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VacCiencia es una publicación dirigida a investigadores y especialistas dedicados a la vacunología y temas afines, con el objetivo de serle útil. Usted puede realizar sugerencias sobre los contenidos y de esta forma crear una retroalimentación que nos permita acercarnos más a sus necesidades de información.

IFV INSTITUTO FINLAY DE VACUNAS

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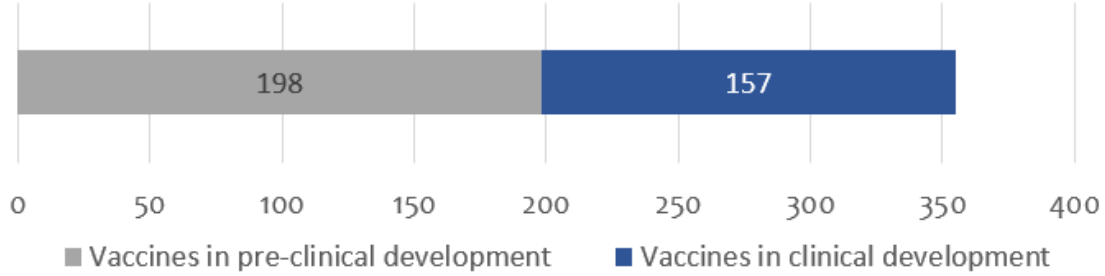
Resumen de la información publicada por la OMS sobre los candidatos vacunales contra la COVID-19 en desarrollo a nivel mundial

Última actualización por la OMS: 20 de mayo de 2022.

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

157 candidatos vacunales en evaluación clínica y 198 en evaluación preclínica



Candidatos vacunales en evaluación clínica por plataforma

Platform		Candidate vaccines (no. and %)	
PS	Protein subunit	52	33%
VVnr	Viral Vector (non-replicating)	21	13%
DNA	DNA	16	10%
IV	Inactivated Virus	21	13%
RNA	RNA	31	20%
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%
		157	

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
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	2/3
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)	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 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 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
Radboud University/Holanda	Partícula similar a virus	3
Arcturus Therapeutics, Inc./Estados Unidos	ARN	3
Livzon Pharmaceutical/China	Subunidad proteica	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

Fuente: https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines

Noticias en la Web

Una nueva vacuna diseñada con inteligencia artificial, demuestra ser efectiva contra todas las variantes conocidas del SARS-CoV-2

14 may. Desde que las vacunas hoy disponibles para disminuir las posibilidades de ser contagiados por el SARS-CoV-2 fueron evaluadas por las empresas de investigación farmacéutica que las desarrollaron, validadas por estudios clínicos, y finalmente aprobadas por diferentes organismos sanitarios internacionales, como la Organización Mundial de la Salud (OMS), y nacionales, como la Agencia Europea de Medicamentos (EMA) para el Continente Europeo, la Administración de Alimentos y Medicamentos (FDA) para los EE. UU., y en el caso de México la Comisión Federal para la Protección contra Riesgos Sanitarios (Cofepris), algunas de las interrogantes básicas aún no resueltas, son la duración de la inmunidad inducida y la posible pérdida de eficacia ante las nuevas variantes que el patógeno ha desarrollado, como la Delta, Ómicron, XE y alpha, las que no existían cuando fueron creadas.

Ante este incierto panorama, y sabedores que el SARS-CoV-2 no será eliminado de la faz de la tierra, un equipo multidisciplinario de investigadores pertenecientes a tres instituciones científicas: la Universidad del País Vasco/Euskal Herriko Unibertsitatea en la que se realizó el estudio teórico previo y la simulación computacional de la cadena de 22 aminoácidos que conforman el péptido (tipo de molécula formada por la unión de varios aminoácidos mediante enlaces peptídicos) de la vacuna; el Instituto de Investigación Sanitaria Marqués de Valdecilla (IDIVAL), y el Hospital Universitario Marqués de Valdecilla de Cantabria, los que se responsabilizaron de cargar dicho péptido en las células dendríticas (tipo especial de célula inmunitaria que se encuentra en los tejidos, como la piel, y estimula las respuestas inmunitarias al presentar antígenos en su superficie a otras células del sistema inmunitario) que inician una respuesta inmunitaria adaptativa en nuestro organismo, así como la realización de los ensayos biológicos *in vitro* e *in vivo*.

Para comprender el valor de las nuevas candidatas a vacunas (CV), es necesario entender la diferencia entre las vacunas aprobadas para enfrentar al síndrome respiratorio agudo severo coronavirus 2, mejor conocido como SARS-CoV-2, y las diseñadas por inteligencia artificial.

Las vacunas en curso utilizan la información de un epítopo localizado en la región del dominio de unión al receptor (RBD) de la proteína Spike, así como un epítopo detectado en anticuerpos y células T de pacientes con COVID-19.

Las nuevas candidatas vacunales diseñadas con métodos computacionales y herramientas avanzadas de inteligencia artificial, una monopeptídica y otra multipeptídica, se basaron en una técnica que involucra la optimización de supercadenas lambda, desarrollada e introducida previamente por los investigadores, con la que seleccionaron los epítopos más prometedores que involucran a las células T, característica que les permite ofrecer una respuesta vacunal eficaz contra el SARS-CoV-2, y una protección amplia y balanceada, incorporando una cadena de 22 aminoácidos, común a todas las variantes.

“En concreto, consideramos un conjunto de cadenas diana, formado por los epítopos que pueden seleccionarse para la CV, y un conjunto de cadenas huésped, constituido por las diferentes variantes de la proteína diana, en las que se consideran las mutaciones conocidas. En ese contexto, dado el valor de un parámetro λ, una supercadena λ es una secuencia de aminoácidos con propiedades que aseguran que la

cadena cubra al menos epítopos λ en cada una de las cadenas huésped". ***Scientific reports***. *First computational design using lambda-superstrings and in vivo validation of SARS-CoV-2 vaccine*.

El nuevo criterio para la selección de epítopos aplicado al diseño de las vacunas, consideró todas las mutaciones del virus, proporcionando un sólido equilibrio con respecto al número de epítopos cubiertos por la candidata vacunal en las versiones mutadas del objetivo, lo que proporciona a la vacuna monopeptídica evaluada una efectividad sostenida frente a las versiones mutadas del objetivo, y potencialmente frente a futuras variantes.

Además de avanzar con los diferentes procesos de validación de la vacuna monopeptídica, los investigadores evaluarán también la opción de la multipeptídica, y otras alternativas diseñadas computacionalmente.

Los diferentes tipos de vacunas desarrolladas

Vacunas de ARN mensajero

Las vacunas de ARN mensajero (ARNm) le enseñan a nuestras células a fabricar una proteína que desencadena una respuesta inmunitaria dentro del organismo.

Las vacunas de ARNm ((Pfizer-BioNTech o Moderna) protegen a las personas vacunadas, evitando o disminuyendo el riesgo de sufrir consecuencias potencialmente graves si se enferman.

Las vacunas de ARNm tienen décadas de estudio que soportan su seguridad y eficacia.

Vacunas de subunidades proteicas

Las vacunas de subunidades proteicas incluyen porciones inocuas (proteínas) del virus que causa el COVID -19, en lugar del germen completo. Una recibida la vacuna, nuestro organismo reconoce que esa proteína no debería estar presente y crea linfocitos T y anticuerpos que recordarán cómo combatir el virus que causa el COVID-19 si llegáramos a infectarnos.

Vacunas de vector

Las vacunas de vector (Janssen de Johnson & Johnson) contienen una versión modificada de un virus diferente del que causa el COVID-19. Dentro de la envoltura del virus modificado, hay material del virus que causa el COVID-19, lo que se conoce como "vector viral". Una vez que el vector viral ingresa a nuestras células, el material genético las instruye para que elaboren una proteína exclusiva del virus que causa el COVID-19. Con estas instrucciones, nuestras células hacen copias de la proteína. Esto dispara en nuestro organismo una respuesta, gracias a la que se empiezan a crear linfocitos T y linfocitos B que recordarán cómo combatir el virus si nos llegamos a infectar.

Fuente: CódigoF. Disponible en https://bit.ly/3POdhtM

Irán será la primera nación en producir una de las vacunas cubanas contra la COVID-19

15 may. La inauguración, en Irán, de una planta de producción de la vacuna anti-COVID-19 denominada PastoCorona –resultado de la transferencia de tecnología de Soberana 02, del Instituto Finlay de Vacunas (IFV), al Instituto Pasteur–, convierte al país persa en el primero en fabricar industrialmente uno de los inmunógenos cubanos contra el SARS-COV-2, resaltó el IFV.

La apertura de la instalación trascendió en el marco de la XVIII sesión de la Comisión Intergubernamental Cuba-Irán, que tendrá lugar hasta mañana, y a la cual asistieron el vice primer ministro de Cuba, Ricardo Cabrisas, y el ministro de Salud de Irán, Bahram Einollahi, confirmó, en la propia red social, el Grupo de las Industrias Biotecnológica y Farmacéutica de Cuba (BioCubaFarma).

El IFV detalló que Soberana 02 –primera vacuna conjugada contra la COVID-19 a nivel mundial– se comercializará en ese país como PastuCovac.

De acuerdo con una nota de prensa recibida desde Teherán, en la sesión intergubernamental Cabrisas expresó la voluntad del Gobierno cubano de profundizar y ampliar las relaciones económicas en la salud, la energía, la producción de alimentos y la agricultura.

Condenó las medidas coercitivas unilaterales que EE. UU. aplica contra la República Islámica de Irán, y agradeció la sistemática posición de la Cancillería iraní en contra del bloqueo económico, comercial y financiero que impone EE. UU. a Cuba, así como su oposición a la inclusión de la Isla en la lista de Estados patrocinadores del terrorismo.

Bahram Einollahi, por su parte, manifestó su satisfacción por el excelente estado de las relaciones políticas alcanzado por ambas naciones, y reafirmó el interés de su Gobierno por elevar los nexos económicos, comerciales, financieros y de cooperación.

Fuente: Granma. Disponible en https://bit.ly/3sSfx9o

COVID-19: la clave podría estar en la nariz

16 may. Las vacunas contra la COVID-19 actuales se desarrollaron a una velocidad sin precedentes y superaron las expectativas en cuanto a su eficacia. Los miles de millones de personas protegidas por ellas han evitado síntomas graves, hospitalizaciones y muertes. Estas vacunas son un éxito científico inmenso. Y, sin embargo, podrían ser aun mejores.

El virus ha evolucionado y el mundo necesita una siguiente generación de vacunas para responder. Esto incluye vacunas que prevengan las infecciones por coronavirus por completo.

Cuando se autorizaron las primeras vacunas de ARN mensajero (ARNm) en diciembre del 2020, el mundo se enfrentaba a un tipo diferente de pandemia. La cepa dominante entonces tenía una capacidad relativamente baja para propagarse entre las personas. En ese momento, las vacunas de ARNm no solo brindaban una fuerte protección contra enfermedades graves y muerte, sino que también protegían contra infecciones y la propagación del virus.

Pero el SARS-CoV-2 continuó mutando y, al hacerlo, ha dado lugar a variantes más contagiosas y altamente capaces de escapar de los anticuerpos protectores, causando infecciones generalizadas, a pesar de los niveles cada vez mayores de inmunidad conseguidos por las vacunas y las infecciones previas. Afortunadamente, después de la dosis de refuerzo, las vacunas de ARNm siguen siendo muy eficaces para prevenir hospitalizaciones y muertes, incluso contra la variante Ómicron.

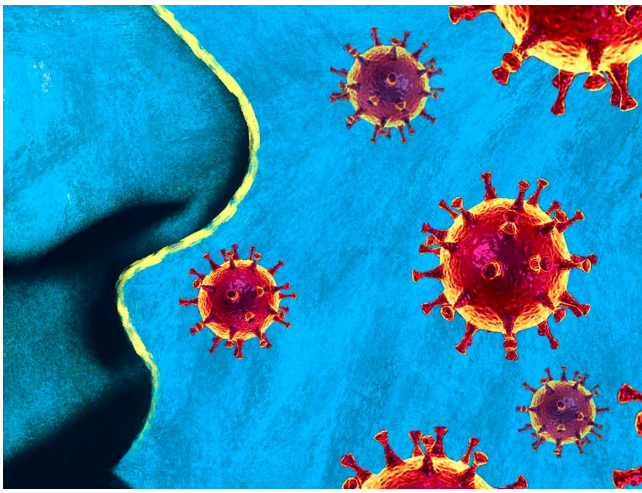
Entonces, cabe preguntarse: si ya podemos eliminar gran parte de la enfermedad grave y el riesgo de muerte mediante una combinación de vacunas y tratamientos existentes en la actualidad, ¿por qué deberíamos preocuparnos por las infecciones?

Porque incluso las infecciones leves pueden convertirse en un cuadro de COVID-19 prolongado, y las personas que las sufren pueden experimentar síntomas debilitantes y duraderos. Asimismo, las infecciones periódicas pueden suponer trastornos sustanciales en la vida de las personas, afectando su capacidad para trabajar y mantener a sus hijos. Tampoco hay garantías de que las personas infectadas con ómicron permanezcan protegidas contra infecciones de futuras variantes.

Un cambio que podría hacer que las vacunas sean más efectivas es que puedan detener al virus justo cuando ingresa al cuerpo. Esto podría reducir las infecciones por completo, así como la propagación del virus.

Las vacunas contra la COVID-19 disponibles en la actualidad se inyectan en los músculos del brazo y son altamente capaces de combatir el virus una vez que las personas están infectadas. Pero no tienen tanto éxito para evitar que las personas se infecten. Para ello, lo ideal sería evitar que el virus se propague justo en el sitio en el que las personas se infectan: la cavidad nasal.

Grupos de científicos estamos trabajando en vacunas nasales contra la COVID-19 por esa misma razón. Idealmente, una vacuna nasal podría ingresar a la capa de moco dentro de la nariz y ayudar al organismo a producir anticuerpos que capturen al virus antes de que tenga la oportunidad de adherirse a las células de las personas.



Al atrapar al virus justo en el sitio de la infección, los anticuerpos inducidos por las vacunas nasales podrían darle al organismo una ventaja para combatir el virus antes de que cause síntomas. Las vacunas nasales no solo podrían estar mejor posicionadas para prevenir infecciones, sino que también podrían desarrollar el mismo tipo de protección del sistema inmunológico que otras vacunas, e incluso más fuerte porque esta memoria inmunológica está en la puerta de entrada del virus.

Este tipo de vacunas se ha considerado tradicionalmente más difícil de fabricar. La capa de moco es una barrera formidable. El cuerpo tampoco genera una respuesta inmune robusta simplemente rociando cualquier vacuna convencional en la nariz.

La buena noticia es que los científicos creemos que hemos encontrado una forma de solucionar este problema para el SARS-CoV-2. Hemos demostrado en estudios con animales que podemos rociar las llamadas proteínas de punta del virus en la nariz de un huésped previamente vacunado y reducir significativamente la infección en la nariz y los pulmones, así como brindar protección contra la enfermedad y la muerte. La combinación de este enfoque con los esfuerzos en curso para desarrollar una vacuna única para una gama más amplia de coronavirus también podría ofrecer protección a las personas contra futuras variantes.

La gran pregunta es cuánto duraría la inmunidad de una vacuna nasal. Hasta ahora, en estudios con

animales, los anticuerpos y las células inmunitarias de memoria persisten en la nariz durante meses. Si esta inmunidad disminuyera con el tiempo, se podría usar el aerosol nasal como refuerzo cada cuatro o seis meses. Animar a las personas a obtener sus refuerzos contra la COVID-19 es fundamental. Y la resistencia para un refuerzo de aerosol nasal podría ser menor que para una inyección de aguja.

El mundo necesita desesperadamente una estrategia de vacunas que coloque guardias inmunológicos fuera de las puertas para evitar que los invasores virales nos infecten. Además, cualquier éxito que tengamos en el desarrollo de una vacuna nasal contra la COVID-19 no se limitará a este virus. Las estrategias de las vacunas en aerosol nasal también se pueden aplicar en otros patógenos respiratorios.

Si bien aún quedan algunos obstáculos, vale la pena centrarse en los posibles beneficios inmunológicos y para la salud pública de las vacunas en aerosol nasal, ahora y en los años siguientes.

Fuente: El Comercio. Disponible en https://bit.ly/3Gi9Tmn

La FDA autoriza que niños de 5 a 11 años reciban vacuna de refuerzo contra la COVID-19

17 may. La Administración de Alimentos y Medicamentos de EE.UU. (FDA por sus siglas en inglés) otorgó una autorización de uso de emergencia para que los niños de 5 a 11 años reciban un refuerzo de la vacuna contra la COVID-19 de Pfizer/BioNTech, al menos cinco meses después de completar el primer esquema de vacunación.

Pfizer solicitó esta autorización de uso de emergencia a finales de abril, citando datos de la compañía que mostraron que una tercera dosis de vacuna aumentaba los anticuerpos contra la variante Ómicron 36 veces en este grupo de edad.

"Aunque el caso ha sido que ampliamente la COVID-19 tiende a ser menos grave en los niños que en los adultos, la ola de Ómicron ha llevado a más niños enfermarse y a ser hospitalizados. Y los niños también pueden experimentar efectos a más largo plazo, incluso después de presentar inicialmente una enfermedad leve", señaló este martes el comisionado de la FDA, el Dr. Robert Califf, en un comunicado de prensa. "La FDA autoriza el uso de una sola dosis de refuerzo de la vacuna de Pfizer-BioNTech contra la COVID-19 para niños de 5 a 11 años de edad, con el fin de proporcionar una protección continua" contra el virus.

Investigaciones del Departamento de Salud del Estado de Nueva York y de los Centros para el Control y la Prevención de Enfermedades de EE.UU. (CDC, por sus siglas en inglés) encontraron que la eficacia de dos dosis de la vacuna de Pfizer en niños de 5 a 12 años se redujo sustancialmente durante el aumento de la ola de Ómicron, cayendo del 68% a alrededor del 12% contra la infección. Sin embargo, la dos dosis continuaron protegiendo contra la enfermedad más grave que resulta en atención de urgencia u hospitalizaciones.

Los funcionarios de salud pública han instado a los estadounidenses a estar al día en la vacunación contra la COVID-19, incluidas todas las dosis de refuerzo recomendadas. Esto como la mejor manera de

protegerse a sí mismos y a las personas que los rodean.

Un análisis reciente que hizo CNN de los datos de los CDC mostró que quienes en febrero estaban completamente vacunados y tenían una dosis de refuerzo, el riesgo de morir por COVID-19 fue 20 veces menor que para las personas no vacunadas de 12 años o mayores.

Refuerzo de la vacuna contra la COVID-19 aumenta anticuerpos contra la variante Ómicron en niños de 5 a 11 años, aseguran Pfizer y BioNTech

El Comité Asesor sobre Prácticas de Inmunización de los CDC se reunirá este jueves para debatir sobre los refuerzos de la vacuna contra el covid-19. Aunque no se ha publicado la agenda de la reunión, hay una votación programada, según el Registro Federal.

La decisión de este martes significa que cualquier persona mayor de 5 años ahora es elegible para recibir al menos una dosis de refuerzo.

Las personas mayores de 50 años y las personas mayores de 12 años que están inmunosuprimidos son elegibles para dos dosis de refuerzo.

Moderna también solicitó la autorización de la FDA para una segunda vacuna de refuerzo contra el covid-19 en todas las personas mayores de 18 años. Sin embargo, aún no se ha tomado una decisión al respecto.

Fuente: CNN en español. Disponible en https://cnn.it/3yW6bNU

Colombia aprueba segunda dosis de refuerzo de vacuna contra COVID-19 para mayores de 50 años

17 may. Colombia aprobó aplicar un segundo refuerzo de vacunas contra el COVID-19 a todas las personas mayores de 50 años como parte de su estrategia para combatir la pandemia, después de que alcanzó la meta de un 70% de su población inmunizada con doble dosis, anunció el viernes el presidente Iván Duque.

El país sudamericano de 50 millones de habitantes eliminó el uso de tapabocas en algunos espacios cerrados en todas las ciudades y municipios que superaron un 70% de su población vacunada, aunque aún es obligatorio en los sistemas de transporte público y en los centros médicos.

“Será importante para seguir protegiéndonos, salvando vidas y dando confianza a la población”, dijo Duque en un acto de Gobierno. También, se precisó que el segundo refuerzo podrá ser aplicado a partir del cuarto mes de haber recibido el primero o la tercera dosis.

El segundo refuerzo ya venía aplicándose a las personas con inmunodeficiencias o trasplantadas.

“Nos sentimos orgullosos de que más del 83% de los colombianos tiene, al menos, una dosis”, agregó.

Colombia impuso restricciones a la movilidad y cuarentenas para enfrentar la pandemia, como muchos otros países. Ahora, aplica a su población vacunas de Sinovac, Janssen, Pfizer, Moderna y AstraZeneca. Para el segundo refuerzo se aplicarán vacunas de Pfizer y Moderna, precisó Duque.

“Hoy hemos cumplido la meta que nos trazamos en el Plan Nacional de Vacunación de llegar al 70% de la población colombiana con doble dosis de vacuna. Es un logro en medio de esta pandemia, es un logro de trabajo en equipo como nación y como país”, afirmó Duque..

La pandemia de COVID-19 ha contagiado en Colombia a más de seis millones de personas. Además, ha causado la muerte a 139.809, según estadísticas oficiales del Ministerio de Salud.

Europa planea suprimir la obligatoriedad de la mascarilla en los vuelos la próxima semana

A partir del 16 de mayo las mascarillas dejarán de ser obligatorias en los aeropuertos y en los vuelos en Europa. Esto fue anunciado este miércoles por la Agencia Europea de Seguridad Aérea (AESA) y el Centro Europeo para la Prevención y el Control de las Enfermedades (ECDC).

"A partir de la próxima semana, las mascarillas dejarán de ser obligatorias en los viajes aéreos en todos los casos. Esto se alineará ampliamente con los requisitos cambiantes de las autoridades nacionales en toda Europa para el transporte público". Información brindada por el director ejecutivo de la EASA, Patrick Ky.

Italia, Francia, Bulgaria y otros países europeos están relajando o poniendo fin a muchas o todas sus medidas para prevenir la propagación del coronavirus.

Varias aerolíneas estadounidenses dijeron que dejarían de exigir mascarillas en abril, después de que un juez federal de Florida dictaminara que el mandato de la administración estadounidense sobre las mascarillas en el transporte público era ilegal.

La directora del ECDC, Andrea Ammon, dijo que, aunque el uso de mascarillas no sea obligatorio, "es importante tener en cuenta que, junto con el distanciamiento físico y una buena higiene de las manos, es uno de los mejores métodos para reducir la transmisión".

Se espera que las normas sobre el uso de mascarillas varíen una vez que se levante la obligatoriedad, y que las compañías aéreas alienten a los pasajeros a usar mascarillas en los vuelos con destinos en los que todavía se exige el uso de una mascarilla en el transporte público, dijeron las organizaciones.

Fuente: OCEANO Medicina Magazine. Disponible en https://bit.ly/3NzvcSQ

WHO validates 11th vaccine for COVID-19

May 19. The World Health Organization (WHO) issued an emergency use listing (EUL) for CONVIDECIA, a vaccine manufactured by CanSino Biologics, China, adding to a growing portfolio of vaccines validated by WHO for the prevention of COVID-19 caused by SARS-CoV-2.

WHO's EUL procedure assesses the quality, safety and efficacy of COVID-19 vaccines as a prerequisite for COVAX vaccine supply. It also allows countries to expedite their own regulatory approval to import and administer COVID-19 vaccines.

CONVIDECIA was assessed under the WHO EUL procedure based on the review of data on quality, safety, efficacy, a risk management plan, programmatic suitability and a manufacturing site inspection conducted by WHO. The Technical Advisory Group for Emergency Use Listing, convened by WHO and made up of

regulatory experts from around the world, has determined that the vaccine meets WHO standards for protection against COVID-19 and that the benefits of the vaccine far outweigh risks.

CONVIDECIA is based on a modified human adenovirus that expresses the spike S protein of SARS-CoV-2. It is administered as a single dose.

CONVIDECIA was also reviewed earlier this month by WHO's Strategic Advisory Group of Experts on Immunization (SAGE), which formulates vaccine specific policies and recommendations for vaccines' use in populations (i.e. recommended age groups, intervals between shots, specific groups such as pregnant and lactating women).

The SAGE recommends use of the vaccine as a single (0.5ml) dose, in all age groups 18 and above.

CONVIDECIA was found to have 58% efficacy against symptomatic disease and 92% against severe COVID-19.

Fuente: World Health Organization. Disponible en https://bit.ly/3Gi8uwo

ALERTA COVID Ómicron: la vacuna Pfizer que se usa en Argentina mostró un desplome en la protección, incluso en las dosis de refuerzo

19 may. Así lo señaló un estudio publicado en la revista *Journal of the American Medical Association*. Según se advierte, la inmunidad contra la variante de Ómicron de coronavirus, "se desvanece rápidamente después de una segunda y tercera dosis".

La vacuna de Pfizer - Biotech "desvanece rápidamente" su grado de inmunidad frente a la variante Ómicron de coronavirus (COVID 19), "incluso después de una segunda y tercera dosis", advirtió un análisis realizado por científicos daneses y publicado este viernes en la revista JAMA Network Open.

De acuerdo a la investigación, la proporción de anticuerpos disminuyó del 76 % cuatro semanas después de la segunda inyección al 19 % en las semanas 12 a 14. "Los anticuerpos disminuyeron aún más rápido después de la tercera dosis, la inyección de refuerzo", amplia el estudio.

Además, entre la tercera y la octava semana, los anticuerpos se redujeron 5,4 veces respecto a Ómicron.

La corresponsal médica en jefe de ABC News, la Dra. Jennifer Ashton, señaló al referirse al informe que "es posible" que los refuerzos repetidos "en realidad puedan debilitar el sistema inmunológico".

"Recibir una vacuna de refuerzo es una buena idea para las personas mayores que tienen afecciones subyacentes crónicas pero todos los demás, no crean que más impulso es la respuesta", remarcó la sanitarista. "Todavía no sabemos si ese es el caso", amplió.

El abril, un alto funcionario de la Administración de Alimentos y Medicamentos (FDA por sus siglas en inglés) aseguró que una cuarta dosis de refuerzo contra el COVID debería verse como una medida provisional e insistió que "simplemente no podemos estimular a las personas con tanta frecuencia como lo hacemos", según repasó el portal WND.

En la misma línea, los datos previos de los Centros para el Control y Prevención de Enfermedades (CDC) y del gobierno del Reino Unido también alertaron por la eficacia de las vacunas contra la COVID-19, "no sólo son ineficaces para prevenir los casos y la transmisión, sino que pierden rápidamente la protección contra enfermedades graves o la muerte al mismo tiempo que presentan riesgos".

Además, un estudio a largo plazo recientemente publicado en la revista británica The Lancet y que también evaluó a los participantes en los ensayos de las vacunas de Moderna y Pfizer, encontró que las vacunas no tuvieron ningún efecto sobre la mortalidad general.

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

Ensayos Clínicos: rigor, tiempo y precisión por la salud

20 may. *Vacuna* fue declarada palabra de 2021, pero antes de certificarlas, estos productos pasan por ensayos clínicos los cuales marcan el ritmo de las investigaciones, y son procesos que celebran su Día Mundial.

La llegada de la pandemia de COVID-19 en 2020 puso pausa a muchos eventos, pero agilizó y redimensionó los tiempos de dichos estudios que, como diría en una entrevista a Prensa Latina, el director del Instituto Finlay de Vacunas de Cuba, Vicente Verez, tuvieron que hacerse en “tiempos de ratón”.

Fue esa enfermedad la que empujó las investigaciones a velocidades récords y los ensayos de medicamentos para tratarla y de vacunas, a fin de prevenirla o evitar que los pacientes lleguen a estadios graves y críticos, experimentaron cambios sin precedentes en la historia.

Solo en Cuba, con respecto a la COVID-19, desde marzo de 2020 hasta el 20 de abril de 2021, la máxima dirección de Salud del país aprobó 28 ensayos clínicos para prevenir y tratar ese mal, de ellos cuatro terminaron en el 2020.

En declaraciones exclusivas a Prensa Latina, directivos del Centro Nacional Coordinador de Ensayos Clínicos (CENCEC) señalaron que hasta el cierre de 2021 la entidad había tenido participación en 130 ensayos clínicos en el país, en cualquiera de sus etapas.

De esa cifra, 43 estaban destinados al tratamiento del cáncer y 42 relacionados con la Covid-19, desde las vacunas hasta fármacos innovadores como el Nimotizumab, Jusvinza, la Biomodulina T y la Gamma Hiperinmune.

Al conversar con la subdirectora de Ensayos Clínicos del CENCEC, la Máster en Ciencias Mayté Amoroto dijo que dicha entidad prevé para este 2022 realizar otros 62 ensayos clínicos nacionales e internacionales.

Cuba logró tres vacunas propias aprobadas para uso en emergencias contra la COVID-19 (Soberana 02, Soberana Plus y Abdala) y dos candidatos en desarrollo (Soberana 01 y Mambisa), el último, figura entre los 11 del mundo diseñado con formas de aplicación nasal.

De hecho, la Abdala se convirtió en la primera de América Latina en obtener esa aprobación.

Aunque más del 89 por ciento de todos los cubanos ya cuentan con esquema de inmunización completo y unos siete millones poseen además el refuerzo antiCovid-19, la nación caribeña no detiene los ensayos en esta rama. Recientemente los científicos dedicados a las actividades de enfrentamiento a la pandemia presentaron el diseño de nuevos ensayos clínicos y otras acciones que se evalúan hoy como parte de la estrategia de vacunación.

Se trata de un estudio denominado Pequeñuelo, previsto para ser fase I/II, cuyo promotor es el Centro de Ingeniería Genética y Biotecnología (CIGB) con la vacuna Abdala, y se desarrollará en La Habana en lactantes de 6 a 11 meses de edad, a fin de evaluar la seguridad e inmunogenicidad de esa vacuna.

El otro ensayo propuesto al Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED), autoridad reguladora de la nación caribeña, es Soberana Chiquitines a cargo del Instituto Finlay de Vacunas y ocurrirá en la capital cubana y en la ciudad de Cienfuegos.

La jefa del Programa Provincial de Vacunación de la central provincia de Cienfuegos, señaló que todo se ha organizado y las vacunas se encuentran en cada uno de los policlínicos y serán sujetos de estos ensayos 114 mil 434 niños menores de dos años.

Un ensayo clínico es una metodología de investigación que se realiza con la participación de seres humanos como voluntarios, para evaluar el efecto de una intervención de medicamentos, equipos o dispositivos médicos en un problema de salud concreto.

A este se llega una vez vencidos los estudios preclínicos (de farmacología y toxicología) en células y luego en animales de laboratorio, los de formulación y estabilidad del producto farmacéutico, a partir de las regulaciones establecidas.

Cada 20 de mayo, desde 2005, los científicos de todo el mundo celebran el Día Internacional del Ensayo Clínico, con el objetivo de dar a conocer al público en qué consiste la labor científica detrás de una vacuna o un medicamento para una enfermedad concreta.

La fecha conmemora el primer ensayo clínico de la historia, realizado por el doctor escocés James Lind en 1747, que sentó las bases para la investigación clínica al tratar de identificar la ausencia de la vitamina C como causa del escorbuto que afectaba a los marineros de la Armada Británica.

Fuente: Prensa Latina. Disponible en https://bit.ly/38Q3na9

COVAX pide "medidas urgentes" para acabar con la "inequidad" en las vacunas contra la COVID-19

20 may. El mecanismo COVAX, liderado por la Organización Mundial de la Salud (OMS) y la Alianza de Vacunas GAVI, ha pedido "medidas urgentes" para que el mundo consiga acabar con la "inequidad" en la distribución de las vacunas contra la COVID-19.

"Casi 18 meses después de la primera administración de la vacuna, se han realizado increíbles progresos: los países de menores ingresos han administrado miles de millones de vacunas en un despliegue mundial

histórico que no tiene precedentes COVAX en cuanto a la velocidad, la escala y la demografía alcanzada. Sin embargo, a pesar de estos avances y de la disminución de las limitaciones de suministro a nivel mundial, las desigualdades entre los países de ingresos bajos y los de ingresos altos siguen costando vidas y están prolongando la pandemia al aumentar la amenaza que supone la aparición de nuevas variantes del virus potencialmente más peligrosas", ha lamentado la organización a través de un comunicado.

De hecho, según los datos de COVAX, sólo el 16 por ciento de los habitantes de los países de bajos ingresos ha recibido una sola dosis de vacuna, en comparación con el 80 por ciento de los países de altos ingresos.

"En algunos países de renta baja, muchas de las personas de mayor riesgo de la sociedad (trabajadores sanitarios, ancianos y personas con enfermedades subyacentes) están sin protección, mientras que los adultos jóvenes y sanos reciben dosis de refuerzo en los países más ricos. El mundo debe actuar urgentemente para cerrar esta brecha de equidad", ha reclamado COVAX.

En este sentido, insisten en que el suministro mundial es ahora "lo suficientemente alto como para respaldar el objetivo general de apoyar la vacunación equitativa y completa de toda la población adulta y adolescente a nivel mundial".

"COVAX tiene acceso a dosis más que suficientes para permitir a 91 países de bajos ingresos cumplir con sus objetivos a la luz del objetivo global de la OMS de proteger al 70 por ciento de la población en cada país. Podemos apoyar a estos países para que cumplan sus objetivos individuales y den prioridad a la cobertura total de los grupos de alto riesgo", apuntan.

Asimismo, COVAX también ha asegurado que "está en condiciones de entregar estas dosis para que lleguen a quienes las necesitan". "En sólo 15 meses, COVAX ha enviado más de 1.400 millones de vacunas a 87 países de renta baja y media-baja de todo el mundo. Los envíos de COVAX representan el 82 por ciento de las vacunas entregadas a los países de bajos ingresos y la mayoría de las vacunas COVID-19 administradas en contextos humanitarios", remachan.

Fuente: Infosalus. Disponible en https://bit.ly/3lC991Y

Cuba lidera a nivel mundial la administración de vacunas contra la COVID-19

21 may. El canciller de Cuba, Bruno Rodríguez Parrilla, destacó hoy el alto índice que presenta la Isla en la administración de dosis de vacunas contra la COVID-19 por cada 100 habitantes, indicador en el que exhibe un liderazgo mundial.

En un mensaje difundido en Twitter, el jefe de la diplomacia cubana informó que el país presenta actualmente un índice de 321.61 dosis

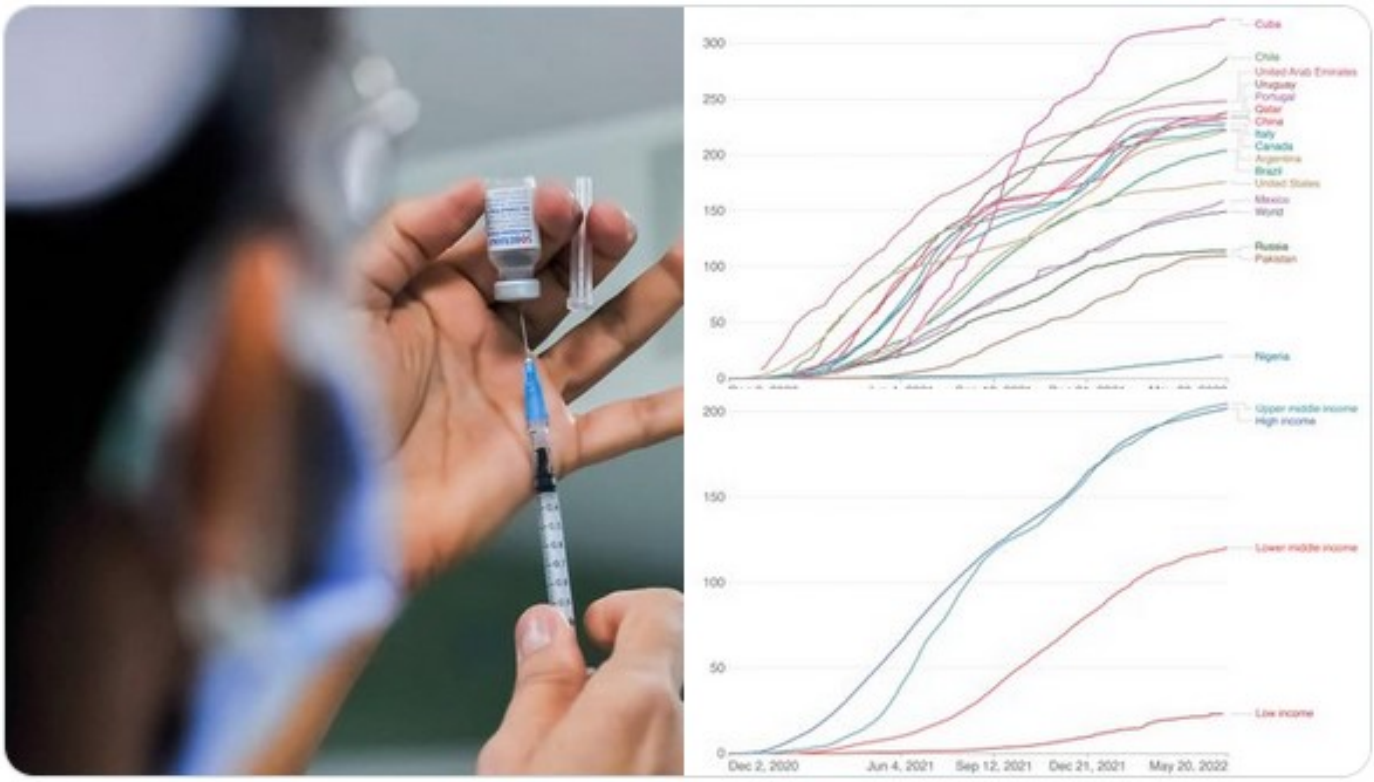
administradas por cada 100 habitantes, con lo que supera a naciones de altos ingresos. Añadió que el 96.7% de la población cubana vacunable cuenta con esquema completo y el 80.9% recibió un refuerzo.

El país ha desarrollado su estrategia de inmunización, utilizando mayormente vacunas propias sobre plataformas tecnológicas de probada seguridad y eficacia durante más de 30 años.

Cuba fue la primera nación que inmunizó a su población pediátrica contra la COVID-19, lo que permitió que niños y adolescentes se incorporaran a las aulas con mayor protección.

Los ensayos clínicos con inmunógenos cubanos continúan destacándose, uno con niños menores de dos años de edad y otro con un candidato vacunal de administración por vía nasal.

Las vacunas cubanas se utilizan en una decena de países y la Organización Mundial de la Salud recibirá próximamente el expediente de dos de ellas para su autorizo de uso de emergencia.



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

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Estrategia de búqueda: *Vaccine in the title or abstract AND 20220514:20220521 as the publication date 45 records.*

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WO - 12.05.2022
Clasificación Internacional G16H 40/20 Nº de solicitud PCT/CN2021/098099 Solicitante SHEN SU AUTOMATION TECHNOLOGY DEVELOPMENT CO., LTD Inventor/a YANG, Wei
Provided is an intelligent reservation method for a vaccine not covered by an immunization program, comprising: when a parent initiates a vaccine reservation via a children vaccine reservation terminal, a vaccine terminal management platform acquiring current vaccine reservation parameter information of the children vaccine reservation terminal; the parent configuring, according to actual needs, a reservation by using reservation parameter information acquired from the children vaccine reservation terminal and relating to a current vaccine not covered by an immunization program, and sending submitted configured-reservation content to a vaccine terminal management server; the vaccine terminal management server using the received configured-reservation content to generate and store configured-reservation information, and sending same to the vaccine terminal management platform; and after receiving the configured-reservation information, the vaccine terminal management platform configuring, by means of a vaccination configuration module, a vaccine reservation with respect to the configured-reservation content submitted by the children vaccine reservation terminal. The invention solves the existing problems of bad communication of information and uncoordinated services for supply and demand sides of vaccines not covered by immunization programs.

2.WO/2022/099022METHOD OF TREATING A TUMOR WITH A COMBINATION OF AN IL-7 PROTEIN AND A NUCLEOTIDE VACCINE
WO - 12.05.2022
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/US2021/058273 Solicitante NEOIMMUNETECH, INC. Inventor/a LEE, Byung Ha
The present disclosure relates to methods of treating a tumor with a nucleotide vaccine (e.g., DNA vaccine encoding a tumor antigen) in combination with an IL-7. In some aspects, the IL-7 is administered after the administration of the nucleotide vaccine (e.g., after the peak expansion phase of the tumor-specific T cell immune response) or concurrently with the nucleotide vaccine.

3.WO/2022/098184RECOMBINANT COVID-19 VACCINE COMPOSITION COMPRISING LIPOPEPTIDE AND POLY (I:C) ADJUVANT, AND USE THEREOF
WO - 12.05.2022
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/KR2021/016107 Solicitante CHA VACCINE RESEARCH INSTITUTE CO., LTD Inventor/a YUM, Jung Sun
The present invention relates to a recombinant COVID-19 vaccine composition comprising a lipopeptide and a poly(I:C) adjuvant. The vaccine composition for preventing or treating COVID-19, provided in one aspect of the present invention, can greatly induce both a humoral immune response and a cellular immune response to a recombinant COVID-19 antigen, and thus can be developed as a COVID-19 vaccine so as to be commercially and effectively usable.

4.20220143165VACCINE COMPOSITIONS COMPRISING AN AMPHIPATHIC COMPOUND, A NEOANTIGEN AND A HYDROPHOBIC CARRIER, AND METHODS OF USE THEREOF
US - 12.05.2022

Clasificación Internacional A61K 39/00 Nº de solicitud 17580728 Solicitante IMMUNOVACCINE TECHNOLOGIES INC. Inventor/a Marianne STANFORD
The present application relates to vaccine compositions comprising an amphipathic compound, a neoantigen and a hydrophobic carrier. Further described are methods and use of the vaccine composition for inducing an antibody immune response and/or a cell-mediated immune response to the neoantigen, as well as methods and uses of the vaccine compositions in the treatment of cancer.

5.WO/2022/102894CORONAVIRUS VACCINE USING REPLICATION-DEFICIENT ADENOVIRUS THAT SIMULTANEOUSLY EXPRESSES CORONAVIRUS SPIKE PROTEIN AND NUCLEOCAPSID PROTEIN
WO - 19.05.2022
Clasificación Internacional C12N 15/86 Nº de solicitud PCT/KR2021/006981 Solicitante BIOLEADERS CORPORATION Inventor/a CHOI, Joung Woo
The present invention relates to a recombinant adenovirus in which coronavirus spike protein and nucleocapsid protein are expressed in the form incorporated into the E1 region and the E3 region of a replication-deficient adenovirus, and a coronavirus vaccine using same. A vaccine composition according to the present invention can induce a humoral immune response and a cell-mediated immune response, thereby evoking immune responses to COVID-19.

6.WO/2022/100459NOVEL VACCINE FOR PREVENTING AND TREATING MERKEL CELL CARCINOMA
WO - 19.05.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/CN2021/127386 Solicitante ADVACCINE (SUZHOU) BIOPHARMACEUTICALS CO.LTD Inventor/a HE, Yue
A novel vaccine for preventing and treating Merkel cell carcinoma. By taking a polyomaviral capsid protein VP1 against Merkel cell carcinoma as an antigen and combining same with a TLR agonist, a therapeutic vaccine based on a polyomaviral capsid protein VP1 against Merkel cell carcinoma is constructed.

7.WO/2022/103891MULTIVALENT CARRIERS AND RELATED VACCINE COMPOSITIONS
WO - 19.05.2022
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/US2021/058856 Solicitante CALIFORNIA INSTITUTE OF TECHNOLOGY Inventor/a COHEN, Alexander, A.
Disclosed herein include multivalent carriers comprising a plurality of heterologous coronavirus proteins antigens derived from different coronaviruses. The multivalent carriers herein described can elicit heterologous binding and neutralization properties against coronaviruses that differ from the coronaviruses from which the coronavirus antigens are derived to produce the multivalent carriers. Also provided herein include vaccine compositions comprising the multivalent carriers and related methods using the vaccine compositions in various therapeutic and prophylactic applications.

8.WO/2022/103126CORONAVIRUS VACCINE USING REPLICATION-INCOMPETENT ADENOVIRUS THAT SIMULTANEOUSLY EXPRESSES CORONAVIRUS SPIKE PROTEIN AND NUCLEOCAPSID PROTEIN
WO - 19.05.2022
Clasificación Internacional C12N 15/86 Nº de solicitud PCT/KR2021/016258 Solicitante BIOLEADERS CORPORATION Inventor/a CHOI, Joung Woo
The present invention relates to: a recombinant adenovirus in which coronavirus spike and nucleocapsid proteins and PgsA are expressed in the form inserted into the E1 region and the E3 region of a replication-incompetent adenovirus; and a coronavirus vaccine using same. A vaccine composition according to the present invention can induce immune responses to SARS-CoV-2 and a mutant virus thereof by inducing a humoral immune response and a cell-mediated response.

9.WO/2022/096792THERAPEUTIC VACCINE COMPRISING A SPECIFIC ANTIGEN OF A DISEASE THAT DOES NOT AFFECT THE CENTRAL NERVOUS SYSTEM AND NANOPARTICLES, AND USE OF SAID VACCINE
WO - 12.05.2022
Clasificación Internacional A61K 39/00 Nº de solicitud PCT/FR2021/051655 Solicitante VAXINANO Inventor/a BETBEDER, Olivier
The invention relates to the field of therapeutic vaccines. More particularly, it relates to a therapeutic vaccine for treating individuals who are carriers of a disease or pathogen that does not affect the brain, such as leishmaniasis, cancer or any pathogenic infection.

10.WO/2022/103967PROTEIN-BASED NANOPARTICLE VACCINE FOR METAPNEUMOVIRUS
WO - 19.05.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/058989 Solicitante ICOSAVAX, INC. Inventor/a FELDHAUS, Andrew Lawrence
Provided are virus-like particle vaccines for human metapneumovirus (hMPV) in which the ectodomain of hMPV F protein is linked to, and thereby displayed on, a symmetric protein-based virus-like particle. For example, the vaccine antigen may be a N-terminal fusion of the ectodomain of hMPV F protein to a protein having a multimerization domain for a one- or two-component virus-like particle, such as a two-component icosahedral virus-like particle. Further provided are vaccine compositions, methods of manufacturing, and methods of use, e.g., immunizing a subject to generate a protective immune response to hMPV.

11.20220144877RNA SEQUENCE ADAPTATION
US - 12.05.2022
Clasificación Internacional C07H 1/06 Nº de solicitud 16762081 Solicitante CureVac AG Inventor/a Stefan HEINZ
The present invention is directed to a method for modifying the retention time of RNA on a chromatographic column. The present invention also concerns a method for purifying RNA from a mixture of at least two RNA species. Furthermore, the present invention relates to a method for co-purifying at least two RNA species from a mixture of at least two RNA species. In particular, the present invention provides a method for harmonizing the numbers of A and/or U nucleotides in at least two RNA species. The present invention is also directed to RNA obtainable by said methods, a composition comprising said RNA or a vaccine comprising said RNA and methods for producing such RNA and compositions. Further, the invention concerns a kit, particularly a kit of parts, comprising the RNA, composition or vaccine. The invention is further directed to a method of treating or preventing a disorder or a disease, first and second medical uses of the RNA, composition and vaccine. Moreover, the present invention concerns a method for providing an adapted RNA sequence or an adapted RNA mixture.

12.20220143174MULTIVALENT KAPOSI SARCOMA-ASSOCIATED HERPESVIRUS-LIKE PARTICLES AND USES THEREOF
US - 12.05.2022
Clasificación Internacional A61K 39/245 Nº de solicitud 17431856 Solicitante CITY OF HOPE Inventor/a Javier Gordon OGEMBO
Disclosed are vaccine compositions comprising a single KSHV-LP comprising two or more KSHV glycoproteins and/rl or one or more T cell antigens and methods of preventing or treating KSHV infections using the vaccine compositions. Also disclosed is an expression system or a single expression vector for co-expressing two or more KSHV glycoproteins simultaneously to generate a vaccine comprising a single virus-like particle. The expression system may include a single plasmid inserted with two or more nucleic acid sequences that encode two or more KSHV glycoproteins linked by one or more linking sequences such that the KSHV glycoproteins are co-expressed simultaneously.

13.WO/2022/101302ANTIBODIES CONJUGATED OR FUSED TO THE RECEPTOR-BINDING DOMAIN OF THE SARS-COV-2 SPIKE PROTEIN AND USES THEREOF FOR VACCINE PURPOSES
WO - 19.05.2022
Clasificación Internacional C07K 16/28 Nº de solicitud PCT/EP2021/081303 Solicitante INSERM (INSTITUT NATIONAL DE LA SANTÉ ET DE LA RECHERCHE MÉDICALE) Inventor/a LEVY, Yves
SARS-CoV-2 vaccines will be essential to reduce morbidity and mortality. The inventors produced an antibody that is directed against a surface antigen (i.e. CD40) of an antigen presenting cell (i.e. dendritic cell) wherein the heavy chain was conjugated to the receptor-binding domain of the Sars-Cov-2 spike protein for its use as vaccine. In particular, the inventors show that said vaccine induces circulating Ab-secreting hu-B cells, elicits S-specific IgG+ hu-B cells, elicits the expansion of central memory CD4+ hu-T cells and the emergence of effector memory CD4+ T cells, elicits the expansion of central memory CD8+ hu-T cells at and the emergence of effector memory CD8+ T cells at and finally induces Stem-cell like memory hu-CD8+ T cells. The present invention thus relates to antibodies that are directed against a surface antigen of an antigen presenting cell wherein the heavy chain and/or the light chain is conjugated or fused to the receptor-binding domain of the Sars-Cov-2 spike protein.

14.WO/2022/099032T CELLS AND BIFUNCTIONAL PROTEIN AGAINST HUMAN PAPILLOMAVIRUS
WO - 12.05.2022
Clasificación Internacional C12N 5/0783 Nº de solicitud PCT/US2021/058284 Solicitante BIOVENTURES, LLC Inventor/a NAKAGAWA, Mayumi
Recombinant T cell clonotypes are provided that express T cell receptor alpha and T cell receptor beta polypeptides with specificity for human papillomavirus (HPV) type 16 E6 protein and that amplify in response to a therapeutic vaccine and traffic to ovarian lesional tissue in a patient whose HPV lesions regressed in response to the vaccine. Recombinant T cells expressing appropriate TCR alpha and beta complimentarity determining sequences for HPV 16 E6 binding and treating HPV-cased cancers are provided. Bifunctional proteins having TCR alpha and beta segments that bind to HPV 16 E6 residues 91-115 and a single chain Fv anti-CD3 antibody domain are provided. These bifunctional proteins can direct T cells to HPV-infected cells.

15.WO/2022/095987METHOD FOR PREPARING ADENOVIRUS VECTOR VACCINE BY MEANS OF PERFUSION CULTURE PROCESS
WO - 12.05.2022
Clasificación Internacional C12N 5/10 Nº de solicitud PCT/CN2021/129182 Solicitante CANSINO BIOLOGICS INC. Inventor/a XIAO, Meng
Provided is a method for preparing an adenovirus vector vaccine by means of a perfusion culture process. The method comprises a step of culturing adenovirus host cells, and in particular a step of adjusting the perfusion rate by means of at least two stages according to cell density. The method increases the single cell yield of a virus after infection and the specific activity of a virus harvest liquid while achieving high-density growth of adenovirus host cells.

16.WO/2022/098656GENE SHUFFLED LYSSAVIRUS VACCINE
WO - 12.05.2022
Clasificación Internacional A61K 39/205 Nº de solicitud PCT/US2021/057743 Solicitante THOMAS JEFFERSON UNIVERSITY Inventor/a SCHNELL, Matthias J.
The present invention includes a vaccine comprising a nucleic acid comprising (a) a nucleotide sequence encoding a rabies virus nucleoprotein (N) or a portion thereof and (b) a nucleotide sequence encoding a glycoprotein (G) (e.g., a RABV glycoprotein, a MOKV glycoprotein, or a chimeric MOKV/RABV glycoprotein), or a portion thereof positioned immediately 3' to the nucleoprotein (N) gene sequence.

17.20220143166MULTIVALENT PNEUMOCOCCAL POLYSACCHARIDE-PROTEIN CONJUGATE VACCINE
US - 12.05.2022
Clasificación Internacional A61K 39/09 Nº de solicitud 17312820 Solicitante Biological E Limited Inventor/a Rajendar BURKI
The present invention relates to multivalent pneumococcal polysaccharide-protein conjugates vaccine composition comprising pneumococcal capsular polysaccharide of one or more *Streptococcus pneumoniae* serotypes conjugated to one or more carrier proteins.

18.WO/2022/096039PROTEINA QUIMERICA QUE COMPRENDE EL DOMINIO DE UNION AL RECEPTOR DE LA PROTEINA DE LA ESPIGA DE CORONA VIRUS Y COMPOSICIONES QUE LAS COMPRENDEN
WO - 12.05.2022
Clasificación Internacional C07K 14/005 Nº de solicitud PCT/CU2021/050010 Solicitante CENTRO DE INGENIERIA GENETICA Y BIOTECNOLOGIA Inventor/a CHINEA SANTIAGO, Glay
La invención provee una proteína quimérica que posee una estructura modular y que comprende un dominio de unión al receptor (RBD) de la proteína de la espiga (S) de coronavirus, un segmento con capacidad de unión al antígeno de la nucleocápsida del virus de la hepatitis B (HBcAg), un segmento que comprende la secuencia de aminoácidos HHHHHH, y dos segmentos espaciadores. En la proteína quimérica los segmentos se disponen en un orden específico, y esta tiene la capacidad de formar nanopartículas híbridas con el HBcAg. La proteína quimérica forma parte de composiciones vacunales para la prevención de las infecciones causadas por coronavirus. Por tanto, la invención revela un método de prevención de una infección causada por coronavirus donde se administra una composición vacunal que comprende dicha proteína quimérica.

19.WO/2022/094721SARS-COV-2 CONSTRUCTS, VACCINES, AND METHODS
WO - 12.05.2022
Clasificación Internacional C07K 19/00 Nº de solicitud PCT/CA2021/051581 Solicitante THE HOSPITAL FOR SICK CHILDREN Inventor/a JULIEN, Jean-Philippe
Described herein is an anti-class II MHC antibody fused to a SARS-CoV-2 antigen. Also described is a vaccine comprising the antibody and methods for treating and/or preventing SARS-CoV-2, wherein the methods comprise administering the antibody to a subject in need thereof. In typical aspects, the vaccine is free of an adjuvant.

20.WO/2022/104265SCAFFOLDED ANTIGENS AND ENGINEERED SARS-COV-2 RECEPTOR-BINDING DOMAIN (RBD) POLYPEPTIDES
WO - 19.05.2022
Clasificación Internacional C07K 14/165 Nº de solicitud PCT/US2021/059525 Solicitante THE SCRIPPS RESEARCH INSTITUTE Inventor/a FARZAN, Michael
The present invention provides scaffolded antigens that have demonstrated improved biochemical and immunogenic properties. The invention also provides engineered SARS-CoV-2 immunogens that contain a modified receptor¬ binding domain (RBD) sequence. Also provided in the invention are vaccine compositions that contain the scaffolded antigens, including the engineered RBD polypeptides that are fused to the scaffold proteins described herein. The invention also provides methods of using such vaccine compositions in various therapeutic applications, e.g., for preventing or treating SARS-CoV-2 infections.

21.WO/2022/101456YEAST PLATFORM FOR THE PRODUCTION OF VACCINES
WO - 19.05.2022
Clasificación Internacional C12N 15/81 Nº de solicitud PCT/EP2021/081604 Solicitante SERYMUN YEAST GMBH Inventor/a MEHLGARTEN, Constance

The invention relates to the provision of recombinant yeast cells for the efficient and stable expression of transgenes, preferably for the expression of one or more immunogenic polypeptide(s) derived from a pathogen. The invention further relates to vaccine compositions comprising said recombinant yeast cells, uses of said recombinant yeast cells in methods for vaccination and5 methods for the production of a whole yeast vaccine comprising at least one diploid recombinant yeast cell of the invention. Further encompassed are methods for the provision of a diploid yeast cell from a wild type yeast strain.

22.20220143161MRNA VACCINE
US - 12.05.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 17435561 Solicitante eTheRNA immunotherapies NV Inventor/a Stefaan De Koker
The present invention in general relates to a combination of mRNA molecules encoding functional immunostimulatory proteins and a CTLA4 pathway inhibitor. In particular, it relates to a combination of one or more mRNA molecules encoding at least one functional immunostimulatory protein selected from the list comprising: CD40L, CD70 and caTLR4; and a CTLA4 pathway inhibitor, optionally also in the form of an mRNA molecule. The present invention further relates to vaccines comprising such combination, as well as uses of the combinations and vaccine of the present invention in human or veterinary medicine, in particular in the prevention and/or treatment of cell proliferative disorders.

23.20220143376VACCINATION USING HIGH-DENSITY MICROPROJECTION ARRAY PATCH
US - 12.05.2022
Clasificación Internacional A61M 37/00 Nº de solicitud 17442558 Solicitante Angus FORSTER Inventor/a Angus FORSTER
The present invention relates to microprojection arrays for the delivery of vaccines, in particular the use of polymer high density microprojection arrays for the delivery of vaccines to patients in which the dose of the vaccine delivered may be less than the dose of vaccine delivered by intramuscular injection while providing equal or superior immunogenicity.

24.WO/2022/098298SINGLE-USE ADAPTER ATTACHED TO DRUG/VACCINE VIALS COMPATIBLE WITH HYPODERMIC NEEDLES TO ENABLE INJECTION
WO - 12.05.2022
Clasificación Internacional A61M 11/00 Nº de solicitud PCT/SG2021/050664 Solicitante BECTON DICKINSON HOLDINGS PTE. LTD. Inventor/a LEE, Guan Bin
An adapter for attaching a needle to a pump actuated vial for injection of a vaccine or drug using a syringe-type injection motion while eliminating the time-consuming preparation of the injection device. The adapter includes a spray pump device having a first end defining a luer tip and a second end configured for accessing a media reservoir to receive a metered dose of flowable media. The luer tip is configured to be secured to a needle cannula to deliver the metered dose of the flowable media received from the spray pump device.

25.20220144924EPITOPES OF CLOSTRIDIUM DIFFICILE TOXINS A AND B AND USES THEREOF
US - 12.05.2022
Clasificación Internacional C07K 16/12 Nº de solicitud 17433743 Solicitante PREVIPHARMA CONSULTING GMBH Inventor/a Hanne Rieke GERDING
The present invention relates to a polypeptide comprising an epitope having a sequence homology of at least 75% to a sequence section of both *Clostridium difficile* toxin A and B. Moreover, the present invention refers to a vaccine comprising such polypeptide. The invention further relates to an antibody binding to *Clostridium difficile* toxins A and B and to a method for isolating and/or detecting such antibody and to uses of the polypeptides and antibodies.

26.WO/2022/101679NEW FELINE HERPES VIRUS VACCINE

WO - 19.05.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/IB2021/000814 Solicitante BOEHRINGER INGELHEIM VETMEDICA GMBH Inventor/a VISEK, Ann, Callie
The present invention relates i.a. to an EHV (Equine Herpesvirus) comprising a Feline Herpes Virus (FHV) Antigen encoding sequence inserted into ORF70 (US4) and/or ORF1/3. Furthermore, the present invention relates to methods for immunizing a feline comprising administering to such feline an immunogenic composition of the present invention. Moreover, the present invention relates to methods for the treatment or prophylaxis of clinical signs caused by Feline Herpes Virus in a feline.

27.WO/2022/103870SARS-CoV-2 VACCINES USING A LIVE ATTENUATED VIRUS
WO - 19.05.2022
Clasificación Internacional A61K 39/12 Nº de solicitud PCT/US2021/058829 Solicitante CHAN ZUCKERBERG BIOHUB, INC. Inventor/a MADHANI, Hiten D.
Vaccines prepared using live attenuated virus are disclosed. The live attenuated severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) comprising a viral genome that comprises one or more inactivating mutations in a sequence encoding a SARS-CoV-2 protein. Methods for making and using the live attenuated SARS-CoV-2 as a vaccine to elicit an immune response towards SARS-CoV-2 in order to prevent the development of COVID-19 or other coronavirus diseases are provided.

28.WO/2022/098467METHODS, COMPOSITIONS AND VACCINE FOR AUTOIMMUNE DISEASES AND ALLERGY TREATMENT
WO - 12.05.2022
Clasificación Internacional A61K 39/02 Nº de solicitud PCT/US2021/053823 Solicitante WANG, Tianxin Inventor/a WANG, Tianxin
Compositions, reagents, formulations and methods to treat disease including autoimmune diseases and allergy are described. The compositions comprise an antigen causing immune intolerance, an immunosuppressant in a sustained release formulation. The methods, compositions, formulations and reagents to treat allergy also relate to applying the combination of allergen and immune activity enhancing agent in a sustained release formulation to a subject in need.

29.20220143164NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST PROSTATE CANCER AND OTHER CANCERS
US - 12.05.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 17587536 Solicitante Immatics Biotechnologies GmbH Inventor/a Andrea MAHR
The present invention relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present invention relates to the immunotherapy of cancer. The present invention furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

30.20220143169METHOD OF CONFERRING A PROTECTIVE IMMUNE RESPONSE TO NOROVIRUS
US - 12.05.2022
Clasificación Internacional A61K 39/12 Nº de solicitud 17348045 Solicitante Takeda Vaccines, Inc. Inventor/a Charles RICHARDSON
The present invention relates to vaccine compositions comprising Norovirus antigens and adjuvants, in particular, mixtures of monovalent VLPs and mixtures of multivalent VLPs, and to methods of conferring protective immunity to Norovirus infections in a human subject.

31.20220143163NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST PROSTATE CANCER AND OTHER CANCERS
US - 12.05.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 17581054 Solicitante Immatics Biotechnologies GmbH Inventor/a Andrea MAHR
The present invention relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present invention relates to the immunotherapy of cancer. The present invention furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

32.20220143162NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST PROSTATE CANCER AND OTHER CANCERS
US - 12.05.2022
Clasificación Internacional A61K 39/00 Nº de solicitud 17581049 Solicitante Immatics Biotechnologies GmbH Inventor/a Andrea MAHR
The present invention relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present invention relates to the immunotherapy of cancer. The present invention furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

33.20220146513METHODS FOR DETECTING PEPTIDE/MHC/TCR BINDING
US - 12.05.2022
Clasificación Internacional G01N 33/569 Nº de solicitud 17532728 Solicitante Prognosys Biosciences, Inc. Inventor/a John Andrew ALTIN
Provided herein are compositions and methods for detecting the binding of a peptide to an MHC molecule, and the binding of a peptide:MHC complex to a TCR. In preferred embodiments, the compositions and methods are in a highly-multiplexed way. The compositions and methods disclosed herein can be used to provide direct information on which peptides are bound to an MHC molecule. Also provided is a method for simultaneously detecting a large number of peptides for binding to an MHC molecule and/or a T cell. A method for detecting competitive binding of a large number of peptides to an MHC molecule and/or a T cell is also disclosed. Also provided herein is a method for simultaneously detecting a large number of specific TCRs. The compositions and methods of the present invention are useful for vaccine design, research and monitoring of autoimmune and infectious disease, immunogenicity testing of therapeutics, and tissue typing.

34.WO/2022/098936SELECTING NEOANTIGENS FOR PERSONALIZED CANCER VACCINE
WO - 12.05.2022
Clasificación Internacional G16B 20/50 Nº de solicitud PCT/US2021/058162 Solicitante AMAZON TECHNOLOGIES, INC. Inventor/a HECKERMAN, David
Disclosed herein are methods for selecting one or more tumor-specific neoantigens from a tumor of a subject for a personalized immunogenic composition. Also disclosed herein are methods for treating cancer in a subject in need thereof by administering an immunogenic composition comprising tumor-specific neoantigens selected using the methods disclosed herein.

35.20220144833IMIDAZOQUINOLINE DERIVATIVES AND THEIR USE IN THERAPY

US - 12.05.2022
Clasificación Internacional C07D 471/04 Nº de solicitud 17582176 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a Helene G. BAZIN-LEE
This invention relates inter alia to novel imidazoquinoline derivatives and their use in therapy, particularly as vaccine adjuvants.

36.20220144865IMIDAZOQUINOLINE DERIVATIVES AND THEIR USE IN THERAPY
US - 12.05.2022
Clasificación Internacional C07F 9/6561 Nº de solicitud 17582150 Solicitante GLAXOSMITHKLINE BIOLOGICALS SA Inventor/a Helene G. BAZIN-LEE
This invention relates inter alia to novel imidazoquinoline derivatives and their use in therapy, particularly as vaccine adjuvants.

37.20220145343MATERIALS AND METHODS FOR THE PREPARATION OF BACTERIAL CAPSULAR POLYSACCHARIDES
US - 12.05.2022
Clasificación Internacional C12P 19/04 Nº de solicitud 17429299 Solicitante The Regents of the University of California Inventor/a Xi CHEN
Methods for preparing saccharide products such as bacterial capsular polysaccharides are provided. The methods include: forming a reaction mixture containing one or more bacterial capsular polysaccharide synthases, a sugar acceptor, and one or more sugar donors; and maintaining the reaction mixture under conditions sufficient to form the bacterial capsular saccharide product. Vaccine compositions containing bacterial capsular saccharide products prepared according to the methods are also described.

38.20220143175NOROVIRUS VACCINES
US - 12.05.2022
Clasificación Internacional A61K 39/295 Nº de solicitud 17418197 Solicitante Themis Bioscience GmbH Inventor/a Erich Tauber
The present invention provides immunogenic compositions, nucleic acid molecules and VLPs suitable as Norovirus vaccine candidates. Further provided are host cells for producing the biological material as well as methods for producing and/or purifying the immunogenic compositions and VLPs. Further provided is an immunogenic composition for use in methods of preventing/treating a Norovirus infection in a subject.

39.WO/2022/098728DNA ENCODED NANOPARTICLES AND METHOD OF USE THEREOF AS A CORONAVIRUS DISEASE 2019 (COVID-19) VACCINE
WO - 12.05.2022
Clasificación Internacional A61K 39/215 Nº de solicitud PCT/US2021/057859 Solicitante THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY Inventor/a KULP, Dan
Disclosed herein are nanoparticles comprising one or more SARS coronavirus 2 (SARS-CoV-2) Spike receptor binding domain (RBD) antigen and nucleic acid molecules encoding the same. Also disclosed herein is a method of treating a SARS-COV-2 infection or treating or preventing a disease or disorder associated therewith in a subject in need thereof, by administering the nanoparticles, or encoding nucleic acid molecules, to the subject.

40.20220143091NOVEL PEPTIDES AND COMBINATION OF PEPTIDES FOR USE IN IMMUNOTHERAPY AGAINST LUNG CANCER, INCLUDING NSCLC, SCLC AND OTHER CANCERS
US - 12.05.2022
Clasificación Internacional A61K 35/17 Nº de solicitud 17581260 Solicitante Immatics Biotechnologies GmbH Inventor/a Colette SONG
The present invention relates to peptides, proteins, nucleic acids and cells for use in immunotherapeutic methods. In particular, the present invention relates to the immunotherapy of cancer. The present invention

furthermore relates to tumor-associated T-cell peptide epitopes, alone or in combination with other tumor-associated peptides that can for example serve as active pharmaceutical ingredients of vaccine compositions that stimulate anti-tumor immune responses, or to stimulate T cells ex vivo and transfer into patients. Peptides bound to molecules of the major histocompatibility complex (MHC), or peptides as such, can also be targets of antibodies, soluble T-cell receptors, and other binding molecules.

41.20220144916HIGH AFFINITY ENGINEERED T-CELL RECEPTORS TARGETING CMV INFECTED CELLS
US - 12.05.2022
Clasificación Internacional C07K 14/725 Nº de solicitud 17430319 Solicitante BOARD OF REGENTS, THE UNIVERSITY OF TEXAS SYSTEM Inventor/a Jennifer A. MAYNARD
Provided herein are engineered T-cell receptors (TCRs) having nanomolar affinity for the immuno-dominant pp65 peptide residing between residues 495-503 (NLV) in complex with HLA-A2*02:01. The TCRs may be membrane-hound TCRs, soluble TCRs, chimeric TCRs, or chimeric antigen receptors. Also provided are methods of using the engineered TCRs to treat diseases, monitor disease progression, monitor vaccine efficacy, and detecting NLV/A2 presentation on the surface of cells.

42.WO/2022/103837IMMUNOGENIC PROBIOTIC COMPOSITIONS AND METHODS OF USE INCLUDING IN VACCINATION
WO - 19.05.2022
Clasificación Internacional A61K 35/747 Nº de solicitud PCT/US2021/058779 Solicitante ELANCO US INC. Inventor/a GANGAIAH, Dharanesh Mahimapura
The present invention provides probiotic compositions and methods for improving animal health, particularly improving and enhancing vaccine response. The probiotic compositions include one or more isolated strains of Lactobacillus species bacteria which colonizes the gastrointestinal tract to increase the health and enhance the immune system and immune response of an animal.

43.WO/2022/102652NOVEL AMINOALKYL GLUCOSAMINIDE 4-PHOSPHATE DERIVATIVE
WO - 19.05.2022
Clasificación Internacional C07H 15/04 Nº de solicitud PCT/JP2021/041323 Solicitante DAIICHI SANKYO COMPANY, LIMITED Inventor/a KOBAYASHI Hiroyuki
The present invention provides a novel compound, which has a TLR4 activating effect and is usable as an immune activator or adjuvant in vaccine or allergen immunotherapy, or a pharmaceutically acceptable salt thereof. A compound represented by general formula (I) or a pharmaceutically acceptable salt thereof. [In formula (I), X, Y, Z and n are each as defined in the description.]

44.20220143171CD40 LIGAND FUSION PROTEIN VACCINE
US - 12.05.2022
Clasificación Internacional A61K 39/145 Nº de solicitud 17391103 Solicitante MicroVAX, LLC Inventor/a Yucheng Tang
Provided are methods of generating an immune response to any of various antigens including foreign antigens such as infectious agent antigens. In general, the method comprises administering an expression vector encoding a transcription unit encoding a secretable fusion protein, the fusion protein containing the foreign antigen and CD40 ligand and also administering the encoded fusion protein. In another approach, an immune response to the foreign antigen is elicited using the encoded fusion protein without administering the vector. The invention methods may be used to immunize an individual against an infectious agent such as influenza virus. Methods of obtaining an immune response in older individuals also is described.

45.20220145309Yeast-Based Oral Vaccination
US - 12.05.2022

Clasificación Internacional C12N 15/81 Nº de solicitud 17612179 Solicitante ESPEROVAX INC. Inventor/a David James O'Hagan
Various recombinant yeast suitable for use in oral vaccination, vaccine compositions, food compositions, methods of vaccinating an animal, and related methods, kits, and nucleic acid molecules are described.

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

Results Search in US Patent Collection db for: (ABST/vaccine AND ISD/20220514->20220521), 6 records.

	PAT. NO.	Title
1	11,332,739	Porcine reproductive and respiratory syndrome virus cDNA clone and uses thereof
2	11,332,515	Multi-epitopic construct
3	11,331,384	Computational algorithm for universal vaccine selection
4	11,331,383	Attenuated african swine fever virus vaccine
5	11,331,381	Vaccine compositions for use against digital dermatitis in a mammal
6	11,331,343	Compositions and methods for activating antigen presenting cells with chimeric poliovi

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