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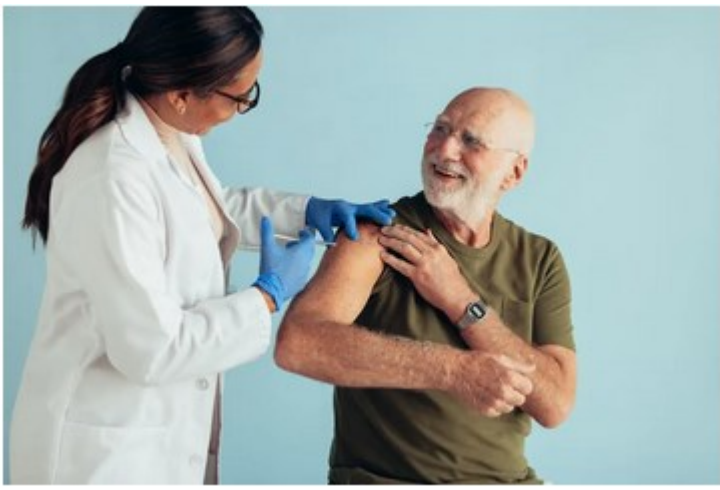
Diverse Interventions Found to Increase Pneumococcal Vaccine Uptake Among Older Adults in Primary Care Settings

May 23. A variety of health interventions, including basic educational materials, provider prompts, and systemwide transformation strategies, were found to effectively heighten uptake of pneumococcal vaccination among older adults in primary care settings, according to findings from a comprehensive systematic review published in *Cureus*.

Barriers Prevent Optimal Pneumococcal Vaccine Uptake Among Older Adults



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Pneumococcal infection remains a critical public concern, especially among older adults, who are disproportionately impacted by the disease. Individuals 65 years and older are at a significantly higher risk of various invasive pneumococcal diseases (IPD) due to the presence of underlying comorbidities and decline in immune function. Ultimately, pneumococcal infections can induce sustained declines in functionality in this population, leading to reduced independence and frailty.

Vaccination with a pneumococcal conjugate vaccine (PCV) is the most effective protection against IPD. Available PCVs, including the 13-valent pneumococcal conjugate vaccine (PCV13, Prevnar 13; Wyeth Pharmaceuticals), can effectively reduce hospitalizations due to IPD. As novel PCVs are developed and recommended, including 15-valent, 20-valent, and 21-valent PCVs, it is imperative that adults at risk receive updated vaccinations. However, older adults consistently report barriers to receiving such vaccinations, and pharmacists have reported key obstacles to ensuring effective vaccination strategies in their practices.

Most concerningly, pharmacists have expressed limited knowledge of pneumococcal vaccination guidelines and report a major lack of resources to properly educate patients on the benefits of vaccination. Primary care settings are a pivotal area where older adults can receive PCV education, promotion, and vaccination, and pharmacists in this setting play an important role in encouraging uptake. The investigators of this trial aimed to conduct a comprehensive review of available evidence on strategies to improve PCV uptake in primary care among older adults, ultimately improving their health outcomes and quality of life.

Review Finds Diverse Interventions Effectively Increase PCV Coverage

Randomized controlled trials, quasi-experimental studies, and observational studies that assessed the effectiveness of interventions aimed at improving pneumococcal vaccination uptake among older adults in primary care settings were included in the review. After a total of 166 records were identified through database searches, and following full-text review, 5 studies were included in the final systematic review.

Characteristics of the included studies varied, with sample sizes ranging from 433 individuals in 1 outpatient clinic to over 18,000 older adults across 25 primary care clinics. Accordingly, interventions were diverse and included patient-directed educational tools, health care provider-targeted strategies, and systemwide quality improvement programs. Furthermore, these strategies differed in their target and complexity, but all studies

showed directionally positive effects favoring older adults receiving pneumococcal vaccination.

The investigators reviewed each strategy from the included studies. Jacobson et al investigated the efficacy of a low-literacy educational brochure, finding an odds ratio (OR) of 5.28 (95% CI, 2.80-9.93). In another trial, Dexter et al found a significant improvement utilizing a digital reminder system for inpatient physicians (OR: 68.37; 95% CI, 42.69-109.51). A nurse-delivered brief education program investigated by Chan et al led to a moderate effect (OR: 1.20; 95% CI, 1.06-1.37). Additionally, Zimmerman et al evaluated a multicomponent quality improvement program called the 4 Pillars Practice Transformation and reported an OR of 1.29 (95% CI, 1.21-1.37). Lastly, Ho et al determined that point-of-care flyers at clinic registration increased uptake of PCVs modestly (OR: 1.78; 95% CI, 1.39-2.29).1

Overall, a random-effects meta-analysis yielded a pooled OR of 4.33 (95% CI, 2.02-9.39), suggesting that the interventions meaningfully improved pneumococcal vaccination rates among older adults. Despite this positive development, there was substantial heterogeneity observed, most likely due to differences in populations, intervention design, and health care settings.1

"Particular attention should be paid to interventions that leverage digital health platforms, task-sharing with nurses or community health workers, and culturally adapted messaging," the investigators wrote in their discussion. "Long-term follow-up and cost-effectiveness analyses will inform health policy and funding allocation."

- *Older adults are at increased risk for invasive pneumococcal diseases due to comorbidities and immune decline.*
- *Effective interventions include educational materials, digital reminders, and quality improvement programs, enhancing vaccination rates.*
- *Pharmacists face knowledge and resource barriers, impacting their ability to promote pneumococcal vaccination effectively.*
- *A meta-analysis showed interventions significantly improved vaccination rates, despite heterogeneity in study designs and settings.*

Fuente: PHARMACY TIMES. Disponible en https://n9.cl/t2sc1

¿Estamos preparados para una nueva pandemia?

24 may. Han transcurrido cinco años desde que el COVID-19 dejó al descubierto tanto las fortalezas como las profundas vulnerabilidades de los sistemas de salud a nivel global. Mientras algunos países improvisaron con urgencia, otros demostraron estar mejor preparados. Hoy, con la perspectiva que da el tiempo, resulta inevitable preguntarnos: ¿realmente aprendimos la lección? ¿Estamos preparados para enfrentar una nueva pandemia o, simplemente, elegimos olvidar y continuar?

La crisis sanitaria que enfrentamos fue, sin duda, uno de los desafíos más complejos de nuestros tiempos. Sin embargo, la memoria colectiva es frágil. La vida ha retomado su curso, el miedo se ha disipado y, con él, también parece desvanecerse el sentido de urgencia. Lo inquietante es que una próxima pandemia podría sorprendernos de nuevo, quizá con consecuencias aún más graves si no actuamos adecuadamente desde ahora.

En este contexto, la reciente aprobación del primer acuerdo internacional sobre pandemias por parte de la Asamblea Mundial de la Salud marca un punto de inflexión. Impulsado por la Organización Mundial de la Salud (OMS), este pacto establece compromisos fundamentales para fortalecer la preparación global: desde el intercambio de datos genéticos de patógenos hasta la creación de una red de suministros médicos, pasando por el acceso equitativo a vacunas, diagnósticos y tratamientos.

Se trata de un avance necesario y oportuno, aunque su verdadero impacto dependerá de su implementación. Se requieren recursos sostenibles, planes de acción claros y una respuesta coordinada.

Vale la pena recordar a países que no improvisaron, sino que eligieron prepararse. Un año antes de la pandemia, tuvimos la oportunidad de visitar un hospital universitario en Daejeon, Corea del Sur. Lo que encontramos nos sorprendió: una unidad de 20 camas completamente equipada y sin pacientes. Para muchos, donde los hospitales funcionan al límite de su capacidad instalada, podría parecer un desperdicio, pero lejos de eso, era una muestra consciente y clara de preparación.

En 2015, Corea vivió el brote de MERS (Síndrome Respiratorio de Oriente Medio), una enfermedad viral que expuso múltiples debilidades. A partir de esa experiencia, el país decidió realizar grandes inversiones en infraestructura, desarrollaron sistemas de vigilancia epidemiológica y fortalecieron su capacidad de respuesta.

De esta manera, cuando llegó la pandemia en 2020, Corea no tuvo que cerrar completamente su economía, incluso mantuvo una de las tasas de mortalidad más bajas a nivel mundial.

Esa experiencia nos deja una lección: prepararse requiere el compromiso de todos los actores. Es fundamental aprender de quienes lo hicieron bien.

Desde el Hospital Internacional de Colombia hicimos un esfuerzo maratónico que nos permitió ver de qué somos capaces: atendimos a miles de pacientes, reorganizamos nuestras áreas hospitalarias y entrenamos a nuestros profesionales.

Es incierto cuándo llegará una próxima pandemia, pero de lo que sí estamos seguros es que la preparación marcará la diferencia, no solo como hospital, sino también como ciudadanos, en nuestros hogares y comunidades. ¿Estamos listos para actuar mejor o dejaremos que la historia nos vuelva a sorprender?

Fuente: Vanguardia. Disponible en https://n9.cl/nkik5

Moderna files for review of updated COVID vaccine

May 24. Moderna (MRNA.O), said it has filed a marketing application for the review of its updated COVID-19 vaccine with the U.S. Food and Drug Administration.

The company said the submission for the vaccine, branded as Spikevax, is based on guidance from the FDA, which advised that the shots should be updated to target strains that are a part of JN.1 lineage, with a preference for the LP.8.1 variant.

Government data indicate the LP.8.1 strain — a subvariant of the previously targeted JN.1 strain — accounts for about 70% of total cases in the U.S.

Three COVID-19 shots have been authorized for use in the U.S. — Moderna (MRNA.O) and Pfizer-BioNTech's (PFE.N) / (22UAy.DE) messenger RNA-based vaccines as well as Novavax's (NVAX.O) protein-based shot.

Moderna expects to launch the updated vaccine by mid-August.

Under the new FDA leadership, COVID vaccine makers are seeing greater regulatory scrutiny and facing tighter requirements for their shots that could increase their expenses.

Earlier this week, the FDA said it plans to require new clinical trials for approval of annual COVID-19 boosters for healthy Americans under age 65, effectively limiting them to older adults and those at risk of developing severe illness.

Top U.S. vaccines regulator Vinay Prasad said all the COVID vaccine makers will be asked to conduct placebo-controlled trials in healthy 50- to 64-year olds and encouraged to conduct them in very young children.

Moderna did not disclose the age range the updated vaccine will target and did not mention if any additional clinical trials were conducted for it.

Fuente: Reuters. Disponible en https://n9.cl/l6u2sa

Vietnam ramps up response to COVID-19, dengue, HFMD with national campaign

May 25. In an urgent dispatch issued on Sunday morning to local authorities across the country, the ministry warned that infectious diseases continue to evolve in complex ways globally, with rising cases in many countries – particularly of COVID-19, dengue, and HFMD.

"Vietnam's Ministry of Health has launched a nationwide disease prevention campaign for June and July in response to a growing risk of outbreaks of COVID-19, dengue fever, and hand, foot, and mouth disease (HFMD)."

Although Vietnam's outbreak situation remains under control, localized spikes have begun to appear since early May.

Notably, the rainy season has not officially started, yet many regions have already seen heavy rains, thunderstorms, and landslides – ideal conditions for disease transmission.

The summer travel season is also expected to increase population movement and large gatherings, raising the risk of further spread.

In response, the ministry has launched a two-month campaign spanning June and July, aimed at curbing the spread of the three diseases and safeguarding public health.

Dengue cases rising in both southern and northern regions

According to the Ministry of Health, between December 14, 2024 and February 17, 2025, Vietnam recorded 16,607 dengue fever cases nationwide, including one death.

In Ho Chi Minh City, cases surged 136 percent compared to the same period in 2024, with 7,398 infections reported by mid-May. The trend is not confined to the southern region.

In Hanoi, 12 new dengue cases were confirmed between May 9 and 16, an increase of eight cases from the previous week, bringing the capital's total for 2025 to 251.

Warning signs of dengue fever, which is spread by the Aedes aegypti mosquito, include a high fever, tiny red spots on the skin (petechiae), bleeding from the gums or nose, easy bruising, and in pubertal girls, unusual vaginal bleeding.

People are advised to seek prompt medical attention if these symptoms appear.

Local governments have been directed to implement mosquito control measures at the community level, including eliminating stagnant water containers, covering water storage tanks, and inspecting clean water sources to destroy mosquito larvae.

HFMD cases climb among young children

HFMD, a viral illness spread through the gastrointestinal tract, primarily affects children under five.

The ministry has urged households and early education centers to emphasize regular hand hygiene among children.

Nearly 15,000 HFMD cases were reported nationwide in the first four months of 2025, with numbers rising sharply starting in March.

Of the total, 98.6 percent were children under 10, and 93.4 percent were aged one to five – the typical age for daycare and preschool.

In Ho Chi Minh City, cases have been climbing in recent weeks. During week 20 (May 12-18), the city recorded 916 cases, a 40.1-percent increase over the average of the previous four weeks.

Caused by viruses such as Coxsackievirus and Enterovirus 71, HFMD spreads quickly through contact with contaminated surfaces, bodily fluids, or respiratory droplets.

Symptoms include fever, fatigue, sore throat, and skin or oral lesions, typically appearing as blisters on the hands, feet, knees, and buttocks.

COVID-19: Low numbers but continued vigilance

Vietnam has reported 148 COVID-19 cases across 27 provinces and cities since January, with no fatalities, according to the health ministry.

Although the number remains low, the past three weeks have seen a slight uptick, averaging around 20 new cases per week.

To help prevent further spread, the ministry continues to advise the public to wear masks in public places and on public transport, wash hands frequently, avoid unnecessary gatherings, stay physically active, maintain a healthy diet, and seek medical care if experiencing symptoms like fever, cough, or difficulty breathing.

To prevent a resurgence, travelers to and from countries with high COVID-19 infection rates are urged to monitor their health closely and take appropriate precautions to protect themselves and others.

Coordinated response, early detection prioritized

As part of the two-month campaign to curb the three diseases, the ministry has instructed provincial People's Committees to strengthen coordination between preventive and treatment systems, particularly in updating infectious disease surveillance and monitoring cases of severe viral pneumonia.

Healthcare facilities have been told to ensure timely intake and treatment to prevent unnecessary fatalities or referral delays.

Plans must also be in place to support lower-level health facilities and avoid hospital overcrowding.

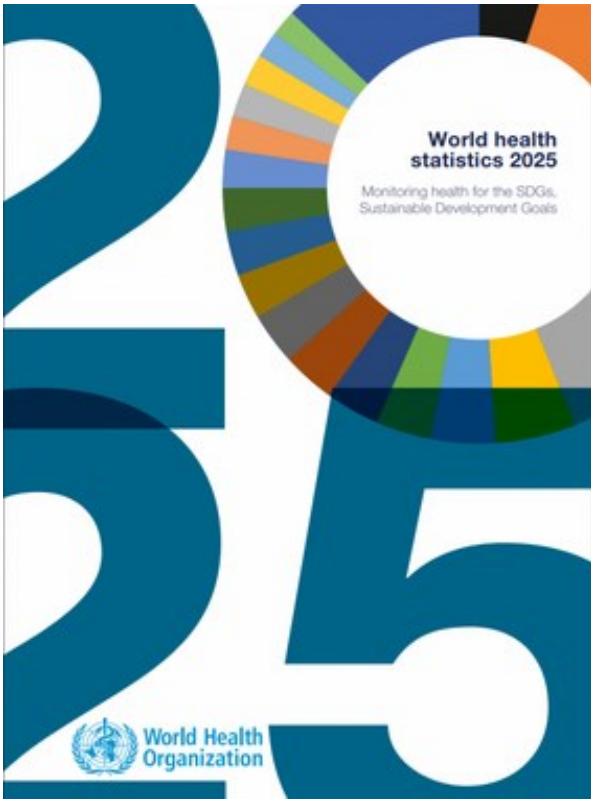
Local finance departments have been asked to promptly allocate and supplement funding for disease prevention and control, particularly for dengue, HFMD, COVID-19, and potential illnesses linked to flooding and heavy rainfall.

Joint inspection teams will monitor the implementation of health directives issued by the ministry and provincial governments.

Finally, the ministry underlined the need for public vigilance without panic and confirmed continued collaboration with the World Health Organization to closely monitor global developments and apply appropriate, evidence-based measures.

Fuente: Tuoi Tre News. Disponible en https://n9.cl/9vmot

Triple Billion Targets and Inequalities in Immunization Updated for 2025



May 26. The World Health Organization (WHO) recently published its World Health Statistics Report 2025, revealing the more profound health impacts on loss of lives, longevity, and overall health and well-being.

As of May 15, 2025, this WHO report presents mixed progress toward the WHO's Triple Billion targets. An estimated 1.4 billion more people were living healthier by the end of 2024, surpassing the 1 billion target.

The major contributors to the 5.4-year pre-pandemic increase in global healthy life expectancy at birth between 2000 (58.1 years) and 2019 (63.5 years) were mortality reduction from communicable and perinatal conditions among children under 5 years, and from noncommunicable diseases among those 30 years and older.

For example, HIV and TB incidence rates are falling, and fewer people need treatment for neglected tropical diseases.

However, this report stated, 'Increased levels of anxiety and depression linked to the recent pandemic reduced global healthy life expectancy by six weeks, erasing most of the gains made from lower mortality due to noncommunicable diseases during the same period.'

Premature deaths from heart disease, stroke, diabetes, and cancer are rising, driven by population growth and aging, and now account for most deaths among people under the age of 70 worldwide.

The world is currently off track to reduce premature mortality from these diseases by one-third by 2030.

Furthermore, achieving equity in immunization coverage requires focused attention on urban poor areas, remote/ rural areas, conflict areas, and gender-related inequities and barriers.

Dr Samira Asma, WHO Assistant Director-General for Data, Analytics and Delivery for Impact, commented in a media statement, "Together, we can achieve a world where data is timelier and more accurate, programmes improve continuously, and premature deaths become rare."

"Every country can deliver measurable gains with speed, scale, and smart investments."

Fuente: VAX BEFORE TRAVEL. Disponible en https://n9.cl/yty0y

VNVC implementa nueva vacuna antineumocócica inyectable con tecnología moderna en Vietnam

26 may. El Sistema de Vacunación VNVC anunció el lanzamiento e implementación de la primera inyección en Vietnam de una nueva vacuna para prevenir 20 cepas de bacterias neumocócicas, incluidas cepas altamente patógenas que causan enfermedades graves, protegiendo la salud pública contra enfermedades respiratorias cada vez más peligrosas.

La vacuna antineumocócica 20 (PCV20) producida por Pfizer Pharmaceutical Group (EE.UU.) previene eficazmente 20 cepas de bacterias neumocócicas: 1, 3, 4, 5, 6A, 6B, 7F, 8, 9V, 10A, 11A, 12F, 14, 15B, 18C, 19A, 19F, 22F, 23F, 33F. Estas son las cepas que causan muchas enfermedades neumocócicas invasivas

(neumonía séptica, meningitis, sepsis) y enfermedades neumocócicas no invasivas (neumonía, otitis media, sinusitis, etc.).

La vacuna antineumocócica 20 es para adultos de 18 años de edad y mayores, y se seguirá ampliando su uso a los niños en el futuro cercano. La vacuna se utiliza actualmente en casi 50 países de todo el mundo , incluidos países desarrollados como Estados Unidos, Reino Unido, Alemania, Francia, Australia... mostrando una clara eficacia en la reducción de la incidencia y la mortalidad de la enfermedad neumocócica en adultos.

La vacuna antineumocócica 20 se produce en la fábrica de vacunas moderna líder en el mundo en Bélgica utilizando tecnología avanzada, que ha demostrado crear un alto nivel de respuesta inmune y protección a largo plazo para los usuarios, al tiempo que reduce la tasa de personas sanas portadoras del virus, reduciendo así la posibilidad de propagación de la enfermedad en la comunidad.

La Dra. Bach Thi Chinh, directora médica del Sistema de Vacunación VNVC, dijo que el neumococo es la principal causa de carga de enfermedad y muerte en niños y adultos. La Organización Mundial de la Salud (OMS) estima que alrededor de 1,6 millones de niños y adultos mueren cada año en todo el mundo por enfermedad neumocócica. También es causa de infecciones del tracto respiratorio inferior (IRTI) como bronquiolitis, bronquitis, neumonía,... con mayor tasa de mortalidad.

El neumococo tiene más de 100 serotipos que causan enfermedades diversas y complejas, y la resistencia a los antibióticos es cada vez más grave. La investigación y el uso de vacunas neumocócicas que puedan proteger, cubrir más cepas, reducir las tasas de resistencia y reducir el abuso de antibióticos en el tratamiento es una tendencia común y urgente en la medicina mundial.

Por ello, los científicos de numerosos institutos de investigación y fabricantes de vacunas de todo el mundo han realizado continuos esfuerzos para investigar y desarrollar nuevas vacunas neumocócicas cada vez más eficaces y seguras. Esto es especialmente importante para proteger mejor la salud pública, especialmente en el contexto del aumento de las enfermedades respiratorias en todo el mundo.

Según la Dra. Bach Thi Chinh, la tecnología de investigación y producción de nuevas vacunas por parte de las compañías farmacéuticas ha logrado grandes avances, gracias a lo cual cada vez disponemos de más tipos de vacunas, que pueden proteger contra más cepas de neumococo, con mayor eficacia de protección y son más seguras. Gracias a ello, las personas cuentan con opciones de vacunación más flexibles, adecuadas a su edad, estado de salud, estado inmunológico y características epidemiológicas de cada localidad.

La incorporación de la vacuna neumocócica de nueva generación PCV20 al Sistema de Vacunación VNVC ha ayudado a ampliar el alcance de la protección y la eficacia de la prevención de la enfermedad, especialmente la tecnología moderna ayuda a reducir las dosis de refuerzo, reduciendo así los costos de vacunación y los costos de exámenes médicos y tratamientos causados por el neumococo.

En cuanto al calendario de vacunación, la Dra. Bach Thi Chinh afirmó: «Actualmente, la vacuna antineumocócica de 20 serotipos está aprobada para adultos mayores de 18 años con un calendario de vacunación único. Las personas con alto riesgo de contraer enfermedades neumocócicas recibirán asesoramiento de su médico sobre el calendario de vacunación adecuado. En el caso de las personas que ya se han vacunado con vacunas antineumocócicas que cubren menos o más cepas, pero que requieren una dosis de refuerzo, el médico considerará la posibilidad de prescribir un calendario de vacunación secuencial o combinado para lograr la protección más óptima».

Así, en sólo dos semanas, VNVC ha introducido consecutivamente dos nuevas vacunas neumocócicas en la

comunidad, afirmando el papel pionero de VNVC en la rápida actualización de los avances médicos mundiales y abriendo oportunidades para que los niños y adultos vietnamitas tengan pleno acceso a las principales vacunas nuevas, efectivas y seguras del mundo.

Además de cooperar con las principales compañías farmacéuticas y de vacunas del mundo para traer a Vietnam muchos nuevos tipos de vacunas, vacunas de nueva generación, aumentando las oportunidades para que los vietnamitas accedan a las vacunas a la par de los de los países desarrollados, VNVC también dio el paso estratégico de construir la Fábrica de Vacunas y Productos Biológicos VNVC en la provincia de Long An. La fábrica tiene una inversión inicial de alrededor de 2.000 billones de VND, está diseñada con tecnología moderna y tecnología líder a nivel mundial, diversa y flexible en la capacidad de producir muchos tipos diferentes de vacunas, con el objetivo de suministrar vacunas de manera proactiva a la población nacional, con el objetivo de participar en la cadena mundial de suministro de vacunas, lista para satisfacer la demanda de futuras vacunas contra la pandemia.

VNVC también ha llegado a acuerdos de cooperación con muchos socios importantes en la investigación y producción de vacunas en el mundo, como la compañía farmacéutica Sanofi (Francia), la compañía farmacéutica Pfizer (EE.UU.), el Centro Nacional de Investigación de Epidemiología y Microbiología Gamaleya, el Grupo Farmacéutico Binnopharm de Rusia, para intercambiar investigaciones y transferir tecnología moderna de producción de vacunas.

Fuente: VIETNAM.VN. Disponible en https://n9.cl/hbs8e3

EE.UU. deja de recomendar la vacuna de la covid-19 a niños y embarazadas

27 may. El secretario de Salud de Estados Unidos, Robert F. Kennedy Jr., anunció este martes que el Gobierno deja de recomendar la vacuna de covid-19 para los niños sanos y las mujeres embarazas.

"No puedo estar más satisfecho de anunciar que, a partir de hoy, la vacuna contra el coronavirus para niños sanos y mujeres embarazadas sanas ha sido retirada del calendario de vacunación recomendado por los Centros para el Control y la Prevención de Enfermedades (CDC)", dijo Kennedy en un vídeo publicado en X.

El secretario celebró este movimiento como "una cuestión de sentido común".

Kennedy criticó que el anterior Gobierno de Joe Biden instó a los niños sanos a recibir otra vacuna contra la covid "a pesar de la falta de datos clínicos que apoyen la estrategia de repetir la dosis de refuerzo en los niños".

El nombramiento del hijo del exfiscal general Robert F. Kennedy y sobrino del expresidente John F. Kennedy como líder de la cartera de salud fue uno de lo más polémicos por su conocido papel como antivacunas, habiendo defendido en varias ocasiones que ninguna vacuna es segura ni efectiva.

Sin embargo, él mismo negó serlo ante en el Senado de EE.UU. y se comprometió a no desincentivar su uso, aunque el movimiento anunciado este martes es lo que consigue.

Hace unas semanas, el departamento que Kennedy dirige informó de que tratará de desarrollar una "vacuna universal" a partir de virus desactivados, un método anticuado que implica desplazar el foco puesto en las inmunizaciones de nueva generación desarrolladas durante la pandemia.

La iniciativa, encabezada por los Institutos Nacionales de Salud, buscaría reemplazar NextGen, un proyecto de la anterior Administración valorado en unos 5.000 millones de dólares centrado en vacunas de nueva generación que el propio Departamento de Salud ha tildado de «despilfarro» tras el regreso al poder de Donald Trump en enero pasado.

Fuente: IMPACTOLATINO. Disponible en https://lc.cx/111qHU

La 78.ª Asamblea Mundial de la Salud se clausura con resultados históricos y una serie de momentos destacados

28 may. El pasado 27 de mayo concluyó la 78.ª Asamblea Mundial de la Salud, la reunión anual de los Estados Miembros de la Organización Mundial de la Salud (OMS). Los dirigentes de la esfera de la salud celebraron los importantes logros conseguidos y el énfasis puesto en la solidaridad mundial.

El máximo órgano decisorio de la OMS se reunió del 19 al 27 de mayo bajo el lema «Un mundo unido por la salud». Los Estados Miembros examinaron cerca de 75 puntos y subpuntos en todos los ámbitos de la salud, participaron en animados debates y adoptaron resoluciones de gran trascendencia para mejorar la salud de todas las personas.

El Dr. Tedros Adhanom Ghebreyesus, Director General de la OMS, declaró: «Es cierto que a veces se abusa de expresiones como "histórica" y "trascendental", pero pocas veces han sido tan acertados como para referirse a la Asamblea Mundial de la Salud que ahora se cierra. La adopción del Acuerdo sobre Pandemias y la aprobación del próximo aumento de las contribuciones señaladas, al igual que las numerosas resoluciones adoptadas por los Estados Miembros, demuestran que es posible elegir la vía de la cooperación en lugar del conflicto, la unidad en vez de la división».

Primer acuerdo mundial sobre pandemias: equidad para todos

El 20 de mayo, los Estados Miembros adoptaron un instrumento de importancia histórica: el Acuerdo de la OMS sobre Pandemias. Este logro fue recibido con un fuerte aplauso para celebrar más de tres años de intensas negociaciones en el seno del Órgano de Negociación Intergubernamental, que integran los Estados Miembros de la OMS.

La adopción del Acuerdo es una oportunidad que solo se presenta una vez por generación para evitar que el mundo vuelva a padecer el sufrimiento ocasionado por la pandemia de COVID-19. Su objetivo es reforzar la coordinación y la cooperación a escala mundial, así como la equidad y el acceso durante futuras pandemias, respetando al mismo tiempo la soberanía nacional.

Durante el próximo año, los Estados Miembros tomarán como base esta resolución para celebrar consultas en torno al Sistema de Acceso a los Patógenos y Participación en los Beneficios (Sistema PABS), un anexo al Acuerdo que permitiría garantizar un acceso equitativo a los avances de la medicina.

Financiación sostenible: proteger el futuro de la salud mundial

En un contexto de financiación en plena transformación, los Estados Miembros han aunado esfuerzos para proteger las actividades esenciales de la OMS mediante la aprobación del segundo aumento del 20 % de las contribuciones señaladas. De aquí a 2030-2031, estas aportaciones representarán el 50 % del presupuesto básico de la Organización, lo que permitirá contar con una financiación más previsible, resiliente y flexible.

Pero el compromiso de la Asamblea con la financiación sostenible fue más allá: en un evento de alto nivel celebrado durante la 78 Asamblea Mundial de la Salud, los dirigentes del sector se comprometieron a aportar al menos USD 210 millones a la ronda de inversiones (en inglés) en la OMS, la campaña de recaudación de fondos para su 14 Programa General de Trabajo, que constituye su estrategia mundial para los próximos

cuatro años. Además de los USD 1700 millones ya recaudados en esta ronda, estos compromisos suponen un paso importante hacia la financiación sostenible de la Organización. Desde su puesta en marcha en mayo de 2024, la ronda de inversiones ha atraído a 35 nuevos contribuidores, gracias a lo cual se está más cerca de disponer de una cartera más amplia de donantes, tal como se prevé en el programa de transformación impulsado por el Director General.

Acción en favor de la salud: decisiones y resoluciones importantes

La 78.ª Asamblea Mundial de la Salud se mostró firme ante los problemas de salud actuales y flexible a la hora de hacer frente a amenazas y conflictos. Durante la Asamblea, los Estados Miembros cosecharon logros en numerosos ámbitos, entre los que cabe destacar la adopción de:

- una nueva resolución sobre la emergencia mundial en materia de financiación de la salud;
- por primera vez, resoluciones sobre la salud pulmonar y la salud renal, lo que nos recuerda que la Asamblea General de las Naciones Unidas centrará próximamente su atención en las enfermedades no transmisibles;
- una nueva resolución sobre normas y criterios basados en datos científicos para formular y aplicar políticas de salud;
- una nueva meta para reducir a la mitad los efectos de la contaminación atmosférica en la salud de aquí a 2040;
- una resolución innovadora para promover la conexión social, ante la creciente evidencia que la vincula con una mejora en los resultados de salud y una reducción del riesgo de muerte prematura;
- una resolución para avanzar hacia un futuro sin plomo;
- una resolución para hacer frente a las más de 7000 enfermedades raras existentes y proteger así a los más de 300 millones de personas que las padecen en todo el mundo;
- la ampliación de las disposiciones del Código Internacional de Comercialización de Sucedáneos de la Leche Materna para hacer frente a la comercialización digital de sucedáneos de la leche y alimentos para lactantes; y
- una resolución para acelerar la erradicación de la dracunculosis.

Además, la Asamblea aprobó resoluciones sobre la salud digital, el personal de salud y asistencial, el diagnóstico por imagen, la atención obstétrica y de enfermería, la deficiencia sensorial, las enfermedades cutáneas, entre otros temas, y estableció dos nuevas campañas oficiales de salud de la OMS: el Día Mundial de la Eliminación del Cáncer de Cuello Uterino y el Día Mundial de la Prematuridad.

Fortalecimiento de la preparación y respuesta ante emergencias

La Asamblea Mundial de la Salud debatió también la labor de la OMS frente a las emergencias sanitarias. Durante el último año, la Organización respondió a nivel internacional a 51 emergencias clasificadas en 89 países y territorios, entre ellas brotes mundiales de cólera y viruela símica (mpox) —una emergencia de salud pública de importancia internacional— y varias crisis humanitarias. En colaboración con más de 900 asociados de 28 grupos de acción sobre salud, ayudó a prestar asistencia a 72 millones de personas en situaciones humanitarias. Casi el 60 % de las nuevas emergencias guardaban relación con el clima, lo que pone de manifiesto las crecientes repercusiones del cambio climático en la salud.

Durante la Asamblea, los Estados Miembros:

- examinaron cuestiones relativas a la labor de la OMS frente a las emergencias sanitarias y la felicitaron por su liderazgo en ese ámbito;

- tomaron nota del informe del Director General sobre la aplicación del marco de preparación, respuesta y resiliencia frente a emergencias sanitarias y expresaron su apoyo al fortalecimiento de la arquitectura mundial;
- examinaron las necesidades de salud de la población de Ucrania y del territorio palestino ocupado;
- tomaron nota del informe del Director General sobre los progresos realizados en la aplicación del Reglamento Sanitario Internacional (2005); y
- aprobaron una decisión para reforzar la base empírica de las medidas sociales y de salud pública a fin de controlar los brotes de enfermedades.

Fuente: WHO. Disponible en https://lc.cx/HYQiEw

El tratado de pandemias de la OMS no impone directrices obligatorias a los países miembros

29 may. El pasado 20 de mayo, los Estados Miembros de la Organización Mundial de la Salud (OMS) adoptaron por consenso el primer Acuerdo sobre Pandemias a escala mundial. De acuerdo con esta nota de prensa emitida por el organismo, esta decisión histórica de la 78.ª Asamblea Mundial de la Salud "es fruto de más de tres años de intensas negociaciones iniciadas por los gobiernos en respuesta a los efectos devastadores de la pandemia de COVID-19 y motivadas por el objetivo de lograr que el mundo sea más seguro y equitativo frente a futuras pandemias."

Dicho acuerdo ha generado diferentes narrativas desinformativas en redes sociales. Así, circulan en redes sociales mensajes que afirman que el Acuerdo sobre Pandemia impone directrices obligatorias a los países miembros. "El Acuerdo de Pandemias otorga a la OMS el control absoluto de las naciones del mundo", se puede leer en uno de los mensajes viralizados.

Sin embargo, esto es falso. Este acuerdo solo contempla recomendaciones, en ningún momento el organismo impone directrices obligatorias a los países miembros.

El tratado de pandemias de la OMS no impone directrices obligatorias a los países miembros

Para comprobar si la OMS puede imponer directrices obligatorias a los países miembros a raíz de ese tratado, lo primero que se ha realizado desde INFOVERITAS es leer al completo el documento emitido por este organismo el 14 de mayo para la negociación de este convenio. No obstante, no hay ningún punto en el que se recoja que la OMS impone directrices obligatorias a los países miembros.

El acuerdo solo contempla recomendaciones y no obliga a los Estados a ceder sus competencias sanitarias, como en materia de vacunación o confinamientos. Una narrativa desinformativa similar fue desmentida por INFOVERITAS a raíz de las medidas para reducir la propagación de la COVID-19 y otra a raíz del mpox. El Tratado establece explícitamente que la OMS no tiene autoridad para "dirigir, ordenar, alterar o prescribir la legislación nacional" ni para "ordenar o imponer cualquier obligación de que las Partes adopten medidas específicas", tales como vacunación obligatoria, rechazo de viajeros o confinamientos.

De hecho, todo lo contrario. En su artículo 22 se señala que nada de lo dispuesto en el acuerdo confiere a la OMS autoridad sobre la legislación o políticas nacionales de los países miembros. La soberanía en materia de salud sigue siendo de las autoridades nacionales competentes, según su propia legislación.

La OMS no impone directrices obligatorias, solo emite recomendaciones

También en la sección de preguntas y respuestas sobre el «Acuerdo de prevención, preparación y respuesta ante pandemias» de la OMS se ofrece la misma información. Además, en su página web, en el apartado del

Artículo 22. Secretaría

1. La Secretaría de la Organización Mundial de la Salud actuará como Secretaría del Acuerdo de la OMS sobre Pandemias y llevará a cabo las funciones que le atribuye el presente Acuerdo y las demás funciones que determine la Conferencia de las Partes. En el desempeño de estas funciones, la Secretaría de la Organización Mundial de la Salud, bajo la orientación de la Conferencia de las Partes, se encargará de la coordinación necesaria, según proceda, con las organizaciones intergubernamentales internacionales y regionales competentes y otros organismos pertinentes.

2. Nada de lo dispuesto en el Acuerdo de la OMS sobre Pandemias se interpretará en el sentido de que confiere a la Secretaría de la Organización Mundial de la Salud, incluido el Director General de la Organización Mundial de la Salud, autoridad alguna para dirigir, ordenar, alterar o prescribir de otro modo la legislación nacional y/o interna, según proceda, o las políticas de alguna de las Partes, o para ordenar o imponer de otro modo cualquier obligación de que las Partes adopten medidas específicas, tales como rechazar o aceptar viajeros, imponer mandatos sobre vacunación o medidas terapéuticas o diagnósticas o implementar confinamientos.

Reglamento Sanitario Internacional: enmiendas, se señala, además, que la Asamblea Mundial de la Salud puede formular recomendaciones y proponer modos de proceder, "especialmente en momentos de riesgo sanitario mundial sin precedentes." No obstante, dependerá de cada gobierno determinar su respuesta y actuar en consecuencia.

INFOVERITAS verifica que…

El tratado de pandemias de la OMS no impone directrices obligatorias a los países miembros. Este acuerdo solo contempla recomendaciones, en ningún momento impone directrices obligatorias a los países miembros.

Fuente: INFOVERITAS. Disponible en https://lc.cx/HX8Zgu

SK Bioscience Expands Vaccine Production Capacity for Global Market Penetration

May 29. SK Bioscience is accelerating its efforts to expand its production infrastructure to penetrate the global market. On May 29, the company announced the completion of the expansion of its vaccine production facility, 'L HOUSE,' located in Andong, Gyeongsangbuk-do, and has received approval for building use from the city of Andong.

This expansion is part of a strategic move to secure production capacity for the 21-valent pneumococcal vaccine candidate, 'GBP410,' which SK Bioscience is co-developing with global pharmaceutical company Sanofi. The expansion transformed the previously single-story production building into a three-story facility, adding approximately 4,200 square meters of space. The funding for the expansion was provided through a joint investment by both companies.

Following the completion of the expansion, SK Bioscience plans to immediately commence the installation of internal process equipment and will pursue cGMP (current Good Manufacturing Practice) certification from the U.S. Food and Drug Administration. This certification is a mandatory requirement for entering the U.S. market and is considered one of the strictest quality standards worldwide. Obtaining it will further solidify L HOUSE's position as a global vaccine supply hub. Notably, in 2021, L HOUSE became the first domestic vaccine production facility to receive EU-GMP certification from the European Medicines Agency.

Currently, GBP410 is undergoing Phase 3 clinical trials in Australia, the United States, and South Korea. The trials involve approximately 7,700 children and adolescents aged six weeks to 17 years, evaluating the immunogenicity and safety of the vaccine in up to four doses compared to existing licensed vaccines. Phase 2 trials had previously demonstrated similar levels of immune response and safety as the control vaccine.

GBP410 is the first pneumococcal vaccine in clinical Phase 3 to include more than 20 serotypes, and it is expected to offer broad protection against invasive pneumococcal diseases (IPD). According to the World Health Organization, approximately 700,000 children under five die from pneumonia each year globally, with around 300,000 deaths attributed to pneumococcal infections. Consequently, demand for vaccines with broader preventive coverage continues to rise.

SK Bioscience and Sanofi are leveraging their respective strengths to maximize synergy. SK Bioscience focuses on vaccine production and development capabilities, while Sanofi contributes its expertise in product commercialization and regulatory approvals in the global market. Together, they are working towards the commercialization and market expansion of their co-developed product.

In December of last year, the companies expanded their development collaboration for GBP410 and initiated the development of a next-generation pneumococcal conjugate vaccine expected to provide broader preventive effects than existing products. This strategy aims to further strengthen their global vaccine pipeline.

Jae-Yong Ahn, President of SK Bioscience, stated, “The L HOUSE expansion represents a critical step towards equipping our infrastructure to meet global standards, marking a decisive moment in our emergence as a world-leading vaccine production hub.”

Fuente: KOREA IT TIMES. Disponible en https://lc.cx/cbGyp4

Pfizer and BioNTech Submit EMA Application for COVID-19 Vaccine Targeting LP.8.1 for 2025-2026 Season

May 29. Pfizer Inc. (NYSE: PFE, "Pfizer") and BioNTech (Nasdaq: BNTX, "BioNTech") announced that they have submitted a regulatory application to the European Medicines Agency (EMA) for approval of COMIRNATY® for the 2025-2026 season, targeting the LP.8.1 strain. The submission follows the recommendation by the EMA's Emergency Task Force (ETF) to update the COVID-19 vaccine composition for the coming season to target the LP.8.1 strain.

The COVID-19 vaccines by Pfizer and BioNTech are based on BioNTech's proprietary mRNA technology and were developed by both companies. BioNTech is the Marketing Authorization Holder for COMIRNATY® and its adapted vaccines in the United States, the European Union, the United Kingdom, and other countries, and the holder of emergency use authorizations or equivalents in the United States (jointly with Pfizer) and other countries.

U.S. INDICATION, AUTHORIZED USE AND IMPORTANT SAFETY INFORMATION

COMIRNATY ® (COVID-19 Vaccine, mRNA) is a vaccine for use in people 12 years of age and older to protect against coronavirus disease 2019 (COVID-19).

AUTHORIZED USE

Pfizer-BioNTech COVID-19 Vaccine (2024-2025 Formula)* is FDA authorized under Emergency Use Authorization (EUA) to prevent coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in individuals 6 months through 11 years of age.

*Hereafter referred to as Pfizer-BioNTech COVID-19 Vaccine.

EMERGENCY USE AUTHORIZATION

Emergency uses of COVID-19 vaccines from BioNTech and Pfizer, including Pfizer-BioNTech COVID-19 Vaccine (2024-2025 Formula), have not been approved or licensed by FDA, but have been authorized by FDA, under an Emergency Use Authorization (EUA) to prevent Coronavirus Disease 2019 (COVID-19) in individuals 6 months of age and older. Emergency uses are only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of the medical products under Section 564(b)(1) of the FD&C Act unless the declaration is terminated or authorization revoked sooner. Please see EUA Fact Sheets at www.cvdvaccine-us.com

Fuente: Pfizer. Disponible en https://lc.cx/i-h4WL

Dx&Vx Accelerates Development of Universal COVID-19 Vaccine

May 29. Bio-healthcare company Dx&Vx (DXVX) has officially announced the acceleration of its development program for a universal COVID-19 vaccine, following the recent acquisition of related technology. Designed to provide immunity against both current and future variants of the coronavirus, this next-generation vaccine is drawing global attention amid a new wave of COVID-19 cases worldwide.

- *Emerging as a next-generation vaccine amidst global resurgence of COVID-19.*
- *Expanding v arious pipelines other than universal COVID vaccine.*

Global health organizations, including the WHO, have raised concerns about rising COVID-19 cases in parts of Europe, Asia, and North America. These warnings have highlighted the urgent need for more robust and lasting immune solutions against evolving virus variants.

DXVX, a company led by COREE Group Chairman Chong-Yoon Lim, the eldest son of Hanmi Pharmaceutical Group's founder, secured the universal vaccine technology late last year. The vaccine under development uses a virus-like particle (VLP) platform, which offers greater stability and ease of storage compared to mRNA vaccines. Theoretically, it has the potential to prevent infections caused by all known and future COVID-19 variants.

Currently, DXVX is advancing through the regulatory procedures necessary to initiate Phase 2 clinical trials in South Korea, the U.S., and Southeast Asia. After successfully completing Phase 1 trials in the U.S. and South Africa, the company is preparing its Investigational New Drug (IND) applications for global Phase 2 studies.

DXVX also acquired a universal COVID-19 treatment technology last year from LUCA AI Cell. DXVX stated, "Luca's treatment technology has efficacy test data for dozens of lethal viruses, including COVID-19," and added, "It is expected to enable the development of a new-concept COVID-19 treatment."

In addition to its universal COVID-19 vaccine and treatment, Dx&Vx (DXVX) is actively targeting the global pharmaceutical and biotech market through a diverse pipeline, including:

- A next-generation mRNA vaccine platform capable of ultra-long-term storage at room temperatura.
- An oral obesity treatment.
- The OVM-200 cancer vaccine based on the ROP platform technology.

In particular, the mRNA vaccine platform capable of ultra-long-term storage at room temperature is considered a game-changer, as it enables vaccination even in countries with limited cold-chain infrastructure, thereby lowering geographical barriers in responding to infectious diseases. Discussions to sign Material Transfer Agreements (MTAs) with major domestic and global mega pharmaceutical companies have recently accelerated, indicating that the platform has entered the late stages of licensing out, with visible outcomes expected within this year.

In addition, the oral obesity treatment, which is about to enter clinical trials, addresses the inconvenience of injection-based therapies while demonstrating effectiveness in improving fat metabolism, with related patents already filed. The OVM cancer vaccine represents a novel immuno-oncology approach targeting solid tumors and is also open to potential joint development with global pharmaceutical companies.

A DXVX spokesperson stated, "We are committed to advancing the development of the universal COVID-19 vaccine, while also preparing for potential future COVID-19 variants and lethal infectious diseases, such as 'Disease X'." The spokesperson added, "In addition to the major pipelines currently being promoted for licensing out, we are actively investing in R&D across multiple technology assets and expect sustainable long-term outcomes."

Fuente: The Laotian Times. Disponible en https://lc.cx/dUwVM4

Una nueva molécula promete ser eficaz para coronavirus como el SARS-CoV-2

May 30. Un equipo de la Universidad de California en San Francisco y el Instituto Gladstone en Estados Unidos ha desarrollado nuevos fármacos candidatos que pueden ser una gran promesa contra el virus que causa la COVID-19 y potencialmente otros coronavirus que podrían causar futuras pandemias.

En pruebas preclínicas, los compuestos funcionaron mejor que Paxlovid contra el SARS-CoV-2 y el virus del síndrome respiratorio del Oriente Medio (MERS), que periódicamente causa brotes mortales en todo el mundo.

"En tres años, nos hemos movido tan rápido como lo hubiera hecho una compañía farmacéutica, de principio a fin, en el desarrollo de fármacos candidatos contra un patógeno totalmente nuevo", cuenta Charles Craik, profesor de química farmacéutica de la UCSF y coautor correspondiente del artículo, que aparece en *'Science Advances'*.

"Estos compuestos podrían inhibir los coronavirus en general, lo que nos daría una ventaja contra la próxima pandemia", cuenta Craik. "Necesitamos que lleguen a la meta y entren en ensayos clínicos".

El trabajo fue financiado por una subvención del Instituto Nacional de Alergias y Enfermedades Infecciosas (NIAID) para prepararse para la próxima epidemia de coronavirus, un trabajo que las compañías farmacéuticas han abandonado en gran medida. Sin embargo, la subvención a la UCSF ha sido cancelada, y los fármacos antivirales candidatos del grupo enfrentan un futuro incierto.

El descubrimiento surge del Centro de Descubrimiento de Medicamentos Antivirales (AViDD) para Patógenos de Preocupación Pandémica de la UCSF , que financió el trabajo de cientos de científicos de la UCSF y otras instituciones. Es uno de los nueve centros que el NIAD creó en 2022 para reforzar la preparación del país ante pandemias.

Hace tres años, la beca AViDD de la UCSF impulsó los esfuerzos del Grupo de Investigación sobre el Coronavirus (QCRG) del Instituto de Biociencias Cuantitativas (QBI) de la UCSF . El QCRG, fundado en 2020 por el director del QBI, el doctor Nevan Krogan, reunió a 800 científicos de más de 40 instituciones de todo el mundo. "La COVID fue nuestra llamada de atención para aplicar todos nuestros recursos y conocimientos a nuevas terapias y a la preparación ante futuras pandemias", afirma Krogan, profesor de farmacología celular y molecular de la UCSF, coautor del artículo y destacado experto en biología de enfermedades infecciosas. "La financiación de AViDD, que ahora está en peligro, estaba destinada a ayudarnos a producir antivirales potentes y necesarios en tiempo récord".

El grupo se centró en la proteasa mayor (MPro), un tipo de enzima que descompone las proteínas en fragmentos más pequeños, como si fueran tijeras moleculares. El SARS-CoV-2 utiliza MPro para reducir las proteínas virales a fragmentos utilizables, que el virus utiliza para replicarse en células humanas. Las proteasas virales han sido frecuentemente el objetivo de los intentos de desarrollar fármacos antivirales, sobre todo para el VIH.

El programa de acoplamiento molecular de Shoichet, un sistema virtual para probar cómo interactúan diferentes moléculas con las proteínas, ayudó al equipo a identificar unas pocas docenas de estructuras

moleculares, entre millones, que bloqueaban levemente la MPro: un punto de partida para desarrollar candidatos a fármacos en el mundo real.

Los dos fármacos candidatos parecían prometedores como terapias contra enfermedades. Bloqueaban eficazmente su objetivo; se desplazaban eficientemente por el organismo, asegurando su alcance; y, al menos en ratones, parecían seguros. En un tentador experimento de seguimiento, una versión aún más optimizada de las moléculas bloqueó eficazmente variantes del SARS-CoV-2 como Delta, así como el MERS, un coronavirus menos prevalente pero mucho más mortal.

El equipo cree que sus fármacos candidatos, una vez guiados a través de ensayos clínicos para demostrar su seguridad en humanos, podrían mantenerse "en reserva" listos para combatir la próxima pandemia causada por un coronavirus.

Fuente: Infosalus. Disponible en https://lc.cx/PCfSdu

China approves first domestically produced nine-valent HPV vaccine

May 30. China approved its first domestically developed nine-valent human papillomavirus (HPV) vaccine on Thursday, according to the National Medical Products Administration.

The vaccine, Cecolin 9, was jointly developed by the Xiang An Biomedicine Laboratory, Xiamen University and Wantai BioPharm. Its approval makes China the second country in the world -- after the United States -- with the capability to independently supply high-valency HPV vaccines.

Since 2019, the vaccine has been through five clinical trials conducted across China, involving more than 11,000 healthy volunteers aged nine to 45.

Results from these trials showed that the vaccine provides strong protection against HPV types 16 and 18 -- the same strains covered by the two-valent vaccine -- as well as five other HPV types 31, 33, 45, 52 and 58, with a protection rate of over 98 percent against persistent infections lasting more than 12 months and a 100 percent protection rate against cervical infections.

For girls aged nine to 17, just two doses are sufficient to produce an immune response comparable to that seen in women aged 18 to 26 who receive three doses. For girls aged 15 to 17, it is currently the only two-dose HPV vaccine available in China.

A comparative study showed that the new vaccine offers immune responses comparable with similar international products for at least 30 months after full immunization. These findings have been published in The Lancet Infectious Diseases.

The new vaccine is the latest achievement from the research team that also developed China's first domestically made two-valent HPV vaccine in 2019. In 2021, the two-valent HPV vaccine received prequalification from the World Health Organization (WHO) and has since entered the markets of 21 countries.

Cervical cancer was the fourth most common cancer among women worldwide in 2022, according to the WHO. China made free HPV vaccination accessible to approximately 40 percent of girls aged 13 to 14 in 2024, as part of its ongoing work to tackle cervical cancer, according to the National Health Commission.

Fuente: Xinhua English News. Disponible en https://lc.cx/EjuQQu

Moderna consigue aprobación de la FDA para mNexspike, su vacuna COVID de baja dosis con acceso limitado

May 31. La Administración de Alimentos y Medicamentos de Estados Unidos (FDA, por sus siglas en inglés) aprobó una nueva vacuna contra la COVID-19 desarrollada por la farmacéutica Moderna, llamada mNexspike, pero su autorización quedó limitada a personas mayores de 65 años y a individuos de entre 12 y 64 años que presenten al menos una condición médica que los ponga en riesgo frente al coronavirus.

"La autorización llega en un contexto de cambios regulatorios en salud pública, marcado por decisiones políticas que han modificado criterios previos sobre la inmunización frente al coronavirus."

La nueva vacuna no sustituirá al biológico actual de la compañía, Spikevax, sino que funcionará como una segunda opción para proteger a sectores vulnerables. Según anunció Moderna, el nuevo diseño permite una reducción en la cantidad de dosis —una quinta parte respecto a la formulación anterior— gracias a una optimización del objetivo inmunológico.

"El nuevo biológico añade una herramienta importante para proteger a quienes corren un mayor riesgo de desarrollar enfermedad grave por COVID-19", afirmó el director ejecutivo de Moderna, Stephane Bancel, en un comunicado divulgado el sábado, de acuerdo con *CBS News*.

La nueva fórmula se basa en una dosis más baja, con estudios que respaldan su seguridad y eficacia

La aprobación del producto se basó en un estudio clínico realizado en 11,400 personas de 12 años en adelante, que comparó el desempeño de mNexspike con la vacuna Spikevax ya existente. Los resultados, de acuerdo con los datos presentados por la empresa, demostraron que la nueva versión fue segura y al menos igual de efectiva que su predecesora, y en algunos indicadores, incluso mostró un mejor rendimiento.

El diseño de mNexspike marca un avance hacia vacunas de próxima generación contra el coronavirus, al utilizar una menor carga de antígeno sin comprometer la respuesta inmunitaria. Esta reformulación también puede facilitar la producción y distribución en el futuro, aunque por ahora su disponibilidad estará restringida conforme a los lineamientos de la FDA.

Estas limitaciones no se aplican a la vacuna original de Moderna, Spikevax, la cual continúa autorizada para todas las personas desde los seis meses de edad en adelante. La empresa planea ofrecer ambas opciones durante el próximo otoño.

La FDA impone criterios más estrictos que en campañas previas de vacunación generalizada

El hecho de que la FDA haya restringido el uso de mNexspike marca una ruptura con la estrategia previa del gobierno estadounidense, que durante gran parte de la pandemia promovió la vacunación generalizada sin restricciones de edad o condiciones médicas.

El mismo tipo de limitación fue impuesta recientemente a la vacuna de la empresa competidora Novavax. Ambos productos fueron autorizados únicamente para adultos mayores o personas con condiciones que aumentan el riesgo de enfermedad severa.

Según CBS News, esta postura más cautelosa responde en parte al creciente escepticismo hacia las vacunas expresado por el actual secretario de Salud, Robert F. Kennedy Jr., y por otros funcionarios de la administración del gobierno federal, quienes han cuestionado repetidamente la eficacia y seguridad de los productos basados en tecnología de ARN mensajero.

Fuente: Infobae. Disponible en https://lc.cx/MBQBh8

WHO releases first-ever position paper on immunization products to protect infants against RSV

May 31. Today, the World Health Organization (WHO) published its first-ever position paper on immunization products to protect infants against respiratory syncytial virus (RSV) – the leading cause of acute lower respiratory infections in children globally.

Every year, RSV causes about 100 000 deaths and over 3.6 million hospitalizations in children under the age of 5 years worldwide. About half of these deaths occur in infants younger than 6 months of age. The vast majority (97%) of RSV deaths in infants occur in low- and middle-income countries where there is limited access to supportive medical care, such as oxygen or hydration.

Published in the Weekly Epidemiological Record (WER), the position paper outlines WHO recommendations for two immunization products: a maternal vaccine that can be given to pregnant women in their third trimester to protect their infant and a long-acting monoclonal antibody that can be administered to infants from birth, just before or during the RSV season.

> *"RSV is an incredibly infectious virus that infects people of all ages, but is especially harmful to infants, particularly those born premature, when they are most vulnerable to severe disease. The WHO-recommended RSV immunization products can transform the fight against severe RSV disease, dramatically reduce hospitalizations, and deaths, ultimately saving many infant lives globally."*
>
> *Dr. Kate O'Brien, Director of Immunization, Vaccines, and Biologicals at WHO*

RSV usually causes mild symptoms similar to the common cold, including runny nose, cough and fever. However, it can lead to serious complications – including pneumonia and bronchiolitis – in infants, young children, older adults and those with compromised immune systems or underlying health conditions.

Two immunization products to protect against RSV

In response to the global burden of severe RSV disease among infants, WHO recommends that all countries introduce either the maternal vaccine, RSVpreF, or the monoclonal antibody, nirsevimab depending on the feasibility of implementation within each country's existing health system, cost-effectiveness and anticipated coverage. Both products were recommended by the Strategic Advisory Group of Experts on Immunization (SAGE) for global implementation in September 2024. In addition, the maternal vaccine received WHO prequalification in March 2025, allowing it to be purchased by UN agencies.

WHO recommends that the maternal vaccine be given to pregnant women during the third trimester of pregnancy, from week 28 onwards, to optimize for the adequate transfer of antibodies to their baby. The vaccine may be given during routine antenatal care, including at one of the 5 WHO-recommended antenatal care visits in the third trimester or any additional medical consultations.

The second WHO-recommended immunization product, nirsevimab, is given as a single injection of monoclonal antibodies that starts protecting babies against RSV within a week of administration and lasts for at least 5 months, which can cover the entire RSV season in countries with RSV seasonality.

WHO recommends that infants receive a single dose of nirsevimab right after birth or before being discharged

from a birthing facility. If not administered at birth, the monoclonal antibody can be given during the baby's first health visit. If a country decides to administer the product only during the RSV season rather than year-round, a single dose can also be given to older infants just before entering their first RSV season.

The greatest impact on severe RSV disease will be achieved by administering the monoclonal antibody to infants under 6 months of age. However, there is still a potential benefit among infants up to 12 months of age.

WHO regularly issues updated position papers on vaccines, combinations of vaccines and other immunization products against diseases that have major public health impact. These papers focus primarily on the use of vaccines in large-scale vaccination programmes. The new position paper aims to inform national public health policymakers and immunization programme managers on the use of RSV immunization products in their national programmes, as well as national and international funding agencies.

Fuente: News Medical Life Sciences. Disponible en https://lc.cx/xJt90n

Falta más preparación para enfrentar pandemias como COVID-19

31 may. A pesar del aprendizaje que nos dejó la pandemia de la COVID-19 y de los avances tecnológicos -como el desarrollo de vacunas-, no estamos plenamente preparados para enfrentar una emergencia sanitaria similar, pues persisten miedos y desigualdades que impactarían en factores como la incidencia, hospitalización y mortalidad.

En lo anterior coincidieron las especialistas Ivette Buendía Roldán, doctora en Ciencias Médicas e investigadora del Instituto Nacional de Enfermedades Respiratorias “Ismael Cosío Villegas”; y Andrea Terán, integrante de la Comisión Nacional de Bioética, durante el Seminario Permanente de Bioética de la UNAM, en su sesión “COVID-19 ¿Lecciones últimas?”.

Buendía Roldán sostuvo: aunque parte de la población utiliza más el cubrebocas, estornuda correctamente, usa gel y practica el lavado de manos constante, faltan más acciones. Por ejemplo, la vacunación es un tema álgido, pues los pacientes con COVID que requieren hospitalización generalmente decidieron no inmunizarse y carecen de protección ante este virus.

Por ello, la integrante del Sistema Nacional de Investigadoras e Investigadores nivel III llamó a no temer a las vacunas porque evitan secuelas ante una enfermedad; se debe tener cuidado especial con las y los niños, al igual que con adultos mayores.

Expuso que años atrás el virus sincicial respiratorio no era una preocupación entre los adultos, pero ahora sí. Recordó que esta población debe tener al día su cartilla de vacunación, incluyendo inmunológicos contra la influenza y el neumococo, entre otros. “Vacunar es una manera de protegernos y proteger a quienes queremos”.

Comorbilidad estructural

La especialista Andrea Terán explicó que entre las lecciones que dejó la COVID-19 están que la atención individual y la salud pública no pueden verse como áreas diferentes.

Vimos, aseveró, que las decisiones clínicas impactaban a nivel poblacional. Por ejemplo, el uso de recursos críticos, de cubrebocas, y que las determinaciones epidemiológicas como los aislamientos y el confinamiento, o las estrategias de muestreo, influían en el curso clínico.

Resaltó que la vigilancia epidemiológica tampoco puede descuidarse, pues la emergencia sanitaria evidenció el subregistro, desfase en la notificación, por ejemplo. Además de contar casos se requiere tener sistemas que detecten patrones, que alerten cambios y guíen a modificaciones de bajo riesgo.

A decir de la experta, la desigualdad fue como una "comorbilidad estructural" porque las personas que vivían en hacinamiento o tenían trabajos informales carecieron de posibilidades reales de confinamiento. Esa condición social "se tradujo en tasas de incidencia, hospitalización y mortalidad distinta entre grupos socioeconómicos".

La vacunación, añadió, se constituyó en un acto técnico y en un proceso político y emocional debido a la infodemia que se generó y a narrativas antivacunas sofisticadas que se sumaron a los desafíos de lograr una cobertura equitativa, rápida y sostenida, así como mantener su almacenamiento en frío, entre otros.

Los sistemas de salud oscilaron entre lo heroico y lo insostenible por el desabasto de recursos, la reconversión de hospitales y la sobrecarga crónica del personal, por lo que se requiere sean más robustos, flexibles y con mayor inversión en su personal, protocolos y herramientas de investigación, indicó Andrea Terán.

"No podemos esperar a la próxima emergencia para recordar la importancia de la salud pública, de la inversión en ciencia ni la preparación intersectorial. El COVID 19 nos enseñó que los virus no solo se propagan por aerosoles, por gotículas, también por las fisuras sociales, las decisiones tardías y la desinformación. Los datos salvan vidas, pero si llegan a tiempo, si son confiables y se tornan en decisiones", concluyó.

Fuente: Dirección General de Comunicación Social UNAM. Disponible en https://goo.su/FcGQBc

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Patentes registradas en Patentscope

Estrategia de búqueda: (Vaccine) AND DP:([13.05.2025 TO 22.05.2025]) *as the publication date 20 records.*

1.WO/2025/111005INFLUENZA VACCINE COMPRISING WHOLE VIRUS, SPLIT VIRUS OR VIRUS LIKE PARTICLES WITH PARTIALLY GLYCOSYLATED SURFACE VIRAL GLYCOPROTEIN

WO - 30.05.2025

Clasificación Internacional A61K 35/57Nº de solicitud PCT/US2023/081026Solicitante RUENHUEI BIOPHARMACEUTICALS INC.Inventor/a HSIAO, Jane

The present invention provides a vaccine composition comprising a therapeutically effective amount of whole influenza virus, split influenza virus, virus like particle (VLP) or a combination thereof wherein one or more surface viral glycoproteins of the whole influenza virus, split influenza virus or VLP is partially glycosylated; and wherein the whole influenza virus and the split influenza virus has been attenuated or inactivated. The present invention also provides a method of preparation of the vaccine comprising the steps of injecting working virus seed with an inhibitor of the mannosidase into embryonated chicken egg to inoculate the embryonated chicken egg; incubating the inoculated embryonated chicken egg to propagate the working vims; harvesting allantonic fluids from the inoculated embryonated chicken egg; concentrating and clarifying the harvested allantonic fluids; purifying the concentrated and clarified allantonic fluids using sucrose density centrifugation; applying deglycosylation enzyme to the purified allantonic fluid to partially glycosylate viral surface glycoprotein of the propagated vims within the purified allantonic fluid; removing deglycosylation enzyme from whole vims with partially glycosylated viral surface glycoprotein; and inactivating the vims. The present invention further provides a method of treatment for prevention of influenza infection comprising the step of administering any embodiment of the vaccine of the present invention to a subject.

2.WO/2025/107842MRNA VACCINE AND USE THEREOF

WO - 30.05.2025

Clasificación Internacional A61K 39/12Nº de solicitud PCT/CN2024/118462Solicitante CHANGCHUN BCHT BIOTECHNOLOGY CO.Inventor/a TANG, Xin

Provided are an mRNA vaccine and use thereof. The mRNA vaccine comprises nucleic acids encoding a fusion F protein of respiratory syncytial virus and at least one matrix protein (M) of metapneumovirus. The mRNA vaccine can induce animals to generate specific humoral immune responses (neutralizing antibodies) against respiratory syncytial virus (RSV), can protect the animals from death caused by RSV infection, and reduces the viral load after challenge.

3.WO/2025/107653PASSAGE-ATTENUATED STRAIN OF AFRICAN SWINE FEVER VIRUS AND VACCINE ON BASIS OF STRAIN

WO - 30.05.2025

Clasificación Internacional C12N 7/00Nº de solicitud PCT/CN2024/103777Solicitante HARBIN VETERINARY RESEARCH INSTITUTE, CHINESE ACADEMY OF AGRICULTURAL SCIENCES (CHINA ANIMAL HEALTH AND EPIDEMIOLOGY CENTER, HARBIN)Inventor/a BU, Zhigao

Provided is an African swine fever virus strain with the microbial deposit number CCTCC NO: V2023100. Also provided is a vaccine composition for preventing African swine fever, which comprises the African swine fever virus strain and a freeze-drying protective agent. Further provided is a method for preparing the vaccine composition. The virus strain has a good safety and good immune effectiveness. A pig inoculated with the virus strain can generate a high-level antibody against the African swine fever virus, and can resist challenges of strong African swine fever viruses of different genotypes. The African swine fever virus strain and the vaccine composition have clinical application prospects.

4.4559478VERFAHREN ZUR REDUZIERUNG DER PYROGENEN AKTIVITÄT VON INAKTIVIERTEN VOLLINFLUENZAVIRUSPARTIKELIMPFSTOFFEN

EP - 28.05.2025

Clasificación Internacional A61K 39/145Nº de solicitud 23843036Solicitante DENKA COMPANY LTDInventor/a GOTANDA TAKUMA

It is provided a method for reducing pyrogenic activity in the preparation of an inactivated whole influenza virus particle vaccine using an embryonated chicken egg method. The method for reducing pyrogenic activity of an inactivated whole influenza virus particle vaccine in a method for preparing the vaccine using an embryonated chicken egg method comprises a step of reducing an avian-derived microRNA content in a virus solution containing a whole influenza virus particle collected from an embryonated chicken egg.

5.WO/2025/109316VIRAL-BASED IMMUNO THERAPEUTIC GENETIC CONSTRUCT COMPRISING UL40 INTO WHICH A TUMOUR-ASSOCIATED ANTIGENIC PEPTIDE IS INCORPORATED

WO - 30.05.2025

Clasificación Internacional A61K 39/12Nº de solicitud PCT/GB2024/052929Solicitante UNIVERSITY COLLEGE CARDIFF CONSULTANTS LIMITEDInventor/a HUMPHREYS, Ian

The invention concerns a genetic construct with enhanced immunogenicity that encodes a recombinant protein or peptide sequence that includes at least a part of the human cytomegalovirus (HCMV) UL40 protein; a vector, such as a viral vector, comprising same; a pharmaceutical composition or vaccine composition comprising same; the use of said genetic construct or said viral vector or said pharmaceutical composition or said vaccine composition as a medicament; and a method of treating or preventing a disease using said genetic construct, or said viral vector, or said pharmaceutical composition or said vaccine composition.

6.WO/2025/110779MOTIF SEQUENCE FOR ENHANCING LONG-TERM AND ADAPTIVE IMMUNITY, AND VACCINE COMPOSITION COMPRISING SAME

WO - 30.05.2025

Clasificación Internacional A61K 39/39Nº de solicitud PCT/KR2024/018573Solicitante RNAGENE INC.Inventor/a LEE, Woo Ghil

The present invention relates to a novel immune-enhancing protein capable of enhancing antibody-forming ability, and use thereof. The vaccine composition comprising an antigen and a gPA-1-derived protein of Pneumocystis carinii or a gpl20-derived protein of human immunodeficiency virus (HIV), of the present invention, has an antibody-forming ability against a disease antigen that is superior to that of other vaccines, and thus a more effective vaccine can be prepared.

7.4558171SYNTHETISCHE MODIFIZIERTE IMPFSTOFFE GEGEN VACCINIA ANKARA ZUR STIMULIERUNG DER IMMUNITÄT GEGEN ORTHOPOX UND AFEPOXVIRUS

EP - 28.05.2025

Clasificación Internacional A61K 39/215Nº de solicitud 23843924Solicitante HOPE CITYInventor/a DIAMOND DON J

Disclosed are methods of preventing or treating a *coronavirus* infection and a *poxvirus* infection in a subject by administration of a synthetic MVA-based vaccine.

8.4560014ATTENUIERTER STAMM DES VIRUS DER INFEKTIÖSEN BRONCHITIS VON VÖGELN UND IMPFSTOFFZUSAMMENSETZUNG DAMIT

EP - 28.05.2025

Clasificación Internacional C12N 7/00Nº de solicitud 23843425Solicitante KHAV CO LTDInventor/a YOUN HA NA

The present invention relates to an attenuated strain of avian infectious bronchitis virus and a vaccine composition containing same. With weak pathogenicity and high immunogenicity, the attenuated strain of the present invention can induce defensive capabilities against the avian infectious bronchitis virus and thus can be advantageously used as an attenuated live vaccine.

9.WO/2025/109008NOVEL VACCINE COMPOSITIONS AND METHODS FOR TREATING HSV

WO - 30.05.2025

Clasificación Internacional A61K 39/12Nº de solicitud PCT/EP2024/082999Solicitante REDBIOTEC AGInventor/a LJUNGBERG, Karl

The present invention relates to an immunogenic composition and a related vaccine composition comprising one or more nucleic acid(s) encoding structural proteins of Herpes Simplex Virus 2 (HSV-2) or immunogenic fragments thereof. The vaccine composition may be used for the treatment and/or prevention of HSV-2 infection and is particulary beneficial for the immunological control of periodic reactivation of the virus in infected patients.

10.4558168KOMBINATIONSTHERAPIE MIT NEOANTIGEN-IMPFSTOFF

EP - 28.05.2025

Clasificación Internacional A61K 39/00Nº de solicitud 23843870Solicitante BIONTECH US INCInventor/a BALOGH KRISTEN N

The present disclosure relates to neoplasia vaccine or immunogenic composition administered in combination with other agents, such as checkpoint blockade inhibitors for the treatment or prevention of neoplasia in a subject

11.WO/2025/109524ASSAYS AND METHODS FOR ASSESSING VACCINE PREPARATIONS

WO - 30.05.2025

Clasificación Internacional G01N 33/50Nº de solicitud PCT/IB2024/061688Solicitante AC IMMUNE SAInventor/a FERTIN, Rémi

Provided herein are assays and methods of assessing vaccine preparations, and engineered B cell receptors (BCR) and engineered B cell lines used in such assays and methods.

12.WO/2025/111546DEVELOPMENT OF BROAD-SPECTRUM ANTI-OPIOID VACCINES

WO - 30.05.2025

Clasificación Internacional A61K 39/385Nº de solicitud PCT/US2024/057069Solicitante BOARD OF TRUSTEES OF MICHIGAN STATE UNIVERSITYInventor/a SULIMA, Agnieska

Provided herein are vaccine compositions comprising a hapten-conjugated to a capsid, wherein the capsid comprises wild type or native sequence, or at least one mutation. Also provided herein are vaccine compositions comprising a hapten conjugated to a capsid, wherein said capsid comprises at least one mutation, such as a non-natural mutation. Such compositions are useful in the treatment and/or prevention of opioid use disorders (OUDs), including opioid addiction and opioid overdose across a broad spectrum of opioids.

13.WO/2025/110550COMPLEX FOR GENE DELIVERY

WO - 30.05.2025

Clasificación Internacional C08G 73/02Nº de solicitud PCT/KR2024/016991Solicitante INDUSTRY FOUNDATION OF CHONNAM NATIONAL UNIVERSITYInventor/a PARK, In Kyu

The present invention relates to a nucleic acid-based drug delivery platform. A complex according to the present invention has moderated toxicity and exhibits stable nucleic acid-binding ability due to osmotic activity. In addition, the complex promotes cell uptake of the nucleic acid supported on a polymer, and improves an endosomal release effect of the nucleic acid through degradation of nanoparticles in the cytoplasm. The complex according to the present invention has effects of maximizing gene expression of nucleic acids in a cell and contributing to maintaining the expression for a long time, and thus can be applied to various fields of immune activity, vaccine development, and the like.

14.4560021MRNA FÜR SARS-COV-2S-PROTEIN UND VERWENDUNG DAVON

EP - 28.05.2025

Clasificación Internacional C12N 15/50Nº de solicitud 23842316Solicitante SHENZHEN SHENXIN BIOTECHNOLOGY CO LTDInventor/a HUANG HUI

The present invention relates to an RNA encoding the S protein of SARS-COV-2, a vaccine comprising the RNA, and uses thereof. The present invention also relates to a universal polynucleotide molecule comprising a 5'-UTR and/or a 3'- UTR, and a nucleic acid sequence encoding a protein and/or polypeptide of interest, and optionally comprising a polyA.

15.WO/2025/111454IONIZABLE LIPIDS, LIPID NANOPARTICLES FOR MRNA DELIVERY AND METHODS OF MAKING THE SAME

WO - 30.05.2025

Clasificación Internacional C07D 211/62Nº de solicitud PCT/US2024/056880Solicitante UNIVERSITY OF CINCINNATIInventor/a LEE, Joo-Youp

Provided herein are compositions including ionizable lipids and lipid nanoparticles comprising the ionizable lipids. The ionizable lipids may have a general structure according to formula I: (I). Lipid nanoparticles generally include the ionizable lipid according to formula (I); a helper lipid; a sterol; and a PEGylated lipid conjugate. The ionizable lipids and lipid nanoparticles may be used to carrier cargo for a vaccine.

16.3021881RECOMBINANT MOPEIA VIRUS AND VACCINE PLATFORM

ES - 27.05.2025

Clasificación Internacional A61K 39/12Nº de solicitud 16785480Solicitante Institut PasteurInventor/a BAIZE, Sylvain

17.WO/2025/109417IMMUNOGENIC COMPOSITION OF HAEMOPHILUS INFLUENZAE CONJUGATED TO PROTEIN D

WO - 30.05.2025

Clasificación Internacional A61K 39/04Nº de solicitud PCT/IB2024/061019Solicitante PANACEA BIOTEC LIMITEDInventor/a JAIN, Rajesh

The present invention relates to a multi valent vaccine composition comprising antigens against Diphtheria toxoid (DT), Tetanus toxoid (TT), Whole-cell pertussis (wP)/ Acellular Pertussis (aP), Polio/ Inactivated Poliomyelitis (IPV), Hepatitis (Hep) and Haemophilus influenzae (Hib) wherein Haemophilus influenzae (Hib) conjugated to Protein D or protein D fragment as a carrier protein. This invention also relates to processes for their preparation and immunogenic compositions comprising them, wherein protein D induces protective responses against invasive infections caused by Haemophilus influenzae (Hib).

18.WO/2025/110722MRNA STRUCTURE FOR IMPROVING PROTEIN TRANSLATION EFFICIENCY, AND USE THEREOF

WO - 30.05.2025

Clasificación Internacional C12N 15/11Nº de solicitud PCT/KR2024/018416Solicitante KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGYInventor/a CHA, Hyunjoo

The present invention relates to an mRNA structure comprising: a gene encoding a target protein or peptide; and a 5' untranslated region (5'-UTR) comprising any one nucleotide sequence selected from the group consisting of SEQ ID NOS: 1 to 15 and linked upstream of the gene encoding the target protein or peptide, or a 3' untranslated region (3'-UTR) comprising any one nucleotide sequence selected from the group consisting of SEQ ID NOS: 16 to 35 and linked downstream of the gene encoding the target protein or peptide. The mRNA structure according to the present invention exhibits high mRNA stability and high expression efficiency of the target protein or peptide, and enables stable expression of the target protein within cells for an extended period of time, even when various target proteins, host cells, or delivery methods are used. Accordingly, the mRNA structure with enhanced protein translation efficiency according to the present invention can be advantageously utilized in various application fields related to target protein expression, such as therapeutic and vaccine development.

19.4558170KONTINUIERLICHES VERFAHREN ZUR HERSTELLUNG VON IMPFSTOFFEN

EP - 28.05.2025

Clasificación Internacional A61K 39/102Nº de solicitud 23742311Solicitante GLAXOSMITHKLINE BIOLOGICALS SAInventor/a JEHOULET PHILIPPE RAYMOND

The present invention relates *inter alia* to a continuous process for producing an immunogenic composition using a micro-fluidic or milli-fluidic (MF) system and filling one or more vessels with the immunogenic composition.

20.WO/2025/111048GLYCONJUGATE ADJUVANTS DERIVED FROM LIPID A

WO - 30.05.2025

Clasificación Internacional A61K 31/7016Nº de solicitud PCT/US2024/046836Solicitante UNIVERSITY OF FLORIDA RESEARCH FOUNDATION, INC.Inventor/a GUO, Zhongwu

The present application describes a new class of vaccine adjuvants, which have the 2,4-nitrodiphenyl (DNP) group or an immunologically active sugar moiety, such as rhamnose (Rha) or α-galactose (α-Gal) epitope covalently linked to monophosphoryl lipid A (MPLA). DNP, Rha, α-Gal, and MPLA are potent immunostimulants/adjuvants that function through different mechanisms. The covalent linkage of DNP, Rha, or α-Gal with MPLA generates synergistic effects for stimulating the immune system, thereby creating more potent adjuvants.

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