VacCiencia

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EN ESTE NÚMERO

VacCiencia es una publicación dirigida a investigadores y especialistas dedicados a la vacunología y temas afines, con el ojetivo de serle útil.

Usted puede realizar sugerencias sobre los contenidos y de esa forma crear una retroalimentación que nos permita acercarnos más a sus necesidades de información.

- Vacunas antimeningocócicas: breve revisión.
- Noticias más recientes en la Web sobre vacunas.
- Artículos científicos más recientes de Medline sobre vacunas.
- Patentes más recientes en Patentscope sobre vacunas.

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CUBA

Vacunas antimeningocócicas: breve revisión

Las vacunas antimeningocócicas son un componente crucial en la prevención de infecciones graves como meningitis y meningococemia, un tipo de sepsis potencialmente mortal, causadas por la bacteria *Neisseria meningitidis*. Se clasifican en dos tipos de vacunas, las polisacáridas efectivas principalmente en adultos y niños mayores de 2 años, pero con limitaciones en niños menores de 2 años debido a su baja respuesta inmunitaria; y las conjugadas, que son más efectivas ya que inducen una respuesta inmunitaria más potente y duradera.

La oferta de vacunas antimeningocócicas es variada, con alrededor de 20 fabricantes, más de 30 productos comercializados y 12 tipos de vacunas dirigidos a varias combinaciones de los seis serogrupos que causan enfermedad meningocócica invasiva (EMI): A, B, C, W, X, Y. La Tabla 1 muestra las vacunas antimeningocócicas registradas a nivel mundial.

Tabla 1. Vacunas antimeningocócicas registradas a nivel mundial

Tipo de vacuna	Nombre comercial (si está disponible)	No. de dosis	Fabricante	PQ OMS* (Sí/No)
1. MenA polisacarídica				
MenA Ps	Group A Meningococcal Polysaccharide Vaccine	5	Beijing Institute of Biological Products Co., Ltd. (Subsidiaria de CNBG) (China)	No
MenA Ps		1	Microgen (Rusia)	No
MenA Ps	Group A Meningococcal Polysaccharide Vaccine	5	Wuhan Institute of Biological Products Co.,Ltd (Subsidiaria de CNBG) (China)	No
2. MenA conjugada				
MenA conj.	MenAfriVac Meningococcal A Conjugate Vaccine - 10mcg	1	Serum Institute of India Pvt. Ltd.	No
MenA conj.	MenAfriVac A Conjugate Vaccine 5mcg	10	Serum Institute of India Pvt. Ltd.	Sí
MenA conj.	MenAfriVac A Conjugate Vaccine 10mcg	10	Serum Institute of India Pvt. Ltd.	Sí
3. MenB				
MenB	Bexsero (ex Novartis product)	1	GlaxoSmithKline Vaccine	No
MenB	Trumenba	1	Pfizer	No
4. MenC conjugada				
MenC conj.	MenC vaccine	1	Ezequiel Dias Foundation (FUNED) (Brasil)	No
MenC conj.	Menjugate (ex Novartis product)	1	GlaxoSmithKline Biologicals SA	No
MenC conj.	Meningitec	1	Nuron Biotech (USA)	No
MenC conj.	NeisVac-C (ex-Baxter product)	1	Pfizer	No
5. MenBC				
MenBC	Espro Meningo BC	1	Espromed Bio (Venezuela)	No
MenBC	VA-MENGOC-BC	1	Finlay Institute (Cuba)	No

Tipo de vacuna	Nombre comercial (si está disponible)	No. de dosis	Fabricante	PQ OMS* (Si/No)
6. MenAC polisacarídica				
MenAC Ps		10	Bio-Manguinhos/Fiocruz (Brasil)	No
MenAC Ps		1	Bio-Med (India)	No
MenAC Ps	Group A and C Meningococcal Polysacctharide Vaccine - 0.5mL - 50µg A - 50µg C	1	China National Biotech Group	No
MenAC Ps	Vax-Men-AC		Finlay Institute (Cuba)	No
MenAC Ps		1	Green Bamboo (China)	No
MenAC Ps	Group A and C Meningococcal Polysacctharide Vaccine - 0.5mL - 50µg A - 50µg C	1	Lanzhou Institute of Biological Products Co.,Ltd (Subsidiaria de CNBG) (China)	No
MenAC Ps	MeningoVac A+C	1	Microgen (Rusia)	No
MenAC Ps	Polysaccharide Meningococcal A+C Vaccine	1	Sanofi Pasteur	No
MenAC Ps	Polysaccharide Meningococcal A+C Vaccine	10	Sanofi Pasteur	No
MenAC Ps	MenAC Ps	10	Vacsera (Egipto)	No
MenAC Ps	Group A and C Meningococcal Polysaccharide Freeze-dried	1	Walvax (China)	No
7. MenAC conjugada				
MenAC conj.	MeningACon	1	Chongqing Zhifei (China)	No
MenAC conj.	Group A and C Meningococcal Conjugate Vaccine	1	Walvax (China)	No
8. MenACW-135 polisacarídica				
MenACW-135 Ps	Vax-Men-ACW135	10	Finlay Institute (Cuba)	No
MenACW-135 Ps			Hualan Biological Bacterin Co., Ltd (China)	No
9. MenACYW-135 polisacarídica				
MenACYW-135 Ps	ACYW135 Meningococcus Vaccine	1	Aim Weixin (China)	No
MenACYW-135 Ps	Quadri Meningo	1	Bio-Med (India)	No
MenACYW-135 Ps	Quadri Meningo	10	Bio-Med (India)	No
MenACYW-135 Ps	Group ACYW135 Meningococcal Polysaccharide Vaccine	1	Chengdu Kanghua (China)	No
MenACYW-135 Ps	Menvayac	1	Chongqing Zhifei (China)	No
MenACYW-135 Ps	Mencevax	1	GlaxoSmithKline Biologicals SA	No
MenACYW-135 Ps	Mencevax 5mL	10	GlaxoSmithKline Biologicals SA	No
MenACYW-135 Ps	Group ACYW135 Meningococcal Polysaccharide Vaccine	1	Hualan Biological Bacterin Co., Ltd (China)	No
MenACYW-135 Ps	Ingovax® ACWY	1	Incepta Vaccine (Bangladesh)	No
MenACYW-135 Ps	Mencevax 5mL	10	Pfizer	No
MenACYW-135 Ps	Menomune	1	Sanofi Pasteur	No
MenACYW-135 Ps	Group ACYW135 Meningococcal Polysaccharide Vaccine	1	Walvax (China)	No

Tipo de vacuna	Nombre comercial (si está disponible)	No. de dosis	Fabricante	PQ OMS* (Si/No)
10. MenACYW-135 conjugada				
MenACYW-135 conj.	Aramen: Conjugated Meningitis ACWY Vaccine (transferencia de tecnología de GSK a Arabio)	1	Arabio (Reino de Arabia Saudita)	No
MenACYW-135 conj.	Menveo	1	GlaxoSmithKline Vaccine	Sí
MenACYW-135 conj.	Nimenrix	1	Pfizer	Sí
MenACYW-135 conj.	Menactra	1	Sanofi Pasteur	Sí
MenACYW-135-TT conj.	MenQuadfi	1	Sanofi Pasteur	Sí
MenABCYW conjugada				
MenABCYW conj.	Penbraya	1	Pfizer	No
11. MenACYWX conjugada				
MenACYWX conj.	MenFive	1	Serum Institute of India Pvt. Ltd.	Sí
MenACYWX conj.	MenFive	5	Serum Institute of India Pvt. Ltd.	Sí

* PQ OMS: Precalificación por la Organización Mundial de la Salud (OMS)
CNBG: China National Biotech Group)
Fuente: MI4A Vaccine Product List 2024.

Desarrollos recientes

Menhycia®

La vacuna Menhycia de CanSino Biologics Inc. (China) recibió la aprobación de la Administración Nacional de Productos Médicos de China (NMPA) en diciembre de 2021, para su uso niños de 3 meses a tres años. Esta es la primera vacuna antimeningocócica conjugada tetravalente MenACYW desarrollada en China. Hasta el momento solo había productos tetravalentes de polisacáridos simples en el país. La empresa también tiene un producto conjugado bivalente MenAC (Menphecia).

En junio de 2022, los productos iniciales de Menhycia recibieron el certificado de liberación de lotes para su comercialización en la República Popular China. En 2023, Menhycia generó ingresos por aproximadamente 561,72 millones de RMB, lo que representa para CanSinoBIO, un aumento interanual de aproximadamente el 266,39 % en comparación con el año anterior.

CanSinoBIO ha firmado acuerdos de cooperación intencional con múltiples socios extranjeros. Esto incluye el inicio de ensayos clínicos con Menhycia en Indonesia. En el futuro, se espera la expansión de las poblaciones objetivo y la exploración de mercados extranjeros sigan impulsando el crecimiento de los ingresos de la empresa.

En diciembre de 2023, CanSino Biologics Inc. (China) y Saudi Pharmaceutical Industries and Medical AppliancesCorporation (SPIMACO) (Arabia Saudita), firmaron un acuerdo que refuerza la asociación iniciada en 2022. El acuerdo abarca la comercialización de las vacunas innovadoras de CanSinoBIO, la investigación y el desarrollo clínico conjuntos y la localización de productos biofarmacéuticos en el Reino y más allá, para incluir otros mercados de Oriente Medio y Norte de África (MENA). El paso inicial será comercializar la vacuna conjugada MenACYW, Menhycia (CanSinoBIO) en Arabia Saudita, donde la vacuna antimeningocócica conjugada tetravalente está incluida en el calendario de vacunación infantil de rutina y es un requisito obligatorio para los visitantes que viajan al país con motivo del Hajj y la Umrah.

Según Jeanne Wang, Directora Comercial de CanSinoBIO, el acuerdo es un hito importante para la penetración de CanSinoBIO en el mercado de los países de MENA.

MenFive®

La vacuna MenACYWX conjugada, MenFive, fue desarrollada mediante una colaboración de 13 años entre el SIIPL y PATH, con financiación de la Oficina de Asuntos Exteriores, Commonwealth y Desarrollo del Gobierno británico. Esta vacuna fue diseñada para prevenir y responder a los brotes y epidemias en el cinturón de la meningitis en África. Es la única vacuna que previene la meningitis causada por el meningococo X, un patógeno cada vez más implicado en los brotes de meningitis en África.

En julio de 2023, la OMS precalificó la vacuna MenFive, indicada para la inmunización activa de individuos de 9 meses a 85 años de edad en octubre de 2023; y emitió una recomendación oficial para su introducción en los países del cinturón de la meningitis, sustituyendo paulatinamente a MenAfriVac. Su despliegue será crucial para cumplir con los objetivos de la hoja de ruta mundial para derrotar a la meningitis para 2030.

En diciembre de 2023, Gavi, la Alianza para las Vacunas, asignó recursos para el despliegue de MenFive y esta vacuna está actualmente disponible para la respuesta a brotes a través de la reserva de emergencia gestionada por el Grupo Internacional de Coordinación (GIC), mientras que se espera que el despliegue a través de campañas preventivas masivas comience en 2025 en todos los países del cinturón de la meningitis.

En febrero de 2024, Nigeria se convirtió en el primer país en recibir dosis de la vacuna MenFive de la reserva de emergencia financiada por Gavi (10). Con el fin de sofocar un brote de meningococo del serogrupo C en el país, se llevó a cabo una campaña de vacunación con la vacuna MenFive del 25 al 28 de marzo de 2024 para llegar inicialmente a más de un millón de personas de entre 1 y 29 años.

PENBRAYA®

En octubre de 2023, la Administración de Medicamentos y Alimentos (FDA) de Estados Unidos aprobó la vacuna conjugada pentavalente MenABCWY, PENBRAYA de Pfizer, para la prevención de la enfermedad meningocócica por los serogrupos vacunales en individuos de 10 a 25 años. En ese mismo mes, el Comité Asesor sobre Prácticas de Inmunización (ACIP) recomendó el uso de la vacuna cuando MenACWY y MenB estén indicadas en la misma visita.

PENBRAYA es la primera vacuna que brinda cobertura contra los cinco serogrupos meningocócicos que causan EMI con mayor frecuencia a nivel mundial. Se espera que esta vacuna afecte significativamente el panorama del mercado de las vacunas antimeningocócica, particularmente en los Estados Unidos.

Próximos desarrollos

MenABCWY

Por su parte, GSK tiene un candidato vacunal conjugado pentavalente MenABCWY, que tuvo datos clínicos positivos y se encuentra en fase de preregistro. En abril de 2024 fue aceptado para revisión regulatoria por la FDA de EE. UU, con fecha del 14 de febrero de 2025 para la decisión sobre la solicitud.

MenB

En abril de 2024, SIIPL y la Universidad de Oxford han formalizado un acuerdo de licencia de tecnología negociado por Oxford University Innovation para el desarrollo de una nueva vacuna MenB. Después de cinco años de trabajo extenso, SIIPL y el equipo de Oxford han formulado una vacuna que consiste en cuatro proteínas quiméricas y los resultados clínicos preliminares se esperan a finales de este año. Esta vacuna podría resolver la necesidad pendiente de proteger contra el serogrupo B en África.

Empresas claves

El panorama competitivo de las vacunas antimeningocócicas se caracteriza por una combinación de empresas farmacéuticas consolidadas y empresas de biotecnología emergentes.

Al analizar el conjunto de datos de compra de vacunas de "Información de mercado para el acceso" (MI4A) de 2024, se identificaron los siguientes fabricantes como actores claves en el mercado de vacunas antimeningocócicas, en cuanto a número de dosis vendidas de 2020 a 2023: Lanzhou Institute of Biological Products Co.,Ltd., Walvax Biotechnology Co. Ltd., Serum Institute of India Pvt. Ltd. (SIIPL), Sanofi Pasteur Inc., GlaxoSmithKline Biologicals S.A. (GSK Biologicals), Wuhan Institute of Biological Products Co.,Ltd. y Pfizer Inc. (figura 1). No obstante, los productos de los proveedores chinos, Lanzhou Institute of Biological Products Co.,Ltd. y Wuhan Institute of Biological Products Co.,Ltd., solo están disponibles en China; así como la mayor parte de las vacunas de Walvax Biotechnology Co. Ltd. Específicamente, GSK Biologicals, Sanofi Pasteur y Pfizer se destacan como fabricantes líderes por cuanto tienen amplias capacidades de I+D, más de 3 tipos de vacunas antimeningocócicas en su cartera de productos y alcance global.

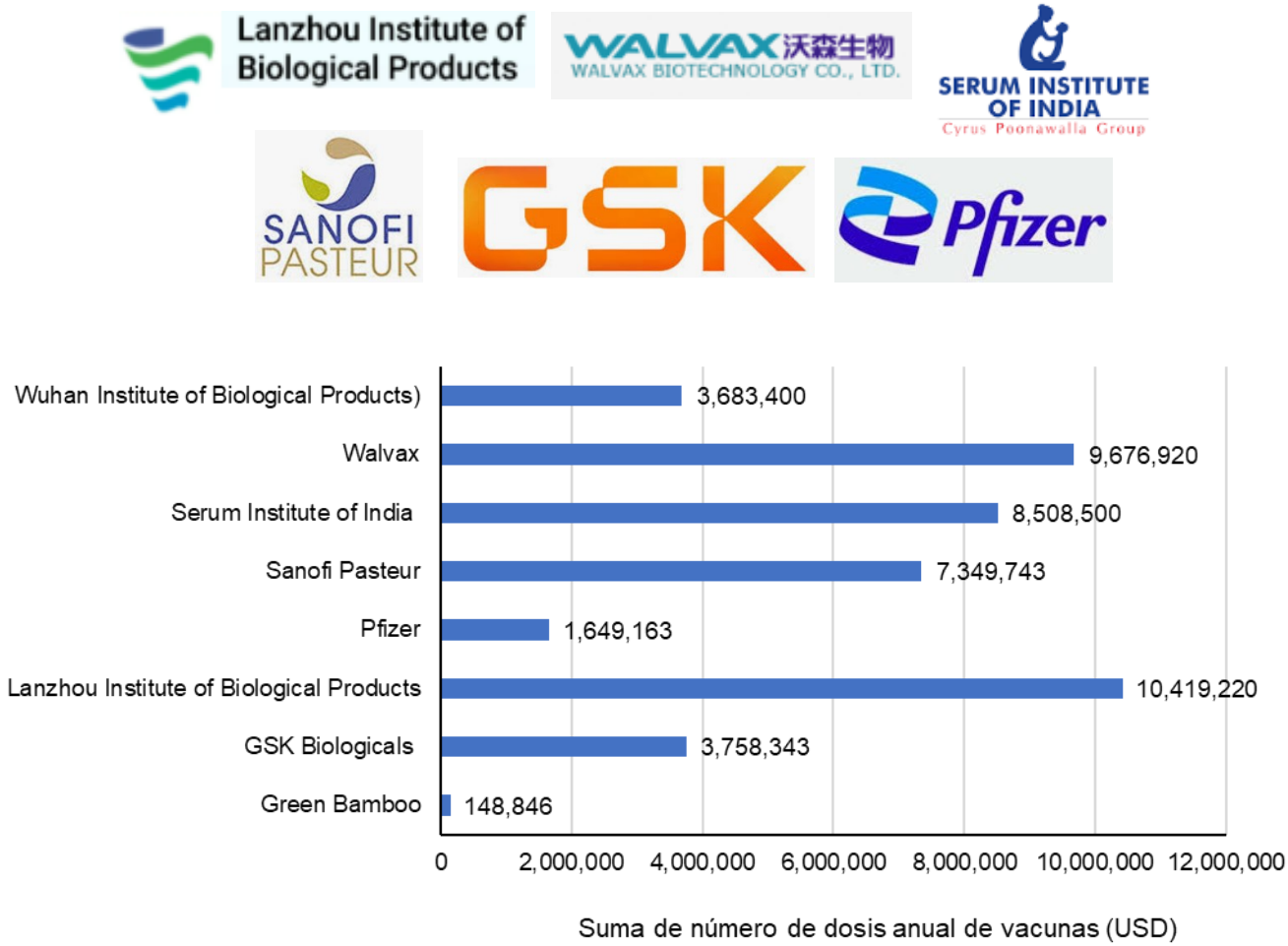

Figura 1. Cantidad de dosis de vacunas antimeningocócicas por fabricante adquiridas en 2023.

Fuente: A partir del Conjunto de Datos de Compra Pública de Vacunas de MI4A 2024 (contiene información sobre las vacunas adquiridas por país)

La competencia en el mercado mundial de las vacunas antimeningocócicas está impulsada principalmente por: el énfasis creciente en las actividades de investigación, desarrollo e innovación; las asociaciones para fortalecer las carteras de productos; las colaboraciones con organizaciones gubernamentales e internacionales para ampliar el alcance en el mercado internacional y garantizar un mayor acceso a las vacunas; así como campañas de marketing para mejorar las ventas.

Valor del mercado global

El mercado mundial de vacunas antimeningocócicas ha estado experimentando un crecimiento significativo en los últimos años. Según un estudio de Mordor Intelligence, se estima que el tamaño del mercado de vacunas antimeningocócicas será de USD 3.12 mil millones en 2025 y se espera que alcance los USD 4.50 mil millones para 2030, con una CAGR del 7.6 %.

Entre los factores impulsores del crecimiento del mercado se encuentran los siguientes:

Incidencia de la enfermedad meningocócica debido a factores como el crecimiento de la población, la urbanización, los viajes internacionales y el cambio climático que contribuyen a la propagación de la enfermedad.

* Concientización en la población sobre las consecuencias negativas de la enfermedad meningocócica y la necesidad de su prevención mediante la vacunación como resultado de campañas de salud pública e iniciativas educativas.
* Ampliación de las iniciativas gubernamentales y los programas de vacunación en los países desarrollados y en desarrollo.
* Ampliación del alcance de las recomendaciones de vacunación en cuanto a grupos poblacionales objetivo.
* Aumento de vacunas aprobadas como consecuencia del incremento de las actividades de investigación, desarrollo e innovación de productos y de las colaboraciones para acelerar el desarrollo de vacunas.

Tendencias del mercado

Según algunos estudios, las principales tendencias del mercado de vacunas antimeningocócicas son las siguientes:

* Predominio de las vacunas conjugadas que son inmunogénicas incluso en menores de 2 años, inducen memoria inmunológica e inmunidad de rebaño al reducir los portadores nasofaríngeos y, por tanto, la transmisión.
* Desarrollo de vacunas multivalentes dirigidas a múltiples serogrupos meningocócicos para hacer frente a los patrones epidemiológicos cambiantes de las infecciones meningocócicas, al tiempo que se simplifican los calendarios de vacunación, reduciendo la cantidad de dosis necesarias y mejorando la cobertura de vacunación.
* Colaboraciones o asociaciones para el desarrollo, la producción y la distribución de vacunas, abordando problemas de asequibilidad y disponibilidad para garantizar un suministro sostenible de vacunas antimeningocócicas y el acceso equitativo.
* Campañas educativas organizadas por los gobiernos, las organizaciones internacionales y las organizaciones sin fines de lucro para captar la atención pública sobre los riesgos de las enfermedades meningocócicas y los beneficios de la vacunación y consecuentemente, lograr una mayor aceptación de las vacunas, especialmente en áreas con una incidencia excesiva de enfermedades meningocócicas.
* Vacunación de los adolescentes para lograr la inmunidad indirecta de no vacunados, teniendo en cuenta que ellos son los principales portadores nasofaríngeos del meningococo y por tanto, transmisores de la enfermedad.

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Noticias en la Web

La vacunación contra la COVID-19 reduce el riesgo de COVID persistente en adultos

25 mar. La vacunación contra la COVID-19 redujo el riesgo de desarrollar "COVID prolongada" en aproximadamente un 27% en adultos completamente vacunados antes de la infección, según una revisión de la literatura realizada por el Centro Europeo para la Prevención y el Control de Enfermedades (ECDC).

"Una conclusión importante de esta revisión es que la vacunación no solo protege contra las consecuencias graves de una enfermedad aguda durante una pandemia, sino que también puede ayudar a reducir el riesgo de efectos significativos a largo plazo", ha señalado Edoardo Colzani, jefe de Virus Respiratorios y Legionella del ECDC.

La revisión se centró en estudios realizados en Europa y regiones similares. Dada la amplia gama de definiciones de COVID persistente, la revisión se centró en aquellos estudios que aplicaron específicamente la definición de caso clínico de la Organización Mundial de la Salud para el síndrome post-Covid-19.

Se encontraron siete estudios de alta calidad en adultos, de los cuales seis informaron una reducción estadísticamente significativa del riesgo de síndrome post-Covid-19 en adultos vacunados en comparación con los no vacunados. Sin embargo, la evidencia sobre si la vacunación reduce la duración de los síntomas del síndrome post-Covid-19 o el riesgo de desarrollar síndrome post-Covid-19 en niños, adolescentes y personas inmunodeprimidas es aún limitada.

Esta investigación destaca la importancia de la vacunación contra la Covid-19, no solo para prevenir la enfermedad grave y la hospitalización, sino también para reducir el riesgo de síntomas prolongados tras la infección por SARS-CoV-2. Aún se requieren más estudios sobre el papel de la vacunación en la reducción del riesgo y la duración del síndrome post-Covid-19.

En particular, los estudios deben centrarse en grupos como niños, adultos y personas inmunodeprimidas. Ya que no se encontraron suficientes estudios bien diseñados para extraer conclusiones específicas sobre si la vacunación contra la COVID-19 reduce el riesgo en la población general de niños/adolescentes o personas inmunodeprimidas.

Fuente: Médicos y Pacientes. Disponible en https://lc.cx/4MSxOv

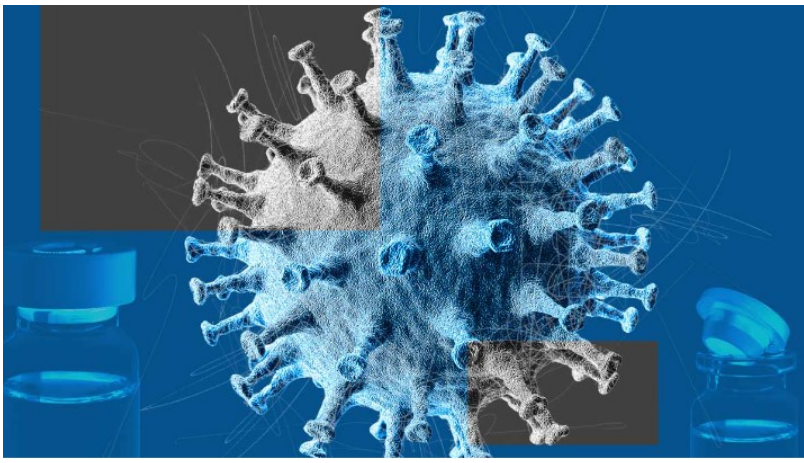
Everything you need to know about next-generation coronavirus vaccines

Mar 25. COVID-19 vaccines changed the course of the pandemic, enabling most of us to return to our everyday lives.

But while these vaccines are highly effective against severe disease, they're not perfect. Current vaccines don't provide complete protection against getting infected or infecting others, and people require regular boosters to maintain that level of protection.

They also don't protect against other coronaviruses, such as the virus that causes Middle East respiratory syndrome (MERS), seasonal coronaviruses that cause common colds or future coronaviruses with pandemic potential.

We could do better



SARS-CoV-2 is just one member of a vast family of coronaviruses with multiple hosts, whose genomes are highly susceptible to mutation – meaning they have the potential to jump to humans.

"The threat of coronavirus spillovers is expected to continue and may even intensify in coming years, given rapid changes in climate, human and wildlife activity," says Dr Nadia Cohen, Research & Development Programme Lead at the Coalition for Epidemic Preparedness Innovations (CEPI).

"It is crucial that the world continues to invest in coronavirus R&D to help humanity stay one step ahead."

The good news is that next-generation coronavirus vaccines are being developed that could provide broader, stronger and longer-lasting protection.

The technologies underpinning them could also be deployed against other pathogens, strengthening our defences against existing and future disease threats.

Here's everything you need to know about the innovations underpinning these vaccine candidates.

Mucosal vaccines

Whereas most vaccines are designed to stimulate immune cells that circulate in the blood, the goal of mucosal vaccines is to target immune cells in mucosal tissues, such as the lining of the nose, mouth, lungs or intestines.

For respiratory viruses, such as coronaviruses, mucosal surfaces are their first port of entry into our bodies, making immune cells stationed there are our first line of defence. Targeting these cells through vaccination could result in stronger protection against infection.

"This could mean that if I've been vaccinated, I might not produce as much infectious virus for as long, so I'm less likely to infect other people, helping to breaking chains of transmission," says Prof John Tregoning, Professor of Vaccine Immunology at Imperial College London, UK.

However, conventional injected vaccines aren't very good at triggering mucosal immunity, so researchers are exploring alternatives – including inhaled, nasal and oral vaccines.

"There is huge promise in the approach," says Prof Christopher Chiu at Imperial College London, who is leading a CEPI-funded project to develop advanced, transmission-blocking coronavirus vaccines, including mucosal vaccines.

"Historically, we haven't known enough about what goes on in the nose and lung during an infection, compared to the blood, but we now recognise that – while not entirely separate – they are different."

"We have a real opportunity to identify the types of vaccines and technologies that could target it to reduce or block transmission and have these on standby for the next pandemic, when we could switch the appropriate antigens in."

Nasal vaccines are already used to help protect children against seasonal influenza in many countries, and several intranasal COVID-19 vaccines are currently in late-stage clinical trials.

Most of these COVID-19 vaccine candidates use a harmless, modified virus – known as a vector virus – to deliver virus antigens into the body, but at least one company, Codagenix, is testing a live attenuated nasal vaccine, which uses a weakened version of SARS-CoV-2 to trigger a mucosal response.

Broadly protective vaccines

Given the size and diversity of the coronavirus family, developing a single 'pan-coronavirus' vaccine that can protect us against all of them is unlikely, says Cohen.

However, vaccines that trigger immunity against specific subgroups are more feasible.

Most advanced are candidates against sarbecoviruses – a subgroup that includes SARS-CoV-2, the virus that cause SARS, and various bat coronaviruses.

"Though many questions remain along the road to creating a successful human vaccine, pre-clinical data so far have been promising and suggest that generating a broadly protective sarbecovirus vaccine is technically feasible," says Cohen.

"The timeframe for development of a human vaccine may depend on the end goal of development. Nevertheless, we expect a number of candidates to initiate clinical testing in the coming year or two."

Vaccines against the broader sub-family of coronaviruses known as betacoronaviruses, might also be feasible. These vaccines would not only protect against SARS-CoV-2, but MERS, as well as the four known seasonal coronaviruses that cause cold-like symptoms in humans.

T cell vaccines

One approach to developing broadly protective vaccines is to focus on viral proteins that are common within and between coronaviruses.

For instance, although SARS-CoV-2 frequently alters its surface 'spike' protein to avoid our immune systems, the proteins it uses to replicate appear less susceptible to change. They also seem to be broadly similar across different coronaviruses.

By testing which parts of these proteins trigger the strongest and most broadly protective responses in immune cells, Dr Leo Swadling at University College London, and colleagues hope to identify antigens that could be incorporated into broadly protective vaccines.

As well as triggering antibodies, the hope is that this approach would be better at stimulating T cells – immune cells that recognise and destroy virus-infected cells – resulting in broader, longer-lasting protection.

"Vaccine-induced T cells tend to be more durable than antibodies. But although you get some induction of T cells with existing vaccines, they are not specifically designed to maximise this part of the immune response," says Swadling.

Mosaic vaccines

Another approach is engineering spike proteins to incorporate molecular features from other coronaviruses, or linking multiple spike proteins or spike regions together.

"Building on advances in material science, we can now include multiple versions of the same protein – for example, show the immune system spike from MERS, SARS-CoV-2 and SARS-CoV-1 at the same time, hopefully inducing immunity to all three," says Swadling.

Even though coronaviruses frequently alter their spike protein to evade immune detection, some regions that bind to our cells and enable the virus to gain entry tend to remain unchanged across many different coronaviruses.

Fuente: Gavi. Disponible en https://lc.cx/0slZtY

La UE aprueba CAPVAXIVE de Merck para vacunación neumocócica en adultos

26 mar. Merck (NYSE: MRK), un destacado actor en la industria farmacéutica con una capitalización de mercado de $222 mil millones y un impresionante margen de beneficio bruto del 77%, ha recibido la aprobación de la Comisión Europea (CE) para su vacuna conjugada neumocócica 21-valente, CAPVAXIVE, para uso en personas de 18 años o más. Según el análisis de InvestingPro, Merck mantiene una excelente salud financiera con fuertes flujos de efectivo y pagos de dividendos constantes durante 55 años consecutivos. Esta vacuna está diseñada para prevenir enfermedades invasivas y neumonía causadas por serotipos de *Streptococcus pneumoniae*. La decisión de la CE permite la comercialización de CAPVAXIVE en los 27 estados miembros de la Unión Europea, así como en Islandia, Liechtenstein y Noruega.

La aprobación, que sigue a una recomendación positiva del Comité de Medicamentos de Uso Humano de la Agencia Europea de Medicamentos en enero de 2025, se basa en datos del programa clínico de Fase 3 STRIDE. CAPVAXIVE ha sido previamente aprobada en EE.UU. en junio de 2024, Canadá en julio de 2024 y Australia en enero de 2025. Con ingresos anuales de $64.2 mil millones y una sólida cartera de investigación, Merck continúa fortaleciendo su posición en el mercado. Para un análisis detallado del potencial de crecimiento de Merck y métricas financieras completas, visite InvestingPro, donde encontrará información exclusiva y el Informe de Investigación Pro completo.

Según datos a nivel de país, CAPVAXIVE cubre más casos de enfermedad neumocócica invasiva (ENI) en adultos que la vacuna conjugada neumocócica 20-valente (PCV20) en países europeos seleccionados. Sin embargo, los datos no reflejan la eficacia comparativa de las vacunas.

El programa clínico STRIDE incluyó varios ensayos de Fase 3 que demostraron que CAPVAXIVE era no inferior o superior a PCV20 y PPSV23 (vacuna neumocócica, polivalente [23-valente]) en términos de respuesta inmune, medida por títulos medios geométricos de actividad opsonofagocítica (OPA) específica de serotipo. Además, se encontró que CAPVAXIVE tiene un perfil de seguridad comparable al de estas vacunas.

CAPVAXIVE está específicamente diseñada para abordar los serotipos predominantemente responsables de la ENI en adultos, incluyendo ocho serotipos únicos no cubiertos por otras vacunas neumocócicas. Se administra como dosis única y ha sido indicada para su uso en EE.UU. para la inmunización activa contra enfermedades invasivas y neumonía causadas por serotipos específicos de S. pneumoniae en adultos.

La enfermedad neumocócica representa un riesgo significativo para la salud, particularmente para adultos mayores y aquellos con condiciones médicas crónicas o sistemas inmunológicos comprometidos. La aprobación de CAPVAXIVE en la UE marca un paso crítico en la ampliación de la protección contra esta enfermedad para la población adulta.

Fuente: Investing.com. Disponible en https://n9.cl/e5wuxz

Pentavalent MenABCWY Vaccine Elicits Broad Protection in Young Adults, Adolescents

Mar 28. An investigational pentavalent meningococcal vaccine (MenABCWY) was found to be noninferior to the CRM197-glycoconjugate vaccine (MenACWY-CRM) for protection against invasive meningococcal disease (IMD) among MenACWY-primed adolescents and young adults. These findings were published in *Clinical Infectious Diseases*.

The investigational MenABCWY vaccine is a combination of MenACWY-CRM and 4CMenB. In a phase 3, randomized, clinical study (ClinicalTrials.gov Identifier: NCT04707391), researchers evaluated immune responses elicited by MenABCWY for protection against IMD among a cohort of healthy adolescents and young adults primed with MenACWY.

The study was conducted across 65 sites in Argentina, Australia, Canada, and the United States between 2021 and 2023. Healthy individuals (N=1250) aged 15 to 25 years who had received a MenACWY vaccine at least 4 years prior to study enrollment were randomly assigned 1:1 to receive 2 doses of MenABCWY at 0 and 6 months and placebo at month 7 (n=626) or MenACWY-CRM at month 0 and 4CMenB at months 6 and 7 (n=624). The primary study objective was to show noninferior immune responses against serogroups A, C, W, and Y between the groups, particularly with MenABCWY administered as a booster for the MenACWY component. Reactogenicity and safety were also assessed.

Among patients in the MenABCWY and MenACWY cohorts, 54.8% and 52.1% were girls or women, 71.9% and 70.7% were aged 15 to 17 years, and 75.7% and 74.8% were White, respectively.

At month 1, there were no significant differences in the rates of MenABCWY vs MenACWY recipients who achieved a 4-fold or greater increase in human serum bactericidal antibody (hSBA) titers against serogroups A (mean difference [MD], -2.5%; 95% CI, -5.6 to 0.5), C (MD, -0.1%; 95% CI, -2.8 to 2.9), W (MD, 0.4%; 95% CI, -2.4 to 3.3), and Y (MD, -0.8%; 95% CI, -3.6% to 2.1%). Similar trends were observed between the groups at month 7.

"These findings provide further supporting evidence for the development of the MenABCWY vaccine for broad protection against IMD."

At baseline, the rate of patients with hSBA titers at or above the lower limit of quantification (LLOQ) in both the MenABCWY and MenACWY groups were lowest for serogroup A (27.7% and 28.8%, respectively) and highest for serogroup C (57.7% and 56.2%, respectively). The percentage of patients with hSBA titers at or above the LLOQ for serogroups A, C, W, and Y increased 1 month following vaccination, with rates of 99.5% to 100% observed after 2 MenABCWY doses, 97.9% to 98.9% observed after 1 MenABCWY dose, and 96.8% to 99.0% observed after 1 MenACWY-CRM dose.

In the MenABCWY group, the rate of patients who achieved hSBA titers at or above the LLOQ by month 7 was 88.5% for factor H binding protein (fHbp), 95.8% for Neisseria adhesin A (NadA), 96.3% for neisserial heparin-binding antigen (NHBA), and 75.6% for Porin A (PorA). Moreover, the rate of MenACBWY recipients who experienced a 4-fold rise from baseline in hSBA titers was highest for NadA (90.1%), followed by fHbp (68.1%), NHBA (64.6%), and PorA (45.7%) indicator strains.

Overall, 84.5% and 70.9% of MenABCWY recipients experienced solicited adverse events (AEs) following receipt of the first and second vaccine doses, respectively. Patients in the MenACWY arm reported similar rates of solicited AEs after each vaccine dose. Pain at the injection site was the most common site-specific AE and fatigue and headache were the most common solicited systemic AEs in both groups. Most AEs were of mild to moderate severity, and the mean duration of solicited AEs was fewer than 4 days across both groups.

These findings may have limited generalizability due to the lack of broad racial and ethnic diversity among the study population.

Fuente: Pulmonology Advisor. Disponible en https://n9.cl/qxzns

Confronting the shortcomings of COVID-19 vaccination will help us in future pandemics

Mar 28. We must learn from the successes and failures of the COVID-19 vaccination programme if we are to prepare for the next pandemic, writes Samantha Vanderslott

Vaccination has been so successful in protecting whole populations from disease that it is now an often-repeated phrase that vaccines are victims of their own success. As vaccination rates rise, vaccine-preventable diseases become less common within society, creating the illusion that vaccination against these diseases is no longer necessary. This means that the more successful vaccines are, the harder health authorities must work to make their value apparent. During the COVID-19 pandemic the need to vaccinate against SARS-CoV-2 was paramount, but uptake was nevertheless a challenge. It would be wrong, however, to view vaccination failures as being only the fault of those who do not want to vaccinate. Government failings should also be considered.

These failings have been highlighted by the ongoing UK covid inquiry. Module four, which focused on vaccines and treatments, concluded in January 2025. The inquiry emphasised that the COVID-19 vaccination is a success story from the pandemic, judged on the development of safe and effective vaccines that prevented severe disease and mortality, as well as their successful procurement and distribution. However, the inquiry also reflected critically on what went wrong in the government response and what could be improved to plan and prepare for the future.

The development and introduction of new vaccines during a pandemic faces challenges beyond those of routine vaccination schedules. The immediate and visible threat of a novel disease evokes feelings of hope and fear, which are heightened by the uncertainty surrounding a newly developed biomedical intervention. Political and moral agendas, and the rise of persuasive disinformation and misinformation, complicate the situation. During the pandemic we saw the politicisation of vaccines by governments in the media, where positions on vaccination were used to advance political agendas. Also, disinformation and misinformation proliferated, including via rumours and conspiracy theories.

The inquiry brought into focus two questions specific to rolling out a vaccination programme during a pandemic. The first is, what happens when people are injured by vaccination? The second, what can be done when people are not willing to be vaccinated? Other challenges, such as vaccine manufacturing capacity, have also been examined, but these two questions have received the most attention.

Despite saving the lives of millions, vaccination has caused injury or (in very rare cases) death in a small number of people. These individuals have been appallingly let down by a government system that should have helped them. The wife of a man who was left disabled after receiving a COVID-19 vaccine said that “The scheme is inadequate and inefficient—offers too little, too late, and to too few.”

This situation was entirely foreseeable. In 2020, together with other researchers, I called for a bespoke compensation scheme to be created for possible adverse effects caused by COVID-19 vaccines. This is a much needed legal safeguard and resource to ensure the public acceptability of vaccines. After the pandemic, the previous health secretary Victoria Atkins stated she was looking at reform of the vaccine damage payment scheme, but a solid commitment is still lacking and there has been no further action.

Reluctance to be vaccinated was not new to the pandemic, but the inequalities in uptake among certain groups, along with weak outreach and engagement, were starkly highlighted.

People from ethnic minority groups were less likely to be vaccinated than white British people. exposing persistent inequalities in public health engagement and services.

Another overlooked issue was vaccine confidence in healthcare workers, who are often patients' most highly trusted source of information on vaccines, but who may themselves be susceptible to vaccine hesitancy. Since the pandemic, there have been indications of rising hesitancy among healthcare workers, as well as a clear pushback against mandated vaccination—a policy that was intended as a requirement for employment but later scrapped.

For ethnic minority groups, concerns about underlying factors influencing vaccination have been identified, notably a legacy of mistrust and ongoing discrimination. For healthcare workers, a lack of confidence in the healthcare system, pharmaceutical companies, and experts has dampened vaccine support from those who have an influential role. These worries have not gone away and have likely contributed to hesitancy around other vaccines, including those that are long established.

An openness to acknowledge the success and failure of vaccination is essential for dealing with future pandemics. The focus of the UK covid inquiry has been the problems rather than the solutions arising from the pandemic. We must adequately prepare by responding to shortcomings.

Firstly, we need to overhaul our compensation scheme for those who might suffer rare vaccine adverse events. It is only fair that anyone inadvertently harmed by vaccination is compensated and this is needed for continued trust in vaccine safety as well as the related legal safeguards. Secondly, longlasting public engagement strategies are needed to rebuild vaccine confidence beyond the pandemic, particularly with ethnic minority communities and healthcare workers. Building on effective communication and engagement practices, such as the promotion of vaccination via community leaders, will be crucial to build trust and sources of credible information going forward.

Fuente: The BMJ. Disponible en https://www.bmj.com/content/388/bmj.r590

Valneva Submits Adolescent Label Extension Application for its Chikungunya Vaccine, IXCHIQ®, to UK MHRA

Mar 31. Valneva SE (Nasdaq: VALN; Euronext Paris: VLA), a specialty vaccine company, today announced that it has submitted a label extension application to the Medicines and Healthcare products Regulatory Agency (MHRA) of the United Kingdom (UK) to potentially expand the use of its chikungunya vaccine, IXCHIQ®, currently approved in adults, to adolescents aged 12 to 17 years in the UK. This submission follows the recent positive opinion of the European Medicines Agency (EMA) on extension of IXCHIQ® label to adolescents in the European Union (EU).

IXCHIQ® is the world's first licensed chikungunya vaccine available to address this significant unmet medical need. It is approved in the U.S., Europe, Canada and the UK for the prevention of disease caused by the chikungunya virus in individuals 18 years of age and older.

Chikungunya has become an increasingly pressing public health issue, with outbreaks currently ongoing in India, Brazil and the French Island of La Réunion. Valneva announced last week that it has responded to the French government's call for supply of IXCHIQ® in La Réunion and that it will provide 40,000 doses to the Island's wholesalers, with an option to provide more.

Juan Carlos Jaramillo, M.D., Chief Medical Officer of Valneva, commented, "Given the substantial risk that

chikungunya presents to people residing in or traveling to endemic regions, it's imperative to ensure the vaccine is available to all age groups. Broader accessibility would certainly help provide protection and mitigate the burden of this debilitating illness, which is currently spreading in areas that were previously unaffected. The long-term durability of the immune response is also extremely important, especially for endemic countries where access to immunization can be difficult."

Valneva is focused on expanding the vaccine's label and access. Label extension applications to adolescent were submitted in Europe, the United-States, Canada and the UK based on positive six-month adolescent Phase 3 data which showed that a single-dose vaccination with IXCHIQ® induces a high and sustained immune response in 99.1% of adolescents, and that the vaccine was generally well tolerated. Valneva reported further positive Phase 3 data in adolescents earlier this year, which showed a sustained 98.3% sero-response rate one-year after single vaccination with IXCHIQ®]. The Lancet Infectious Diseases, a world leading infectious diseases journal, also published an article showing that the vaccine was well tolerated in adolescents aged 12 to 17 years 28 days after a single injection, regardless of previous Chikungunya Virus (CHIKV) infection.

Additionally, in the third quarter of 2024, the Company expanded its partnership with the Coalition for Epidemic Preparedness (CEPI)[9], with support from the EU Horizon Europe program, through a $41.3 million grant to advance broader access to the vaccine in Low- and Middle-Income Countries (LMICs), post-marketing studies and research to support potential label extensions in children, adolescents and pregnant women.

Within the framework of this partnership, Valneva recently announced the signing of an exclusive license agreement with the Serum Institute of India (SII), the world's largest manufacturer of vaccines by number of doses, enabling the supply of the vaccine in Asia, with a commitment to priority supply of the chikungunya vaccine at an affordable price to public health markets in LMICs.

This new agreement complements the license agreement Valneva signed in 2021 with Instituto Butantan in Brazil for the development, manufacturing and marketing of a local chikungunya vaccine at an affordable price for distribution in Latin American countries and selected LMICs affected by the disease.

About Chikungunya

Chikungunya virus (CHIKV) is a mosquito-borne viral disease spread by the bites of infected Aedes mosquitoes which causes fever, severe joint and muscle pain, headache, nausea, fatigue and rash. Joint pain is often debilitating and can persist for weeks to years.

In 2004, the disease began to spread quickly, causing large-scale outbreaks around the world. Since the re-emergence of the virus, CHIKV has now been identified in over 110 countries in Asia, Africa, Europe and the Americas. Between 2013 and 2023, more than 3.7 million cases were reported in the Americas and the economic impact is considered to be significant. The medical and economic burden is expected to grow with climate change as the mosquito vectors that transmit the disease continue to spread geographically. As such, the World Health Organization (WHO) has highlighted chikungunya as a major public health problem.

About Valneva SE

We are a specialty vaccine company that develops, manufactures, and commercializes prophylactic vaccines for infectious diseases addressing unmet medical needs. We take a highly specialized and targeted approach,

applying our deep expertise across multiple vaccine modalities, focused on providing either first-, best- or only -in-class vaccine solutions.

We have a strong track record, having advanced multiple vaccines from early R&D to approvals, and currently market three proprietary travel vaccines, including the world's first chikungunya vaccine, as well as certain third-party vaccines.

Revenues from our growing commercial business help fuel the continued advancement of our vaccine pipeline. This includes the only Lyme disease vaccine candidate in advanced clinical development, which is partnered with Pfizer, the world's most clinically advanced tetravalent Shigella vaccine candidate, as well as vaccine candidates against the Zika virus and other global public health threats. More information is available at www.valneva.com.

Fuente: Valneva. Disponible en https://n9.cl/3hg41q

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Patentes registradas en Patentscope

Estrategia de búqueda: (Vaccine) AND DP:([24.03.2025 TO 31.03.2025]) *as the publication date 33 records.*

1.WO/2025/060134VACCINE BASED ON HUMAN CYTOMEGALOVIRUS-CODED IMMEDIATE EARLY PROTEIN IE, PREPARATION METHOD THEREFOR AND USE THEREOF

WO - 27.03.2025

Clasificación Internacional A61K 39/245Nº de solicitud PCT/CN2023/122386Solicitante QINGDAO UNIVERSITYInventor/a WANG, Bin

A vaccine based on a human cytomegalovirus-coded immediate early protein IE, comprising one of the following vaccines: an IE1 adenovirus vector vaccine, an IE2 adenovirus vector vaccine, an IE1 recombinant protein vaccine, and an IE2 recombinant protein vaccine, wherein the amino acid sequence of a mutant IE1-mut of a wild-type IE1 is as shown in SEQ ID NO. 1, and the amino acid sequence of a mutant IE 2-mut of a wild-type IE2 is as shown in SEQ ID NO. 2. The vaccine based on the human cytomegalovirus-coded immediate early protein IE can identify and kill brain cancer cells, and can be widely applied to the preparation of drugs for treating glioma.

2.20250099567METHOD FOR INDUSTRIAL PRODUCTION OF VACCINE AGAINST PSEUDOMONAS AERUGINOSA

US - 27.03.2025

Clasificación Internacional A61K 39/104Nº de solicitud 18833626Solicitante WESTVAC BIOPHARMA CO., LTD.Inventor/a Zhenling WANG

A method for industrial production of vaccine against *Pseudomonas aeruginosa* adopts a series of standardized, programmed, and digitized settings to produce a vaccine with stable quality comprising whole bacterial cells and various internal immunogenic components of bacterial cell. The obtained vaccine has good

immunogenicity, and can prevent various infectious diseases caused by *Pseudomonas aeruginosa* with low side effects and high safety.

3.WO/2025/063756NOVEL VACCINE COMPOSITION

WO - 27.03.2025

Clasificación Internacional A61K 39/00Nº de solicitud PCT/KR2024/014226Solicitante SLBIGEN INC.Inventor/a SEO, Yong Bok

The present invention relates to a novel vaccine composition capable of inducing a more efficient antigen-specific T-cell immune response against prostate cancer. More specifically, the present invention provides a vaccine composition for treating and preventing prostate cancer, the vaccine composition containing a) a genetic construct comprising a polynucleotide encoding at least one prostate cancer antigen selected from the group consisting of prostatic acid phosphatase (PAP), prostate-specific antigen (PSA), and prostate-specific membrane antigen (PSMA), and b) at least one vaccine adjuvant or immunomodulator.

4.20250099565CLOSTRIDIUM CHAUVOEI VACCINE AND METHOD OF MAKING

US - 27.03.2025

Clasificación Internacional A61K 39/08Nº de solicitud 18293539Solicitante Zoetis Services LLCInventor/a Anthony James CAMERON

The invention provides a vaccine against *C. chauvoei*, the vaccine comprising a *C. chauvoei* component and additional cctA protein. The methods of making and using said vaccine are also provided.

5.20250099572VACCINE COMPOSITIONS

US - 27.03.2025

Clasificación Internacional A61K 39/215Nº de solicitud 18291812Solicitante Monash UniversityInventor/a Hareth Basim Ali AL-WASSITI

The invention relates to vaccine compositions for inducing an immune response to a coronavirus in a subject, and uses thereof. In particular, the vaccine comprises of a chimeric or fusion protein comprising a) a N-terminal secretion signal peptide; b) an amino acid sequence of the receptor binding domain (RBD) of a spike protein of a coronavirus; and c) a C-terminal domain comprising a transmembrane region and a cytoplasmic region. In a preferred embodiment, the signal peptide, RBD, transmembrane region, and cytoplasmic region are derived from SARS-CoV-2, and that the vaccine composition is formulated as a lipid nanoparticle (LNP).

6.20250099575MRNA VACCINE

US - 27.03.2025

Clasificación Internacional A61K 39/215Nº de solicitud 18725763Solicitante GUANGZHOU NATIONAL LABORATORYInventor/a Hua PENG

Provided is an mRNA vaccine, said mRNA vaccine containing an immune cell targeting molecule that is expressed in fusion with an antigen and enhances the immunological effectiveness of an mRNA vaccine.

7.20250099563EXPRESSION OF EIMERIA SEQUENCES IN PLANTS AND PLANT PRODUCED VACCINE FOR SAME

US - 27.03.2025

Clasificación Internacional A61K 39/012Nº de solicitud 18725180Solicitante Mazen Animal Health Inc.Inventor/a John Howard

Vaccines and methods of expressing a polypeptide of *Eimeria* are provided in which a protective response to *Eimeria* is produced when administered to an animal. The vaccine provides for expression of *Eimeria* vaccine proteins 3-1e, Gam82, and/or EF-1a polypeptide in a plant or plant part, linked to a promoter preferentially directing expression to embryo tissue of the plant or plant part. Further embodiments provide that the polypeptide may be targeted to the apoplast/cell wall or the endoplasmic reticulum. Increased expression levels in the plant or plant part are obtained. The plant or plant materials in an embodiment may be orally administered.

8.4526328VERFAHREN ZUR VORHERSAGE DER WIRKSAMKEIT EINES MODIFIZIERTEN LEBENDIMPFSTOFFS GEGEN DAS REPRODUKTIONS- UND ATEMWEGSSYNDROM BEI SCHWEINEN (PRRSV)

EP - 26.03.2025

Clasificación Internacional C07K 14/08Nº de solicitud 23808114Solicitante ELANCO US INCInventor/a HAMMER MARK

Methods are provided for eliciting heterologous immunogenicity against heterologous porcine reproductive and respiratory syndrome virus (PRRSV) strains to allow assessment of innate immunity and adaptive immunity. In other aspects are provided methods for determining the efficacy of a vaccine against PRRSV. In still other aspects are provided methods for predicting the efficacy of a vaccine against PRRSV in pigs suspected of having an infection with PRRSV.

9.4526457IMPFSTOFFZUSAMMENSETZUNG AUS ZELLEN ZUR EXPRESSION EINES LENTIVIRALEN VEKTORS UND VERFAHREN ZUR VERWENDUNG

EP - 26.03.2025

Clasificación Internacional C12N 15/867Nº de solicitud 23832236Solicitante MERIDIAN THERAPEUTICS INCInventor/a NOONAN KIMBERLY A

A vector construct is described that is a lentiviral construct including DNA encoding for GM- CSF A vaccine composition is also described that is includes K562 cells transfected with this vector construct, and also possibly including the U266 and H929. Methods are described for using the vaccine composition in methods of immunizing against plasma cell disorders, including multiple myeloma and related disorders.

10.WO/2025/061794VACCINE COMPOSITIONS AND USES THEREOF

WO - 27.03.2025

Clasificación Internacional A61K 39/00Nº de solicitud PCT/EP2024/076156Solicitante SCANCELL LIMITEDInventor/a DURRANT, Linda

The present invention generally relates to vaccine compositions and their use in methods of treating cancer, such as melanoma, in a subject. The vaccine composition comprises one or more nucleic acids encoding a plurality of tumour antigen T cell epitopes, wherein the T cell epitopes comprise GTGRAMLGTHTMEVTVYH (SEQ ID NO: 1), SVYDFFVWL (SEQ ID NO: 2) and WNRQLYPEWTEAQRLD (SEO ID NO: 3), and is

administered to the subject in combination with (a) a programmed death-1 (PD-1) inhibitor such as nivolumab; and (b) a cytotoxic T lymphocyte antigen-4 (CTLA-4) inhibitor, such as ipilimumab. The one or more nucleic acids may encode an antibody, comprising a heavy chain and a light chain, into which the T cell epitopes are inserted or substituted.

11.4527406KREBSIMPFSTOFF MIT GEMEINSAMEM KREBSANTIGENCOCKTAIL, TCR/CAR-T-ZELLTHERAPEUTIKUM, BEGLEITDIAGNOSEVERFAHREN UND VERFAHREN ZUR DIAGNOSE DES KREBSBEGINNRISIKOS DURCH BLUTZIRKULATIONSKREBSZELLNACHWEIS

EP - 26.03.2025

Clasificación Internacional A61K 39/00Nº de solicitud 23807697Solicitante NAT CANCER CTInventor/a NAKATSURA TETSUYA

An object of the present invention is to provide a cancer vaccine with use of a common cancer antigen cocktail, a TCR/CAR-T cell therapeutic, a companion diagnostic method, and a method for diagnosing risk of cancer onset by detecting circulating tumor cells. The present invention provides a cancer vaccine comprising: (1) common cancer antigens comprising three or more selected from GPC3, ROBO1, EPHB4, CLDN1, and LAT1; (2) partial peptides of the three or more common cancer antigens with CTL inducibility; (3) a dendritic cell stimulated with the partial peptides; or (4) mRNAs encoding the common cancer antigens or the partial peptides.

12.20250099564A NOVEL POULTRY SALMONELLA VACCINE AND DIAGNOSTIC METHODOLOGY TO CONTROL FOODBORNE SALMONELLOSIS

US - 27.03.2025

Clasificación Internacional A61K 39/112Nº de solicitud 18700490Solicitante University of Florida Research Foundation, IncorporatedInventor/a Subhashinie KARIYAWASAM

A vaccine for treating *Salmonella* enteriditis that includes an immunogenically effective amount of a *Salmonella* enteritidis protein InvG, and optionally a pharmaceutically acceptable carrier is described. Methods of using compositions that include the *Salmonella* Enteritidis protein InvG or a delivery vector that expresses *Salmonella* Enteritidis protein InvG for immunizing poultry against *Salmonella* Enteritidis are also described.

13.WO/2025/063755NOVEL CANCER THERAPEUTIC AGENT COMPRISING ANTICANCER DNA VACCINE AND IMMUNE RESPONSE-ENHANCING FUSION PROTEIN

WO - 27.03.2025

Clasificación Internacional C07K 14/705Nº de solicitud PCT/KR2024/014224Solicitante SLBIGEN INC.Inventor/a SEO, Yong Bok

The present invention relates to a cancer therapeutic agent, comprising: i) an anticancer DNA vaccine comprising a polynucleotide encoding at least one cancer antigen; and ii) a fusion protein comprising a CD80 protein and an IL -2 protein. The cancer therapeutic agent of the present invention very efficiently induces an antigen-specific T cell immune response compared to when a nucleic acid molecule

encoding an antigen is administered alone, and thus can be efficiently used in the treatment of diseases requiring a T cell immune response, such as cancer.

14.2633950INTELLIGENT DESIGN METHOD FOR TYPE I DIABETES VACCINE

GB - 26.03.2025

Clasificación Internacional G16B 20/50Nº de solicitud 202417080Solicitante SHANGHAI INSTITUTE FOR ADVANCED STUDY ZHEJIANG UNIVInventor/a RUHONG ZHOU

Provided is an intelligent design method for a type I diabetes vaccine. The method comprises: perform computer-simulated amino-acid mutation design on an initial type I diabetes autoantigen sequence obtained from a patient with type I diabetes, and perform auxiliary rational design on the basis of an HLA-polypeptide molecule-TCR ternary complex structure. The binding affinity of an antigen to an immune molecule is optimized and improved in a targeted manner, so that significant proliferation of type I diabetes-related CD4+T lymphocytes is realized.

15.WO/2025/059964METHOD FOR PREPARING ANTIGEN-DELIVERY PARTICLE

WO - 27.03.2025

Clasificación Internacional C07K 1/30Nº de solicitud PCT/CN2023/120280Solicitante SUZHOU ERSHENG BIOPHARMACEUTICAL CO., LTD.Inventor/a LIU, Mi

The present invention relates to a method for preparing an antigen delivery particle. The method comprises firstly lysing cells and/or tissue by using a dissolving solution containing a dissolving agent; then dissolving the lysate component by using the dissolving solution; then diluting the dissolving solution in which the lysate is dissolved by using pure water or an aqueous solution, and thus allowing the precipitation of the protein polypeptide component due to the decrease in the content of the dissolving agent; performing centrifuging, and then dissolving the precipitated component for the second time by using the dissolving solution to obtain an antigen component resulting from separation and purification; and then loading the separated and purified antigen component onto the interior and/or surface of a nanoparticle or a microparticle, which nanoparticle or microparticle is the antigen-delivery particle. The antigen-delivery particle can be directly used as a vaccine, or can be used for activating other immune cells to prepare a cell vaccine, or can be used for activating other immune cells to assist with detecting, sorting and amplifying specific cells. The preparation method of the present invention is simple, rapid and low in consumption, and has a low solution viscosity during centrifugation so that a precipitate can be obtained without high-speed centrifugation.

16.20250099388LYOPHILIZATION OF RNA

US - 27.03.2025

Clasificación Internacional A61K 9/19Nº de solicitud 18974607Solicitante CureVac Manufacturing GmbHInventor/a Thomas KETTERER

The present invention is directed to the field of RNA formulation, in particular to lyophilization of RNA. The invention provides a method for lyophilization of RNA. The present invention further concerns a lyophilized composition obtainable by the inventive method, a pharmaceutical composition, a vaccine and a kit or kit of parts. Moreover, the present invention provides a novel use of a lyoprotectant for lyophilizing RNA, the use

of the inventive method in the manufacture of a medicament as well as the first and second medical use of the composition obtainable by the inventive method, the pharmaceutical composition, the vaccine or the kit or kit of parts according to the invention.

17.2634002DETECTION OF OPTIMAL RECOMBINANTS USING FLUORESCENT PROTEIN FUSIONS

GB - 26.03.2025

Clasificación Internacional A61K 39/215Nº de solicitud 202419143Solicitante INGENZA LTDInventor/a IAN FOTHERINGHAM

A method for producing a SARS-CoV-2 virus-like particle-based protein subunit vaccine. The method comprises creating a fusion protein by combining a DNA sequence encoding an iLOV protein with a DNA sequence encoding a peptide linker and a cleavage site for enterokinase protease and a DNA sequence encoding a Receptor Binding Domain (RBD) of the SARS-CoV-2 viral spike protein. The RBD protein is attached to a “Spy Tag” peptide. The peptide linker cleavage site DNA sequence is between the iLOV protein DNA sequence and either the SARS-CoV-2 viral protein DNA sequence or the “Spy Tag” peptide DNA sequence. The DNA sequence encoding the fusion protein is introduced into a P. pastoris host to form transformants. At least one optimal recombinant is identified from the transformants using fluorescence to detect optimal expression levels of the SARS-CoV-2 viral protein. The SARS-CoV-2 viral protein is isolated from the fusion protein by cleaving the iLOV protein and linker sequences from the target protein. The RBD sequence can be mutated to represent RBD variants or homologous sequences or improve expression and alter its glycosylation pattern. The RBD sequence can belong to any virus within the coronavirus family.

18.4525912MULTIVALENTER IMPFSTOFF GEGEN PARAMYXOVIREN UND VERWENDUNGEN DAVON

EP - 26.03.2025

Clasificación Internacional A61K 39/12Nº de solicitud 23732319Solicitante ICOSAVAX INCInventor/a FELDHAUS ANDREW L

Provided are compositions pharmaceutical compositions, comprising two or more virus-like particles (VLPs), wherein a first virus-like particle (VLP) comprises a first component comprising a respiratory syntactical virus (RSV) F protein ectodomain or antigenic variant thereof; and a second virus-like particle (VLP) comprises a first component comprising a comprises a human metapneumovirus (hMPV) F protein ectodomain or antigenic variant thereof. Further provided are methods of using said compositions for vaccination.

19.WO/2025/064470VIRAL PEPTIDES AND USES THEREOF

WO - 27.03.2025

Clasificación Internacional C07K 14/445Nº de solicitud PCT/US2024/047158Solicitante REGENERON PHARMACEUTICALS, INC.Inventor/a VAN METER, Michael

The present disclosure provides isolated peptides derived from human T-lymphotropic virus type-1 (HTLV-1), peptide-based molecules (e.g., peptide-MHC (pMHC) complexes), polynucleotides and vectors encoding the peptides or peptide-based molecules, pharmaceutical compositions (e.g., vaccine compositions), and their use for treatment, prevention, or reduction of the likelihood of HTLV-1 infection and/or HTLV-1 -induced diseases. The present disclosure also provides binding moieties that bind to the peptides or peptide-based molecules disclosed herein, and their use for treatment, prevention, or reduction of the likelihood of HTLV-1

infection and/or HTLV-1 -induced diseases. The present disclosure further provides methods and systems for identifying immunogenic virus-derived peptides.

20.20250102520SIMULTANEOUS DETECTION OF ANTIGENS AND ANTIGEN SPECIFIC ANTIBODIES IN A GUINEA PIG MODEL SYSTEM

US - 27.03.2025

Clasificación Internacional G01N 33/68Nº de solicitud 18891353Solicitante VANDERBILT UNIVERSITYInventor/a Ivelin Georgiev

Disclosed herein are methods of determining broadly neutralizing antibodies, antigen specific cell sorting and developing vaccine compositions in a guinea pig model system using LIBRA-seq.

21.WO/2025/061762HLA-INDEPENDENT ANTIGEN BINDERS, SUCH AS T-CELL RECEPTORS, AGAINST PD-L1

WO - 27.03.2025

Clasificación Internacional C07K 14/725Nº de solicitud PCT/EP2024/076097Solicitante UNIVERSITÄTSMEDIZIN DER JOHANNES GUTENBERG-UNIVERSITÄT MAINZInventor/a FATHO, Martina

The present invention relates to novel tumor-associated antigens, which elicit a T-cell response independently from a presentation by MHC. PD-L1 was found to be a target of CD8-positive T-cell clones which could detect their target antigen on the surface of HLA I-negative melanoma cells. Thus, the invention provides proteins, protein fragments and polypeptides of the novel antigens for use in medicine, for example for the treatment, diagnosis and prevention of a tumor disease. Also provided are nucleic acids expressing the antigens of the invention, binding agents specific for the antigens of the invention, such as T-cell receptor chains and isolated T cells which are reactive against the antigens of the invention or which express the T-cell receptors of the invention. The invention further pertains to pharmaceutical compositions, especially vaccine compositions, comprising the antigens, nucleic acids, binding agents or T cells in accordance with the invention, and methods for the generation of T cells specifically reactive to the antigens of the invention in an MHC-independent manner.

22.20250099569RESPIRATORY SYNCYTIAL VIRUS VACCINE

US - 27.03.2025

Clasificación Internacional A61K 39/12Nº de solicitud 18796754Solicitante ModernaTX, IncInventor/a Giuseppe Ciaramella

The disclosure relates to respiratory syncytial vims (RSV) ribonucleic acid (RNA) vaccines, as well as methods of using the vaccines and compositions comprising the vaccines.

23.4527849HLA-UNABHÄNGIGE ANTIGENBINDEMITTEL, WIE T-ZELLREZEPTOREN, GEGEN PD-L1

EP - 26.03.2025

Clasificación Internacional C07K 14/725Nº de solicitud 23198276Solicitante UNIV DER JOHANNES GUTENBERG UNIV MAINZInventor/a FATHO MARTINA

The present invention relates to novel tumor-associated antigens, which elicit a T-cell response independently from a presentation by MHC. PD-L1 was found to be a target of CD8-positive T-cell clones which could detect their target antigen on the surface of HLA I-negative melanoma cells. Thus, the invention provides proteins, protein fragments and polypeptides of the novel antigens for use in medicine, for example for the treatment, diagnosis and prevention of a tumor disease. Also provided are nucleic acids expressing the antigens of the invention, binding agents specific for the antigens of the invention, such as T-cell receptor chains and isolated T cells which are reactive against the antigens of the invention or which express the T-cell receptors of the invention. The invention further pertains to pharmaceutical compositions, especially vaccine compositions, comprising the antigens, nucleic acids, binding agents or T cells in accordance with the invention, and methods for the generation of T cells specifically reactive to the antigens of the invention in an MHC-independent manner.

24.4525990VERWENDUNG VON PILZKONSTRUKTEN ZUR HERSTELLUNG VON VIRALEN PROTEINANTIGENEN

EP - 26.03.2025

Clasificación Internacional A61P 31/12Nº de solicitud 23733820Solicitante PHIBRO ANIMAL HEALTH CORPORATIONInventor/a ZRACHYA AVI

The present disclosure concerns using transgenic fungus to express recombinant viral antigens. The composition, production, and administration of vaccines comprising those viral antigens also are disclosed. In some embodiments, these viral antigens can be used to formulate a vaccine against Newcastle Disease. These vaccines can be administered, for example, via intramuscular injection.

25.20250099574CORONAVIRUS VACCINE

US - 27.03.2025

Clasificación Internacional A61K 39/215Nº de solicitud 18722534Solicitante HANMI PHARM CO., LTD.Inventor/a Seung Su Han

Provided are non-naturally occurring 5'-untranslated region and 3'-untranslated region nucleotides, and use thereof.

26.20250099561ACTIVE IMMUNIZATION FOR REDUCING OSTEOARTHRITIC, NEUROPATHIC, AND CANCER PAIN

US - 27.03.2025

Clasificación Internacional A61K 39/00Nº de solicitud 18730908Solicitante Luis Hector BARBEITO ERBAInventor/a Luis Hector BARBEITO ERBA

A recombinant fusion protein used for active immunization or vaccine in the treatment of pain in a subject and a method thereof. The recombinant fusion protein includes: a nerve growth factor (NGF); and substance P (SP) or a calcitonin gene-related peptide (CGRP). The pain can be associated with osteoarthritis (OA), neurogenic inflammation, neuropathy, rheumatoid arthritis, post-surgery or cancer. The invention is particularly useful for treating OA pain in animals.

27.20250101069MULTIVALENT OSPA POLYPEPTIDES AND METHODS AND USES RELATING THERETO

US - 27.03.2025

Clasificación Internacional C07K 14/20Nº de solicitud 18665018Solicitante Valneva Austria GmbHInventor/a Urban Lundberg

The present invention relates to an immunogenic polypeptide, a nucleic acid encoding the same, a pharmaceutical composition comprising the same and the immunogenic polypeptide, nucleic acid or pharmaceutical composition for use as a medicament, particularly a vaccine, or for use in a method of treating or preventing a *Borrelia* infection.

28.4526334VERFAHREN UND SYSTEME ZUR VORHERSAGE HLA-KLASSE-II-SPEZIFISCHER EPITOPE UND CHARAKTERISIERUNG VON CD4+-T-ZELLEN

EP - 26.03.2025

Clasificación Internacional C07K 14/705Nº de solicitud 23808318Solicitante BIONTECH US INCInventor/a SROUJI JOHN

Methods for preparing a personalized cancer vaccine and a method to train a machine learning HLA-peptide presentation prediction model. Further wherein, a method of making a HLA class II tetramer or multimer comprising an epitope, the method comprising contacting a purified soluble HLA-DM loaded with a peptide epitope with a HLA class II tetramer or multimer, thereby forming a HLA class II tetramer or multimer loaded with the peptide epitope, is disclosed.

29.202501014580PTIMIZED AAV-BASED VACCINE

US - 27.03.2025

Clasificación Internacional C12N 15/86Nº de solicitud 18730269Solicitante Massachusetts Eye and Ear infirmaryInventor/a Luc H. Vandenberghe

The present application relates to compositions and methods for eliciting an immune response in a subject using an Adeno-Associated Virus (AAV) AAV11 vector comprising an AAV11 capsid protein and a nucleic acid encoding a transgene operably linked to a promoter, wherein the transgene encodes an immunogenic polypeptide. Further disclosed are immunogenic polypeptides that are used for the compositions and methods.

30.4526287IONISIERBARE LIPIDE

EP - 26.03.2025

Clasificación Internacional C07C 323/12Nº de solicitud 23727991Solicitante ETHERNA IMMUNOTHERAPIES NVInventor/a DE KOKER STEFAAN

The present invention generally relates to the field of ionizable (also termed cationic) lipids,and in particular provides a novel type of such lipids as represented by any of the formulae disclosed herein. The present invention further provides methods for making such lipids as well as uses thereof, in particular in the preparation of nanoparticle compositions, more in particular nanoparticle compositions comprising nucleic acids. It further provides vaccine formulations and pharmaceutical formulations comprising nanoparticle compositions based on the ionizable lipids disclosed herein.

31.202500995660COMPOSITIONS AND METHODS FOR TREATING BACTERIAL DISEASE

US - 27.03.2025

Clasificación Internacional A61K 39/095Nº de solicitud 18727485Solicitante Arizona Board of Regents on Behalf of the University of ArizonaInventor/a Magdalene So

The present invention relates to compositions and methods for preventing and/or treating bacterial disease (e.g., disease caused by *Neisseria* sp. such as gonorrhea). In particular, the present invention provides vaccine compositions and agents targeting *Neisseria* host interaction genes.

32.20250099573SARS-COV-2 S PROTEIN POLYPEPTIDE ANTIGEN AND APPLICATION THEREOF

US - 27.03.2025

Clasificación Internacional A61K 39/215Nº de solicitud 18708771Solicitante Chinese PLA General HospitalInventor/a Fenghua XU

Provided are a polypeptide antigen derived from the S protein of SARS-CoV-2, a polypeptide vaccine containing the same, and applications thereof. The amino acid sequence of the polypeptide antigen provided by the present disclosure is as shown in any one of SEQ ID NOs: 1-116.

33.20250101399CONSENSUS PROSTATE ANTIGENS, NUCLEIC ACID MOLECULE ENCODING THE SAME AND VACCINE AND USES COMPRISING THE SAME

US - 27.03.2025

Clasificación Internacional C12N 9/64Nº de solicitud 18660509Solicitante The Trustees of the University of PennsylvaniaInventor/a David Weiner

Provided herein are consensus amino acid sequences of prostate antigens that are capable of breaking tolerance in a targeted species, including PSA, PSMA, STEAP and PSCA antigens. Also provided are nucleic acid sequences that encode one or more consensus amino acid sequences of prostate antigens PSA, PSMA, STEAP and PSCA, as well as genetic constructs/vectors and vaccines expressing the sequences. Also provided herein are methods for generating an autoimmune response against prostate cancer cells by administering one or more of the vaccines, proteins, and/or nucleic acid sequences that are provided.

Edición: Annia Ramos Rodríguez aramos@finlay.edu.cu
Randelys Molina Castro rmolina@finlay.edu.
Claudia Camejo Salas ccamejo@finlay.edu.cu
Yamira Puig Fernández yamipuig@finlay.edu.cu

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