recuento bajo de plaquetas. Esta mortal afección también es conocida como 'trombocitopenia trombótica inmunitaria inducida por vacunas' (VITT, por sus siglas en inglés).

El TTS se observó en algunas personas que recibieron la vacuna de AstraZeneca, desarrollada en colaboración con la Universidad de Oxford para hacer frente la COVID-19. En el Reino Unido, la Unión Europea y los países escandinavos se reportaron extraños casos de trombosis del seno venoso cerebral, así como trombocitopenia, en pacientes a los que se les administró esa vacuna.

Reconociendo el extraño efecto secundario

En un documento judicial, que fue presentado el pasado mes de febrero ante el Tribunal Superior de Justicia de Londres, AstraZeneca reconoció que su vacuna "puede, en casos muy raros, causar TTS". Sin embargo, dijo que desconocía el mecanismo biológico que causa el síndrome.

De acuerdo con The Telegraph, el reconocimiento del efecto secundario se produce cuando la compañía británica enfrenta una serie de demandas por lesiones y muertes vinculadas con la aplicación de su vacuna. Hasta el momento se han presentado 51 libelos contra AstraZeneca, en los que las víctimas o sus familiares piden indemnizaciones de hasta 126 millones de dólares.

Jamie Scott, uno de los demandantes, argumentó que sufrió una lesión cerebral permanente como resultado de un coágulo en la sangre, luego de recibir la vacuna en abril de 2021. En mayo del año pasado, los abogados de Scott recibieron una carta de AstraZeneca en la que el laboratorio negaba que "el TTS sea causado por la vacuna a nivel genérico". A su vez, la parte acusadora aseveró que la vacuna de la farmacéutica británica es "defectuosa" y que su eficacia ha sido "muy exagerada".

Apoyo a las víctimas de la vacuna

AstraZeneca afirmó en un comunicado, citado por New York Post, que apoya a cualquier persona que haya resultado afectada por su vacuna, aunque defendió su eficacia. También alegó que las complicaciones secundarias causadas por la aplicación de la vacuna son inusuales. Actualmente, el medicamento en cuestión ya no se aplica en Reino Unido ni en Australia.

Se estima que las probabilidades de que una persona desarrolle TTS después de recibir la vacuna de AstraZeneca es de una entre 50.000. Por otro lado, la Universidad de Oxford argumentó que la vacuna salvó a cerca de seis millones de personas durante la pandemia.

Fuente: Cuba Sí. Disponible en https://acortar.link/064Ic3

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Patentes registradas en Patentscope

Estrategia de búqueda: *Vaccine in the title or abstract AND 20240422:20240430 as the publication date 48 records*

1.2623728Undirected mutated MRNA vaccine
GB - 24.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 202402396 Solicitante DENNIS R BURTON Inventor/a DENNIS R BURTON
We claim vaccines and a method of making vaccines targeted against diseases caused by viruses, including influenza virus and SARS CoV-2, against cancer, and diseases caused by bacteria, fungi, and other biomaterials/diseases that are combatted with an immune response. The mRNA vaccine is injected into the body whereupon the injected mRNA hijacks the translational machinery of the cells to produce an antigen such as a virus spike protein or surface protein (or part thereof) and stimulates an immune response. The mRNA in the vaccine is a mixture of mRNAs and where at least one or more of the RNAs are undirected mutant variants of the parent mRNA. The vaccine is a poly vaccine and provides protection against multiple variants. The vaccine may comprise mRNA species encoding several random undirected mutations directed against unknown variants.

2.20240131140HPV VACCINE MANUFACTURE
US - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 18276578 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a Babak BAYAT
Described are methods for the preparation of a HPV vaccine composition by, for example (i) adsorbing one or more HPV antigen(s) on a metallic salt and, then (ii) adding a non adsorbed glycolipid based TLR4 ligand to the mixture obtained in (i). Resulting HPV vaccine compositions and uses thereof are also described.

3.20240131146TETRAVALENT DENGUE INACTIVATED VACCINE
US - 25.04.2024
Clasificación Internacional A61K 39/145 Nº de solicitud 18330475 Solicitante ARMY MEDICAL UNIVERSITY Inventor/a Jintao Li
A tetravalent dengue inactivated vaccine is provided, including a DENV-1 inactivated antigen, a DENV-2 inactivated antigen, a DENV-3 inactivated antigen, and a DENV-4 inactivated antigen. The tetravalent dengue inactivated vaccine with a good immune effect is prepared by using four serotypes of dengue viruses as virus seeds. Furthermore, the tetravalent dengue inactivated vaccine is capable of being preserved at 4° C. for a long time, possesses lasting and effective immunogenicity, produces higher antibody titer in mice and non-human primates, has good challenge protection capability on suckling mice, has no reproductive toxicity in the mice, and has good safety.

4.20240131144FORMULATIONS OF DENGUE VIRUS VACCINE COMPOSITIONS

US - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 18530421 Solicitante Merck Sharp & Dohme LLC Inventor/a Michael S. Ryan
The present invention relates to formulations of dengue virus vaccine comprising at least one live, attenuated dengue virus or live, attenuated chimeric flavivirus, a buffer, a sugar, a cellulose derivative, a glycol or sugar alcohol, optionally an alkali or alkaline salt and an amino acid; and formulations of dengue virus vaccine comprising at least one live, attenuated dengue virus or live, attenuated chimeric flavivirus, a buffer, a sugar of at least 150 mg/ml, a carrier, and optionally an alkali or alkaline salt and an amino acid.

5.4357368REKOMBINANTER SARS-COV-2-RBD-TRIPOLYMERPROTEIN-IMPFSTOFF MIT BREITSPEKTRUM-KREUZNEUTRALISIERUNGSAKTIVITÄT, HERSTELLUNGSVERFAHREN DAFÜR UND ANWENDUNG DAVON
EP - 24.04.2024
Clasificación Internacional C07K 19/00 Nº de solicitud 21945722 Solicitante NAT VACCINE AND SERUM INSTITUTE NVSI Inventor/a LI QIMING
Provided is a recombinant RBD trimer protein capable of simultaneously generating cross neutralization activity aiming at multiple SARS-CoV-2 epidemic strains. The trimer protein is composed of subunits of three novel coronavirus S protein RBD regions, and the amino acid sequences of the three SARS-CoV-2 RBD regions are the same or at least one is different. When the amino acid sequences of the three SARS-CoV-2 RBD regions are the same, the amino acid sequences are the amino acid sequences shown as SEQ ID No.2 or SEQ ID No.3, or sequences having 95% or more of homology with the amino acid sequences shown as SEQ ID No.2 or SEQ ID No.3.

6.4356925DENGUE-IMPFSTOFFFORMULIERUNG
EP - 24.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 23204288 Solicitante TAKEDA VACCINES INC Inventor/a KOMMAREDDY SUSHMA
The present invention relates to a dengue vaccine formulation comprising a tetravalent dengue virus composition comprising a live attenuated dengue virus serotype 1, a live attenuated dengue virus serotype 2, a live attenuated dengue virus serotype 3, and a live attenuated dengue virus serotype 4, at least one non-reducing disaccharide, at least one poloxamer, urea, at least one amino acid having a positively charged side chain at neutral pH, tromethamine, and human serum albumin.

7.WO/2024/086605DENGUE VACCINE FORMULATION
WO - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2023/077131 Solicitante TAKEDA VACCINES, INC. Inventor/a KOMMAREDDY, Sushma
The present invention relates to a dengue vaccine formulation comprising a tetravalent dengue virus composition comprising a live attenuated dengue virus serotype 1, a live attenuated dengue virus serotype 2, a live attenuated dengue virus serotype 3, and a live attenuated dengue virus serotype 4, at least one non-reducing disaccharide, at least one poloxamer, urea, at least one amino acid having a positively charged side chain at neutral pH, tromethamine, and human serum albumin.

8.WO/2024/086599OLIGOMERIC ACRYLATE- AND METHACRYLATE-BASED VACCINE ADJUVANTS AND FORMULATIONS
WO - 25.04.2024
Clasificación Internacional A61K 39/39 Nº de solicitud PCT/US2023/077121 Solicitante ACCESS TO ADVANCED HEALTH INSTITUTE Inventor/a FOX, Christopher Bradford

Vaccine adjuvant formulations that include acrylate- and methacrylate-based oligomers generated by catalytic chain transfer polymerization (CCTP) using cobalt catalysts are disclosed herein. CCTP of acrylates and methacrylates with various pendant groups yields oligomeric reaction mixtures. The oligomeric reaction mixture may be generated via homo-polymerization of a single acrylate or methacrylate monomer via CCTP or may alternately be generated by copolymerization of two or more acrylate or methacrylate monomers via CCTP. Low molecular weight oligomer formulation synthesized by this technique are suitable for use as adjuvants in vaccine compositions.

9.20240131135VACCINE COMPOSITIONS AND METHODS FOR THE TREATMENT AND PREVENTION OF URINARY TRACT INFECTIONS
US - 25.04.2024
Clasificación Internacional A61K 39/108 Nº de solicitud 18277150 Solicitante Duke University Inventor/a Soman Abraham
Disclosed herein are vaccine compositions for the treatment and prevention of urinary tract infections (UT!s) and methods for delivery of the vaccine compositions. Moreover, the disclosure provides adjuvant compositions for vaccines to modulate cellular responses. such as an immune response.

10.WO/2024/082795PROTEIN AND VACCINE AGAINST INFECTIONS OF SARS-COV-2 OMICRON MUTANT STRAIN XBB AND SUBTYPE THEREOF
WO - 25.04.2024
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/CN2023/113170 Solicitante WESTVAC BIOPHARMA CO., LTD. Inventor/a WEI, Xiawei
The present invention relates to a protein and a vaccine against infections of SARS-CoV-2 Omicron mutant strain XBB and a subtype thereof, which belong to the field of medicines. In order to solve the problem of lack of effective prevention and treatment drugs against infections of the SARS-CoV-2 Omicron mutant strain XBB and the subtype thereof, the protein and the vaccine against the infections of SARS-CoV-2 Omicron mutant strain XBB and the subtype thereof are provided. The vaccine is designed on the basis of the full-length S protein of SARS-CoV-2 Omicron mutant strain XBB and sub-line XBB, the RBD sequence in the S protein, and an optimized sequence thereof. The vaccine can assist the host in resisting coronavirus infection, and in particular has a relatively good prevention and treatment effect with regard to cross infections caused by the SARS-CoV-2 Omicron mutant strain XBB and a subtype virus thereof.

11.WO/2024/084785COMPOSITION SUITABLE FOR USE AS RS VIRUS VACCINE
WO - 25.04.2024
Clasificación Internacional A61K 38/02 Nº de solicitud PCT/JP2023/029100 Solicitante THE RESEARCH FOUNDATION FOR MICROBIAL DISEASES OF OSAKA UNIVERSITY Inventor/a YOSHIOKA, Yasuo
The purpose of the present invention is to provide a composition having higher efficacy and safety and suitable for use as a RS virus vaccine. Provided is a composition containing G protein and a CpG oligodeoxynucleotide of a RS virus, in which the G protein does not have a modified sugar chain of a mammalian cell-expressed type.

12.20240131134PERIODONTITIS VACCINE AND RELATED COMPOSITIONS AND METHODS OF USE
US - 25.04.2024
Clasificación Internacional A61K 39/02 Nº de solicitud 18325563 Solicitante Vaxcyte, Inc. Inventor/a Jeffery FAIRMAN
An immunogenic composition, a periodontal vaccine formulation containing the immunogenic composition, and methods for treating or preventing periodontal disease are provided, where the methods involves administering an immunologically effective amount of the composition or vaccine formulation to a

subject. The immunogenic composition contains at least one polypeptide that comprises: an Mfa1 antigen sequence that is substantially homologous to an immunogenic amino acid sequence from an Mfa1 fimbrilin protein of a *Porphyromonas* bacterium; and an HA1 antigen sequence, an HA2 antigen sequence, or both an HA1 antigen sequence and an HA2 antigen sequence, wherein the HA1 antigen sequence is substantially homologous to an immunogenic amino acid sequence from an RgpA Gingipain hemagglutinin domain 1 contained within an RgpA Gingipain protein of a *Porphyromonas* bacterium, and the HA2 antigen sequence is substantially homologous to an immunogenic amino acid sequence from an RgpA Gingipain hemagglutinin domain 2 contained within an RgpA Gingipain protein of a *Porphyromonas* bacterium.

13.20240133818ACTIVATED-QUENCHED POLYSACCHARIDE AND IMPROVED METHODS FOR QUANTIFICATION OF POLYSACCHARIDE IN A VACCINE COMPOSITION
US - 25.04.2024
Clasificación Internacional G01N 21/82 Nº de solicitud 18277834 Solicitante Biological E Limited Inventor/a Rajendar BURKI
The present invention provides a novel reference standard, comprising of activated-quenched polysaccharide, for quantifying polysaccharide content in a vaccine composition using nephelometry. The invention also provides a method for preparing the activated-quenched polysaccharide, for use as a reference standard. Further, a nephelometry based method for quantifying the polysaccharides in a multivalent conjugate vaccine is also provided. The reference standard of the present invention, comprising of the activated-quenched polysaccharide, is stable and can be used for accurate quantification of polysaccharides through nephelometry.

14.20240131138CHLAMYDIA VACCINE BASED ON TARGETING MOMP VS4 ANTIGEN TO ANTIGEN PRESENTING CELLS
US - 25.04.2024
Clasificación Internacional A61K 39/118 Nº de solicitud 18269113 Solicitante Institut National de la Santé et de la Recherche Médicale (INSERM) Inventor/a Yves LEVY
Chlamydiae are intracellular bacterial pathogens responsible for a variety of infections. The inventors produced an antibody that is directed against a surface antigen (i.e., CD40) of an antigen presenting cell (i.e., dendritic cell) wherein the heavy chain and/or light chain is conjugated to the MOMP VS4 domain of *Chlamydia trachomatis* for its use as vaccine.

15.4355919SYSTEM UND VERFAHREN ZUR ÜBERWACHUNG DER WIRKUNG EINES IMPFSTOFFES AUF HERPESVIRUSBASIS IN EINER TIERPOPULATION
EP - 24.04.2024
Clasificación Internacional C12Q 1/70 Nº de solicitud 22825811 Solicitante INTERVET INT BV Inventor/a WANG YUN-TING
The presently disclosed subject matter aims to a system and method directed to monitor the effect of a herpesvirus-based vaccine in an animal population. The system and method include a processing circuitry configured to: obtain one or more tissue samples of one or more respective animals of the animal population; sequence each of the tissue samples; calculate a score associated with the animal population based on the sequence of the tissue samples; compare the score to a benchmark determined from a dataset containing data associated with the effect of the herpesvirus-based vaccine in a plurality of animal populations; and, execute an action in response to the comparison to the benchmark.

16.WO/2024/085165CULTURE METHOD FOR FISH CELLS AND CELL CULTURE MEDIUM USED THEREIN, AND ORAL VACCINE FOR FISH
WO - 25.04.2024

Clasificación Internacional C12N 5/071 Nº de solicitud PCT/JP2023/037611 Solicitante BIO SCIENCE CO., LTD. Inventor/a OKUTANI Asuka
The present disclosure provides a cell culture medium for culturing fish cells, a culture method for fish cells, and an oral vaccine for fish. In the present disclosure, the cell culture medium for culturing fish cells preferably contains a serum obtained from an adult fish.

17.4355375MECHANISMEN UND PRÄDIKTOREN DER ADJUVANTIZITÄT UND ANTIKÖRPERHALTBARKEIT
EP - 24.04.2024
Clasificación Internacional A61K 49/00 Nº de solicitud 22825668 Solicitante UNIV LELAND STANFORD JUNIOR Inventor/a WU SHENG-YANG
Methods are provided herein for vaccine development, characterization and validation. Using the response signatures disclosed herein, methods are provided for optimization, selection and benchmarking of vaccines, including adjuvants for vaccines. The methods include a prediction of response durability, e.g. the longevity of an antibody response, for a candidate vaccine or vaccine adjuvant; and assessment of similarity to a benchmark reference vaccine.

18.WO/2024/085723FERRITIN PROTEIN STRUCTURE DISPLAYING SARS-COV-2 S1-DERIVED PROTEIN AND ANTIBODY FC REGION PROTEIN SIMULTANEOUSLY ON SURFACE, AND USE THEREOF FOR VACCINE FOR CORONAVIRUS SARS-COV-2
WO - 25.04.2024
Clasificación Internacional C07K 14/005 Nº de solicitud PCT/KR2023/016390 Solicitante THE INDUSTRY & ACADEMIC COOPERATION IN CHUNGNAM NATIONAL UNIVERSITY (IAC) Inventor/a SHIN, Hyun-Jin
The present application relates to a protein structure and a use thereof for a vaccine for prevention or treatment of coronavirus SARS-CoV-2 infectious disease, the protein structure comprising: a first recombinant protein having a SARS-CoV-2 spike protein S1-derived protein and a ferritin heavy chain protein connected; and a second recombinant protein having an antibody Fc region protein and a ferritin light chain protein connected.

19.20240131137Composition for Oral or Nasal Delivery of Tetanus, Diphtheria, and Pertussis Vaccine alone or in combination using Neurotoxin Associated Proteins
US - 25.04.2024
Clasificación Internacional A61K 39/02 Nº de solicitud 18467682 Solicitante Prime Bio, Inc. Inventor/a Bal Ram Singh
The present invention describes a second-generation tetanus toxoid vaccine and a process for the preparation thereof, comprising the steps of: inducing an *E. Coli* culture OD 600=0.5 by adding 0.2 mM IPTG; growing the culture at 14-16° C. for 14 to 20 hours; suspending the culture in 25 mM phosphate buffer containing 200 mM sodium chloride; adding 1% of triton-X-100 to the phosphate buffer, and adding the buffer to the culture; sonicating the culture for a period of 3 minutes (at 5 sec on/off pulse) at 4° C. on cold beads; centrifuging the culture for 60 to 90 minutes; collecting and purifying a supernatant using Ni-NTA affinity column with an eluant; and combining the supernatant into a pool with contaminated bands and concentrating using Centriprep-30 centrifuge filters (30 kDa pores).

20.20240131136VACCINE
US - 25.04.2024
Clasificación Internacional A61K 39/09 Nº de solicitud 18386593 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a Elisabeth Marie Monique BERTAUD
The present invention is in the field of pneumococcal capsular saccharide conjugate vaccines. Specifically, the present invention relates to sized *Streptococcus pneumoniae* serotype 6A capsular

polysaccharides, in particular *Streptococcus pneumoniae* serotype 6A capsular polysaccharides having the average size (e.g. M_w) of the *Streptococcus pneumoniae* serotype 6A capsular polysaccharide is between 100-1000 kDa, suitably conjugated to a carrier protein.

21.WO/2024/083873VACCINE
WO - 25.04.2024
Clasificación Internacional A61K 39/09 Nº de solicitud PCT/EP2023/078896 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a MORIEL, Danilo Gomes
The present invention relates to compositions comprising at least one Group A Streptococcus antigen, an aluminium salt and (a) a TLR7 agonist, or (b) a benzonapthyridine compound. The present invention further relates to methods of making an immunogenic composition comprising at least one antigen, an aluminium salt and (a) a TLR7 agonist, and/or (b) a benzonapthyridine compound. The present invention also relates to vaccines comprising the compositions, and methods of using and uses of the compositions.

22.20240132578METHODS OF TREATING HIV-1 INFECTION UTILIZING BROADLY NEUTRALIZING HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 (HIV-1) GP120-SPECIFIC MONOCLONAL ANTIBODIES
US - 25.04.2024
Clasificación Internacional C07K 16/10 Nº de solicitud 18452002 Solicitante INTERNATIONAL AIDS VACCINE INITIATIVE, INC. Inventor/a Po-Ying Chan-Hui
The invention provides a method for obtaining a broadly neutralizing antibody (bNab), including screening memory B cell cultures from a donor PBMC sample for neutralization activity against a plurality of HIV-1 species, cloning a memory B cell that exhibits broad neutralization activity; and rescuing a monoclonal antibody from that memory B cell culture. The resultant monoclonal antibodies may be characterized by their ability to selectively bind epitopes from the Env proteins in native or monomeric form, as well as to inhibit infection of HIV-1 species from a plurality of clades. Compositions containing human monoclonal anti-HIV antibodies used for prophylaxis, diagnosis and treatment of HIV infection are provided. Methods for generating such antibodies by immunization using epitopes from conserved regions within the variable loops of gp120 are provided. Immunogens for generating anti-HIV1 bNAbs are also provided. Furthermore, methods for vaccination using suitable epitopes are provided.

23.WO/2024/086380RECOMBINANT PROTEIN VACCINES FORMULATED WITH ENANTIO-SPECIFIC CATIONIC LIPID R-DOTAP AND METHODS OF USE THEREOF
WO - 25.04.2024
Clasificación Internacional A61K 39/145 Nº de solicitud PCT/US2023/035741 Solicitante PDS BIOTECHNOLOGY CORPORATION Inventor/a CONN, Gregory
Provided herein are vaccine compositions including recombinant protein antigens derived from computationally optimized broadly reactive influenza antigen (COBRA) proteins and an immunomodulator, and methods of use thereof. The vaccine compositions include one or more COBRA proteins, and the immunomodulator is a cationic lipid. The cationic lipid includes R-DOTAP. The methods of use of the vaccine compositions includes methods of inducing a humoral immune response against influenza viruses, methods of inducing polyfunctional CD8+ and CD4+ effector T cells against influenza viruses, methods of inducing memory T cells against influenza viruses, methods of enhancing immunity against influenza viruses, and methods of inducing balanced Th1/Th2 immune response against influenza viruses in a subject.

24.WO/2024/082681TRUNCATED RESPIRATORY SYNCYTIAL VIRUS F PROTEIN AND USE THEREOF
WO - 25.04.2024

Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CN2023/102342 Solicitante XIAMEN UNIVERSITY Inventor/a ZHENG, Zizheng
Provided are a fusion protein, and a nucleic acid molecule comprising a nucleotide sequence encoding the fusion protein. The present invention also relates to a vaccine comprising the fusion protein or the nucleic acid molecule. Furthermore, the present invention also relates to a method for preventing and/or treating RSV infections or diseases and/or symptoms caused by RSV infections by means of using the fusion protein, the nucleic acid molecule and the vaccine.

25.20240131142FLAVIVIRUS VACCINE
US - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 18403883 Solicitante CureVac SE Inventor/a Patrick BAUMHOF
The present invention is directed to an artificial nucleic acid and to a polypeptide suitable for use in the treatment or prophylaxis of an infection with a flavivirus, in particular an infection with yellow fever virus or with dengue virus, or of a disorder related to such an infection. The present invention is also directed to a composition, preferably an immunogenic composition, comprising the artificial nucleic acid or the inventive polypeptide. In particular, the present invention concerns an immunogenic composition against a flavivirus, such as yellow fever virus or dengue virus. Further, the invention concerns a kit, particularly a kit of parts, comprising the artificial nucleic acid, polypeptide or (immunogenic) composition. The invention is further directed to a method of treating or preventing a disorder or a disease, first and second medical uses of the artificial nucleic acid, polypeptide, composition, in particular the first and second medical uses of the immunogenic composition according to the invention.

26.20240131060PATIENT SELECTION FOR TREATMENT WITH DENDRITIC CELL VACCINATION
US - 25.04.2024
Clasificación Internacional A61K 35/15 Nº de solicitud 18277041 Solicitante SCTbio a.s. Inventor/a Jitka PALICH FUCIKOVA
The invention relates to a dendritic cell (DC) vaccine for use in a method of treating cancer in a patient, wherein the patient is selected for treatment with said DC vaccine. The selection inter alia comprises determining in a tumor sample from the patient the amount of CD8+ T-cells and/or the tumor mutation burden (TMB) and comparing the determined amount to a predetermined threshold level. The selection allows identifying patients that particularly benefit from DC treatment.

27.20240131141VLP-BASED BIVALENT EBOLA VACCINES AND METHODS OF MAKING AND USING SAME
US - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 18392463 Solicitante Children's Hospital Medical Center Inventor/a Karnail Singh
Disclosed herein are virus-like particle (VLP)-based bivalent vaccine compositions. The compositions may comprise a spherical retroviral Group-specific Antigen (“Gag”) protein core and at least two Ebola glycoproteins. The at least two Ebola glycoproteins may be located at the exterior surface of the spherical Gag protein core, such that the VLP-based vaccine presents at least two Ebola glycoprotein antigens. In one aspect, the at least two Ebola glycoproteins are a Zaire (EBOV) glycoprotein, and a Sudan (SUDV) glycoprotein.

28.4355911VERFAHREN ZUM MARKIEREN VON FISCHEN UND ANDEREN TIEREN
EP - 24.04.2024
Clasificación Internacional C12Q 1/6858 Nº de solicitud 22735134 Solicitante SALMOTRACE AS Inventor/a HAUGSE DAG

The present invention relates to a method of tagging a non-human animal, particularly fish, said method comprising administering to said animal a tag nucleic acid molecule, wherein the tag nucleic acid molecule: (i) comprises an ID sequence which is unique to the tag, which is non-coding and/or cannot be transcribed, and which may be distinguished from the ID sequences of other tag molecules, and (ii) is detectable in or on said animal, or in a body tissue or fluid sample from said animal. The tag may be used to identify the animal, for example in the context of tracking and tracing the animal. The tag may be administered to the animal in conjunction with a vaccine component, which may be provided as part of the tag nucleic acid molecule, or separately. Also provided herein are methods of tagging and vaccinating non-human animals, and combination products comprising a vaccine composition and a tag nucleic acid molecule, as well as apparatus for administering the tag nucleic acid molecule together with a vaccine.

29.WO/2024/085686RECOMBINANT PROTEIN COMPRISING PROTEIN DERIVED FROM FOOT-AND-MOUTH DISEASE VIRUS TYPE O CAPSID PROTEIN AND SFC PROTEIN AND USE THEREOF
WO - 25.04.2024
Clasificación Internacional C07K 14/005 Nº de solicitud PCT/KR2023/016269 Solicitante THE INDUSTRY & ACADEMIC COOPERATION IN CHUNGNAM NATIONAL UNIVERSITY (IAC) Inventor/a SHIN, Hyun-Jin
The present invention relates to: a recombinant protein comprising a foot-and-mouth disease virus (FMDV) virus-like particle (VLP) and the fragment crystallizable (Fc) region of a porcine-derived immunoglobulin linked to the surface of the VLP; and a vaccine composition comprising the recombinant protein. The recombinant protein of the present invention is capable of forming a self-assembled structure comprising a VLP using a protein derived from FMDV capsid protein, which is an antigen protein, and swine Fc protein located on the surface of the VLP. Thus, when a vaccine composition comprising the recombinant protein is used, a specific antibody against FMDV can be effectively produced.

30.WO/2024/086290NOVEL T CELL ACTIVATING IMMUNOTHERAPEUTIC FOR TREATMENT OF MUCIN 1 PROTEIN EXPRESSING HUMAN CANCERS
WO - 25.04.2024
Clasificación Internacional C07K 14/705 Nº de solicitud PCT/US2023/035526 Solicitante PDS BIOTECHNOLOGY CORPORATION Inventor/a CONN, Gregory
Provided herein are multiepitope peptides including at least one mucin 1 (MUC1) peptide, the multiepitope peptides have MHC affinity for at least one of HLA serotype and are recognized by a CD4+ T cell receptor and/or by a CD8+ T cell receptor. Also provided herein are compositions comprising the multiepitope peptides and a cationic lipid, including vaccine compositions. In various aspects, the cationic lipid is R-DOTAP. The invention also provides methods of use of the multiepitope peptides and of the compositions and vaccine compositions. The methods of use include methods of treating cancer and method of inducing a MUC-specific polyfunctional cytolytic T cell response in a subject.

31.WO/2024/084441COMBINATION HIV VACCINE
WO - 25.04.2024
Clasificación Internacional A61K 39/21 Nº de solicitud PCT/IB2023/060589 Solicitante AELIX THERAPEUTICS, S.L. Inventor/a BRANDER, Christian
The present disclosure provides methods, compositions, and kits for the treatment or prevention of an HIV infection in a human having or at risk of having HIV, comprising the combination of the HTI immunogen and at least one stable soluble HIV-1 envelope glycoprotein trimer mimic, such as ConM SOSIP.v7 gp140 trimer.

32.4355308MULTIVALENTE INFLUENZAIMPFSTOFFE
EP - 24.04.2024

Clasificación Internacional A61K 9/51 Nº de solicitud 22734371 Solicitante SANOFI SA Inventor/a ALEFANTIS TIMOTHY
Provided are octavalent influenza vaccine compositions comprising eight mRNA, each mRNA comprising an open reading frame encoding a different influenza antigen. Also provided are lipid nanoparticles (LNPs) for delivering said mRNA.

33.20240131130COMPOSITIONS AND METHODS FOR ACTIVATING NK CELLS
US - 25.04.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 18277897 Solicitante The Regents of the University of California Inventor/a Anahid Jewett
The present invention is based, in part, on cancer vaccine compositions or pharmaceutical compositions comprising cancer cells, monocytes, and/or osteoclasts that activate NK cells, and methods for using same to prevent and/or treat diseases such as cancer.

34.WO/2024/086575COMBINATION VACCINES AGAINST CORONAVIRUS INFECTION, INFLUENZA INFECTION, AND/OR RSV INFECTION
WO - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2023/077086 Solicitante BIONTECH SE Inventor/a SAHIN, Ugur
This disclosure relates to the field of RNA to prevent or treat multiple infectious agents. In particular, the present disclosure relates to methods and agents for vaccination against coronavirus infection, influenza infection, and/or RSV infection and inducing effective coronavirus, influenza virus, and/or RSV antigen-specific immune responses such as antibody and/or T cell responses. Specifically, in one embodiment, the present disclosure relates to methods comprising administering to a subject (i) a bivalent RNA vaccine encoding peptides or proteins comprising epitopes of SARS-CoV-2 spike proteins (S proteins) and (ii) a tetravalent RNA vaccine encoding peptides or proteins comprising epitopes of hemagglutinin (HA), for inducing an immune response against coronavirus S proteins, in particular S proteins of SARS-CoV-2, and influenza proteins, in particular HA proteins of type A and type B influenza viruses, in the subject.

35.20240136019SEQUENCING POLYCLONAL ANTIBODIES DIRECTLY FROM SINGLE PARTICLE CRYOEM DATA
US - 25.04.2024
Clasificación Internacional G16B 30/10 Nº de solicitud 18547705 Solicitante THE SCRIPPS RESEARCH INSTITUTE Inventor/a Andrew B. Ward
Provided herein are methods for discovery of epitope specific monoclonal antibodies to pathogens directly from immune sera for immunotherapeutic use. Further provided herein are methods to determine molecular structure of antibodies targeting an antigen from convalescent or vaccinated individuals for the purpose of rational vaccine design.

36.WO/2024/085375MANUFACTURE AND APPLICATION OF FLAGELLIN IMMUNOPOTENTIATING DERIVATIVES WITH TLR5 ACTIVITY USING EUKARYOTIC CELL EXPRESSION SYSTEMS
WO - 25.04.2024
Clasificación Internacional C07K 14/28 Nº de solicitud PCT/KR2023/010821 Solicitante INDUSTRY FOUNDATION OF CHONNAM NATIONAL UNIVERSITY Inventor/a RHEE, Joon Haeng
The present invention relates to the manufacture and application of flagellin immunopotentiating derivatives with TLR5 activity using an eukaryotic cell expression system. The flagellin derivative according to the present invention has a high immunostimulatory effect and can be used in various vaccine and immunotherapy compositions.

37.20240132493IMIDAZOPYRIDINE DERIVATIVES AS STING AGONISTS

US - 25.04.2024
Clasificación Internacional C07D 471/04 Nº de solicitud 18517300 Solicitante Fulgent Genetics, Inc. Inventor/a Ming HSIEH
Described herein, inter alia, are imidazopyridine derivatives (I), pharmaceutically acceptable salts and tautomers thereof, compounds, combinations and medicaments containing said compounds and processes for their preparation. In embodiments, the imidazopyridine derivatives can be used as regulators of a stimulator of interferon genes (STING) and a related signal path thereof, and can effectively treat and/or relieve multiple types of diseases, including but not limited to malignant tumors, inflammations, autoimmune diseases, infectious diseases and as vaccine adjuvants.

38.20240131143LASSA VIRUS VACCINE AND USES THEREOF
US - 25.04.2024
Clasificación Internacional A61K 39/12 Nº de solicitud 18493133 Solicitante Inovio Pharmaceuticals, Inc. Inventor/a Kate Broderick
Described are methods of inducing a protective immune response against Lassa virus comprising administering a prophylactically effective amount of a nucleic acid molecule encoding a Lassa virus glycoprotein precursor (LASV GPC) to a subject in need thereof.

39.20240131152NANO-PARTICLES THAT CONTAIN SYNTHETIC VARIANTS OF GM3 GANGLIOSIDE AS ADJUVANTS IN VACCINES
US - 25.04.2024
Clasificación Internacional A61K 39/39 Nº de solicitud 18375788 Solicitante Centro de Inmunología Molecular Inventor/a Luis Enrique Fernández Molina
This invention describes ways of obtaining nano-particulated adjuvants formed by different synthetic variants of GM3 ganglioside. Depending on the fine structure of the fatty acid in the ceramide of the synthetic GM3, said adjuvants are able to stimulate specifically and in a specialized way the humoral or cellular immune response against accompanying antigens. Particularly, this invention provides immunogenic vaccine compositions that comprise peptides, polypeptides or proteins and the aforementioned nanoparticles, which are formed through the dispersion of hydrophobic proteins of the outer membrane complex (OMC) of *Neisseria meningitidis* in solutions containing fully synthetic variants of the GM3 ganglioside.

40.WO/2024/084091MATERIALS AND METHODS TO TREAT EPSTEIN-BARR VIRUS (EBV) AND EBV-INDUCED DISEASES
WO - 25.04.2024
Clasificación Internacional A61K 39/245 Nº de solicitud PCT/EP2023/079379 Solicitante MEDIZINISCHE UNIVERSITÄT WIEN Inventor/a VIETZEN, Hannes
The present invention relates to means and methods to prevent and/or treat Epstein-Barr virus (EBV) and EBV-induced diseases, such as EBV infection, infectious mononucleosis (IM), malignant or non-malignant post-transplant lymphoproliferative disorder (PTLD) and other EBV-associated diseases. In particular, the invention provides a SQAPLPCVL peptide that can be used in a treatment or a method of treatment to induce an EBV-specific immune response in a subject. The SQAPLPCVL can be used in a treatment or method of treatment as a vaccine against EBV and EBV-induced diseases. It is preferred herein that Epstein-Barr virus (EBV) and/or EBV-induced diseases are prevented.

41.20240132596HLA BINDING VACCINE MOIETIES AND USES THEREOF
US - 25.04.2024
Clasificación Internacional C07K 16/28 Nº de solicitud 18469961 Solicitante UNIVERSITY OF OSLO Inventor/a Gunnveig Grodeland

The present invention relates to an immunoglobulin derived single-chain fragment variable (scFv) that broadly binds HLA II molecules and uses thereof. In particular, targeting of an antigen to antigen presenting cells with the HLAII-specific targeting unit provided herein find use in enhancing immune responses after vaccination.

42.20240131145INFLUENZA VACCINE COMPOSITIONS AND METHODS OF USING SAME
US - 25.04.2024
Clasificación Internacional A61K 39/145 Nº de solicitud 18276905 Solicitante Children's Hospital Medical Center Inventor/a Ming TAN
The instant disclosure relates to pseudovirus nanoparticles (PVNPs) and compositions comprising PVNPs. The disclosed PVNPs may be comprised of fusion proteins that form an icosahedral structure and a nanoparticle shell. The disclosed fusion proteins may comprise a modified norovirus (NoV) S domain protein; a hemagglutinin I (HA1) antigen of the influenza hemagglutinin I (HA1) of influenza vims; and a peptide linker connecting the C-terminus of the NoV S domain to the HA1 antigen. The modified NoV S domain proteins form the interior nanoparticle shell of said PVNP composition and display the 60 HA1 antigens on the surface of the nanoparticle shell. Methods of making and using the PVNPs and compositions containing PVNPs are also disclosed.

43.20240131129VACCINE FOR THERAPEUTIC OR PROPHYLACTIC TREATMENT OF MYASTHENIA GRAVIS
US - 25.04.2024
Clasificación Internacional A61K 39/00 Nº de solicitud 18278985 Solicitante CURAVAC EUROPE S.A. Inventor/a Nicolas HAVELANGE
Pharmaceutical composition for treating myasthenia gravis, comprising a carrier protein being SEQ ID NO:1 coupled to a plurality of a peptide epitope, the corresponding peptide epitopes and the method of synthesis of the conjugate.

44.4357447SERUMFREIES MEDIUM ZUR HERSTELLUNG VON VOGELIMPFSTOFFEN UND VERWENDUNGEN DAVON
EP - 24.04.2024
Clasificación Internacional C12N 5/00 Nº de solicitud 24159222 Solicitante BOEHRINGER INGELHEIM VETMEDICA GMBH Inventor/a HUGHES WILLIAM TROY
The present disclosure relates to a method for the cultivation of primary cells. The primary cells are cultivated in a serum free medium supplemented with peptides and peptones derived from plant or vegetable sources. The method for the cultivation of primary cells may be one step in a method for the amplification of viruses, such as poxviruses.

45.4357448SERUMFREIES MEDIUM ZUR HERSTELLUNG VON VOGELIMPFSTOFFEN UND VERWENDUNGEN DAVON
EP - 24.04.2024
Clasificación Internacional C12N 5/00 Nº de solicitud 24159223 Solicitante BOEHRINGER INGELHEIM VETMEDICA GMBH Inventor/a HUGHES WILLIAM TROY
The present disclosure relates to a method for the cultivation of primary cells. The primary cells are cultivated in a serum free medium supplemented with peptides and peptones derived from plant or vegetable sources. The method for the cultivation of primary cells may be one step in a method for the amplification of viruses, such as poxviruses.

46.4357454TRANSFIZIERTE T-ZELLEN UND T-ZELL-REZEPTOREN ZUR VERWENDUNG IN DER IMMUNTHERAPIE GEGEN KREBS
EP - 24.04.2024

Clasificación Internacional C12N 15/10 Nº de solicitud 23218295 Solicitante IMMATICS BIOTECHNOLOGIES GMBH Inventor/a MAURER DOMINIK
The present description relates to T-cell receptors (TCRs) binding to tumor-associated antigens (TAAs) for targeting cancer cells, T-cells expressing same, methods for producing same, and methods for treating cancers using same. In particular, the present description relates to TCRs and their variants that bind to HLA class I or II molecules with a peptide, such as MAG-003 have the amino acid sequence of KVLEHWRV (SEQ ID NO:1). The present description further relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present description relates to the immunotherapy of cancer. The present description furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T-cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

47.WO/2024/084497METHOD FOR MANUFACTURING RECOMBINANT TRANSFERRIN BINDING PROTEINS AND VACCINE COMPOSITIONS COMRPISING SAME
WO - 25.04.2024
Clasificación Internacional C07K 14/22 Nº de solicitud PCT/IN2023/050922 Solicitante SERUM INSTITUTE OF INDIA PVT. LTD., Inventor/a KARALE, Abhijeet Jagannath
The present disclosure relates to manufacturing transferrin binding proteins. Specifically, the present disclosure relates to a simple, scalable, commercially viable fermentation and purification process for obtaining recombinant transferrin binding protein (rTbp-B) along with high recovery, low impurity/ aggregate content, and at the same time retains the integrity of the protein. The method uses a single chromatographic step and does not require tagging of proteins as compared to multiple chromatographic steps used previously and still manages to provide r-Tbp-B with at least 95 % purity.

48.WO/2024/086169NOVEL NON-HLA RESTRICTED T CELL VACCINE FOR TCR GAMMA ALTERNATE READING FRAME PROTEIN (TARP) PROTEIN EXPRESSING CANCERS
WO - 25.04.2024
Clasificación Internacional C07K 14/705 Nº de solicitud PCT/US2023/035325 Solicitante PDS BIOTECHNOLOGY CORPORATION Inventor/a CONN, Gregory
Novel compositions of TCR Gamma Alternate Reading Frame Protein (TARP) peptides combined with cationic lipids such as the DOTAP and specifically R-DOTAP, induce high levels of TARP-specific polyfunctional cytolytic T-cells. Compositions and methods of use are provided. The compositions comprise N-terminal and C-terminal overlapping peptide sequence pairs duplicating the critical central antigenic region of TARP and encompassing the entire protein selected and designed to be effectively processed by antigen-presenting cells to prime cytotoxic T cells specific for TARP-derived T cell peptide antigens when delivered in combination with immunostimulatory nanoparticles composed of R-DOTAP cationic lipids.

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