FINLAY EDICIONES

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

- Resumen de la información publicada por la OMS sobre los candidatos vacunales en desarrollo contra la COVID-19 a nivel mundial.
- Noticias más recientes en la Web sobre vacunas.
- Artículos científicos más recientes de Medline sobre vacunas.
- Patentes más recientes en Patentscope sobre vacunas.
- Patentes más recientes en USPTO sobre vacunas.

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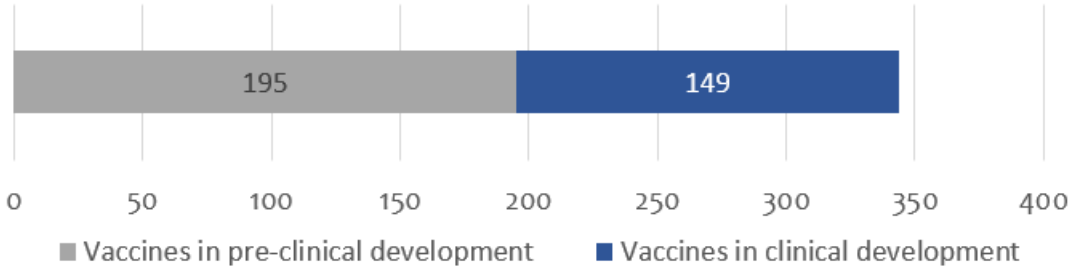
CUBA

Resumen de la información publicada por la OMS sobre los candidatos vacunales contra la COVID-19 en desarrollo a nivel mundial

Última actualización por la OMS: 18 de marzo de 2022.

Fuente de información utilizada: World Health Organization; R&DBlueprint Powering research to prevent epidemics

149 candidatos vacunales en evaluación clínica y 195 en evaluación preclínica



Candidatos vacunales en evaluación clínica por plataforma

Platform		Candidate vaccines (no. and %)	
PS	Protein subunit	48	32%
VVnr	Viral Vector (non-replicating)	21	14%
DNA	DNA	16	11%
IV	Inactivated Virus	21	14%
RNA	RNA	27	18%
VVr	Viral Vector (replicating)	4	3%
VLP	Virus Like Particle	6	4%
VVr + APC	VVr + Antigen Presenting Cell	2	1%
LAV	Live Attenuated Virus	2	1%
VVnr + APC	VVnr + Antigen Presenting Cell	1	1%
BacAg-SpV	Bacterial antigen-spore expression vector	1	1%
		149	

Candidatos vacunales mucosales en evaluación clínica

Desarrollador de la vacuna/fabricante/país	Plataforma de la vacuna	Vía de administración	Fase
University of Oxford/Reino Unido	Vector viral no replicativo	Intranasal	1
CanSino Biological Inc./Beijing Institute of Biotechnology/China	Vector viral no replicativo	Inhalación	3
Vaxart/Estados Unidos	Vector viral no replicativo	Oral	2
Univ. Hong Kong, Xiamen Univ./Beiging Wantai Biol. Pharm./China	Vector viral replicativo	Intranasal	3
Symvivo/Canadá	ADN	Oral	1
ImmunityBio, Inc./Estados Unidos	Vector viral no replicativo	Oral o SL	1/2
Codagenix/Serum Institute of India	Virus vivo atenuado	Intranasal	3
Center for Genetic Engineering and Biotechnology (CIGB)/Cuba	Subunidad proteica	Intranasal	1/2
Razi Vaccine and Serum Research Institute/India	Subunidad proteica	IM e IN	3
Bharat Biotech International Limited/India	Vector viral no replicativo	Intranasal	3
Meissa Vaccines, Inc./Estados Unidos	Virus vivo atenuado	Intranasal	1
Laboratorio Avi-Mex/México	Virus inactivado	IM o IN	2/3
USSF + VaxForm/Estados Unidos	Subunidad proteica	Oral	1
CyanVac LLC/Estados Unidos	Vector viral no replicativo	Intranasal	1
DreamTec Research Limited/Hong Kong	BacAg-SpV	Oral	NA
Sean Liu, Icahn School of Medicine at Mount Sinai	Vector viral replicativo	IN/IM	1
Hannover Medical School/Alemania	Vector viral no replicativo	Inhalación	1

Candidatos vacunales más avanzados a nivel global

Desarrollador de la vacuna/fabricante/país	Plataforma de la vacuna	Fase
Sinovac/China	Virus Inactivado	4
Sinopharm/Wuhan Institute of Biological Products/China	Virus Inactivado	4
Sinopharm/Beijing Institute of Biological Products/China	Virus Inactivado	4
University of Oxford/AstraZeneca/Reino Unido	Vector viral no replicativo	4
CanSino Biological Inc./Beijing Institute Biotechnology/China	Vector viral no replicativo	4
CanSino Biological Inc./Beijing Institute Biotechnology/China	Vector viral no replicativo (IH)	3
Gamaleya Research Institute/Rusia	Vector viral no replicativo	3
Janssen Pharmaceutical Companies/EE.UU.	Vector viral no replicativo	4
Novavax/Estados Unidos	Subunidad proteica	3
Moderna/NIAID/Estados Unidos	ARN	4
Pfizer/BioNTech Fosun Pharma/EE.UU.	ARN	4
Anhui Zhifei Longcom Biopharmac./Inst. Microbiol, Chin Acad Sci/China	Subunidad proteica	3
CureVac AG/Alemania	ARN	3
Institute of Medical Biology/Chinese Academy of Medical Sciences	Virus inactivado	3
Research Institute for Biological Safety Problems, Kazakhstan	Virus inactivado	3
Inovio Pharmac. + Intern. Vacc Inst. + Advaccine Biopharm Co., Ltd	ADN	3
Zydus Cadila Healthcare Ltd./India	ADN	3
Bharat Biotech/India	Virus Inactivado	3
Sanofi Pasteur + GSK/Francia/Reino Unido	Subunidad proteica	3
Shenzhen Kangtai Biological Products Co., Ltd./China	Virus Inactivado	3
Clover Biopharmaceuticals Inc./GSK/Dynavax/China/Reino Unido/EE.UU	Subunidad proteica	3
Vaxine Pty Ltd. + CinnaGen Co./Australia, Irán	Subunidad proteica	3
Medigen Vaccine Biol./Dynavax/NIAID/Taiwán/EE.UU	Subunidad proteica	4
Instituto Finlay de Vacunas/Cuba	Subunidad proteica	3
Federal Budget Res Inst State Res Cent Virol Biotechnol "Vector"/Rusia	Subunidad proteica	3
West China Hospital + Sichuan University/China	Subunidad proteica	3
Univ. Hong Kong, Xiamen Univ. & Beijing Wantai Biological Pharm./China	Vector viral replicativo	3
Acad Milit Sci (AMS) Walvax Biotechnol, Suzhou Abogen Biosci/China	ARN	3
Medicago Inc./Canadá	Partícula similar a virus	3
Codagenix/Serum Institute of India	Virus vivo atenuado	3
Center for Genetic Engineering and Biotechnology (CIGB)/Cuba	Subunidad proteica	3
Valneva, National Institute for Health Research/Reino Unido	Virus inactivado	3
Biological E. Limited/India	Subunidad proteica	3
Nanogen Pharmaceutical Biotechnology/Vietnam	Subunidad proteica	3
Shionogi/Japón	Subunidad proteica	3
Erciyes University/Turquía	Virus inactivado	3
SK Bioscience Co., Ltd./CEPI/Corea del Sur/Noruega	Subunidad proteica	3
Razi Vaccine and Serum Research Institute	Subunidad proteica	3
Bharat Biotech International Limited/India	Vector viral no replicativo	3
Livzon Pharmaceutical/China	Subunidad proteica	3
Bagheiat-allah University of Medical Sciences/AmitisGen/Irán	Subunidad proteica	3
Laboratorios Hipra, S.A./España	Subunidad proteica	3
Arcturus Therapeutics, Inc./EE.UU.	ARN	3

Noticias en la Web

11 de marzo de 2022: balance de dos años de pandemia por la COVID-19 desde la perspectiva de la industria farmacéutica

11 mar. Farmaindustria realiza un repaso sobre la investigación, producción de medicamentos y vacunas contra el SARS-CoV-2.

Hoy se cumplen dos años desde que la Organización Mundial de la Salud (OMS) declarara el 11 de marzo de 2020 la pandemia de coronavirus. Por este motivo, desde Farmaindustria han realizado un repaso sobre la investigación, producción de medicamentos y vacunas contra la COVID-19 por parte de la industria farmacéutica. Actualmente, la producción de vacunas ha superado las 12.100 millones de dosis, según los datos de la consultora independiente Airfinity. Mientras que el 63% de la población mundial ya ha recibido al menos una vacuna.

Fabricación

A día de hoy, las sustancias necesarias para la fabricación de las vacunas contra la COVID-19 se están produciendo en al menos 83 plantas de producción situadas en 70 países de todo el mundo. De hecho, la producción de los sueros se ha multiplicado por cuatro desde el inicio de la fabricación. Actualmente se fabrican cerca de 1.400 millones de dosis todos los meses, frente a los 350 millones del principio.

La producción de vacunas ha superado las 12.100 millones de dosis y el 63% de la población mundial ya ha recibido al menos una vacuna.

Según especifica Farmaindustria, esto ha sido posible gracias a que “las compañías farmacéuticas, en paralelo al proceso de investigación, han ido ampliando sus propias plantas de producción para aumentar su capacidad e incluso comenzaron a producir vacunas a riesgo, antes de que fueran aprobadas por las agencias reguladoras. Junto a ello, buscaron y firmaron acuerdos de transferencia de tecnología con empresas de cualquier país del mundo con capacidad para participar en la producción de estas vacunas. Ya se contabilizan cerca de 370 acuerdos de colaboración, que implican a casi un centenar de empresas, muchas de ellas competidoras”.

"Ya se contabilizan cerca de 370 acuerdos de colaboración, que implican a casi un centenar de empresas, muchas de ellas competidoras".

Estos acuerdos entre las empresas resultan fundamentales ya que el proceso de fabricación de vacunas es muy complejo y requiere conocimientos específicos, tecnología puntera, instalaciones adecuadas, equipos humanos preparados y una experiencia que, en la actualidad, solo está al alcance de unas pocas compañías en todo el mundo.

El principal problema para la vacunación en África no es el hecho de que no haya vacunas, sino los problemas logísticos y las falsas creencias entre la población acerca de la utilidad de estos fármacos.

Vacunación mundial

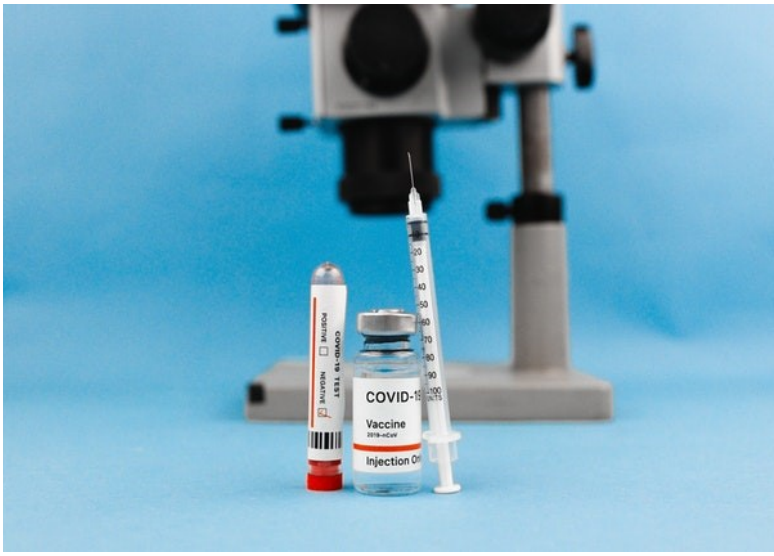
Del mismo modo, desde la patronal aseguran que hasta ahora las dosis producidas son suficientes para vacunar a toda la población adulta en el mundo. No obstante, “la industria farmacéutica sigue pidiendo que se compartan las dosis distribuidas y renueva su compromiso de trabajar con los gobiernos para apoyar medidas que lo hagan posible”.

Ahora el principal problema para la vacunación en África no es el hecho de que no haya vacunas, sino los problemas logísticos y las falsas creencias entre la población acerca de la utilidad de estos fármacos.

Por este motivo, la Federación Internacional de la Industria Farmacéutica (Ifpma), a la que pertenece Farmaindustria, ha pedido redoblar el apoyo a los sistemas de salud de los países con menos recursos para que puedan llevar a cabo los planes de vacunación entre la población.

Hasta marzo de 2022 se han administrado un total de 10.930 millones de dosis en todo el mundo, tal y como se desprende de los datos publicados por Unicef y la Universidad de Oxford. Esto supone que el 63,4% de la población mundial ha recibido al menos una dosis de una vacuna contra la Covid-19. Sin embargo, sólo el 13,7% de las personas que viven en países en desarrollo han recibido al menos una dosis de la vacuna.

Las compañías farmacéuticas proponen intensificar la distribución responsable de dosis a los países de renta más baja a través del mecanismo Covax, la iniciativa liderada por la OMS para hacer llegar las vacunas de COVID-19 a las poblaciones con menos recursos, ha explicado Ipfm. Esta ha contado desde el inicio con el apoyo de la industria farmacéutica y de más de 190 países de todo el mundo, entre ellos España. A día de hoy, Covax ha enviado más de 1.000 millones de dosis a 144 países. El 95% de las vacunas que Covax ha entregado fueron desarrolladas y fabricadas por empresas biofarmacéuticas innovadoras.



Covax ha enviado más de 1.000 millones de dosis a 144 países.

Investigación

La investigación sobre nuevas vacunas no se ha detenido. Por el momento, hay diez vacunas contra la COVID-19 aprobadas en todo el mundo: cinco de ellas de uso en Europa al contar con el visto bueno de la Agencia Europea del Medicamento. Las investigaciones sobre nuevas vacunas continúan y actualmente hay otras 147 en ensayos clínicos, de las que 33 están ya en la última fase de investigación.

En cuanto a los tratamientos, destacar que por ahora son siete los tratamientos autorizados para tratar este coronavirus, previa evaluación de la Agencia Europea del Medicamento (EMA). Además, según los registros de la OMS, se están llevando a cabo más de 1.600 ensayos clínicos con posibles tratamientos en todo el mundo.

“España ha sido, con 172 ensayos, el primer país de Europa y el cuarto del mundo en número de estudios clínicos contra el coronavirus, en línea con su papel de referencia internacional en investigación clínica de medicamentos".

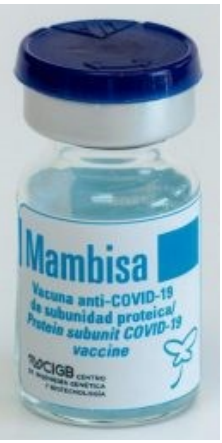
El papel de España en el desarrollo de nuevos tratamientos y vacunas está siendo muy notable. “Nuestro país ha sido, con 172 ensayos, el primer país de Europa y el cuarto del mundo en número de estudios clínicos contra el coronavirus, en línea con su papel de referencia internacional en investigación clínica de medicamentos. De igual modo, hasta cuatro compañías españolas están participando, en colaboración con empresas desarrolladoras, en la fabricación de vacunas contra la COVID-19”.

Fuente: PHARMA MARKET. Disponible en https://bit.ly/36kQG5U

Fuente: ConSalud. Disponible en https://bit.ly/3KIWvZM

CIGB solicitará autorizo de uso de emergencia del candidato

13 mar. El Centro de Ingeniería Genética y Biotecnología (CIGB) informó en su cuenta oficial de la red social Twitter que solicitará el autorizo de uso de emergencia del candidato vacunal anti COVID-19 Mambisa, una vez que estén listos los informes sobre el ensayo clínico Baconao, en el cual se estudia el efecto de este inmunógeno como dosis de refuerzo.



El estudio Baconao es un ensayo clínico en fase II que se desarrolla en la provincia de Matanzas y busca evaluar el efecto y la seguridad de una dosis de refuerzo contra la COVID-19 con Mambisa o Abdala, en individuos previamente vacunados con Abdala. Este estudio fue aprobado en noviembre de 2021 por el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED).

Según explicó el CIGB, se trata de un ensayo multicéntrico y aleatorizado, en el cual participaron entre 1 500 y 3 000 trabajadores del Turismo y de la Salud, como poblaciones de riesgo, con más de cinco meses de haber recibido la última dosis. La mitad de los sujetos recibió Abdala, y la otra, Mambisa.

Actualmente dicho estudio clínico se encuentra en etapa de evaluación y procesamiento de los datos. "Cuando estén los informes, se solicitará el autorizo de uso de emergencia, que convertirá a Mambisa en vacuna", precisó la institución científica en su cuenta de Twitter.

Mambisa es de los candidatos vacunales contra la COVID-19 para uso nasal con investigaciones más avanzadas del mundo, así como el primero en iniciar estudios clínicos en humanos, añadió la publicación del CIGB.

Este candidato vacunal desarrollado por el CIGB se basa en antígenos proteicos producidos con tecnología muy segura y eficaz, empleada por más de 30 años, al tiempo que no requiere para su fabricación del uso del Tiomersal, lo que representa una ventaja para los alérgicos a dicho compuesto.

Fuente: Cubadebate. Disponible en https://bit.ly/3ts6lcr

Garantizadas todas las dosis de vacunas anti-COVID-19 para inmunizar a la población cubana

14 mar. Todas las dosis de vacunas anti-COVID-19 necesarias, tanto para culminar la inmunización primaria como para la administración de la dosis de refuerzo en la población cubana, están garantizadas por la industria biofarmacéutica nacional, informó a la prensa la doctora Mayda Mauri Pérez, vicepresidenta primera del grupo empresarial BioCubaFarma.

La directiva destacó que, a pesar de las dificultades que atravesó la industria en 2021, buena parte de los recursos de los que pudo disponer el país fueron destinados a la producción de las vacunas, lográndose en pocos meses récords productivos de los inmunógenos.

A partir de los estudios que se van a realizar –añadió la doctora Mauri Pérez– si fuera necesario otra dosis de refuerzo, «pensamos que va a existir disponibilidad para la misma».

Igualmente, a partir de las capacidades productivas creadas es posible contar con disponibilidad de vacunas para la exportación, lo cual permitiría a la industria recibir ingresos, de los cuales la primera prioridad seguirá siendo la producción de los medicamentos del cuadro básico para la población cubana, añadió.

Destacó que la actividad de ciencia e innovación en la industria no se ha detenido en las vacunas y los candidatos vacunales ya obtenidos contra la pandemia, sino que las áreas de investigación y desarrollo de BioCubaFarma dedicadas a las vacunas, continúan trabajando en nuevos inmunógenos que estarían dirigidos a posibles variantes del virus SARS-COV-2.

Fuente: Granma. Disponible en https://bit.ly/3L38OQM

Pros y contras de la vacuna de Hipra

15 Mar. Todas las vacunas aprobadas en la Unión Europea contra la covid activan la inmunidad contra la proteína S del coronavirus. Esta es la proteína que sobresale en forma de espícula de la membrana del virus y que le permite unirse a las células humanas para infectarlas. Pero la vacuna de Hipra activa la inmunidad contra la proteína S de manera distinta a todas las demás.

¿Cómo funciona?

Las vacunas de ARN mensajero (Pfizer y Moderna) introducen en el cuerpo instrucciones genéticas para que sean las propias células humanas las que fabriquen la proteína S que estimulará el sistema inmunitario. Las vacunas de vectores virales (AstraZeneca y Janssen) introducen virus inofensivos que, una vez en el cuerpo humano, producirán la proteína S. La vacuna de Hipra, por el contrario, inyecta directamente un fragmento de proteína que debe estimular la inmunidad. Es lo que se llama una vacuna de subunidades proteicas. También la de Novavax (ya aprobada en la UE) y la de Sanofi-GSK (pendiente de aprobación) son vacunas de subunidades proteicas.

¿Qué la diferencia de las vacunas de Novavax y Sanofi-GSK?

Las vacunas de Novavax y de Sanofi-GSK inyectan en el cuerpo humano la proteína S entera -concretamente, la proteína S de la variante original de Wuhan-. La de Hipra inyecta únicamente un fragmento de la proteína llamado RBD (del inglés receptor binding domain , o dominio de unión al receptor). El RBD es una minúscula estructura situada en la punta de la proteína S que se une a las células humanas (véase gráfico). Limitar la vacuna al dominio RBD en lugar de generar inmunidad contra la proteína S entera "tiene ventajas e inconvenientes", reconoce Antonio Barreiro, investigador que lidera el proyecto de la vacuna en Hipra.

¿Qué eficacia tiene?

Los resultados preliminares de un ensayo clínico con 765 voluntarios indican que una tercera dosis de Hipra genera más anticuerpos que una de Pfizer en personas que habían recibido anteriormente dos dosis de Pfizer. Aún no hay datos que aclaren si este aumento de anticuerpos comporta un menor riesgo de contagio o de complicaciones graves por la covid.

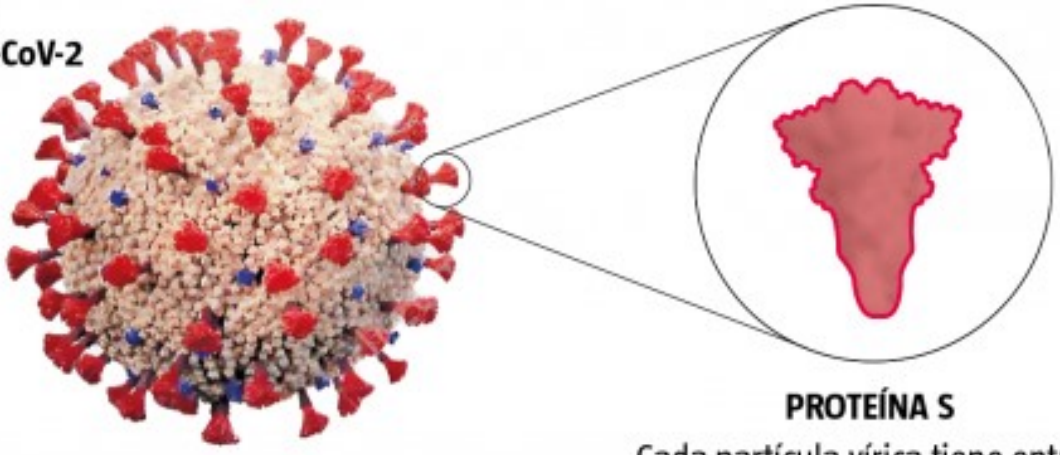
Estudios anteriores han observado que la proteína S es la parte del coronavirus donde se acumulan más mutaciones cuando aparecen nuevas variantes. Estas mutaciones comportan una menor eficacia de las vacunas. La variante ómicron tiene 32 mutaciones en la proteína S respecto al virus original de Wuhan, un número superior al de cualquier variante anterior. De ellas, 15 se concentran en la RBD.

Cómo funciona la vacuna de Hipra

1. Las partículas del **virus SARS-CoV-2** son esferas de 0,1 micras de diámetro: **en un milímetro cabrían 10.000 en fila**

2. De la membrana del coronavirus sobresale la **proteína S (o Spike), que el SARS-CoV-2 utiliza para unirse a las células que infecta**

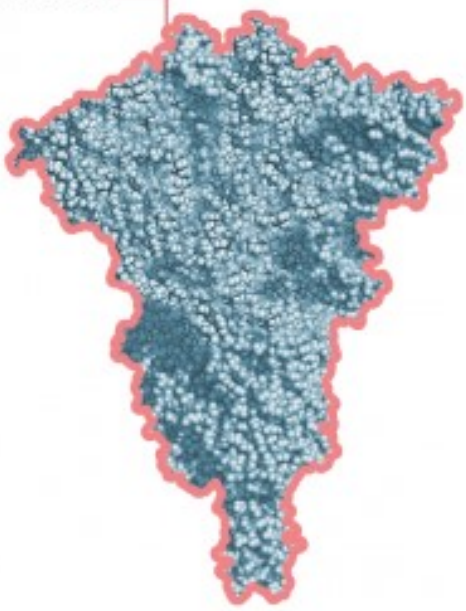
Virus SARS-CoV-2



PROTEÍNA S

Cada partícula vírica tiene entre 24 y 40 proteínas S, cuya forma recuerda a una flor de brócoli

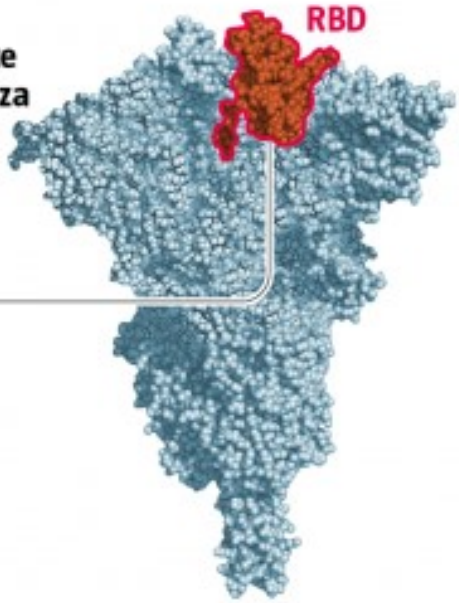
3. Todas las vacunas aprobadas actualmente se basan en la proteína S entera...



...de la variante original de Wuhan, por lo que **generan anticuerpos contra las distintas partes de la proteína**

4. LA VACUNA DE HIPRA
Se basa únicamente en la parte RBD de la proteína S...

...esta es la parte que el virus utiliza para unirse a la proteína ACE2 de las células humanas que infecta



Combina la proteína S de la variante alfa (identificada en el Reino Unido) con la de la variante beta (identificada en Sudáfrica)

FUENTE: **Elaboración propia**

LA VANGUARDIA

Próximos estudios aclararán en qué medida afectan estas mutaciones a la eficacia de la vacuna de Hipra.

¿Qué seguridad tiene?

Las vacunas de subunidades proteicas se utilizan desde hace décadas para la gripe, la hepatitis B o la meningitis, entre otras enfermedades, y han demostrado ser extremadamente seguras. Por ello, podrían incentivar la inmunización de personas que han sido contrarias a vacunarse con el argumento de que las vacunas de la covid se han introducido sin estar suficientemente probadas, sostiene Èlia Torroella, vicepresidenta ejecutiva de Hipra. Los resultados de los ensayos clínicos disponibles hasta ahora indican que algunas personas que han recibido la vacuna de Hipra experimentan sensibilidad en el lugar del pinchazo, cansancio y/o dolor de cabeza. Los efectos secundarios han sido leves o moderados en todos los casos e inferiores a los de las vacunas de ARN mensajero.

¿Qué precio tendrá?

"Aún no está definido pero será más competitivo que el de las vacunas de ARN mensajero", anticipa Laura Ferrer, responsable de I+D humana de Hipra.

¿En qué países se distribuirá?

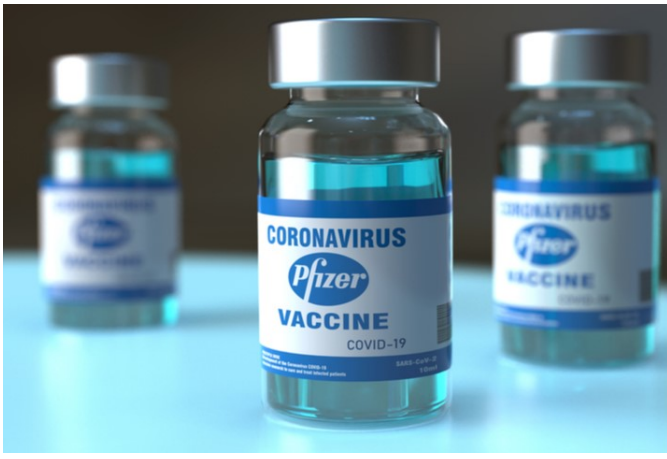
Tampoco está decidido porque dependerá de los países donde se apruebe. Hipra dispone de una red de distribución global para productos veterinarios que le permitirá distribuir su vacuna de la covid.

Dado que puede transportarse y conservarse a temperatura de nevera, de entre 2 y 8 grados, la vacuna de Hipra puede ser más adecuada para países del Tercer Mundo que las de ARN mensajero, que deben conservarse a temperaturas más bajas. También las vacunas de vectores virales pueden conservarse a temperatura de nevera y se consideran adecuadas para el Tercer Mundo.

Fuente: La Vanguardia. Disponible en https://bit.ly/3CXSVYV

Pfizer pide a EE.UU. autorizar cuarta dosis de vacuna antiCOVID

15 mar. Pfizer y su socio BioNTech pidieron este martes a los organismos reguladores estadounidenses que autoricen una dosis adicional de refuerzo de su vacuna contra el COVID-19 para personas mayores, afirmando que datos surgidos de Israel indican que los adultos mayores se beneficiarían.



En la actualidad, Estados Unidos recomienda dos inyecciones iniciales seguidas de una dosis de refuerzo para todas las personas de 12 años o más. La nueva solicitud pretende añadir una cuarta inyección sólo para la población mayor de 65 años, que ha sido la más afectada por la pandemia.

La Administración de Alimentos y Medicamentos y los Centros para el Control y la Prevención de Enfermedades tendrían que aprobar la solicitud. De ser así, una cuestión clave sería cuándo se aconsejaría a los ancianos aplicarse la siguiente dosis.

Aunque las autoridades afirman que las vacunas siguen ofreciendo una fuerte protección contra un cuadro grave de COVID, no han resistido tan bien las infecciones más leves, especialmente las debidas a la variante Ómicron.

Dado el descenso de los casos de COVID-19 tras la intensa oleada de Ómicron, los expertos en salud pública están empezando a pensar en los próximos pasos que podrían ser necesarios: si aparece una nueva variante o, en su defecto, si se intenta reforzar la protección contra el coronavirus a fin de año al mismo tiempo que se vacuna contra la gripe.

El domingo en el programa "Face the Nation" de la cadena CBS, el director general de Pfizer, Albert Bourla, indicó los planes de la compañía.

"La protección que usted está recibiendo de la tercera (dosis) es lo suficientemente buena —de hecho, muy buena— contra hospitalizaciones y muertes. No es tan buena contra infecciones", manifestó. "Pero presentaremos esos datos a la FDA y entonces veremos lo que dicen los expertos fuera de Pfizer".

Pfizer basó su nueva solicitud en datos de Israel, que ya ofrece un segundo refuerzo a las personas de 60 años o más y a los trabajadores sanitarios.

Aunque algunos de los primeros datos no dejaban claro el beneficio que ofrecía otra dosis —o durante cuánto tiempo—, Pfizer dijo el martes que un análisis de los expedientes médicos de más de 1,1 millones de ancianos israelíes mostraba que las infecciones confirmadas eran dos veces menores y las tasas de enfermedad grave eran cuatro veces menores entre los que recibieron dos refuerzos en lugar de sólo uno.

Fuente: Gestión. Disponible en https://bit.ly/3uc4cAZ

OMS suspende evaluación de vacuna rusa Sputnik V contra COVID-19

16 mar. La Organización Mundial de la Salud (OMS) anunció que postergará su evaluación de la vacuna rusa Sputnik V contra el coronavirus COVID-19 debido a "la situación inestable".

La doctora Mariangela Simao, experta en vacunas para esa agencia de la ONU, dijo que funcionarios de la OMS iban a ir a Rusia el 7 de marzo para inspeccionar las instalaciones donde se fabrica la vacuna rusa Sputnik V.

Eso fue pocos días después de la invasión rusa de Ucrania. "Estas inspecciones han sido postergadas para una fecha más tarde", declaró Simao.

"La evaluación y las inspecciones se han visto afectadas por la situación", añadió, explicando que la delegación ha tenido problemas para reservar vuelos y para usar tarjetas de crédito, "y otros temas operativos".

Los países occidentales mayormente cerraron su espacio aéreo a aviones rusos e impusieron fuertes sanciones económicas contra Rusia y sus instituciones financieras tras la invasión rusa de Ucrania.

"Esta situación ha sido hablada con los responsables rusos y se fijará una nueva fecha lo más pronto posible", afirmó Simao.

La OMS estudia la posibilidad de aprobar de emergencia la vacuna rusa desde el año pasado. La autorización permitiría usar la vacuna rusa en el programa COVAX de la ONU, que distribuye vacunas a países pobres, y le daría credibilidad a la Sputnik V, que ha sido recibida con desdén.

Un estudio, publicado en el 2020 por la revista Lancet in 2020 y en el que participaron más de 20,000 personas, halló que Sputnik V estaba libre de efectos nocivos, que tenía una eficacia de 91% contra infección y que tenía una alta eficacia en la prevención de síntomas severos.

Pero en octubre del año pasado, el regulador farmacéutico de Sudáfrica rechazó la vacuna rusa, citando interrogantes que el fabricante ruso no pudo responder. Las autoridades sudafricanas temen que la tecnología usada en la Sputnik V podría tener efectos nocivos en poblaciones de alta incidencia de VIH.

La Agencia Europea de Medicamentos (EMA, por sus siglas en inglés) dice que todavía está evaluando la eficacia de la Sputnik V, que ha sido aprobada en más de 70 países. Hasta la fecha no han surgido problemas de consideración relacionados con esa vacuna.

Fuente: Gestión. Disponible en https://bit.ly/3Ipxhhf

COVID: la subvariante BA.2 avanza en el mundo, ¿puede generar una nueva ola de casos?

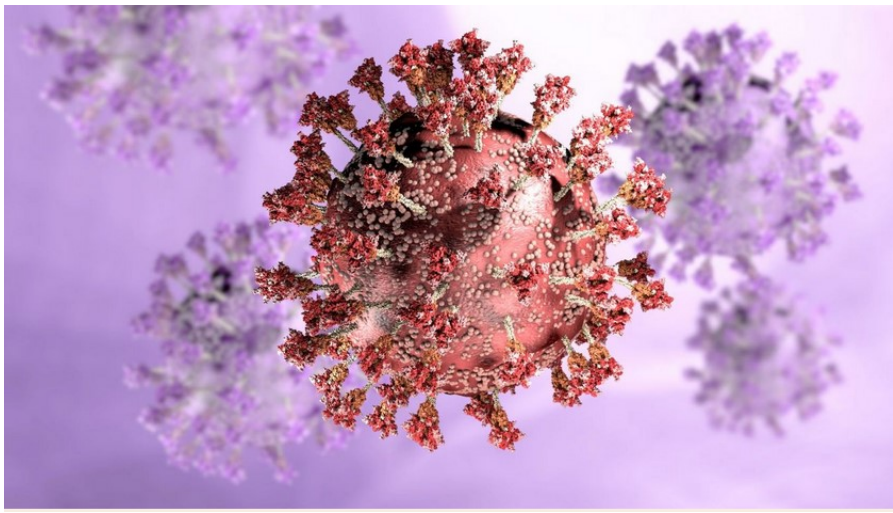
16 mar. Una nueva cepa silenciosa ha pasado a ser el principal foco de preocupación de la pandemia luego de la desaceleración de la ola de casos récord que la variante Ómicron generó en todo el mundo: se trata de la subvariante BA.2 de Ómicron, una derivación de la mutación inicial detectada en Sudáfrica en noviembre del año pasado.

Al igual que su predecesora, BA.2 es altamente trasmisible y los casos generados por esta subvariante se encuentran en aumento. Así lo evidencian la suba de positivos en China y en ciertos países europeos, los cuales igualmente continúan con el relajamiento de las medidas de cuidado y apuestan fuertemente a la vacunación.

En este contexto, surge una nueva pregunta en torno a la subvariante BA.2 de Ómicron: ¿Puede esta superar a la original en número de casos e impulsar nuevas olas? ¿Tiene la capacidad de volverse dominante?

EL POTENCIAL DE LA SUBVARIANTE BA.2 DE ÓMICRON

Tal como demuestran los datos de las últimas semanas, luego de un descenso global de los casos de COVID-19 causados por Ómicron, ahora ciertos países están observando una nueva suba de positivos que puede frenar la calma del último mes.



El principal ejemplo es China, nación que registró este martes más de 5000 casos diarios, la cifra más alta de positivos desde el inicio de la pandemia en el 2020. Pese a que este número puede resultar bajo en

comparación con otras naciones con incluso menos habitantes, esta nueva marca es un golpe directo a la estrategia del presidente Xi Jinping de "Covid cero", la cual se mantuvo con estrictas restricciones.

Por su parte, Europa también observó un aumento de positivos durante los primeros días de marzo: Alemania registró una subida del 19%, Italia del 17,7% y Austria del 25,3%. Esta situación incluso llevó al ministro de Salud alemán, Karl Lauterbach, a calificar la situación como "crítica".

Pese a que la subvariante BA.1 de Ómicron, la principal rama del virus que causó las olas de casos récord en todo el mundo; en su momento era mil veces más común que BA.2, ahora esta diferencia se está achicando ya que BA.2 es la causante de cada vez más infecciones y en ciertas naciones ya es la cepa dominante.

En línea con esto, dos estudios realizados en Europa descubrieron que la subvariante BA.2 de Ómicron es incluso más contagiosa que la BA.1: el primero de ellos, realizado en Dinamarca, descubrió que un individuo infectado con BA.2 tiene más chances de infectar a un cohabitante que un infectado con BA.1.

El segundo análisis de científicos británicos reveló que un individuo portante de la nueva subvariante de Ómicron infecta más rápido que uno con la subvariante original BA.1.

¿PUEDE BA.2 GENERAR NUEVAS OLAS DE COVID-19?

El hecho de que BA.2 ya sea la subvariante de Ómicron dominante en ciertos países del mundo preocupa a los especialistas en torno a la posibilidad de nuevas olas de casos similares a las observadas entre fines del 2021 y principios del 2022.

Sin embargo, pese a que esta cepa avanza, la situación en torno a su expansión es muy desigual y los científicos tienen razones para creer que no generará nuevas complicaciones como lo hizo BA.1: el hecho de que la vacunación con dosis de refuerzo avance a nivel mundial es uno de los puntos a favor que explica esto.

Finalmente, una serie de estudios preliminares también indican que BA.2 no genera cuadros más graves que su predecesora y que las vacunas son igual de efectivas frente a ambas subvariantes.

Fuente: Cronista. Disponible en https://bit.ly/3wlMbmt

Este indicador clave puede determinar qué tan mala podría ser una ola de la subvariante BA.2 del coronavirus en Estados Unidos

17 mar. Con una nueva versión de la variante Ómicron de coronavirus cobrando fuerza en Estados Unidos, hasta 28 millones de personas mayores siguen en riesgo de enfermarse gravemente por COVID-19, ya sea porque no están vacunados o lo están solo parcialmente, o porque han pasado más de cinco meses desde su segunda o tercera dosis de una vacuna, según un análisis de CNN de datos federales.

A medida que Estados Unidos observa con cautela el aumento de casos causados por la subvariante BA.2 en Europa, el estado inmunitario de los adultos mayores de 65 años será un indicador clave de cómo afectarán las variantes futuras a Estados Unidos porque aumenta dramáticamente el riesgo de resultados graves con la edad.

"Realmente estás mirando a ese grupo de mayor edad y cuánta inmunidad tienen, ya sea por infección previa o vacunación, que creo que ha sido el mejor indicador hasta ahora de qué tan grave terminará siendo

un número determinado de casos en términos de hospitalizaciones y muertes", dijo Stephen Kissler, que se especializa en modelos de enfermedades infecciosas en la Escuela de Salud Pública TH Chan de Harvard.

Un análisis realizado por la Agencia de Seguridad Sanitaria del Reino Unido muestra que la subvariante BA.2 de Ómicron es aproximadamente un 80% más contagiosa que la variante BA.1, el virus que causó la última ola de infecciones en Estados Unidos durante el invierno. Los casos y las hospitalizaciones están aumentando en el Reino Unido y en varios otros países europeos donde BA.2 se ha convertido en la dominante.

Aunque las comparaciones directas con BA.1 indican que BA.2 no es más probable que conduzca a la hospitalización, esta variante tiene el potencial de abrumar los recursos de atención médica en Estados Unidos una vez más si encuentra suficientes personas vulnerables para infectar.

El grupo más vulnerable a la variante BA.2

El grupo más vulnerable a esta variante son los adultos mayores de 65 años, especialmente aquellos que tienen poca inmunidad contra el virus. Esta es la razón por la cual Pfizer y BioNTech solicitaron esta semana a la Administración de Alimentos y Medicamentos de EE.UU. (FDA, por sus siglas en inglés) que dé luz verde a la cuarta dosis de la vacuna para adultos mayores.

"Es ese grupo el que es más problemático cuando se trata de enfermedades graves, críticas y fatales. No significa que las personas más jóvenes no terminen en el hospital a veces; simplemente no es al mismo ritmo", dijo Jeffrey Shaman, que se especializa en modelar la propagación de enfermedades infecciosas en la Escuela de Salud Pública Mailman de la Universidad de Columbia.

Shaman señala a Hong Kong, que está en medio de una ola severa causada por BA.2. y tiene la tasa de mortalidad por COVID-19 más alta del mundo.

“Y no han visto la peor parte de eso porque se retrasa un poco, pero es porque tienen una población de ancianos que no estaba muy bien vacunada”, dijo.

Los funcionarios estadounidenses no esperan que BA.2 golpee aquí tan fuerte como lo ha hecho en Hong Kong. Eso se debe a que la ciudad ha seguido una estrategia COVID de tolerancia cero. Esa política mantuvo bajos los casos y las muertes hasta ahora, lo que la convirtió en un modelo para el control de COVID.

Pero Ómicron y la subvariante BA.2 han abrumado esas defensas y comenzaron a infectar a una población con poca exposición previa al virus.

Hong Kong también se basó en una combinación de vacunas ligeramente diferente a la de Estados Unidos y Europa, incluidas las vacunas de Sinovac fabricadas en China y la Comirnaty de Pfizer.

Los funcionarios de salud están buscando pistas en el Reino Unido sobre cómo la subvariante BA.2 puede

comportarse en Estados Unidos, pero no son análogos en todos los sentidos; en particular, el Reino Unido está más vacunado.

En general, en el Reino Unido, el 82 % de los adultos han recibido una tercera dosis de una vacuna contra la COVID-19, algo que es crucial para prevenir infecciones y hospitalizaciones por parte de ómicron debido a cuán altamente "inmunes erosivas" son estas variantes, dice Shaman. En Estados Unidos, ese número es solo del 36%.

Entre los estadounidenses mayores de 65 años que son elegibles para recibir un refuerzo, los datos de los CDC muestran que 1 de cada 3 no ha optado por recibir una tercera dosis, lo que deja a unos 15 millones de estadounidenses mayores sin esa protección adicional fundamental.

Fuente: CNN en español. Disponible en https://cnn.it/3inyPO6

Moderna Submits EUA for Fourth Booster Dose of COVID-19 Vaccine

Mar 18. Moderna has submitted an amended application to the FDA for an Emergency Use Authorization (EUA) for its Spikevax COVID-19 vaccine for a fourth booster dose in individuals 18 years of age and older who have received an initial booster of any authorized or approved COVID-19 vaccine. The EUA submission follows a similar action this week by Pfizer Inc and BioNTech, who submitted an EUA application for an additional fourth booster dose of their COVID-19 vaccine for adults 65 years of age and older who received an initial booster of any of the authorized or approved COVID-19 vaccines.

A Delta and Omicron hybrid variant was identified earlier this week called Delta 21J/AY.4-Omicron 21K/BA.1, which has been referred to as “Deltacron,” a recombinant virus that contains genes from both variants. This variant appears to be the most contagious strain thus far, with some medical experts calling it as contagious as the measles. Cases have increased in China and Europe, as many countries including the United States, have begun to relax COVID-19 restrictions.

American public health officials said they are monitoring the variant, but have not as of yet altered guidance on mask-wearing or other prevention measures. Earlier this year, the FDA approved the Moderna vaccine as a 2-dose primary series for individuals 18 years of age and older.

“Our COVID-19 vaccine has been administered to hundreds of millions of people around the world, protecting people from COVID-19 infection, hospitalization and death,” Moderna CEO Stéphane Bancel, said in a press release. “The totality of real-world data and the full BLA for Spikevax in the United States reaffirms the importance of vaccination against this virus.”

Moderna's vaccine has been approved in more than 70 countries, including Canada, Japan, the European Union, the UK, and Israel, according to Moderna.

In late January, the company announced it had begun a phase 2 clinical trial extension for an Omicron-specific booster (mRNA-1273.529) vaccine candidate. Moderna said it was an extension of an earlier study analyzing the immunogenicity, safety, and reactogenicity of mRNA-1273.529 as a single booster dose in adults 18 years of age and older.

Earlier this year in a Pharmacy Times expert panel discussion, key opinion leaders noted the importance of staying up to date with vaccine boosters.

"From my perspective, get vaccinated. If you're in a high-risk, high-exposure position or if you're high risk, get the booster. Let's move forward," said Peter Salgo, MD, during the discussion. "The more people who are immune to this, the fewer passages through human beings this virus goes through, the fewer mutations, the less we have to worry about."

Fuente: Pharmacy Times. Disponible en https://bit.ly/36CyKn5

Rusia registra la vacuna Convasel contra la COVID-19

19 mar. Rusia ha registrado una nueva vacuna contra la Covid-19 llamada Convasel, la cual fue elaborada por el Instituto de Investigación de Vacunas y Sueros de San Petersburgo, según informó la Agencia Federal Médica y Biológica de ese país.

El Instituto de Investigación de Vacunas y Sueros de San Petersburgo, perteneciente a la Agencia Federal elaboró este fármaco que radica en una solución para administración intramuscular con una dosis de 0,5 mililitros.

Dicha vacuna puede inyectarse a personas de entre 18 y 60 años, según la declaración de los especialistas quienes precisaron además que el medicamento tiene una fecha de caducidad de seis meses.

Otro de los requerimientos resalta que la vacuna antiocovid debe almacenarse bajo temperaturas de 2 a 8 grados centígrados en lugares protegidos de la luz, según resaltaron medios locales.

Aunque de acuerdo a la entidad rusa la immunogenicidad de Convasel , entre los efectos adversos se pueden percibir dolor muscular, escalofrío, indisposición, fatiga, picazón en el lugar del pinchazo y vómitos, entre otros malestares constatados antes que finalizara los ensayos en junio de 2021.

Por otra parte, Rusia reportó este viernes un aumento de personas positivas a la Covid- 19 en la última actualización de la situación epidemiológica con 34.442 casos en la jornada alcanzando los 17.518.699 positivos.

Fuente: Cuba Sí. Disponible en https://bit.ly/3L5OKwP

Detectan en Galicia una variante del coronavirus que combina los dos tipos de Ómicron

20 mar. El coronavirus sigue cambiando. Nunca ha dejado de hacerlo. Las nuevas variantes aparecen cuando se producen mutaciones espontáneas en el código genético del SARS-CoV-2. Pero los virus también utilizan otro método para cambiar, que se llama recombinación y que es una mezcla de los genes de dos variantes. En Galicia, el servicio de microbiología del Complejo Hospitalario Universitario de Vigo ha detectado ya una Ómicron híbrida, que mezcla los dos grandes subtipos de esta variante, las llamadas BA.1 y BA.2.

«La recombinación es un método que utiliza el virus para eliminar las mutaciones que le hacen daño y dar preferencia a las que no se lo hacen», explica el jefe de servicio, el catedrático Benito Regueiro.

La variante Ómicron se considera el virus más contagioso de la historia. El que se consolidó en todo el mundo desde diciembre es la subvariante BA.1. Pero desde enero circula con cada vez más fuerza la BA.2 (llamada de forma confusa Ómicron sigilosa o silenciosa), que es entre un 30 y un 50 % más transmisible. Este sublinaje es tan distinto al otro que la OMS ha estudiado ponerle el nombre de otra letra griega, aunque de momento sigue siendo Ómicron. Según los últimos informes del Ministerio de Sanidad, en la primera semana de marzo la BA.2 ya era el 37 % de los casos detectados en Galicia, el doble que en la semana anterior.

Estos últimos casos secuenciados en Vigo mezclan las dos subvariantes. Se han hallado en distintos porcentajes, en general con cierto dominio de la BA.2 (un 58 % del genoma de algunas muestras). De este modo, el virus puede utilizar las partes que le interesan de cada variante, en una carrera que lo lleva a especializarse cada vez más. En principio, esto no tiene por qué provocar un covid más grave.

Para que se produzca una recombinación, la misma persona tiene que estar infectada con dos versiones del virus. Puede ocurrir, por ejemplo, en un espacio cerrado en el que hay varios contagiados con distintas variantes: emiten partículas virales que infectan a una persona y, al replicarse en las células, se mezclan. «Cuantas más copias haga el virus, más fácil es que mute, se lo ponemos difícil cuanto menos virus hay», recuerda Benito Regueiro.

Ómicron y delta

Una de las recombinaciones que ahora estudian con mucho interés los microbiólogos es la que se reportó recientemente en varios puntos Francia y luego en otros países europeos. Es una mezcla de delta y ómicron. De momento no se sabe qué efectos puede tener en la evolución de la pandemia, pero sí se sabe que los primeros casos son de enero y parece haber alcanzado una gran extensión, si bien no se ha estudiado hasta ahora. La OMS no le ha puesto ningún nombre aún ni la considera variante preocupante, pero sí la está monitorizando. «Nosotros describimos un caso de delta y ómicron», asegura Regueiro. No hubo más.

Fuente: La Voz de Galicia. Disponible en https://bit.ly/3un8A0a

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Patentes registradas en Patentscope

Estrategia de búqueda: *Vaccine in the title or abstract AND 20220311:20220320 as the publication date 31 records.*

1.WO/2022/052984UNIVERSAL SARS-COV-2 VACCINE AND PREPARATION METHOD THEREOF
WO - 17.03.2022
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/CN2021/117415 Solicitante BEIJING MEIKANG GENO-IMMUNE BIOTECHNOLOGY CO., LTD. Inventor/a CHANG, Lung-Ji
A universal SARS-CoV-2 vaccine and a preparation method thereof. The vaccine is an artificial antigen-presenting cell expressing a fusion protein of SARS-CoV-2 structural proteins S protein, E protein, M protein, N protein and non-structural protein ORF1a poly-protease P. The vaccine mimics the natural immune system of the body, and in the presence of cytokines, multiple polypeptide fragments formed by the fusion protein are presented by the antigen-presenting cells, which can stimulate the body to generate immune responses and form immunological memory, with a broad-spectrum immunostimulatory effect; the vaccine can realize rapid large-scale industrial production, with the advantages of high safety and low cost.

2.WO/2022/055176VACCINE COMPOSITION FOR CHICKENPOX OR VARICELLA ZOSTER AND METHOD OF USING SAME
WO - 17.03.2022
Clasificación Internacional A61K 39/25 Nº de solicitud PCT/KR2021/011841 Solicitante EUBIOLOGICS CO., LTD. Inventor/a LEE, Chan Kyu
The present invention relates to a vaccine composition for chickenpox or varicella zoster, comprising a glycoprotein E (gE) antigen of varicella zoster virus (VZV) and monophosphoryl lipid A (MLA), and to a method of using same. The vaccine composition according to one aspect: can have a significantly improved production yield by comprising a gE antigen comprising an optimized signal peptide sequence, an improved immunogenicity by comprising MLA, and a further enhanced immunogenicity improved with MLA through additionally added saponin such as QS-21; is prepared in the form of CoPoP liposome such that a vaccine antigen can be presented on the surface of the liposome, and the antigen can be better absorbed by antigen-presenting cells; and may have a maximized vaccine efficacy by comprising a

vaccine antigen and an adjuvant in one formulation. Therefore, the vaccine composition can be effectively used as an alternative to an existing vaccine for prevention or treatment of varicella-zoster virus infectious diseases.

3.20220084624EPITOPE MAPPING METHOD
US - 17.03.2022
Clasificación Internacional G16B 15/00 Nº de solicitud 17536896 Solicitante The Scripps Research Institute Inventor/a Lars Hangartner
Provided herein are methods for mapping immune response to an immunogen, comprising: immunizing a subject with an immunogen and obtaining sera from the immunized subject at multiple time intervals following immunization, wherein the sera comprises one or more immune complexes between the immunogen and serum antibodies; imaging, by electron microscopy, the sera obtained from the immunized subject in each of the time intervals, to obtain structural images of the one or more immune complexes formed between the immunogen and serum antibodies; mapping immune response to the immunogen by measuring differences in structural images obtained at different time intervals to simultaneously visualize diverse antibodies targeting distinct epitopes in the immunized subjects. Further provided herein are vaccine design processes, comprising: administering a proposed vaccine to a test subject; imaging the immune complex formed in the test subject upon administration of the proposed vaccine; processing and visualizing the image to determine the likely immunogenicity of the proposed vaccine, and determining that the proposed vaccine is immunogenic if it binds to an antibody, and determining that the proposed vaccine should be redesigned if it does not bind or binds weakly to the antibody.

4.20220080040SERUM FREE INTRACELLULAR PATHOGEN VACCINE
US - 17.03.2022
Clasificación Internacional A61K 39/205 Nº de solicitud 17414156 Solicitante Intervet Inc. Inventor/a Joseph Koumans
A vaccine composition comprising a virus antigen wherein the composition comprises less than 5% serum, wherein the virus antigen is a whole virus or derived from a whole virus, the vaccine composition reduces, prevents or avoids cross-stitch spinal deformity in the treated animal. Said vaccine composition for use in a method of treating a disease caused by the intracellular pathogen in an animal and reducing, preventing or avoiding cross-stitch spinal deformity in the treated animal. In cross-stitch vertebra the intervertebral space is completely collapsed. A vaccine composition for use as defined above wherein the animal is a fish. In an embodiment the pathogen is salmon alpha virus (SAV).

5.20220080039MULTIVALENT INFLUENZA NANOPARTICLE VACCINES
US - 17.03.2022
Clasificación Internacional A61K 39/145 Nº de solicitud 17534659 Solicitante Novavax, Inc. Inventor/a Sarathi BODDAPATI
Disclosed herein are multivalent nanoparticle vaccine compositions suitable for use in influenza vaccines. The nanoparticles include effective amounts of influenza glycoproteins that provide increased immune responses compared to a commercially available influenza vaccine composition. The present disclosure also provides vaccine formulation strategies that are cost effective and are convenient for clinical use. Methods of administering the nanoparticle vaccine compositions to a subject are also disclosed.

6.WO/2022/053703HETEROLOGOUS PRIME BOOST VACCINE
WO - 17.03.2022
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/EP2021/075184 Solicitante BOEHRINGER INGELHEIM INTERNATIONAL GMBH Inventor/a WOLLMANN, Guido

The present invention pertains to the provision of a vaccine comprising a first component (K) and a second component (V), wherein the first component (K) comprises a complex in which a cell penetrating peptide, an antigenic domain and a TLR agonist are functionally linked and the second component (V) comprises an oncolytic recombinant vesicular stomatitis virus expressing an antigenic domain. The invention further pertains to the use of the inventive vaccine in the treatment of cancer. The invention also provides a recombinant vesicular stomatitis virus expressing an antigenic domain and its use in cancer vaccines.

7.WO/2022/055375VACUNA VIVA RECOMBINANTE PARA SARS-COV-2 BASADA EN SALMONELLA ENTERITIDIS RECOMBINANTE
WO - 17.03.2022
Clasificación Internacional C12N 1/20 Nº de solicitud PCT/PE2021/000006 Solicitante FARMACOLÓGICOS VETERINARIOS SAC Inventor/a FERNANDEZ DÍAZ, Manolo Clemente
La presente invención se refiere a una vacuna viva recombinante basada en una cepa de Salmonella enteritidis que expresa la proteína S del virus Sars-2019-Cov-2 en donde la mejor expresión se ha logrado cuando la inserción se encuentra en el plásmido en vez del cromosoma. Asimismo, se refiere a una vacuna que precisa de dicha cepa. También se hace referencia al uso de una cepa de Salmonella enteritidis 3934 (depositada en la Colección Española de Cultivos Tipo (CECT) con el número de acceso CECT9332) para el tratamiento de SARS-Cov-2 y al método para controlar la infección del SARS-CoV-2 mediante la administración a mamíferos de una vacuna viva recombinante.

8.WO/2022/052212USE OF FLUORINATED POLYETHYLENIMINE IN PREPARATION OF VACCINE OR PREPARATION FOR PREVENTING OR TREATING DISEASES CAUSED BY VIRUSES OR BACTERIA
WO - 17.03.2022
Clasificación Internacional A61K 39/385 Nº de solicitud PCT/CN2020/121609 Solicitante SOOCHOW UNIVERSITY Inventor/a LIU, Zhuang
The use of fluorinated polyethylenimine in the preparation of a vaccine or a preparation for preventing or treating diseases caused by viruses or bacteria. The use of fluorinated polyethylenimine, which provides an intracellular delivery system that enhances the vaccine delivery efficiency and antigen-specific immune response, not only acts as an antigen carrier, but can also function as an immune adjuvant.

9.3965814IMPFSTOFF MIT EINEM EPITOPE EINKAPSELNDEN NANOTEILCHEN UND ADJUVANS ZUR NEUTRALISIERUNG VON VIRUSINFEKTIONEN
EP - 16.03.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 20805214 Solicitante ACADEMIA SINICA Inventor/a HU CHE-MING JACK
We utilized a biocompatible hollow polymeric nanoparticle that coencapsulates T cell epitope peptides and olginodeoxynucleotide (ODN) CpG, and designed immunization strategies to evaluate its protectivity against influenza viruses in mice. This nanoparticle-based peptide vaccine adjuvanted with CpG stimulated robust antigen-specific CD4 and CDS T cell immunity, but only caused minimal adverse effects compared with crude mixture of peptides and CpG. We used two peptides derived from the nucleocapsid protein (NP), MHC class I- restricted NP366-374 and MHC class II-restricted NP311-325. This novel nanoparticle vaccine with two epitope peptides plus CpG induced robust and fully protective T cell immunity against influenza viruses. We demonstrates the utility of this novel hollow nanoparticle with co-encapsulation of only a pair of CD4+ and CD8+ T cell-stimulating influenza viral peptides and CpG in establishing near-sterilizing protective resident T cell immunity against heterosubtypic IAV infections, a critical step towards the development of universal influenza T cell vaccines.

10.3620174ENHEDSDOSIS AF DENGUE-VACCINE OG INDGIVELSE DERAF

DK - 14.03.2022
Clasificación Internacional A61K 39/295 Nº de solicitud 19195692 Solicitante Takeda Vaccines, Inc. Inventor/a WALLACE, Derek
The invention relates to a unit dose of a dengue vaccine composition and methods and uses for preventing dengue disease and methods for stimulating an immune response to all four dengue virus serotypes in a subject or subject population. The unit dose of a dengue vaccine composition includes constructs of each dengue serotype, such as TDV-1, TDV-2, TDV-3 and TDV-4, at various concentrations in order to improve protection from dengue infection.

11.WO/2022/056302ENHANCING IMMUNITY USING CHIMERIC CD40 LIGAND AND CORONAVIRUS VACCINE
WO - 17.03.2022
Clasificación Internacional A61K 38/00 Nº de solicitud PCT/US2021/049932 Solicitante MEMGEN, INC. Inventor/a CANTWELL, Mark, J.
The present disclosure provides methods and compositions for enhancing immunity by administering a coronavirus vaccine and a chimeric CD40L polypeptide. The coronavirus vaccine can be comprised of inactivated coronaviral particles or an antigenic polypeptide, preferably the coronavirus spike protein. The coronavirus antigenic polypeptide can be a purified antigenic polypeptide or a nucleic acid expression construct that encodes the antigenic polypeptide. The chimeric CD40L polypeptide in compositions of the invention can be a purified chimeric CD40L polypeptide or a nucleic acid expression construction that encodes the chimeric CD40L polypeptide.

12.3966229GLYCOPEPTID-IMPFSTOFF
EP - 16.03.2022
Clasificación Internacional C07K 14/445 Nº de solicitud 20806287 Solicitante VICTORIA LINK LTD Inventor/a HERMANS IAN FRANCIS
The present invention generally relates to a glycopeptide conjugate compound of Formula (I):, as described herein, compositions comprising the conjugate compound and to the use of such a compound to as a vaccine.

13.WO/2022/055978COMPOSITIONS AND METHODS FOR REDUCING RISK OF VACCINE-ENHANCED DISEASE
WO - 17.03.2022
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/US2021/049438 Solicitante THE TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA Inventor/a STEDMAN, Hansell
In one aspect, the present disclosure relates to a mutated SARS-CoV-2 S glycoprotein (mutated S glycoprotein) comprising a SARS-CoV-2 S glycoprotein amino acid sequence having one or more mutations compared to a wildtype S glycoprotein, wherein the mutated S glycoprotein minimizes (i) antibody-dependent enhancement (ADE) and/or (ii) vaccine-associated enhanced respiratory disease (VAERD) when administered to or expressed in a subject. In another aspect, the present disclosure relates to a method of using the mutated S glycoprotein of the present disclosure to induce at least partial immunity to a coronavirus in a subject.

14.WO/2022/053535OUTER MEMBRANE VESICLES
WO - 17.03.2022
Clasificación Internacional C07K 14/22 Nº de solicitud PCT/EP2021/074744 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a DELANY, Isabel
The present invention relates to the field of neisserial vaccine compositions (particularly gonococcal vaccine compositions) and the use of such compositions in medicine. More particularly, the present invention relates to genetically modified gonococci of strain FA1090 and outer membrane vesicles

obtained therefrom. The invention also provides a process for preparing the genetically modified gonococci of the invention as well as immunogenic compositions and vaccines comprising the outer membrane vesicles of the invention.

15.20220080037FILOVIRUS VACCINES AND METHODS OF USE
US - 17.03.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 17537336 Solicitante Hawaii Biotech, Inc. Inventor/a David E. CLEMENTS
The data reported herein describe the production and evaluation of a recombinant subunit filovirus vaccine using insect cell expressed surface glycoprotein (GP) and a highly effective adjuvant. The vaccine provides protection in humans against filovirus infection, including Ebola virus and Marburg virus.

16.WO/2022/055894SARS-COV-2 SPIKE GLYCOPROTEIN FOR VIRUS GENERATION AND PSEUDOTYPING
WO - 17.03.2022
Clasificación Internacional A61K 35/15 Nº de solicitud PCT/US2021/049312 Solicitante THE REGENTS OF THE UNIVERSITY OF CALIFORNIA Inventor/a KOHN, Donald B.
In various embodiments, a spike glycoprotein pseudotyped non-replicative viral particle is provided. The viral particle comprises a modified SARS-CoV-2 spike glycoprotein. In certain embodiments, the viral particle is capable of specifically infecting ACE2 expressing cells. In certain embodiments, the viral particle finds utility in neutralization studies, vaccine development, drug screening, antibody testing, and the like.

17.3965810CLOSTRIDIOIDES-DIFFICILE-TCDB-VARIANTEN, IMPFSTOFFE UND VERWENDUNGSVERFAHREN
EP - 16.03.2022
Clasificación Internacional A61K 39/08 Nº de solicitud 20805950 Solicitante UNIV OKLAHOMA Inventor/a BALLARD JIMMY D
An immunogenic composition comprising a deletion mutant of a *Clostridioides difficile* TcdB toxin (such as TcdB2 or TcdB1) that lacks residues at least from amino acid residue 1769 to amino acid residue 1787 of a wild-type TcdB amino acid sequence or of a protein having high identity thereto, a vaccine comprising the immunogenic composition, a method of stimulating an immune response, a nucleic acid which encodes the amino acid sequence of the deletion mutant, a vector encoding the nucleic acid, and a host cell comprising the vector.

18.WO/2022/051866VACCINE FOR VIRAL PATHOGENS
WO - 17.03.2022
Clasificación Internacional A61K 39/385 Nº de solicitud PCT/CA2021/051265 Solicitante THE UNIVERSITY OF BRITISH COLUMBIA Inventor/a JEFFERIES, Wilfred
The present invention provides vaccines against respiratory viruses including coronavirus, such as SARS-CoV-2, and influenza viruses. In particular, the present invention provides vaccines against SARS-CoV-2 which encode a targeting domain and a SARS-CoV-2 spike protein or fragment thereof.

19.3965811INAKTIVIERTE VIRUSZUSAMMENSETZUNGEN UND ZIKA-IMPFSTOFF-FORMULIERUNGEN
EP - 16.03.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 20722171 Solicitante TAKEDA VACCINES INC Inventor/a JOHNSON MICHAEL
The present invention relates to a liquid inactivated virus composition comprising: an inactivated whole Zika virus, at least one pharmaceutically acceptable buffer with a concentration of at least about 6.5 mM,

and optionally a polyol, wherein said at least one pharmaceutically acceptable buffer does not comprise phosphate ions and vaccines derived therefrom.

20.WO/2022/056233RE-FOLDED HUMAN SERUM ALBUMIN AND USE THEREOF FOR ANTI-TUMOR
WO - 17.03.2022
Clasificación Internacional C07K 14/765 Nº de solicitud PCT/US2021/049816 Solicitante ACADEMIA SINICA Inventor/a LIANG, Chi-Ming
Re-folded human serum albumin (rfHSA) and use thereof for anti-tumor are disclosed. The rfHSA comprises the primary amino acid sequence of naive human serum albumin, in which the rfHSA in a solution is oval shape, not fibrillar, and the naive HSA is globular. The rfHSA is used for treating cancer or a tumor in a subject in need thereof The rfHSA may also be used as a reagent for detecting the presence of a cancer ceil associated with integnn βΐ or serine/threonine protein kinase Akt and extracellular signal-regulated kinase 1/2 (ERK1/2) in a tumor sample or as a reagent for inhibiting phosphorylation of Akt and ERK 1/2 in a cancer cell sample. A cell lysate of a cancer cell treated with rfHSA, a vaccine composition comprising the cancer cell lysate, and use thereof are also disclosed. Also disclosed is a method tor preparing rfHSA.

21.WO/2022/056398COMPOSITIONS AND METHODS OF USE THEREOF FOR PREVENTION AND TREATMENT OF INFLUENZA INFECTIONS
WO - 17.03.2022
Clasificación Internacional A61K 38/17 Nº de solicitud PCT/US2021/050093 Solicitante UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC. Inventor/a VINCENT, Amy L.
Recombinant constructs, influenza viral genomes including the recombinant constructs, influenza viruses including the constructs, and vaccine formulations formed thereof for inducing or increasing an immune response against influenza virus are provided. The compositions typically include a nucleic acid having a nucleic acid sequence encoding IgA-inducing protein (IGIP) polypeptide that can positively regulate IgA expression operably linked to expression of a hemagglutinin or a neuraminidase. When the nucleic acid is expressed by recombinant influenza virus in infected cells, it preferably enhances IgA production against influenza virus. Live attenuated virus expressing IGIP, and methods of use thereof for treating and preventing influenza infections are also provided.

22.WO/2022/053639IMMUNOGENIC COMPOSITIONS
WO - 17.03.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/EP2021/074981 Solicitante IMMUNETHEP, SA Inventor/a MADUREIRA, Pedro
The invention provides immunogenic compositions and extends to their uses, for instance as a vaccine. The immunogenic compositions may be used for immunisation against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and may result in the prevention or reduction of infection by SARS-CoV-2.

23.WO/2022/053948PRE-FILLED MULTI-FLUID MEDICAL DELIVERY ASSEMBLIES
WO - 17.03.2022
Clasificación Internacional A61M 5/19 Nº de solicitud PCT/IB2021/058168 Solicitante KOSKA FAMILY LIMITED Inventor/a KOSKA, Marc
A pre-filled medical delivery system can have a blow-fill-seal (BFS) module and a mixing assembly. The BFS module can have first and second chambers, first and second sealed ports, and first and second actuation members. Each chamber can have a respective liquid agent therein. Each sealed port and each actuation member can be in fluid communication with a respective one of the chambers. The mixing assembly can be constructed for coupling to the BFS module. When coupled to the BFS module, the mixing assembly can breach the seals of the first and second ports and provide fluid communication therebetween. The disclosed systems, when assembled, can combine the liquid agents from the first and

second chambers of the BFS component and deliver the combination as a single dose of a therapeutic agent (e.g., vaccine, drug, medicament, etc.) to a patient.

24.WO/2022/053642ENGINEERED AAV VECTORS
WO - 17.03.2022
Clasificación Internacional C12N 7/00 Nº de solicitud PCT/EP2021/074987 Solicitante LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN Inventor/a MICHALAKIS, Stylianos
The present invention relates to an adeno-associated virus (AAV) or an adeno-associated virus-like particle (AAVLP), comprising an insert of about 75-400 amino acids in the viral proteins (VPs) VP1, VP2 and/or VP3 at an insertion site (I) at the top of variable region VIII and/or variable region IV (VR-VIII and/or VR-IV) of the VP, wherein the insert is an immunogenic protein or a portion thereof and/or wherein the insert is a protein comprising a binding domain, such as an antigen-binding domain specific for a target antigen. The present invention also relates to pharmaceutical compositions comprising said AAV or AAVLP and to the pharmaceutical composition or the AAV or AAVLP for use in therapy, particularly for use as a vaccine, for use in the treatment or the prevention of a diseases and/or for use in gene therapy. Also concerned is a method for producing the AAV of AAVLP of the present invention.

25.20220080193Device For Tissue Electrotransfer Using A Microelectrode
US - 17.03.2022
Clasificación Internacional A61N 1/32 Nº de solicitud 17423027 Solicitante Rutgers, the State University of New Jersey Inventor/a Yasir Demiryurek
A minimally invasive penetrating microelectrode array is used to generate localized electric field “hotspots” for delivering biomolecules, such as nucleic acid or protein molecules, into cells located in the epidermal or dermal layer of the skin via transient membrane permeabilization. The “hotspots” can be controlled by selectively insulating the penetrating microelectrodes at specific regions. The portion of microelectrodes that are not covered with insulation coating can be coated with nucleic acid or protein vaccine vector, or other biomolecules to be delivered. Upon insertion into the skin, an anchor microelectrode region mechanically anchors the penetrating microelectrode to position the target tissue microelectrode region, so as to selectively align the biomolecule coating with cells located in the tissue location. The biomolecule coating will dissolve when in contact with surrounding tissue. By applying an electrical pulse, the biomolecules can be delivered into surrounding cells.

26.WO/2022/052522ALTERNATIVE ELISA METHOD FOR ASSAY OF NEUTRALIZATION TITER AND USE THEREOF
WO - 17.03.2022
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/CN2021/097238 Solicitante YANGZHOU UNIVERSITY Inventor/a QIN, Aijian
An IBV-specific neutralizing epitope antigen polypeptide. Said polypeptide is a cyclic polypeptide. The amino acid sequence of said polypeptide is CSCPYVSYGRFCIQPDGSIKQC. Further disclosed are an IBV-specific antibody and a preparation method therefor. Further disclosed is an alternative ELISA method for assay of neutralization titer. Further disclosed is an ELISA detection kit. The ELISA detection kit uses an established pELISA method to detect an IBV antibody, and finds that the IBV antibody is positively correlated with an anti-IBV neutralizing antibody. The ELISA detection kit can be used for evaluating immunogenic effects of an IBV vaccine, and can measure an antibody level in IBV infected chickens, thereby being beneficial to chicken population health management, etc.

27.3967323HIV-IMPFSTOFF
EP - 16.03.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 21176262 Solicitante BIONOR IMMUNO AS Inventor/a SØRENSEN BIRGER

28.20220080043OIL/SURFACTANT MIXTURES FOR SELF-EMULSIFICATION
US - 17.03.2022
Clasificación Internacional A61K 39/39 Nº de solicitud 17423927 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a Rushit LODAYA
Methods of manufacturing squalene and alpha-tocopherol-containing oil-in-water emulsions having small oil droplet particle sizes. Such emulsions being of use as vaccine adjuvants.

29.3965809VAKZINIMMUNOGENE
EP - 16.03.2022
Clasificación Internacional A61K 39/015 Nº de solicitud 20728129 Solicitante UNIV OXFORD INNOVATION LTD Inventor/a HILL ADRIAN VIVIAN SINTON
An immunogenic composition comprising: a) one or more plasmodium-derived ribosomal or ribosomal associated protein or immunogenic fragment thereof which has a sequence which is at least about 80%, 85%, 90%, 95%, 98%, 99% or 100% identical to a ribosomal or ribosomal associated protein or an immunogenic fragment of a ribosomal or ribosomal associated protein recited in Figure 1; or a ribosomal or ribosomal associated protein or peptide or immunogenic fragment thereof as recited in Figure 2 or Figure 3; and/or b) a polynucleotide encoding one or more protein, peptide or immunogenic fragment of a); wherein the immunogenic composition is for use in eliciting an immune response in a subject to treat or prevent malaria. Also provided are plasmodium-derived ETRAMPs and/or histones, or immunogenic fragments thereof, for use in eliciting an immune response in a subject, preferably to treat or prevent malaria.

30.WO/2022/056195HAEMOPHILUS INFULUENZAE VACCINE AND METHODS OF USE
WO - 17.03.2022
Clasificación Internacional A61K 39/102 Nº de solicitud PCT/US2021/049765 Solicitante THE ROCHESTER GENERAL HOSPITAL Inventor/a PICHICHERO, Michael
The present disclosure is directed to a fusion protein comprising all or part of two or more Haemophilus influenzae (Hi) proteins selected from the group consisting of Omp26, P6, P4, PD and PF, wherein at least one of the Hi proteins thereof comprises a lipid moiety, and vaccines and immunogenic compositions comprising such fusion proteins. Methods of treating or preventing a disorder associated with an Hi infection in a subject are also provided.

31.3965813NEUARTIGER ORTHOBUNYAVIRUS IN DER HUMANEN ENCEPHALITIS UND DESSEN DIAGNOSTISCHE UND THERAPEUTISCHE ANWENDUNGEN
EP - 16.03.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 20722624 Solicitante PASTEUR INSTITUT Inventor/a ELOIT MARC
The invention relates to methods of diagnosis or detection of Moissiacense virus, a novel orthobunyavirus causing human encephalitis, comprising determining the presence of at least one nucleic acid or protein of said virus or antibodies thereto, in a biological sample. The invention also relates to the various diagnostic agents derived from the viral nucleic acids or proteins, in particular nucleic acid primers and probes, antigens and antibodies, and their use for the diagnosis of Moissiacense virus infection and associated disease, in particular encephalitis. The invention further relates to antigens derived from the viral proteins as vaccine for the prevention of Moissiacense virus infection and associated disease, in particular encephalitis.

Patentes registradas en la United States Patent and Trademark Office (USPTO)

Results Search in US Patent Collection db for: (ABST/vaccine AND ISD/20220311->20220320), 5 records.

	PAT. NO.	Title
1	11,274,304	Protective interfering nucleic acid molecule and virus-like particle, viral vector, or virus particle containing the same as well as pharmaceutical composition containing the protective interfering nucleic acid and its use
2	11,274,115	Imidazoquinoline derivatives and their use in therapy
3	11,273,216	Universal influenza vaccine compositions
4	11,273,215	Synthetic polypeptide epitope based vaccine composition
5	11,273,212	Malaria vaccine

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