



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 candidatos vacunales en desarrollo contra la COVID-19 a nivel mundial al cierre del mes de octubre.
- Noticias más recientes en la Web sobre vacunas.
- Artículos científicos más recientes de Medline sobre vacunas.
- Patentes más recientes en Patentscope sobre vacunas.

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: 28 de octubre de 2022.

Fuente de información utilizada:



172 Vacunas en evaluación clínica y 199 en evaluación preclínica

Candidatos vacunales en evaluación clínica por plataforma

Platform	Candidate vaccines (no. and %)	
PS	Protein subunit	55 32%
VVnr	Viral Vector (non-replicating)	23 13%
DNA	DNA	16 9%
IV	Inactivated Virus	22 13%
RNA	RNA	40 23%
VVr	Viral Vector (replicating)	4 2%
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%

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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	4
CanSino Biological Inc./China	Vector viral no replicativo	Intranasal	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 y 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	Intranasal	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	Intranasal	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	Intranasal	2/3
Hannover Medical School/Alemania	Vector viral no replicativo	Inhalación	1
ACM Biolabs/Singapur	Subunidad proteica	Intranasal	1
CanSino Biologics Inc.	Vector viral no replicativo	Intranasal	3

Candidatos vacunales más avanzados/fabricante/país	Plataforma de la vacuna	Fase
Sinovac/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 (IM e IH)	Vector viral no replicativo	4
Gamaleya Research Institute/Rusia	Vector viral no replicativo	3
Janssen Pharmaceutical Companies/Estados Unidos	Vector viral no replicativo	4
Novavax/Estados Unidos	Subunidad proteica	3
Moderna/NIAID/Estados Unidos	ARN	4
Pfizer/BioNTech Fosun Pharma/Estados Unidos	ARN	4
Anhui Zhifei Longcom Biopharm./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 International Limited/India	Virus Inactivado	3
Sanofi Pasteur + GSK/Francia/Gran Bretaña	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
Vaxxinity/EE.UU	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/Irán, India	Subunidad proteica	3
Bharat Biotech International Limited/India	Vector viral no replicativo (IN)	3
Providence Therapeutics/Canadá	ARN	3
Jiangsu Rec-Biotechnology/China	Subunidad proteica	3
Radboud University/Holanda	Partícula similar a virus	3
Arcturus Therapeutics, Inc./Estados Unidos	ARN	3
Livzon Pharmaceutical/China	Subunidad proteica	3
KM Biologics Co., Ltd.	Virus inactivado	3
Bagheiat-allah University of Medical Sciences/AmitisGen/Irán	Subunidad proteica	3
Laboratorios Hipra, S.A.	Subunidad proteica	3
Sinocelltech Ltd./China	Subunidad proteica	3
Chumakov Federal Scientific Center for Research/Rusia	Virus Inactivado	3
Airlangga University/Indonesia	Virus Inactivado	3
PT Bio Farma/Indonesia	Subunidad proteica	3
AIM Vaccine and Liverna Therapeutics/China	ARN	3
China National Biotec Group Company Limited	Virus inactivado	3

Noticias en la Web

Cuba acumula más de 42.2 millones de dosis administradas de vacunas Soberana 02, Soberana Plus y Abdala

24 oct. Hasta el cierre del 22 de octubre último, 10 708 842 personas han recibido al menos una dosis de una de las vacunas anticovid cubanas Soberana 02, Soberana Plus y Abdala, y de ellas 9 434 575 tienen ya la segunda dosis, y 9 137 029, la tercera. Hasta la fecha, 9 996 978 tienen esquema de vacunación completo, el 90.2% de la población cubana, informó el Ministerio de Salud Pública (MINSAP).

En una nota de actualización, el MINSAP aclaró que en primera dosis se incluyen los vacunados con Soberana Plus como dosis única.

Actualmente, cuentan con dosis de refuerzo 8 619 483 personas (325 318 como parte del estudio clínico y 8 294 165 como parte de la vacunación de refuerzo que se está aplicando a población de territorios seleccionados y grupos de riesgo).

Vacunación masiva

El Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED) otorgó el 9 de julio de 2021 el autorizo de uso de emergencia (AUE) a la vacuna Abdala 50 µg, cuyo titular es el Centro de Ingeniería Genética y Biotecnología (CIGB), de conformidad y en observancia a lo dispuesto en las regulaciones y disposiciones vigentes, una vez confirmado que cumplía con los requisitos y parámetros exigidos en cuanto a calidad, seguridad y eficacia.

El 20 de agosto de 2021, el CECMED otorgó el AUE a las vacunas Soberana 02 y Soberana Plus, cuyo titular es el Instituto Finlay de Vacunas (IFV).

La vacunación masiva comenzó el 29 de julio de 2021, en la población mayor de 19 años en territorios con riesgo epidemiológico y grupos de riesgo a nivel de todas las provincias. Además, en población pediátrica de dos a 18 años de todo el país.

El total de dosis administradas durante la vacunación masiva es de 31 609 869.



Estudio clínico

A partir de la aprobación de la estrategia de dosis de refuerzo, fue aprobado el estudio clínico con candidatos vacunales (Soberana 01 y Mambisa) y el inicio de la vacunación con una cuarta dosis, comenzando por trabajadores de la salud y grupos de riesgo.

Estas dosis de refuerzo se suman al número de dosis aplicadas en el país en su acumulado, precisó el MINSAP.

El estudio comenzó en noviembre 2021, con trabajadores de la salud, población de territorios seleccionados y otros grupos de riesgo. En el estudio clínico fueron administradas 325 318 dosis.

Intervención sanitaria

Desde inicios de mayo de 2021, el ministro de Salud Pública, respaldado en el artículo 64 de la Ley 41, Ley de la Salud Pública, del 13 de julio de 1983, aprobó una intervención sanitaria con los candidatos vacunales cubanos Abdala y Soberana 02 en grupos y territorios de riesgo.

El proceso comenzó ese propio mes e incluyó a trabajadores de la salud, de BioCubaFarma, estudiantes de Ciencias Médicas y otros grupos de riesgo, así como población de territorios de riesgo seleccionados por etapas.

Fueron administradas 9 618 831 dosis durante la intervención sanitaria.

Estudio de intervención

Como parte de las investigaciones asociadas a los candidatos vacunales cubanos Soberana 02 y Abdala, fue realizado un estudio de intervención en grupos de riesgo, dirigido a sujetos en grupos de riesgo y que podían aportar datos relevantes, que se inició en marzo de 2021.

Participaron trabajadores de la salud, de BioCubaFarma y otros grupos de riesgo, en las provincias de La Habana, Santiago de Cuba, Granma y Guantánamo, con 454 064 dosis administradas.

Ensayos clínicos

El desarrollo de los ensayos clínicos con los candidatos vacunales cubanos Soberana 02, Abdala y Soberana Plus (para convalecientes) fue aprobado por el Cecmed e implementado en sujetos voluntarios de territorios seleccionados.

Con fecha de inicio en marzo de 2021, participaron sujetos voluntarios seleccionados por los investigadores en La Habana, Santiago, Granma y Guantánamo.

Fueron administradas 266 466 dosis (se excluye de esta cifra las dosis de placebos administradas durante los ensayos clínicos).

Fuente: Cubadebate. Disponible en <https://bit.ly/3U1a3Vo>



OMS pide a Europa no relajarse frente a la COVID-19

24 oct. “No es el momento de relajarse”, dijo este lunes el director regional para Europa de la OMS, Hans Kluge, durante una conferencia de prensa en línea, al recalcar la necesidad de no bajar la guardia cuando aumentan en la región los casos de covid y gripe con la cercanía del invierno. La OMS recalcó la importancia de la vacunación contra esta y otras enfermedades como la polio.



A principios de otoño, la región europea, que agrupa 53 países (entre ellos, algunos en Asia central), volvía a ser el epicentro de la epidemia, con un 60% de los nuevos casos de covid en el mundo. Al mismo tiempo, se registró un aumento de los casos de gripe estacional.

Con esta nueva ola de covid, los decesos y los ingresos en cuidados intensivos aumentaron muy ligeramente, señaló la OMS, insistiendo en el vínculo con la vacunación.

“La vacunación sigue siendo una de nuestras herramientas más eficaces contra la gripe y la covid-19”, dijo la OMS durante esta jornada mundial contra la polio.

Esta enfermedad, la polio, que afecta sobre todo a los más jóvenes y provoca parálisis, desapareció prácticamente en el mundo occidental, pero una variante del poliovirus derivado de las vacunas orales fue detectado recientemente en Reino Unido, Ucrania, Israel y Nueva York.

Esta variante, menos viral que el virus natural, puede aun así provocar síntomas graves, como parálisis de los miembros de pacientes no vacunados.

Se volvió más frecuente en los últimos años debido al débil porcentaje de vacunación en ciertas comunidades.

“En todo el mundo, si dejamos a gente atrás, el virus de la polio es un muy buen barómetro para decirnos quiénes son”, afirmó un experto de OMS Europa, Siddhartha Datta.

“Se trata de grupos de población desatendidos porque, por una razón u otra, no fueron cubiertos por la recomendación de la OMS de una cobertura (de vacunación) del 95%”, dijo.

Ningún caso del virus natural de la polio ha sido reportado en Europa desde hace más de 20 años.

“No es algo que podamos considerar como adquirido”, indicó sin embargo Kluge.

En el conjunto de la región, la cobertura de la tercera dosis de la vacuna antipolio disminuyó un 1% entre 2019 y 2020.

En 2021, solo 25 de los 53 países alcanzaron el porcentaje de cobertura de vacunación contra la polio del 95%.

Fuente: Cubadebate. Disponible en <https://bit.ly/3h5f9kO>

Histórico: la vacuna argentina Cecilia Grierson contra la COVID-19 completó con éxito la Fase 1

25 oct. La COVID-19 marcó un antes y un después para la humanidad. Y entre las pocas cosas buenas, está la demanda y urgencia que tuvo la ciencia para avanzar en desarrollos que lo enfrenten o lo prevengan. La ciencia nacional, por caso, vivió un renacer después de años de ajustes desde fines de 2015 en adelante. El caso más paradigmático es la vacuna argentina Arvac Cecilia Grierson (Arvac CG) contra el coronavirus.

Desarrollada por el Conicet, la Universidad Nacional de San Martín (Unsam) y el Laboratorio Cassará, acaba de cumplir un hito más en el proceso: finalizó los ensayos clínicos de la fase I, de los que participaron 80 personas sanas previamente vacunadas contra el SARS-CoV-2. El reporte oficial reveló: «Es segura y muy inmunogénica».

Es la primera vez que una vacuna preventiva de enfermedades infecciosas diseñada y desarrollada integralmente en Argentina completa los estudios clínicos de la fase I.

«Está diseñada para ser usada como refuerzo y se basa en la tecnología de proteína recombinante, considerada muy segura, ya que se utiliza desde hace décadas para fabricar la vacuna contra la hepatitis B que se utiliza en niños recién nacidos, o contra el Virus del Papiloma humano (VPH) que se aplica a adolescentes», apuntaron desde el Conicet a través de un comunicado.

La forma de medir la eficacia de ARVAC CG como vacuna de refuerzo consistió en determinar la cantidad de anticuerpos neutralizantes que tenían las personas antes y después de recibir la vacuna. Es decir, los que impiden que el virus SARS-CoV-2 ingrese a las células y se replique. «Se comprobó que nuestra vacuna induce un incremento de hasta 30 veces de esos anticuerpos contra tres variantes del virus: Ómicron, Gamma y Wuhan», explicó Juliana Cassataro, líder del desarrollo e investigadora del Conicet, en el Instituto de Investigaciones Biotecnológicas Dr. Rodolfo Ugalde (IIB), que depende de la Unsam y del Conicet. Tiempo atrás comentó a este diario: «Dado que la mayor parte de la población está vacunada, nos enfocamos en el prototipo de vacuna de refuerzo y cambio de variante».

La vacuna ARVAC emplea tecnología de proteínas recombinantes, similar a la que se emplea en otras vacunas como la de Hepatitis B o la de HPV. Produce y purifica una proteína que forma parte del virus SARS-CoV-2. Introducida en el organismo, actúa como antígeno para que el sistema inmunológico desarrolle anticuerpos.

Esa proteína es la porción de la proteína Spike con la que el virus hace contacto y entra en las células humanas. Los anticuerpos generados se adhieren a él y bloquean su ingreso a las células.

Según anticiparon, de ser necesario, la tecnología de proteína recombinante permitiría en apenas tres meses adecuar la vacuna contra nuevas variantes que podrían circular y generar escape inmunológico, «algo parecido a lo que sucede con la gripe», señalaron los funcionarios.



Si bien desde hace meses los casos de COVID-19 están a la baja, su preminencia está lejos de eliminarse. De hecho, las autoridades de Salud (al igual que se debate en Europa y Estados Unidos) evalúan incorporar su vacuna al calendario oficial, y aplicarse una vez por año.

Un tema a tener en cuenta, en ese caso, será el de la adaptación a las nuevas variantes. Cassataro destacó que ARVAC CG está diseñada para que pueda actualizarse su principio activo para hacer frente a nuevas variantes que escapen a la respuesta inmunológica inducida por las actuales vacunas que se aplica en la población.

“Estamos preparando un tipo de vacuna que sirva para los refuerzos y que además se pueda adaptar a cambios de variantes de SARS-CoV-2 si apareciera una que escapase totalmente a la inmunización que inducen las vacunas actuales”, remarcó Jorge Cassará, director comercial del Laboratorio Cassará.

Aparte del sanitario, otro de los principales beneficios de contar con una vacuna local es el económico. Desde el Conicet indicaron que «completar el desarrollo de ARVAC CG le permitirá a Argentina dejar de utilizar dólares del Banco Central para financiar la compra de vacunas importadas e inclusive podrá generar divisas exportando la vacuna nacional a otros países de la región».

Ahora vendrán los estudios clínicos de Fase II/III, los más avanzados y los últimos antes de su industrialización. Según vaticinaron, serán completados en el primer trimestre del 2023, lo que permitiría que ANMAT autorice la vacuna durante el año próximo.

Fuente: Tiempo argentino. Disponible en <https://bit.ly/3FHlcqc>

Afraid of needles? China using inhalable COVID-19 vaccine

Oct 26. The Chinese city of Shanghai started administering an inhalable COVID-19 vaccine on Wednesday in what appears to be a world first.

The vaccine, a mist that is sucked in through the mouth, is being offered for free as a booster dose for previously vaccinated people, according to an announcement on an official city social media account.

Scientists hope that such “needle-free” vaccines will make vaccination more accessible in countries with fragile health systems because they are easier to administer. They also may persuade people who don’t like getting a shot in the arm to get inoculated.

China wants more people to get booster shots before it relaxes strict pandemic restrictions that are holding back the economy and are increasingly out of sync with the rest of the world. As of mid-October, 90% of Chinese were fully vaccinated and 57% had received a booster shot.

A video posted by an online Chinese state media outlet showed people at a community health center sticking the short nozzle of a translucent white cup into their mouths. The accompanying text said that after slowly inhaling, people hold their breath for five seconds, with the entire procedure completed in 20 seconds.

“It was like drinking a cup of milk tea,” one Shanghai resident said in the video. “When I breathed it in, it tasted a bit sweet.”

The effectiveness of non-needle vaccines has not been fully explored. Chinese regulators approved the inhalable one in September, but only as a booster shot after studies showed it triggered an immune system response in people who had previously received two shots of a different Chinese vaccine.

A vaccine taken as mist could fend off the virus before it reaches the rest of the respiratory system, though that would depend in part on the size of the droplets, one expert said.

Larger droplets would train defenses in parts of the mouth and throat, while smaller ones would travel further into the body, said Dr. Vineeta Bal, an immunologist in India.

The inhalable vaccine was developed by Chinese biopharmaceutical company CanSino Biologics Inc. as an aerosol version of the company's one-shot adenovirus vaccine, which uses a relatively harmless cold virus.

The traditional one-shot vaccine has been approved for use in more than 10 markets including China, Hungary, Pakistan, Malaysia, Argentina and Mexico. The inhaled version has received a go-ahead for clinical trials in Malaysia, a Malaysian media report said last month.

Regulators in India have approved a nasal vaccine, another needle-free approach, but it has yet to be rolled out. The vaccine, developed in the U.S. and licensed to Indian vaccine maker Bharat Biotech, is squirted in the nose.

About a dozen nasal vaccines are being tested globally, according to the World Health Organization.

China has relied on domestically developed vaccines, primarily two inactivated vaccines that have proven effective in preventing death and serious disease but less so than the Pfizer and Moderna vaccines at stopping the spread of the disease.

Chinese authorities also have not mandated vaccination — entering an office building or other public places requires a negative COVID-19 test, not proof of vaccination. And the country's strict "zero-COVID" approach means that only a small proportion of the population has been infected and built immunity that way, compared to other places.

As a result, it's unclear how widely COVID-19 would spread if restrictions were lifted. The ruling Communist Party has so far shown no sign of easing the "zero-COVID" policy, moving quickly to restrict travel and impose lockdowns when even just a few cases are discovered.

Authorities on Wednesday ordered the lockdown of 900,000 people in Wuhan, the city where the virus was first detected in late 2019, for at least five days. In remote Qinghai province, the urban districts of Xining city have been locked down since last Friday.

In Beijing, Universal Studios said it would close its hotels and attractions "to comply with pandemic prevention and control." The city of more than 21 million people reported 19 new cases in the latest 24-hour period.



Fuente: AP News. Disponible en <https://bit.ly/3gVs6gW>

España aprueba 'Vaxneuvance' para el neumococo invasivo causado por 15 serotipos del virus en adultos

27 oct. La farmacéutica MSD ha anunciado este jueves que la Agencia Española del Medicamento (AEMPS), dependiente del Ministerio de Sanidad, ha autorizado la comercialización de 'Vaxneuvance', su nueva vacuna conjugada antineumocócica 15-valente, para la inmunización activa para la prevención de enfermedades invasivas y neumonías causada por 15 serotipos de 'Streptococcus pneumoniae' en individuos a partir de 18 años.

El evento ha coincidido, prácticamente, con la decisión por parte de la Comisión Europea de extender esta recomendación a la población lactante, infantil y adolescente, celebraba en rueda de prensa el doctor Gonzalo Fernández, director Medical Affairs Vacunas MSD España, quien destacaba que el programa de desarrollo de esta vacuna ha sido "intensivo" con un amplio espectro de la población, enfocándose especialmente en la población más vulnerable como inmunocompetentes o inmunocomprometidos.

La vacuna protege de los serotipos 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, 22F, 23F y 33F, aunque es destacable que la respuesta inmunitaria para la vacuna conjugada antineumocócica 15-valente fueron superiores a las de PCV13 para el serotipo 3 compartido y para los dos serotipos exclusivos de esta vacuna, 22F y 33F. El jefe del Área de Investigación en Vacunas de FISABIO e investigador principal en estudios pivotaes de PCV15, el doctor Javier Díez Domingo, ha recordado que toda la población es de riesgo frente al neumococo, por este motivo "tener una vacuna que proteja es fundamental". Desde su experiencia ha valorado altamente el perfil de seguridad de 'Vaxneuvance' que ha calificado de "15 vacunas metidas en un solo vial".

La vacuna conjugada antineumocócica 15-valente fue aprobada con base en datos de siete estudios clínicos aleatorizados y doble ciegos que evaluaron la seguridad, la tolerabilidad y la inmunogenicidad en adultos. Estos datos clínicos mostraron que las respuestas inmunitarias provocadas por la vacuna conjugada antineumocócica 15-valente no fueron inferiores a las de la vacuna neumocócica conjugada 13-valente (PCV13) para los trece serotipos compartidos.

"Que la vacuna conjugada antineumocócica haya mostrado una respuesta superior frente al serotipo 3 es una noticia esperanzadora ya que se trata de uno de los serotipos más frecuentes y severos registrados en el adulto en la actualidad y, por tanto, una de las necesidades no cubiertas en la prevención de la enfermedad neumocócica invasiva", señala el doctor Javier Díez Domingo, Jefe del Área de Investigación en Vacunas de FISABIO e investigador principal en estudios pivotaes de PCV15.

Para este experto, además de una "robusta" seguridad, lo más destacable es que se trata de una vacuna "muy superior" a la que se está poniendo ahora, debido a que añade dos serotipos y su eficacia "es superior". Concretamente, las respuestas inmunitarias para la vacuna conjugada antineumocócica 15-valente fueron superiores a las de PCV13 para el serotipo 3 compartido y para los dos serotipos exclusivos de esta vacuna, 22F y 33F.

La doctora Pilar Arrazola, jefa del servicio de Medicina Preventiva del Hospital Universitario 12 de Octubre de Madrid, ha subrayado al inicio del encuentro la importancia de la inmunización frente al neumococo en adultos, sobre todo en determinadas subpoblaciones.

"Algunos adultos, incluidas las personas mayores, los que padecen ciertas patologías crónicas o los que

están inmunocomprometidos, tienen un mayor riesgo de contraer la enfermedad neumocócica y sufrir complicaciones graves. Las personas inmunocomprometidas o con patologías crónicas de base tienen tasas de hospitalización más elevadas que las personas sanas.

"Y la tasa de letalidad entre las personas adultas hospitalizadas que tienen al menos una patología previa es significativamente mayor que en pacientes que no presentan comorbilidades", ha explicado la experta quien considera que "la enfermedad es un importante problema de salud pública", y, por tanto, "debe ser objeto de medidas de prevención".

Fuente: Infosalus. Disponible en <https://bit.ly/3FEQrSB>

Vaxcyte trains its sight on a lucrative market with pneumococcal vaccine

Oct 28. On 24 October, American vaccine developer Vaxcyte shared positive topline data from a Phase I/II study of its multivalent conjugate pneumococcal vaccine VAX-24, bringing the 24-valent pneumococcal jab one step closer to market.

The vaccine demonstrated a similar safety profile to Pfizer's marketed 20-serotype shot Prevnar 20 at all assessed doses, and showed non-inferior efficacy.

On the same day, the San Carlos, California-headquartered vaccine developer announced the start of a proposed public offering of common stock and pre-funded warrants. Both updates meant the company's stock opened more than 41% higher than the previous Friday. On October 26, Vaxcyte stated that this offering was expected to yield approximately \$600 million in gross proceeds. The company now has a market cap of \$2.47 billion.

What's more, VAX-24 achieved a higher immune response to 16 of the 20 serotypes it shares with Prevnar 20. VAX-24 met standard superiority criteria for four additional serotypes, as stated in the October 24 press release. The company says that these four serotypes represent roughly 10–15% of bacteria causing pneumococcal disease in adults.

While the first pneumococcal polysaccharide vaccine was approved in the US in 1977, the first conjugate shot Prevnar was greenlighted only in 2000. It initially targeted seven serotypes, before Pfizer launched an updated version that targeted 13 serotypes in 2010. In June 2021, the FDA approved Pfizer's Prevnar 20 for adult use, although a nod for paediatric use is pending.

Merck, known outside of the US and Canada as MSD, is developing its portfolio of pneumococcal vaccines, and has secured an FDA approval for the paediatric use of its 15-serotype vaccine Vaxneuvance in June. This is in addition to its long-available pneumococcal polysaccharide vaccine PPSV23.

Pneumococcal vaccines are used to inoculate individuals against infections caused by the *Streptococcus pneumoniae* bacteria. According to the UK's National Health Service (NHS), there are over 90 strains of this bacterium.

At the moment, the Centres for Disease Controls and Prevention (CDC) recommends the use of Pfizer's Prevnar 13 or Vaxneuvance for all infants and children younger than five, together with those who are risk-prone to pneumococcal disease until the age of 18. The agency says that Vaxneuvance or Prevnar 20 can be used for adults aged 65 years or more.

The CDC suggests that adults aged between 19 and 64 years should use either vaccine if they have medical conditions or risk factors.

MSD's PPSV23 is suggested as a potential option by the CDC, including children with medical conditions aged between two and 18, and adults older than 18 who previously got Vaxneuvance.

According to GlobalData, Pharmaceutical Technology's parent company, Prevnar 13 and Vaxneuvance are forecasted to have global sales of \$7.26 billion and \$812 million in 2028. VAX-24 has forecasted sales of \$21 million in the same year.

Further plans in the making

Following VAX-24's first clinical milestone, Vaxcyte anticipates a number of developments in the coming year for its pneumococcal vaccine. The first is a readout of topline data from a second Phase II study in adults 65 and older, which is expected in the first half of 2023. Together with this, the final data from the just-announced Phase II study should also be published in that period.

Vaxcyte also plans to start a Phase II study of VAX-24 in the pediatric population. The company expects to hold regulatory talks to shape its incoming Phase III program in adult patients in the second half of 2023.

Separately, the company is also in pursuit of developing a 31-valent pneumococcal vaccine VAX-XP for both adults and infants. There, the business plans to submit an IND application for a Phase I/II in the second half of 2023, with a readout in 2024.

Competition in an increasingly heated market

Vaxcyte's recent clinical success brings further competition into a sector, which is becoming increasingly heated. On the same day as the Vaxcyte results, MSD announced that Vaxneuvance received an expanded indication from the European Commission for use in infants, children and adolescents aged between six weeks and less than 18 years.

In August 2022, Pfizer announced positive topline data from its Phase III study that tested Prevnar 20 in infants. The trial had two coprimary objectives, with one measuring the immunogenic response a month after the third dose, and the other doing the same after the fourth.

Although the vaccine generated an immunogenic response against all 20 serotypes after the fourth dose, it did so to 14 serotypes after the third dose. In the same announcement, Pfizer said the company aims to submit a supplemental Biologics License Application (sBLA) to the FDA by the end of the year, depending on discussions with the agency.

Fuente: Pharmaceutical Technology. Disponible en <https://bit.ly/3DWm8Wo>

Vacuna COVID de AstraZeneca tiene mayor probabilidad de provocar trombosis, afirma estudio

30 oct. Luego de que comenzaron las campañas de vacunación contra COVID-19 alrededor del mundo, hubo algunos extraños casos de trombosis tras la aplicación de las primeras dosis, y un estudio reciente dio a conocer que el biólogo de la empresa AstraZeneca es uno de los que más casos ha dado hasta el momento.

La investigación realizada por el British Medical Journal señala que las vacunas COVID de adenovirus

fueron las que mayores casos de trombosis provocaron, y las principales empresas en realizar estos biólogos son AstraZeneca y Johnson & Johnson.

Las vacunas COVID de ARN (como la Pfizer), por su parte, han tenido una menor, pero existente, presencia de casos de trombosis, por lo que hay menos preocupación.

La investigación señala que “hay una relación causal entre estas vacunas y la trombosis con síndrome de trombocitopenia, lo que llevó a una actualización de la información del producto para la vacuna AstraZeneca para incluir la trombosis con síndrome de trombocitopenia como un efecto secundario muy raro”.

El objetivo de la investigación fue únicamente cuantificar el riesgo de la trombosis, ya que argumenta que la respuesta de las vacunas han sido la razón por la que el COVID-19 bajó su letalidad.

“Después de excluir muchos análisis debido a la confusión identificada o al poder estadístico limitado, observamos un aumento del 30 por ciento en el riesgo de trombocitopenia después de la primera dosis de ChAdOx1-S (AstraZeneca) en comparación con la primera dosis de BNT162b2 (Pfizer)”, concluyó el estudio.



Además señaló que el riesgo es más grande en la primera dosis de la vacuna contra COVID-19, y que en la segunda dosis no aumenta la posibilidad de una trombosis.

La investigación tomó cientos de miles de muestras de personas que fueron vacunadas en Reino Unido, Estados Unidos, España y Alemania, principalmente.

La vacunación contra COVID en el mundo comenzó el 8 de diciembre de 2020 en Reino Unido y posteriormente se expandió por todo el mundo. La respuesta del organismo es algo que aún se investiga; sin embargo, el estudio concluye que es importante obtener este tipo de resultado para conocer a grupos de riesgo de algún patógeno derivado de alguna vacuna en particular, esto a dos años de que comenzó la inmunización.

Fuente: El Financiero. Disponible en <https://bit.ly/3fxmIjR>

New research suggests booster dose of Novavax NVX-CoV2373 vaccine is effective against SARS-CoV-2 Omicron subvariants

Oct 31. A recent study posted to Research Square* preprint server evaluated the neutralizing antibody titers against the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) Omicron variant and its sub-lineages after two and three doses of the Novavax protein nanoparticle vaccine NVX-CoV2373.

Background

The emergent SARS-CoV-2 Omicron subvariants carry multiple mutations in the spike protein region, which increases their immune evasive abilities, allowing these subvariants to escape the neutralizing antibodies induced by vaccines and previous SARS-CoV-2 infections. The Omicron subvariants BA.4, and BA.5 have become globally dominant and exhibit resistance to most vaccines.

However, booster doses with messenger ribonucleic acid (mRNA) vaccines have been presenting some neutralizing action against these Omicron subvariants. Furthermore, phase three trials with the protein nanoparticle vaccine NVX-CoV2373 have been observed to be 90% efficient against symptomatic infections and 100% efficient against severe coronavirus disease 2019 (COVID-19). This protein nanoparticle vaccine has the added advantage of improved stability and fewer cold chain requirements. However, the efficacy of booster doses of the NVX-CoV2373 vaccine against Omicron BA.4/BA.5 and other subvariants remains unexplored.

About the study

In the present study, serum samples were collected from individuals in South Africa who had been administered two or three doses of the Novavax NVX-CoV2373 vaccine. The samples were collected 14 and 35 days after the second and third doses, respectively. The researchers also sampled individuals vaccinated with two doses of the adenoviral vector vaccine AD26.COVS.2 or two and three doses of the mRNA vaccine BNT162b22.

Pseudoviruses containing firefly luciferase gene and spike mutations for the ancestral (D614G) strain and the Beta and Omicron BA.1 variants, as well as the BA.4 and BA.5 subvariants, were used to test the neutralization efficacy of NVX-CoV2373 vaccine-induced antibodies. Modified 293T/ACE2. MF cells over-expressing the human angiotensin-converting enzyme-2 (ACE-2) were used to test the neutralizing efficacy.

Results

The results indicated that two weeks after the second NVX-CoV2373 vaccine, the geometric mean titers (GMT) against the D614G strain were the highest at 1401. The neutralization titers showed an 8.1-fold decrease against the Beta variant with a GMT of 173. Against the Omicron BA.1 variant and the BA.4/BA.5 subvariants, the neutralization titers were 41- and 30-fold lower, with GMT values of 34 and 47, respectively. For Omicron



BA.1, the neutralization titers for 79% of the samples were below the detection limit, as was the case for 59% of the samples against the BA.4/BA.5 subvariants.

However, the neutralization titers were much higher against the Omicron BA.1 and BA.4/BA.5 subvariants when measured a month after the booster (third) dose of NVX-CoV2373 was administered.

While the neutralization titers against the ancestral D614G strain increased to a GMT of 10862, the titers against Beta, Omicron BA.1, and Omicron BA.4/BA.5 also increased to GMT values of 1733, 1197, and 582, showing increases that were 10-, 35-, and 12-fold, respectively. However, the titers against Beta, Omicron BA.1, and Omicron BA.4/BA.5 were still six to 18-fold lower than that against the ancestral strain.

In comparison, two doses of the adenoviral vector vaccine AD26.COVS.2 elicited much lower neutralization

titers than three doses of the NVX-CoV2373 vaccine or the mRNA vaccine BNT162b22. The GMT values against Omicron BA.1 in individuals vaccinated with two doses of AD26.COV2.S were 10- and 14-fold lower than in those vaccinated with three doses of NVX-CoV2373 and BNT162b22, respectively. Against the BA.4/BA.5 subvariants, AD26.COV2.S elicited 11- and 12-fold lower neutralizing titers than those elicited by NVX-CoV2373 and BNT162b22, respectively.

Furthermore, all plasma samples from individuals with three doses of the NVX-CoV2373 or BNT162b22 vaccine showed neutralizing action against Omicron BA.1, and BA.4/BA.5 subvariants, while only 13% to 50% of the plasma samples from individuals with two doses of AD26.COV2.S showed neutralizing activity against the Omicron subvariants.

Conclusions

To summarize, in this study, a team of researchers from South Africa evaluated the neutralization titers elicited against the ancestral SARS-CoV-2 strain, the Beta and Omicron BA.1 variants, and the BA.4/BA.5 Omicron subvariants, in individuals vaccinated with three doses of the protein nanoparticle vaccine NVX-CoV2373. They also compared the neutralizing titers to those elicited by two doses of the AD26.COV2.S adenoviral vector vaccine or three doses of the BNT162b22 mRNA vaccine against Omicron BA.1 and BA.4/BA.5.

The results indicated that while two doses of the NVX-CoV2373 vaccine showed a significant reduction in neutralizing titers against Beta, Omicron BA.1, and Omicron BA.4/BA.5, as compared to the ancestral D614G strain, a third dose of the vaccine considerably increased the GMT values against all the variants tested. Three doses of the BNT162b22 vaccine showed comparable results, but two doses of AD26.COV2.S did not give adequate protection against the Omicron subvariants.

Fuente: News Medical Life Sciences. Disponible en <https://bit.ly/3Um8txa>

Científicos norteamericanos destacaron capacidad del modelo cubano anticovid-19 ante emergencias

31 oct. Científicos de Estados Unidos exaltaron hoy la capacidad de Cuba de desarrollar y vacunar a su población con productos propios anticovid-19, modelo que sugieren seguir para hacer frente a emergencias sanitarias globales.

En un informe publicado en el sitio Scidev.net, especializado en acercar la ciencia al desarrollo mediante noticias y análisis con sede en esta ciudad, los autores resaltan cómo esa estrategia de vacunación con inmunógenos seguros y eficaces podría afrontar situaciones de ese tipo en entornos con pocos recursos, países de bajos ingresos y en el mundo en desarrollo.

A la par, demandan la reducción de las barreras que bloquean el acceso mundial a las innovaciones biotecnológicas de la Isla.



En junio último, el equipo de investigadores estadounidenses realizó una visita oficial a Cuba junto a colegas de África y el Caribe, la primera de alto nivel en cinco años, para intercambiar con colegas cubanos sobre la producción de vacunas contra la COVID-19 en el país.

La delegación estuvo encabezada por el copresidente Michael Osterholm, PhD, MPH, director del Centro de Investigación y Políticas de Enfermedades Infecciosas de la Universidad de Minnesota.

Junto al científico llegó a La Habana Cristina Rabadán-Diehl, PharmD, PhD, MPH, quien durante 25 años lideró el trabajo internacional en los Institutos Nacionales de Salud y el Departamento de Salud y Servicios Humanos de EE.UU., antes de convertirse en directora asociada de Ensayos Clínicos de Westat.

Para Osterholm, lo aprendido sobre el extraordinario trabajo de Cuba con la vacuna contra la covid-19 dejó claro que puede ser un actor importante para aumentar el acceso mundial a los avances que salvan vidas.

Consideró que aunque las políticas son complejas, “se deben enfrentar a las barreras que impiden que su impresionante grupo de científicos y expertos en salud pública lo haga”.

En el informe explican, además, que el propósito de la misión de investigación era triple: primero, aprender cómo y por qué un país pequeño de unos 11 millones de personas, y que enfrenta dificultades económicas considerables, había desarrollado, fabricado y desplegado sus propias vacunas, que demostraron más del 95% de eficacia en la prevención de la enfermedad, la gravedad y muerte.

En segundo lugar, entender el lanzamiento de la vacuna en Cuba, estrategia y resultados preliminares, y en tercero, explorar el enfoque cubano de la ciencia en el contexto de la salud pública.

El esfuerzo de desarrollo de vacunas y el modelo de inmunización podría revelar oportunidades para reducir las desigualdades mundiales en el acceso a las vacunas y otras innovaciones sanitarias, insisten los científicos en su estudio.

Sostienen, además, que la delegación fue consciente de las predicciones de que el mundo está peligrosamente cerca de la próxima pandemia, con infecciones zoonóticas cruzadas que ya causan el 75% de las enfermedades infecciosas emergentes, en aumento en medio del cambio climático.

También los alarmó el acceso desigual a las vacunas en el mundo, que ha prolongado la pandemia hasta ahora, y cómo esto revela una falla más amplia en el aumento actual de la innovación biomédica para llegar a miles de millones de personas en países de ingresos bajos y medios.

La visita a La Habana fue organizada por Medicc (Cooperación de Educación Médica con Cuba), una organización sin fines de lucro con sede en Estados Unidos, que promueve el diálogo y la colaboración relacionados con la salud.

Desde 1997, Medicc ha facilitado los intercambios entre la salud cubana y estadounidense, profesionales, académicos, legisladores, fundaciones, estudiantes y líderes de comunidades médicamente desatendidas.

Fuente: Cubadebate. Disponible en <https://bit.ly/3zDPExE>





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Patentes registradas en Patentscope

Estrategia de búsqueda: *Vaccine in the title or abstract AND 20221023:20221031 as the publication date 28 records*

1.4076508VERFAHREN UND IMPFSTOFFZUSAMMENSETZUNGEN ZUR BEHANDLUNG VON KREBS
EP - 26.10.2022

Clasificación Internacional [A61K 39/00](#) N° de solicitud 20835808 Solicitante INST NAT SANTE RECH MED Inventor/a POYET JEAN-LUC

The present invention relates to a method for obtaining a population of oncogenic cells modified comprising the following steps: i) obtaining a population of oncogenic cells from a subject suffering from a cancer; and ii) treating said cells with a fusion protein comprising an AAC-11 leucine-zipper (LZ) derived peptide which is fused to at least one heterologous polypeptide. Inventors have evaluated here the antileukemic efficacy of RT53, an anticancer peptide with potential immunological properties. Their results indicate that RT53 possesses a direct antileukemic effect, even at late stage. They also demonstrated that single injection of a vaccine consisting of leukemic blasts exposed to RT53, which induces the hallmarks of immunogenic cell death, was highly effective in preventing leukemia development in both prophylactic and therapeutic settings. The vaccine comprising RT53-treated APL cells generated long-term antileukemic protection and depletion experiments indicated that CD4+ T cells were of crucial importance for vaccine efficacy. Combined, their results provide the rational for the exploration of RT53-based therapies for the treatment of cancer, such as acute leukemia.

2.20220339276A VACCINE FOR PROTECTION AGAINST STREPTOCOCCUS SUIIS
US - 27.10.2022

Clasificación Internacional [A61K 39/09](#) N° de solicitud 16766977 Solicitante Intervet Inc. Inventor/a Antonius Arnoldus Christiaan Jacobs

The present invention pertains to a vaccine comprising an immunologically effective amount of an IgM protease antigen of *Streptococcus suis*, for use in a method for protecting pigs against a pathogenic infection with *Streptococcus suis* by administering the vaccine only once, wherein the vaccine comprises at most 120 µg per dose of the antigen.

3.WO/2022/226049A VACCINE ADJUVANT FOR INFECTIOUS DISEASES
WO - 27.10.2022

Clasificación Internacional [C07K 14/705](#) N° de solicitud PCT/US2022/025516 Solicitante UNIVERSITY OF CINCINNATI Inventor/a WEBER, Georg F.

Provided herein is a vaccine adjuvant containing an N-terminal domain of osteopontin or a fragment thereof. Also provided are conjugates and fusion proteins containing the N-terminal domain of osteopontin conjugated to a pathogen or a protein derived therefrom. A method for potentiating an immune response to an immunizing antigen is also provided, the method including administering to a subject an effective amount of a vaccine adjuvant containing an N-terminal domain of osteopontin. Also provided is a method of vaccinating a subject against SARS-CoV-2, the method including administering to a subject a fusion protein containing the N-terminal domain of osteopontin and the receptor binding domain of SARS-CoV-2 spike glycoprotein. Cellular vaccines and methods of vaccinating a subject with a cellular vaccine are also provided herein.

4.WO/2022/224966LIQUID SEXTUPLE VACCINE COMPOSITION

WO - 27.10.2022

Clasificación Internacional [A61K 39/116](#) N° de solicitud PCT/JP2022/018211 Solicitante KM BIOLOGICS CO., LTD. Inventor/a YAMASHITA, Shun

The present invention provides a liquefied formulation of a sextuple vaccine which comprises DPT-IPV-Hib-HBs and in which an HBs antigen is stably adsorbed and held on an aluminum adjuvant and PRP that is an Hib antigen is stably bound to and held on a carrier protein. Provided is a method for producing a stable liquefied formulation of a sextuple vaccine against diphtheria, pertussis, tetanus, poliomyelitis, Haemophilus influenzae type b (Hib), and hepatitis B (HepB), said method comprising: (1) a step for mixing diphtheria toxoid (D) and tetanus toxoid (T) with an aluminum adjuvant to generate a DT adjuvant; (2) a step for mixing the DT adjuvant obtained in step (1) with a hepatitis B surface (HBs) antigen to generate a DT-HBs adjuvant; (3) a step for mixing the DT-HBs adjuvant obtained in step (2) with a pertussis antigen (P) to generate a DPT-HBs adjuvant; (4) a step for mixing the DPT-HBs adjuvant obtained in step (3) with an inactivated poliomyelitis virus (IPV) to generate a DPT-IPV-HBs adjuvant; (5) a step for adding a succinic acid-phosphoric acid buffer solution to the DPT-IPV-HBs adjuvant obtained in step (4), and then adding PRP (PRP-T conjugate) as an Hib antigen to generate a mixture of the PRP-T conjugate and the DPT-IPV-HBs adjuvant; and (6) a step for preparing pH of the mixture of the PRP-T conjugate and the DPT-IPV-HBs adjuvant obtained in step (5) to be 5.4-5.9.

5.4076512KRYPTOSPORIDIOSE-IMPFSTOFF

EP - 26.10.2022

Clasificación Internacional [A61K 39/012](#) N° de solicitud 20837969 Solicitante INTERVET INT BV Inventor/a ROOSMALEN VAN MARKUS HENDRIKUS

The invention is based on the finding that incubating a Cryptosporidium gp40 protein with an aziridine, significantly increases its immunogenicity. When used as a vaccine, this allows a reduction of the dose, which improves economic feasibility and safety. Consequently the aziridine-treated gp40 can now be used as a safe and effective subunit-vaccine for humans or non-human-animals against Cryptosporidiosis. Specifically for new-born ruminants a vaccination by way of colostral transfer was found to be very effective in reducing clinical signs of Cryptosporidiosis, especially diarrhoea.

6.4076515INAKTIVIERTER PISCIN-ORTHOREOVIRUS-IMPFSTOFF

EP - 26.10.2022

Clasificación Internacional [A61K 39/12](#) N° de solicitud 20824229 Solicitante INTERVET INT BV Inventor/a BIJLSMA JOHANNA JACOBA ELISABETH

The invention derives from the discovery that the immunogenicity of piscine orthoreovirus (PRV) can be significantly increased by inactivating the virus in a way different from the prior art: by incubation with an aziridine the vaccine potency against challenge infection by cohabitation is much improved over prior art approaches. This allowed the development of an effective inactivated vaccine against infection and disease caused by PRV.

7.4076513ORALES RESPIRATORISCHES VAKZIN

EP - 26.10.2022

Clasificación Internacional [A61K 39/02](#) N° de solicitud 20839271 Solicitante INTERVET INT BV Inventor/a LAFLEUR RHONDA L

The present invention is drawn to new oral live canine parainfluenza virus vaccines and related multivalent vaccines. Methods of using the vaccine alone or in combination with one or more other protective immunogens in multivalent vaccines are also provided.

8.WO/2022/226535VACCINE FOR SARS-COV-2

WO - 27.10.2022

Clasificación Internacional [A61K 39/395](#) N° de solicitud PCT/US2022/071869 Solicitante FLOW PHARMA INC. Inventor/a BURKHOLZ, Scott

Personalized cancer vaccines are created by predicting whether a first neoantigen or a second neoantigen of an individual cancer patient has a stronger binding affinity for a human leukocyte antigen (HLA) complex of the patient and creating a particle containing the neoantigen with the stronger predicted binding affinity. Such a predicting step includes artificial intelligence, statistical modeling, or a combination thereof. Such a particle is created by encapsulating the neoantigen with the stronger predicted binding affinity for the HLA complex of the patient in a material. Placing the antigen in a particular sized particle is referred to here as Size Exclusion Antigen Presentation Control, (SEAPAC) used in methods of treating the patient using such a personalized cancer vaccine.

9.20220339275VACCINE

US - 27.10.2022

Clasificación Internacional [A61K 39/04](#) N° de solicitud 17635179 Solicitante University of Surrey Inventor/a Johnjo MCFADDEN

The invention relates to modified *Mycobacterium* cells, and their uses as vaccines, and, particularly, modified *Bacillus Calmette-Guérin* vaccines. The invention extends to the use of the modified vaccines for vaccination applications in a wide range of animals, including cattle and humans. The invention extends to novel antigens, kits and compositions comprising these novel antigens and to their use in diagnosis. The invention also extends to apparatus comprising the modified vaccine and the antigens, and compositions comprising the antigens.

10.4076517NEUER PRIME-BOOST-INFLUENZAIMPfstoff

EP - 26.10.2022

Clasificación Internacional [A61K 39/12](#) N° de solicitud 20839205 Solicitante VIVALDI BIOSCIENCES INC Inventor/a MUSTER THOMAS

The invention relates generally to the field of influenza vaccination, specifically to a two-component vaccine comprising influenza virus strains with native hemagglutinin (HA) and lacking the functional NS gene (delNSI influenza), for use in the vaccination of a subject, wherein a priming composition, comprising one, two or three delNSI influenza virus strains selected from group 1 influenza A virus, group 2 influenza A virus, or group 3, consisting of influenza B virus, is formulated for prime-administration prior to a boosting composition, comprising one, two or three delNSI influenza virus strains of the same group as in the priming composition but differing antigenically in the HA head, formulated for boost-administration. Further, a kit comprising said two-components and its use for preventing influenza virus infection is provided.

11.11478543Coronavirus disease (COVID-19) vaccine

US - 25.10.2022

Clasificación Internacional [A61K 39/00](#) N° de solicitud 17193890 Solicitante THOMAS JEFFERSON UNIVERSITY Inventor/a Matthias J. Schnell

The present invention includes a vaccine comprising a SARS-CoV-2 spike protein (S) or portion thereof, and methods of use thereof.

12.20220339274BIOMATERIAL-BASED ANTIGEN FREE VACCINE AND THE USE THEREOF

US - 27.10.2022

Clasificación Internacional [A61K 39/00](#) N° de solicitud 17701270 Solicitante President and Fellows of Harvard College Inventor/a Alexander J. Najibi

Disclosed herein are vaccine compositions and method to use the same. The compositions and methods disclosed herein provide means to prevent and/or treat a variety of cancers.

13.4076516MULTIVALENTER HVT-VEKTORIMPfstoff

EP - 26.10.2022

Clasificación Internacional [A61K 39/12](#) N° de solicitud 20837994 Solicitante INTERVET INT BV Inventor/a LANGEREIS MARTIJN ALEXANDER

The present invention describes a recombinant herpesvirus of turkeys (rHVT) that can be used as a vector vaccine for poultry against infection and disease from multiple poultry pathogens. Specifically the rHVT expresses an infectious bursal disease virus (IBDV) viral protein 2 (VP2) gene and a Newcastle disease virus (NDV) fusion (F) protein gene from a first and a second expression cassette inserted in the unique small (Us) region, and expresses an avian influenza virus (AIV) haemagglutinin (HA) gene from a third expression cassette inserted in the unique long (UL) region of the genome of said rHVT either between the UL40 and UL41 genes, or between the UL44 and UL45 genes. This rHVT can be used to vaccinate poultry against MDV, IBDV, NDV and AIV.

14.20220340619VACCINE CANDIDATES FOR HUMAN RESPIRATORY SYNCYTIAL VIRUS (RSV) HAVING ATTENUATED PHENOTYPES

US - 27.10.2022

Clasificación Internacional [C07K 14/08](#) N° de solicitud 17851905 Solicitante THE USA, AS REPRESENTED BY THE SECRETARY, DEPT. OF HEALTH AND HUMAN SERVICES Inventor/a Cyril LE NOUEN

Reported herein are presumptively de-attenuating mutations that are useful, either individually or in combinations that may include other known mutations, in producing recombinant strains of human respiratory syncytial virus (RSV) exhibiting attenuation phenotypes. Also described herein is a novel RSV construct, Min_L-NPM2-1(N88K)L, which exhibits an attenuated phenotype, is stable and is as immunogenic as wild type RSV. The recombinant RSV strains described here are suitable for use as live-attenuated RSV vaccines. Exemplary vaccine candidates are described. Also provided are polynucleotide sequences capable of encoding the described viruses, as well as methods for producing and using the viruses.

15.WO/2022/226035TOLL-LIKE RECEPTOR AGONIST-NANOPARTICLE VACCINE ADJUVANT
WO - 27.10.2022

Clasificación Internacional [A61K 47/54](#) N° de solicitud PCT/US2022/025497 Solicitante THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY Inventor/a YIN, Qian

Compositions and methods are provided relating to TLR agonist nanoparticle vaccine adjuvant formulations.

16.20220339166POST COVID19 VACCINE REMEDIES
US - 27.10.2022

Clasificación Internacional [A61K 31/593](#) N° de solicitud 17482364 Solicitante Suzanne J. Paxton-Pierson Inventor/a Suzanne J. Paxton-Pierson

Methods to lessen toxicities in COV19 vaccine aftermath.

17.4079319PD-L1 IMMUNOTHERAPIE
EP - 26.10.2022

Clasificación Internacional [A61K 39/00](#) N° de solicitud 22163851 Solicitante IO BIOTECH APS Inventor/a ANDERSEN MAD S HALD

The present invention relates to the field of prophylaxis and therapy of clinical conditions including cancer, autoimmune diseases and infectious diseases. In particular there is provided vaccine compositions comprising PD-L1 or peptide fragments thereof that are capable of eliciting immune responses useful in treatment of cancer, autoimmune diseases or infectious diseases.

18.WO/2022/223617VIRUS VACCINE
WO - 27.10.2022

Clasificación Internacional [A61K 39/12](#) N° de solicitud PCT/EP2022/060417 Solicitante BIONTECH SE
Inventor/a SAHIN, Ugur

This disclosure relates to the field of preventing or treating virus infection, in particular, the disclosure relates to agents for vaccination against virus infection and inducing effective virus antigen-specific immune responses such as antibody and/or T cell responses and methods for generating and using such agents. Administration of agents such as RNA disclosed herein to a subject can protect the subject against virus infection. Specifically, the present disclosure relates to amino acid sequences comprising at least a portion of a virus protein having amino acid modifications found in other variants of the virus protein. Administration of RNA encoding one or more of the amino acid sequences may provide protection against diverse virus variants. Methods and agents described herein are, in particular, useful for the prevention or treatment of coronavirus infection such as SARS-CoV-2 infection.

19.WO/2022/225057GALECTIN-TARGETING IMMUNOTHERAPY
WO - 27.10.2022

Clasificación Internacional [C12N 7/04](#) N° de solicitud PCT/JP2022/018610 Solicitante VLP
THERAPEUTICS, INC. Inventor/a AKAHATA, Wataru

The present disclosure provides a virus like particle comprising a viral structural protein and a galectin epitope peptide, and a composition or vaccine comprising thereof, its use in a medicine, particularly in an immunotherapy.

20.20220339273VACCINE COMPOSITIONS COMPRISING C-C MOTIF CHEMOKINE 22 (CCL22) OR
FRAGMENTS THEREOF
US - 27.10.2022

Clasificación Internacional [A61K 39/00](#) N° de solicitud 17691468 Solicitante IO BIOTECH APS Inventor/a
Mads Hald ANDERSEN

The present disclosure relates to CCL22 as a T cell target in cancer immunosuppression.

21.20220340670ANTI-CD40 ANTIBODIES AND USES THEREOF
US - 27.10.2022

Clasificación Internacional [C07K 16/28](#) N° de solicitud 17687971 Solicitante BAYLOR RESEARCH
INSTITUTE Inventor/a Jacques F. Banchereau

The present invention includes compositions and methods for the expression, secretion and use of novel compositions for use as, e.g., vaccine and antigen delivery vectors, to delivery antigens to antigen presenting cells. In one embodiment, the vector is an anti-CD40 antibody, or fragments thereof, and one or more antigenic peptides linked to the anti-CD40 antibody or fragments thereof, including humanized antibodies.

22.4077355NEUSORTIERTER ISA-VIRUS
EP - 26.10.2022

Clasificación Internacional [C07K 14/11](#) N° de solicitud 20835791 Solicitante INTERVET INT BV
Inventor/a VILLOING STEPHANE

The present invention is directed to a reassorted ISA virus comprising Genome segments 1-8 wherein at least one genome segment is from Genotype I and at least one genome segment is from genotype II, wherein genome segment 6 is of Genotype II. The reassorted ISA virus was found to grow well in suspension culture. The present invention is also directed to method to make the reassorted virus as well as vaccination methods using the reassorted ISA virus and to vaccine compositions comprising the reassorted ISA virus.

23.4076507NUKLEINSÄUREIMPFSTOFF UNTER VERWENDUNG VON NEO-EPITOP-CODIERENDEN
KONSTRUKTEN
EP - 26.10.2022

Clasificación Internacional [A61K 39/00](#) N° de solicitud 20835806 Solicitante EVAXION BIOTECH AS
Inventor/a RØNØ BIRGITTE

The disclosure provides novel means and methods for DNA vaccination that targets cancer. In particular is provided a method for anti-cancer vaccination using a plasmid-based vaccine comprising regions encoding neo-epitopes.

24.WO/2022/226319PSORALEN-INACTIVATED NEISSERIA GONORRHOEAE VACCINES AND METHODS THEREOF

WO - 27.10.2022

Clasificación Internacional [A61K 35/74](#) N° de solicitud PCT/US2022/025968 Solicitante WAKE FOREST UNIVERSITY HEALTH SCIENCES Inventor/a SANDERS, Leigh Ann

The present invention relates to the fields of sexually transmitted disease and immunology. More specifically, but not exclusively, the invention provides a composition and methods to prepare and administer a vaccine for Neisseria gonorrhoeae and/or other gram-negative bacteria such as by using psoralen-inactivated bacteria.

25.20220340601FUNCTIONALIZED GOLD CARBENE NAPHTHAQUINONE COMPLEXES FOR USE IN THE TREATMENT OF CANCER

US - 27.10.2022

Clasificación Internacional [C07F 1/12](#) N° de solicitud 17595670 Solicitante Board of Regents, The University of Texas System Inventor/a Jonathan L. SESSLER

The present disclosure relates to functionalized gold carbene naphthoquinone compounds and salts thereof. In some aspects, these compounds can be used to treat cancer including cancers which are resistant to one or more other chemotherapeutic agents such as cisplatin or platinum chemotherapeutic agents. Also provided herein are pharmaceutical compositions comprising the gold carbene naphthoquinone compounds. The present disclosure also provides methods of preparing a cancer vaccine.

26.WO/2022/226108ADJUVANTED VACCINE COMPOSITION AND METHODS

WO - 27.10.2022

Clasificación Internacional [A61K 39/39](#) N° de solicitud PCT/US2022/025622 Solicitante D4 LABS, LLC Inventor/a BOWE, Michael

Disclosed herein are immunogenic compositions (e.g., vaccines) and methods of using and preparing the same. In some embodiments, the immunogenic compositions are suitable for use in treating or preventing an infectious disease, such as SARS-CoV-2 or HIV.

27.4076519POLYMER NANOPARTIKEL ALS IMPFSTOFF-ADJUVANTIEN

EP - 26.10.2022

Clasificación Internacional [A61K 39/39](#) N° de solicitud 20841918 Solicitante THE PROVOST FELLOWS SCHOLARS AND OTHER MEMBERS OF BOARD OF TRINITY COLLEGE DUBLIN Inventor/a LAVELLE ED

Provided by the current invention is a biocompatible polymeric particle having a diameter of from 50nm to 65nm and methods for use thereof. A method to induce antigen specific CD8 T cells and Th1 response is also provided.

28.WO/2022/226083GLYCAN MODIFIED SPIKE RECEPTOR BINDING DOMAIN NANOPARTICLES AND METHOD OF USE THEREOF AS A CORONAVIRUS DISEASE 2019 (COVID-19) VACCINE

WO - 27.10.2022

Clasificación Internacional [A61K 39/21](#) N° de solicitud PCT/US2022/025572 Solicitante KULP, Daniel Inventor/a KULP, Daniel

Disclosed herein are glycan-coated RBD immunogens, engineered nanoparticle vaccines comprising glycan-coated RBD immunogens and methods of use thereof for SARS-CoV-2 vaccines.

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