

VacCiencia

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EN ESTE NÚMERO

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

- Resumen de candidatos vacunales contra la COVID-19 basadas en la plataforma de subunidad proteica en desarrollo a nivel mundial. (segunda parte)
- Artículos científicos más recientes de Medline sobre vacunas.
- Patentes más recientes en Patentscope sobre vacunas.
- Patentes más recientes en USPTO sobre vacunas.

Resumen de vacunas contra la COVID-19 basadas en la plataforma de subunidad proteica en desarrollo a nivel mundial (segunda parte)

Las **vacunas de subunidades antigenicas** son aquellas en las que solamente se utilizan los fragmentos específicos (llamados «subunidades antigenicas») del virus o la bacteria que es indispensable que el sistema inmunitario reconozca. Las subunidades antigenicas suelen ser proteínas o hidratos de carbono. La mayoría de las vacunas que figuran en los calendarios de vacunación infantil son de este tipo y protegen a las personas de enfermedades como la tos ferina, el tétanos, la difteria y la meningitis meningocócica.

Este tipo de vacunas solo incluye las partes del microorganismo que mejor estimulan al sistema inmunitario. En el caso de las desarrolladas contra la COVID-19 contienen generalmente, la proteína S o fragmentos de la misma como el Dominio de Unión al Receptor (RBD, por sus siglas en inglés). Una vez que el sistema inmunitario reconoce el antígeno, crea anticuerpos y glóbulos blancos de defensa. Si una persona se infecta con el virus SARS-CoV-2, los anticuerpos combatirán al virus.

Vacunas reportadas en el *draft landscape* de la Organización Mundial de la Salud hasta el 9 de julio, basadas en la plataforma de subunidades proteicas (en el orden de aparición en el listado).

Nombre: EpiVacCorona

Fabricante/País: Federal Budgetary Research Institution State Research Center of Virology and Biotechnology "Vector"/Rusia

Descripción: Es una vacuna basada en inmunógenos peptídicos de la proteína S del coronavirus del SARS-CoV-2 sintetizados químicamente y conjugados a la proteína N recombinante del SARS-CoV-2 (proteína transportadora) y adsorbidos en hidróxido de aluminio (adyuvante).

Fase de ensayo clínico: 3

Vía de administración: Intramuscular.

Esquema de administración: Dos dosis en un intervalo de 21 días.

Nombre: Insect Vaccine

Fabricante/País: West China Hospital + Sichuan University/China

Descripción: Vacuna recombinante basada en proteínas cultivadas a partir de células de insectos (baculovirus) expresadas en células Sf9.

Fase de ensayo clínico: 3

Vía de administración: Intramuscular

Esquema de inmunización: Dos dosis con intervalo de 28 días.

Nombre: IMP CoVac-1

Fabricante/País: University Hospital Tübingen/Alemania.

Descripción: La vacuna comprende múltiples péptidos que consisten en varios epítopos virales. Los péptidos se administraron junto con Montanide™ ISA51 VG y un nuevo adyuvante lipopéptido, el ligando TLR2 / 1 XS15.

Fase de ensayo clínico: 1

Vía de administración: Subcutánea.

Esquema de inmunización: Una dosis.

Nombre: UB-612

Fabricante/País: United Biomedical Inc. Asia, Vaxxinity/Taiwán.

Descripción: Es una vacuna basada en la proteína S1-RBD de diseño de alta precisión patentada que incorpora un conjunto de péptidos de epítopo Th / CTL que podría unirse a MHC-I y MHC-II humanos para activar las células T.

Fase de ensayo clínico: 2/3.

Vía de administración: Intramuscular.

Esquema de inmunización: Dos dosis en un intervalo de 28 días.

Nombre: AdimrSC-2f

Fabricante/País: Adimmune Corporation/Taiwán.

Descripción: Es un candidato vacunal desarrollado usando el sistema de expresión de baculovirus-células de insecto, se amplifica y purifica el dominio de unión al receptor recombinante (RBD) de la proteína S del SARS-CoV-2. Está formulado en las diferentes dosis de proteína S con o sin contenido de aluminio como adyuvante.

Fase de ensayo clínico: 1.

Vía de administración: ND.

Esquema de inmunización: ND.

Nombre: Mambisa (CIGB-669)

Fabricante/País: Centro de Ingeniería Genética y Biotecnología (CIGB)/Cuba.

Descripción: Se basa en la formulación de la proteína de RBD (Dominio de Unión al Receptor) y un inmunopotenciador evaluado por el centro: el antígeno de la nucleocápsida de la Hepatitis B.

Fase de ensayo clínico: 1/2.

Vía de administración: Intranasal.

Esquema de inmunización: Tres dosis en un intervalo de 14 días o 28 días.

Nombre: Abdala (CIGB-66)

Fabricante/País: Centro de Ingeniería Genética y Biotecnología (CIGB)/Cuba.

Descripción: Vacuna que se basa en el dominio de la unión del receptor (RBD) de la proteína S del virus SARS-CoV-2, su segmento más protuberante. Se seleccionó la levadura *Pichia pastoris* como sistema de expresión. Al ser el RBD una glicoproteína asociada covalentemente, los sacáridos de *Pichia pastoris* le aportan un efecto inmunopotenciador que favorece la inmunogenicidad. Esta formulación está adyuvada en hidróxido de aluminio.

Fase de ensayo clínico: 3.

Vía de administración: Intramuscular.

Esquema de inmunización: Tres dosis en un intervalo de 14 días.

Eficacia: 92.28 %.

Nombre: CorbeVax

Fabricante/País: Biological E. Limited/India.

Descripción: Vacuna basada en el RBD, y como adyuvante Alhydrogel (Alum), en combinación con CpG1018. El RBD de la subunidad S1 se une al receptor de la enzima convertidora de angiotensina-2 (ACE2) en la membrana de la célula huésped y facilita la entrada del virus. La proteína RBD se expresa en la levadura *Pichia pastoris*.

Fase de ensayo clínico: 1/2

Vía de administración: Intramuscular

Esquema de inmunización: Dos dosis en un intervalo de 28 días.

Nombre: Nanocovax.

Fabricante/País: Nanogen Pharmaceutical Biotechnology/Vietnam.

Descripción: Vacuna desarrollada mediante el uso de la subunidad de proteína S recombinante que se une a nanopartículas de sílice, con adyuvante de aluminio.

Fase de ensayo clínico: 3

Vía de administración: Intramuscular

Esquema de inmunización: Dos dosis en un intervalo de 21 días.

Nombre: S-268019.

Fabricante/País: Shionogi/Japón.

Descripción: Vacuna desarrollada mediante el uso de la subunidad de proteína S recombinante que se une a nanopartículas de sílice, con adyuvante de aluminio.

Fase de ensayo clínico: 1/2.

Vía de administración: Intramuscular

Esquema de inmunización: Dos dosis en un intervalo de 21 días.

Nombre: AKS-452 (SARS-CoV-2-RBD-Fc)

Fabricante/País: University Medical Center Groningen + Akston Biosciences Inc./ Países Bajos, Estados Unidos.

Descripción: Esta es una nueva proteína de fusión SARS-CoV-2-RBD-Fc diseñada biológicamente para inducir o potenciar una respuesta inmune mixta Th1 / Th2 en pacientes contra el RBD de la nueva proteína S de coronavirus.

Fase de ensayo clínico: 1/2.

Vía de administración: Subcutánea o Intramuscular

Esquema de inmunización: Una dosis o dos dosis en un intervalo de 21 días.

Nombre: COVAC-1 y COVAC-2

Fabricante/País: University of Saskatchewan/Canadá.

Descripción: En el caso de COVAC-2 contiene un segmento de proteína de pico SARS-CoV-2, llamada S1 y SWE como adyuvante que pertenece a una familia de adyuvantes a base de aceite.

Fase de ensayo clínico: 1/2.

Vía de administración: Intramuscular.

Esquema de inmunización: Dos dosis en un intervalo de 28 días.

Nombre: GBP510

Fabricante/País: SK Bioscience Co., Ltd., CEPI/Corea del Sur, Noruega.

Descripción: Vacuna de nanopartículas SARS-CoV-2 con AS03 (hidróxido de aluminio) como adyuvante.

Fase de ensayo clínico: 1/2.

Vía de administración: Intramuscular.

Esquema de inmunización: Dos dosis en un intervalo de 28 días.

Nombre: Razi Cov Pars

Fabricante/País: Razi Vaccine and Serum Research Institute/Irán.

Descripción: La vacuna emplea versiones recombinantes de la proteína S y protege al sistema inmunológico contra el virus mediante la producción de anticuerpos.

Fase de ensayo clínico: 2.

Vía de administración: Intramuscular e Intranasal.

Esquema de inmunización: Tres dosis, las dos primeras dosis por vía intramuscular y en un intervalo de 21 días y la tercera dosis por vía intranasal a los 51 días a partir de la primera dosis.

Nombre: SARS-CoV-2 Sclamp MF59

Fabricante/País: The University of Queensland.

Descripción: Basada en la glicoproteína S de SARS-CoV-2 recombinante estabilizada en una conformación previa a la fusión mediante una nueva pinza molecular (pinza de glicoproteína S [Sclamp]). Utiliza MF59 como adyuvante.

Fase de ensayo clínico: 1.

Vía de administración: Intramuscular.

Esquema de inmunización: Dos dosis con intervalo de 28 días.

Fuentes:

World Health Organization. Draft landscape of COVID-19 candidate vaccines <https://cutt.ly/1mFW5z5>

Precision Vaccination. EpiVacCorona Vaccine. <https://cutt.ly/FmFDqZJ>

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<https://cutt.ly/HmFEtBJ>

Good Clinical Practice Network. Ensayo de seguridad e inmunogenicidad de la vacunación con múltiples péptidos para prevenir la infección por COVID-19 en adultos. <https://cutt.ly/bmFEWol>

MDPI. Designing a SARS-CoV-2 T-Cell-Inducing Vaccine for High-Risk Patient Groups. <https://cutt.ly/8mFEPmn>

Precision Vaccination. UB-612 COVID-19 Vaccine. <https://cutt.ly/4mFP06W>

ClinicalTrials.gov. Study to Evaluate Safety, Immunogenicity, and Efficacy of Nanocovax Vaccine Against COVID-19 <https://cutt.ly/wmFAaPH>

ClinicalTrials.gov. A Study to Evaluate the Safety and Immunogenicity of COVID-19 (AdimrSC-2f) Vaccine. <https://cutt.ly/4mFAjhE>

Good Clinical Practice Network. Un estudio para evaluar la seguridad, tolerabilidad e inmunogenicidad de la vacuna UB-612 COVID-19. <https://cutt.ly/JmFAcVW>

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mint. Biological E may launch vaccine by August. <https://cutt.ly/kmFAmA7>

Registro Público Cubano de Ensayos Clínicos. Estudio Clínico ABDALA. <https://cutt.ly/HmFAOke>

Centro de Ingeniería Genética y Biotecnología. Abdala. <https://cutt.ly/NmFAGIQ>

AKSTON BIOSCIENCES. COVID-19 Vaccine. AKS-452 <https://cutt.ly/emFAZmF>

Good Clinical Practice Network. Un ensayo clínico de vacunas COVAC en adultos sanos. <https://cutt.ly/8mFABsU>

CBC News. University of Saskatchewan COVID-19 vaccine approved for human clinical trials. <https://cutt.ly/2mFA015>

ClinicalTrials.gov. Safety and Immunogenicity Study of SARS-CoV-2 Nanoparticle Vaccine (GBP510) Adjuvanted With Aluminum Hydroxide (COVID-19). <https://cutt.ly/hmFSrf2>

TehranTimes. Razi Cov Pars enters second clinical trial phase <https://cutt.ly/4mFSaeQ>

PubMed. Safety and immunogenicity of an MF59-adjuvanted spike glycoprotein-clamp vaccine for SARS-CoV-2: a randomised, double-blind, placebo-controlled, phase 1 trial. <https://cutt.ly/OmFSq7I>

Good Clinical Practice Network. Un estudio sobre la seguridad, la tolerabilidad y la respuesta inmunitaria de la vacuna Sclamp (COVID-19) contra el SARS-CoV-2 en adultos sanos. <https://cutt.ly/umFSIrT>

ClinicalTrials.gov. A Study on the Safety, Tolerability and Immune Response of SARS-CoV-2 Sclamp (COVID-19) Vaccine in Healthy Adults. <https://cutt.ly/pmFSG9b>

Noticias en la Web

¿Cuan efectivas son las vacunas ante la variante delta?



1 jul. Con las preocupaciones en torno a la variante del coronavirus Delta aumentando a nivel mundial, ¿qué tan efectivas son las vacunas actuales en los EE. UU. para proteger contra la nueva versión del virus? Según los expertos médicos, las tres vacunas disponibles actualmente ofrecen protección.

¿Qué tan efectivas son las vacunas COVID en general?

En ensayos clínicos, la vacuna de Moderna informó una efectividad del 94.1% para prevenir COVID-19 en personas que recibieron ambas dosis. Se dijo que la vacuna Pfizer-BioNTech tenía una efectividad del 95%. Un nuevo estudio de los CDC informó que una sola dosis de la vacuna COVID de Pfizer o Moderna fue 80% efectiva para prevenir infecciones. Ese número saltó al 90% dos semanas después de la segunda dosis, mostró el estudio sobre trabajadores de la salud vacunados.

"Estos hallazgos indican que las vacunas COVID-19 de ARNm autorizadas son efectivas para prevenir la infección por SARS-CoV-2, independientemente del estado de los síntomas, entre adultos en edad laboral en condiciones del mundo real", escribió la agencia estadounidense en el estudio. "Se recomienda la vacuna COVID-19 para todas las personas elegibles".

La vacuna de Pfizer, la única actualmente autorizada para su uso en niños de tan solo 12 años, también mostró una mayor eficacia entre los adolescentes.

A fines de marzo, Pfizer publicó los resultados preliminares de un estudio de vacuna de 2,260 voluntarios estadounidenses de 12 a 15 años, que muestran que no hubo casos de COVID-19 entre los adolescentes completamente vacunados en comparación con 18 entre los que recibieron inyecciones simuladas.

Más intrigante, los investigadores encontraron que los niños desarrollaron niveles más altos de anticuerpos que luchan contra los virus que los estudios anteriores medidos en adultos jóvenes.

La FDA dijo que la vacuna de J&J ofrece una fuerte protección contra lo que más importa: enfermedades graves, hospitalizaciones y muerte. Una dosis protegió al 85% contra la enfermedad COVID-19 más grave, en un estudio masivo que abarcó tres continentes, protección que se mantuvo fuerte incluso en países como

Sudáfrica, donde las variantes más preocupantes se estaban extendiendo en ese momento.

Los CDC informan que la vacuna J&J/Janssen fue 66.3% efectiva en ensayos clínicos para prevenir la enfermedad COVID-19 en personas que no tenían evidencia de infección previa 2 semanas después de recibir la vacuna.

"La vacuna tuvo una alta eficacia para prevenir la hospitalización y la muerte en personas que se enfermaron", señala el CDC. "Nadie que contrajo COVID-19 al menos cuatro semanas después de recibir la vacuna J&J/Janssen tuvo que ser hospitalizado".

No se sabe si alguna de las tres vacunas previene la propagación del virus por personas asintomáticas, aunque los CDC anotaron que "la evidencia preliminar sugiere que la vacuna J&J/Janssen podría brindar protección contra la infección asintomática".

¿Qué tan efectivas son las vacunas contra la nueva variante Delta?

Los datos que rodean la eficacia de la vacuna con la variante Delta son hasta ahora limitados.

Si bien los estudios han demostrado que las vacunas disponibles funcionan contra variantes, incluida la variante Delta, todas las vacunas de dos dosis ofrecen una protección significativamente mayor después de su segunda dosis.

Investigadores en Inglaterra estudiaron qué tan efectivas eran las vacunas AstraZeneca y Pfizer-BioNTech de dos dosis en su contra, en comparación con la variante Alpha que se detectó por primera vez en el Reino Unido.

Las vacunas protegieron a quienes recibieron ambas dosis, pero lo fueron menos entre quienes recibieron una dosis.

Un estudio reciente mostró que la vacuna Pfizer fue 84% efectiva contra la variante después de dos dosis, pero solo 34% efectiva después de la primera dosis.

Moderna también anunció el martes que un nuevo estudio mostró que su vacuna también produjo una protección prometedora en un laboratorio contra la variante Delta y otras que circulan actualmente.

"Mientras buscamos derrotar la pandemia, es imperativo que seamos proactivos a medida que evoluciona el virus. Seguimos comprometidos con estudiar variantes emergentes, generar datos y compartirlos a medida que estén disponibles. Estos nuevos datos son alentadores y refuerzan nuestra creencia de que la vacuna Moderna COVID-19 debe seguir protegiendo contra las variantes recién detectadas", dijo Stéphane Bancel, director ejecutivo de Moderna, en un comunicado.

Actualmente, se han publicado pocos datos que muestren cuán efectivo es Johnson & Johnson para proteger contra la variante Delta, aunque se cree que la vacuna de inyección única ofrece protección contra la variante.

El Dr. Scott Gottlieb, ex comisionado de la Administración de Alimentos y Medicamentos, según los informes, dijo que la vacuna Johnson & Johnson parece tener aproximadamente un 60% de efectividad contra la variante Delta.

Aún así, los expertos médicos dicen que cualquiera de las tres vacunas que se utilizan actualmente en los EE. UU. continúan mostrando buenos resultados en cuanto a protección.

"Esto los protegerá contra enfermarse gravemente y ser hospitalizados e incluso morir por la variante Delta", dijo recientemente la Dra. Katherine Gergen-Barnett del Boston Medical Center a NBC10 Boston.

¿Se necesitará una vacuna de refuerzo?

Hasta ahora, no ha habido ninguna recomendación de los Centros para el Control y la Prevención de Enfermedades en torno a las inyecciones de refuerzo con la variante Delta.

Aún así, los expertos en salud han advertido repetidamente que las inyecciones de refuerzo de COVID-19 podrían ser necesarias para personas completamente vacunadas, particularmente a medida que se propagan nuevas variantes.

El asesor en jefe de la Casa Blanca, el Dr. Anthony Fauci, dijo durante una entrevista con Medhi Hasan de MSNBC en abril que las personas pueden necesitar vacunas de refuerzo en un año.

El director ejecutivo de Pfizer, Albert Bourla, también dijo anteriormente que las personas "probablemente" necesitarán una tercera dosis dentro de los 12 meses posteriores a la vacunación completa.

Hasta ahora, los estudios sugieren que las vacunas actualmente en uso pueden reconocer las variantes emergentes, pero es posible que no brinden tanta protección contra las nuevas cepas.

Ya se están explorando refuerzos y nuevas versiones de vacunas que se dirigen a las variantes.

Pfizer-BioNTech estaba probando previamente una tercera inyección de refuerzo de su vacuna en personas completamente vacunadas.

"La flexibilidad de nuestra plataforma patentada de vacunas de ARNm nos permite desarrollar técnicamente vacunas de refuerzo en semanas, si es necesario", dijo Sahin en un comunicado en febrero.

Moderna también estaba probando una posible tercera dosis de su vacuna actual y una posible inyección de refuerzo dirigida específicamente a la variante de Sudáfrica. Citando los primeros datos, la compañía dijo recientemente que la vacuna de refuerzo generó una respuesta inmune prometedora contra las variantes B.1.351 y P.1 identificadas por primera vez en Sudáfrica y Brasil, respectivamente.

Mientras tanto, el director ejecutivo de Johnson & Johnson, Alex Gorsky, dijo durante una entrevista con "Squawk Box" de CNBC en marzo que la compañía está bien posicionada para adaptar su vacuna a las variantes y está trabajando en el desarrollo de programas que "ayudarán a abordar algunos de estos nuevos y variantes emergentes".

Fuente: Telemundo Nueva Inglaterra. Disponible en <https://cutt.ly/FmFVVfE>

Continúa en Cuba ensayo vacunal anti-COVID-19 con Soberana-Pediatria

1 jul. El Instituto Finlay de Vacunas informó hoy a través de su cuenta en la red social Twitter que Cuba continúa el ensayo clínico anti-COVID-19 Soberana-Pediatria.

Los menores que participan en el estudio estuvieron este miércoles en la consulta de seguimiento, correspondiente a la evaluación de las 48 horas posvacunación, refiere el tuit, y añade que la sala del Hospital Pediátrico Juan Manuel Márquez de La Habana, centro donde se desarrolla el ensayo clínico, estuvo llena de risas y colores.

"Continuamos en #SoberanaPediatria. Ayer estuvieron en la consulta de seguimiento, correspondiente a la evaluación de las 48 h post-vacunación, los más pequeños de la ya familia Finlay. La sala de espera estuvo llena de risas y colores. #CubaPorLaVida #CubaViva #Soberana02", tuiteó el Finlay.

Este lunes recibieron las primeras dosis de Soberana 02 unos 25 niños de 3 a 11 años voluntarios de la Fase 1 de Soberana-Pediatria, que junto a los 25 ya vacunados de 12-18 años completan la muestra de 50 para esta etapa.



El 10 de junio pasado la autoridad regulatoria Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos autorizó el ensayo clínico en edades pediátricas debido al elevado número de casos de COVID-19 en todo el país, en el esquema de tres dosis, dos de Soberana 02 y una de Soberana Plus, con un intervalo de 28 días.

Soberana-Pediatría involucra a 350 niños y adolescentes, 50 en la Fase I y 300 en la Fase II, etapas que se desarrollarán de manera escalonada y solapada, cumpliendo con el estricto protocolo ético, las buenas prácticas clínicas y con el consentimiento informado de los padres o tutores legales; en el caso de los adolescentes y jóvenes, también con el asentimiento de ellos.

Fuente: ACN. Disponible en <https://cutt.ly/HmFORJ3>

Alemania recomienda combinar vacuna de AstraZeneca

2 jul. Las autoridades de Alemania están recomendando a toda la población que haya recibido la primera dosis de la vacuna de AstraZeneca contra el coronavirus cambiar a un tipo diferente de vacuna para la segunda dosis. Con ello se pretende aumentar la velocidad y efectividad de la inoculación al tiempo que se propaga la variante delta de mayor contagio.

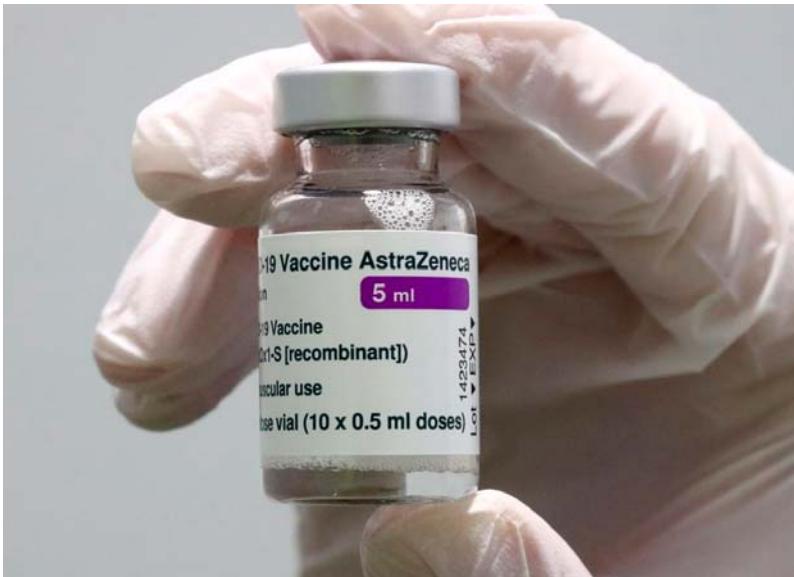
El ministro de Salud, Jens Spahn, consultó con sus colegas de los 16 estados de Alemania el viernes, después de que el comité de vacunación del país emitió en la víspera un borrador de la recomendación. En un comunicado, el comité señaló que “de acuerdo con los resultados actuales de los estudios”, la respuesta inmune de una combinación de AstraZeneca con una vacuna ARN mensajero fue “considerablemente superior” a la de dos dosis de AstraZeneca.

El comité recomendó que la segunda dosis con una vacuna de ARN mensajero —Alemania usa las elaboradas por BioNTech-Pfizer y Moderna— sea administrada cuatro semanas o más después de la primera inyección de AstraZeneca. Ese periodo es mucho menor que el de nueve a 12 semanas que el comité recomienda entre las dos dosis de AstraZeneca.

El comité, conocido por su sigla en alemán STIKO, no indicó en qué estudio se basan sus conclusiones. El centro de control de enfermedades de Alemania subrayó que se trata de un borrador y que más adelante se ofrecerá una recomendación final con más detalle y fuentes. Los científicos han dicho que combinar vacunas es probablemente seguro y efectivo, pero aún están recopilando datos para estar seguros.

Las autoridades alemanas de antemano decidieron en abril que la población de menos de 60 años que haya recibido una primera dosis de la vacuna de AstraZeneca deberá recibir por regla una inyección de una vacuna de ARN mensajero. La decisión fue tomada luego que la vacuna de AstraZeneca fue relacionada con coágulos sanguíneos extremadamente inusuales en personas jóvenes. Alemania recomienda que las personas menores de 60 años consulten a un médico antes de recibirla.

Spahn dijo el viernes que el país cuenta con suficientes dosis de vacunas de ARN mensajero como



para implementar la nueva recomendación rápidamente y que "hace la vacuna de AstraZeneca más atractiva", desde que está llegando en grandes cantidades y la posibilidad de un tiempo de espera mucho menor para la segunda dosis.

Añadió que el jefe del STIKO dijo a los ministros que la combinación de las vacunas de AstraZeneca y de BioNTech "protege al menos tan bien como una combinación BioNTech-BioNTech, en algunos casos incluso mejor". Pero afirmó además que dos dosis de la vacuna de AstraZeneca dan buena protección. BioNTech-Pfizer ha sido el pilar de la campaña de vacunación en Alemania, con AstraZeneca en un alejado segundo lugar en cuanto a dosis aplicadas.

Fuente: Santa Maria Times. Disponible en <https://cutt.ly/MmF9ip4>

La vacuna de Janssen es "fuerte y resistente" ante variante Delta

2 jul. a farmacéutica Johnson & Johnson, matriz de la compañía belga Janssen, dijo que su vacuna contra el COVID-19 es efectiva y segura contra la variante Delta.

De acuerdo con el laboratorio, ofrece una respuesta inmune que dura por lo menos ocho meses, aunque no ha indicado datos sobre los porcentajes de eficacia.

"Los estudios refuerzan la capacidad de la vacuna COVID-19 de Johnson & Johnson para ayudar a proteger la salud de las personas en todo el mundo. Creemos que nuestra vacuna ofrece una protección duradera y provoca una actividad neutralizante contra la variante Delta", afirmó Paul Stoffels, director científico de Johnson & Johnson.

"Los datos correspondientes a los ocho meses estudiados hasta ahora muestran que la vacuna genera una fuerte respuesta de anticuerpos neutralizantes que no disminuye, sino que observamos una mejora con el tiempo. Además, observamos una respuesta inmunitaria celular persistente y particularmente robusta y duradera".

En un subconjunto de ocho participantes en el estudio de fase 3, la vacuna provocó una actividad de anticuerpos neutralizantes contra la variante Delta a un nivel más alto que el observado para la variante Beta en Sudáfrica, donde se demostró una alta eficacia contra la enfermedad grave y crítica.

Por otra parte, los resultados de un subestudio de fase 1/2a en 20 participantes evidenciaron que las respuestas inmunitarias humorales y celulares duraron al menos ocho meses.

Así, una sola dosis de la vacuna de Janssen generó anticuerpos neutralizantes contra algunas cepas del SARS-CoV-2, que son las que más preocupación han causado, y aumentaron con el tiempo, incluso contra la variante Delta.

Fuente: digitaltrends ES. Disponible en <https://cutt.ly/CmF8CiB>

Cuba rebasa las 6,5 millones de dosis aplicadas de sus candidatos vacunales contra la Covid-19

4 jul. Unas seis millones 572 mil 661 dosis de los candidatos vacunales cubanos contra la Covid-19, han sido aplicadas hasta el 2 de julio, informó este domingo el Ministerio de Salud Pública de Cuba (MINSAP).

De acuerdo con el MINSAP, dos millones 832 mil 316 personas han recibido al menos una dosis de uno de los candidatos vacunales cubanos; de ellas ya



tienen una segunda dosisn dos millones 180 mil 352 personas y tercera dosis un millón 559 mil 993.

En cuanto a la intervención sanitaria en grupos y territorios de riesgo, señala la entidad cubana que desde mayo de 2021 participan trabajadores de la salud, de BioCubaFarma, estudiantes de Ciencias Médicas y otros grupos de riesgo; así como la población de territorios seleccionados por etapas.

Agregó que se han administrado en este grupo un total de cinco millones 977 mil 574 dosis.

Detalla el MINSAP que como parte de las investigaciones asociadas a los candidatos vacunales cubanos Soberana 02 y Abdala, fue realizado un estudio de intervención dirigido a sujetos en grupos de riesgo y que podían aportar datos relevantes.

En ese estudio aplicado en las provincias de La Habana, Santiago de Cuba, Granma y Guantánamo, y se administraron 445 mil 723 dosis.

De igual forma desde el pasado mes de marzo se desarrollan ensayos clínicos con los candidatos vacunales cubanos Soberana 02, Abdala y Soberana Plus (para convalecientes), cuyos participantes son sujetos voluntarios seleccionados por los investigadores.

En estos se han administraron un total de 149 mil 364 dosis, excluyendo de esta cifra los placebos administradas durante los Ensayos Clínicos.

Fuente: Cubadebate. Disponible en <https://cutt.ly/JmF58G7>

CoronaVac safe for children and teenagers, a new study indicates

Jul 5. A new study has found that two doses of the CoronaVac vaccine were safe and well-tolerated in children and adolescents aged three to 17 years old.

The research published in *The Lancet* is the first to report on the immunogenicity and safety of a Covid-19 candidate vaccine in children as young as three years.

CoronaVac was on Saturday approved for use in South Africa - with conditions - by the South African Health Products Regulatory (Sahpra).

The regulator, however, only approved the vaccine for adults aged between 18 and 59. The authorisation was based on the safety, quality and efficacy data submitted by Curonto Pharma to Sahpra between 22 March and 22 June, according to a News24 report.

The approval of the Chinese Sinovac vaccine was made with conditions, such as the periodic submission of data by the manufacturer.

Two groups

The researchers performed two-phase clinical trials of CoronaVac on participants aged 18–59 years, and 60 years and older.

The first phase of the trial has 72 participants aged three to 17 years old. They were first given a low dose of the vaccine and then a high dose after a seven day safety interval to ensure they were fit to receive the second jab.

In phase two of the trial, a total of 480 participants were recruited with 120 aged three to five, 180 aged six to 11, and 180 aged 12 to 17 years. The phase two trial was only initiated after all participants in phase one had finished and completed the observation period after their first dose.

Safe vaccine for children

The study's findings show that two doses of the CoronaVac were safe and general good reactions in children and teenagers aged 3–17 years old. More than 96% of children and adolescents who received two doses of the vaccine developed antibodies against SARS-CoV-2, which causes Covid-19.

The number of adverse were low and mild in the participants. The most reported side effect was injection-site pain.

The researchers state that age plays an important role in antibody response to vaccines. They observed a decreasing response to vaccination with increasing age, which has been seen in other vaccines, such as hepatitis B vaccine, seasonal influenza, pneumococcal disease, tetanus, pertussis, and diphtheria.

However, one of the study authors, Prof Bin Cao, says that it is vital to determining vaccines' safety in younger age groups.

"While vaccinating children is essential to reach herd immunity and limit the severity of Covid-19, safety should be the paramount factor to be considered before Covid-19 vaccines can be rolled out in younger children," he says in a press statement.

Fuente: News24. Disponible en <https://cutt.ly/1mF6m50>

Sanofi Francia prevé vacuna contra Covid-19 para diciembre

5 jul. El presidente del laboratorio farmacéutico Sanofi Francia, Olivier Bogillot, señaló hoy que en diciembre estará disponible una vacuna gala contra la Covid-19, agente biológico basado en la tecnología de la Proteína Recombinante.

El directivo precisó a la emisora France Inter que el preparado se encuentra en la fase tres de ensayos clínicos con seres humanos, la cual implica una escalada significativa en la cifra de voluntarios y representa la etapa previa a la producción masiva, siempre en dependencia de los resultados. Según Bogillot, la vacuna francesa no será fabricada con la técnica del ARN Mensajero, utilizada en los productos de Pfizer y Moderna, y en su lugar será con Proteína Recombinante, procedimiento utilizado en inmunizadores contra la gripe.

Este método lo conocemos bien y lo empleamos desde hace años, y era el dominante antes de la reciente llegada del ARN Mensajero, comentó.

Los meses de retraso en la creación de una vacuna francesa para enfrentar la Covid-19 generaron polémica en el país, así como duras acusaciones al gobierno de no invertir lo suficiente en el sector. Bogillot adelantó que el agente inmunizante de Sanofi se sumará a los de Pfizer, Moderna y AstraZeneca y será un preparado biológico de fácil conservación.

La vacunación en Francia contra la enfermedad causada por el coronavirus SARS-CoV-2 acumula 34 millones 701 mil 785 personas con al menos una dosis recibida, el 51,5 por ciento de la población, mientras a 24 millones 851 mil 829 les fueron administradas las dos, equivalente a un 37 por ciento.

Fuente: Prensa Latina. Disponible en <https://cutt.ly/omGq9te>



Prestigiosa revista de la Sociedad Americana de Química publica artículo sobre candidato vacunal cubano Soberana 02

5 jun. Para ratificar la ciencia que soporta el desarrollo de Soberana 02, fue publicado en la prestigiosa revista de la Sociedad Americana de Química, *ACS Chemical Biology*, un artículo que describe el diseño, la obtención y evaluación preclínica del candidato vacunal cubano.

Así escribió en su perfil de *Facebook* la directora de Investigaciones del Instituto Finlay de Vacunas, Dagmar García Rivera. "Para los que se estresan y exigen las publicaciones arbitradas de los candidatos cubanos, aquí va otra. Los ciclos de publicación son largos. Este artículo fue enviado a publicar el 11 de abril, lo que significa que ha tomado tres meses su arbitraje, revisión, corrección y publicación", añadió.

"Es -destacó- un excelente ejemplo que resume la colaboración de científicos de varias instituciones cubanas y extranjeras, que hemos sido un equipazo en este año de intenso trabajo para hacer valer la ciencia que hacemos en Cuba. A todos, un enorme agradecimiento por su contribución a Soberana".

Artículo publicado en la revista *ACS Chemical Biology*. El mismo describe el diseño, obtención y evaluación preclínica de #Soberana02. Este artículo se suma al *review* publicado anteriormente en *ACS Central Science*, otra revista de la Sociedad Americana de Química, que resumía el soporte teórico detrás de las Soberanas.

De acuerdo a García Rivera, esta es una evidencia de que "cuando la ciencia es buena, las buenas revistas la publican. A pesar de todas las dificultades, nunca cejaremos en el empeño de publicar nuestros resultados científicos al nivel que merecen. Vendrán otros, pero de momento, este nos enorgullece de ser científicos de este país y de hacer buena ciencia para nuestra gente".

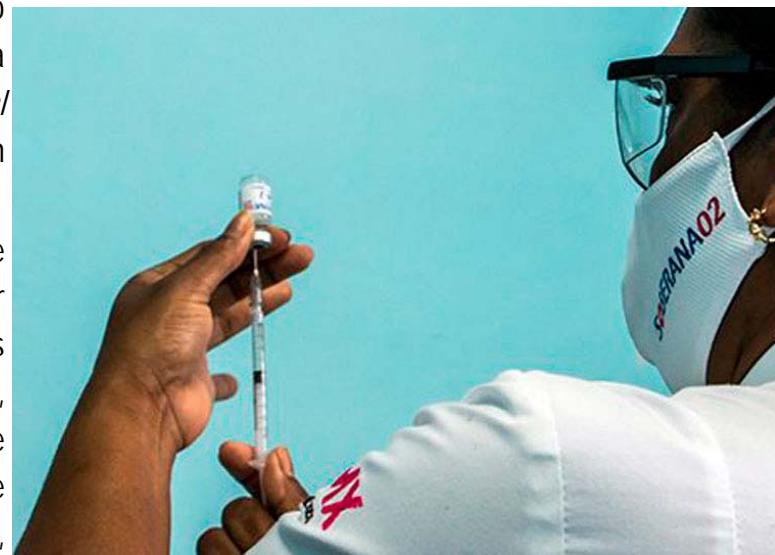
Fuente: guerrillero. Disponible en <https://cutt.ly/9mGrGPx>

Epsilon: esto es lo que sabemos sobre la variante del coronavirus y cómo evade las vacunas

6 jul. La variante detectada en marzo pasado disminuye los anticuerpos inducidos por las vacunas COVID, según un estudio.

La propagación mundial del virus SARS-CoV-2, causante de la enfermedad el COVID-19, ha provocado el surgimiento de una gran cantidad de linajes virales. Si bien el mundo se encontraba enfocado en la variante Delta, ahora es Epsilon la que llama la atención por su posible resistencia a las vacunas existentes.

La variante Epsilon, o B.1.427/B.1.429, fue detectada por primera vez en California, Estados Unidos, el 5 de marzo, de acuerdo con la Organización Mundial de la Salud (OMS). Hasta ahora se ha registrado su presencia en 34 países fuera de su lugar de origen.



La OMS ha clasificado a este linaje viral como "de interés" y no "de preocupación", como en el caso de las variantes Alpha (B.1.1.7) del Reino Unido, Beta (B.1.351) de Sudáfrica, Gamma (P.1) de Brasil, y Delta de India.

Esta variable tiene 20 por ciento más de transmisibilidad, un porcentaje bajo en comparación de las variantes calificadas como de preocupación, de acuerdo con los Centros para el Control y Prevención de Enfermedades (CDC por sus siglas en inglés).

No obstante, un estudio publicado recientemente en la revista Science y llevado a cabo por investigadores de la University of Washington School of Medicine, Estados Unidos, descubrió que Epsilon disminuye los anticuerpos inducidos por las vacunas COVID.

Epsilon y su resistencia a las vacunas

Tres mutaciones de la variante Epsilon reducen de dos a 3.5 veces la potencia neutralizadora de los anticuerpos inducidos por las vacunas ARN mensajero, así como de los adquiridos por infecciones previas del virus SARS-CoV-2, de acuerdo con la investigación.

Para evaluar el impacto de las tres mutaciones presentes en la variante, los científicos utilizaron plasma de 15 personas que recibieron dos dosis de la vacuna Moderna y de 15 más vacunadas con dos dosis de Pfizer.

Fuente: EL FINANCIERO. Disponible en <https://cutt.ly/imHvERy>

La protección de la vacuna contra el coronavirus de Pfizer se ve afectada por la propagación de la variante delta, dice Israel

7 jul. El gobierno de Israel dice que su análisis ha demostrado que la vacuna contra el coronavirus de Pfizer-BioNTech parece ser menos efectiva contra las infecciones causadas por la variante delta en comparación con otras cepas de COVID-19.

En un breve comunicado emitido el lunes, el gobierno dijo que, hasta el 6 de junio, la vacuna brindaba un 64% de protección contra la infección. En mayo, cuando la variante alfa dominaba en Israel y la cepa delta aún no se había extendido ampliamente, descubrió que la vacuna tenía una efectividad del 95,3% contra todas las infecciones.

El gobierno agregó que la vacuna ahora tenía un 93% de efectividad en la prevención de enfermedades graves y hospitalizaciones, en comparación con el 97% informado en la revista médica *The Lancet* en mayo.

La declaración cita cifras de primera línea, pero no dio a conocer datos subyacentes u otros detalles sobre su análisis. Un equipo de la Universidad Hebreo dijo en una declaración separada que era demasiado pronto para saber cuánto afectaba la variante delta a la eficacia de la vacuna.

El Dr. Ashish Jha, decano de la Escuela de Salud Pública de la Universidad de Brown, también fue cauteloso al sacar conclusiones. "Los mejores datos aún sugieren que las vacunas de ARNm ofrecen un alto grado de protección contra infecciones y una excelente protección contra enfermedades graves. Esperemos más datos, pero por ahora ... si estás vacunado, no me preocuparía", tuiteó.

En otra declaración el martes, el Ministerio de Salud de Israel dio a conocer algunos datos sobre la enfermedad causada por COVID-19 y ofreció una explicación ampliada de la protección de la vacuna. A pesar de una aparente disminución en la capacidad de la vacuna para prevenir todas las infecciones

durante la propagación de la variante delta, la declaración subrayó su beneficio continuo en la prevención de casos graves.

Israel ha implementado la vacuna Pfizer para todas las personas mayores de 12 años, y su aplicación temprana y rápida les dio a los científicos una de las primeras instantáneas del mundo real de su eficacia.

El gobierno dijo que la caída en la eficacia probablemente se deba a la propagación de la variante delta en Israel. Esta cepa más infecciosa del virus se identificó por primera vez en la India a principios de este año y también se conoce como B.1.617.2.

Pfizer dijo que no podía comentar sobre datos no publicados, pero un estudio de laboratorio publicado recientemente que realizó con la Rama Médica de la Universidad de Texas encontró que su vacuna era efectiva contra versiones de laboratorio de la variante delta y otras. El estudio encontró que la vacunación completa provoca una respuesta inmune que debería proteger bien a las personas contra la infección con las nuevas variantes.

Israel es uno de los países más vacunados del mundo, con más del 60% de la población completamente inoculada y dos tercios que han recibido al menos una dosis.

La declaración destaca un gran riesgo en el futuro: la aparición de nuevas variantes que podrían evadir parte de la protección proporcionada por las vacunas.

Los funcionarios de salud pública subrayan que las vacunas actuales ofrecen una buena protección contra la variante delta.

Un estudio de Public Health England descubrió este mes que las vacunas Pfizer-BioNTech y Oxford-AstraZeneca eran cada una altamente efectivas, al 96% y 92% respectivamente, contra las hospitalizaciones por la variante delta después de dos dosis.

Por separado, los hallazgos preliminares de un estudio escocés publicado en *The Lancet* el mes pasado encontraron que la vacuna de Pfizer proporcionó un 79% de protección contra todas las infecciones de la variante delta, en comparación con el 92% contra la variante alfa. El mismo estudio, que analizó datos de 5,4 millones de personas en Escocia, encontró que la vacuna Oxford-AstraZeneca ofrecía un 60% de protección contra la infección con la variante delta en comparación con el 73% de la variante alfa.

En experimentos de laboratorio se encontró que la vacuna de Moderna funciona contra nuevas variantes como la delta, dijo la compañía.

Johnson & Johnson dijo que las pruebas de laboratorio de su vacuna de dosis única contra el coronavirus sugieren que brinda protección contra la variante delta.

Sin embargo, esto puede cambiar si el virus muta más. Es por eso que los médicos y las autoridades de salud pública quieren que más personas se vacunen. "Cuanto más permitimos que el virus se propague, más oportunidades tiene el virus de cambiar", advirtió la Organización Mundial de la Salud (OMS) el mes pasado.

Israel levantó la mayoría de sus restricciones de coronavirus a principios de junio. Sin embargo, el gobierno luego restableció un mandato de uso de mascarilla en interiores después de un aumento en los casos causados por la variante delta. También nombró un "gerente especial" para evitar la entrada del coronavirus y sus variantes en Israel y aprobó un plan para construir una instalación permanente para la realización de pruebas en el aeropuerto Ben Gurion.

El país ha informado de un ligero aumento en los casos diarios en las últimas semanas, pero solo un puñado de personas han muerto a causa de la enfermedad en Israel en el último mes.

Mientras tanto, Inglaterra, donde la variante delta se ha convertido en la cepa dominante, sigue adelante con su plan de eliminar la mayoría de las restricciones restantes en solo dos semanas, a pesar de las fuertes advertencias de muchos científicos.

Hablando en una rueda de prensa el lunes, el primer ministro del Reino Unido, Boris Johnson, dijo que la efectividad de la vacuna contra la muerte estaba permitiendo al gobierno el desconfinamiento, aunque el número de casos está aumentando rápidamente. Dijo que el gobierno necesitaba equilibrar el riesgo del virus y el impacto de las restricciones en las personas y agregó que el país "debe encontrar una nueva forma de vivir con el virus".

"Quiero enfatizar desde el principio que esta pandemia está lejos de terminar ... estamos viendo que los casos aumentan con bastante rapidez. Podría haber 50.000 casos detectados por día para el 19 [de junio] y nuevamente como predijimos estamos viendo un aumento de las admisiones hospitalarias, y debemos reconocer tristemente que habrá más muertes por COVID-19", agregó Johnson.

La OMS ha advertido contra este enfoque. "Muchos países parecen estar abandonando por completo la idea de que tenemos cierto control sobre este virus", dijo el lunes el Dr. Mike Ryan, director ejecutivo de la OMS para emergencias de salud, durante una sesión de preguntas y respuestas. Advirtió contra cualquier "apuro prematuro" para reabrir en un momento en que los casos están aumentando.

"Parece que estamos muy atrapados en los titulares de que no hay nada que podamos hacer, es inevitable que veamos estas olas y es inevitable que los hospitales se llenen e inevitable que los cementerios se llenen", dijo. "No es inevitable, se puede detener, pero requerirá un esfuerzo más de comunidades que ya están exhaustas".

Fuente: CNN en español. Disponible en <https://cutt.ly/lmHQG9S>

Pfizer solicitará aprobación de 3ra dosis de su vacuna COVID

8 jul. Pfizer solicitará la autorización de los reguladores de Estados Unidos para una tercera dosis de su vacuna contra la COVID-19 ya que, según la farmacéutica, otra inyección en un plazo de 12 meses podría aumentar drásticamente la inmunidad y tal vez daría protección frente a las variantes del coronavirus que son más contagiosas.

Una investigación en varios países muestra que la inyección de Pfizer y otras vacunas contra la COVID-19 ampliamente utilizadas ofrecen una fuerte protección contra la variante delta, la cual es más contagiosa, se está propagando rápidamente por todo el mundo y ahora es responsable de la mayoría de las infecciones nuevas en Estados Unidos.

Dos dosis de la mayoría de las vacunas son determinantes para desarrollar altos niveles de anticuerpos contra todas las versiones del coronavirus, no sólo la variante delta. Pero en una gran parte del mundo todavía no ha recibido siquiera la primera dosis mientras la pandemia continúa.



Pero los anticuerpos disminuyen naturalmente con el tiempo, por lo que también se están realizando estudios para determinar si se pueden necesitar refuerzos y cuándo.

El doctor Mikael Dolsten, de Pfizer, dijo el jueves a The Associated Press que los primeros datos del estudio de refuerzo realizado por la compañía indican que los anticuerpos de una persona aumentan de cinco a 10 veces después de una tercera dosis, en comparación con una segunda inyección meses antes.

Pfizer planea solicitar en agosto a la Administración de Alimentos y Medicamentos de Estados Unidos (FDA por sus siglas en inglés) la autorización de emergencia de una tercera dosis, dijo el médico.

¿Por qué es importante esto para la variante delta? Dolsten señaló datos de Gran Bretaña e Israel que muestran que la vacuna de Pfizer "neutraliza muy bien" esta variante. La suposición, dijo, es que cuando los anticuerpos bajan lo suficiente, la variante delta podría causar una infección leve antes de que el sistema inmunológico vuelva a activarse.

La autorización de la FDA sería sólo un primer paso; no significaría automáticamente que a la gente se le ofrezcan refuerzos, advirtió el doctor William Schaffner, experto en vacunas del Centro Médico de la Universidad de Vanderbilt. Las autoridades de salud pública tendrían que decidir si realmente son necesarias, especialmente porque millones de personas no tienen protección.

"Las vacunas fueron diseñadas para mantenernos fuera del hospital", y siguen haciéndolo a pesar de la variante delta, dijo. Administrar otra dosis sería "un gran esfuerzo mientras aún estamos tratando de lograr que la gente reciba la primera dosis".

Fuente: Santa Maria Times. Disponible en <https://cutt.ly/imHWZUB>

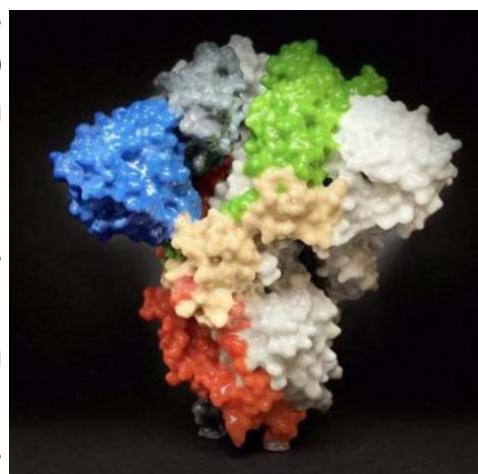
Un estudio demuestra que las proteínas espiga desarrolladas en laboratorio son compatibles con el SARS-CoV-2

7 jul. Un nuevo estudio de la Universidad de Southampton (Reino Unido) ha descubierto que las propiedades clave de las espigas del virus del SARS-CoV-2, causante de la COVID-19, coinciden con las de varias proteínas espiga desarrolladas en laboratorio para imitar al virus infeccioso, lo que podría contribuir al desarrollo de vacunas y nuevos fármacos.

Según explica el profesor de glicobiología de la Universidad de Southampton, Max Crispin, que ha dirigido el estudio, un componente central, en el diseño de pruebas serológicas y vacunas para proteger contra el COVID-19 es la fabricación de proteínas espiga. Estos picos recombinantes imitan estrechamente a los que sobresalen de la superficie del virus infeccioso y hacen que el sistema inmunitario del organismo entre en acción.

Estas proteínas fabricadas en el laboratorio también se utilizan para las pruebas serológicas (también denominadas pruebas de anticuerpos) y como reactivos de investigación. Por tanto, los resultados del estudio muestran que las espigas víricas fabricadas mediante diferentes métodos en laboratorios de todo el mundo son muy similares y proporcionan la seguridad de que la proteína puede fabricarse de forma sólida con mínimas variaciones entre laboratorios.

Según los investigadores, las proteínas espiga del virus SARS-CoV-2 están recubiertas de azúcares, conocidos como glicanos, que utilizan para camuflarse del sistema inmunitario humano. La abundancia de estos



glicanos tiene el potencial de crear discrepancias significativas entre los estudios que utilizan diferentes picos recombinantes.

En este nuevo estudio, publicado en la revista 'Biochemistry', el equipo de investigación ha estudiado los recubrimientos de glicanos de las proteínas espiga recombinantes desarrolladas en cinco laboratorios de todo el mundo y los ha comparado con los de las púas del virus infeccioso.

"La rapidez con la que la comunidad científica se ha movilizado para hacer frente a la pandemia de COVID-19 ha ejercido una presión considerable sobre los laboratorios de todo el mundo para que validen sus hallazgos con rapidez", detalla Crispin. "En el último año hemos visto cómo se han desarrollado vacunas en todo el mundo a un ritmo sin precedentes y el rápido desarrollo, y la validación, de proteínas recombinantes han sido fundamentales para esa historia de éxito", ha continuado.

En abril de 2020, el profesor Crispin y su equipo de la Universidad de Southampton cartografiaron por primera vez el revestimiento de glicanos de la proteína espiga del SARS-CoV-2. En el presente estudio, amplían su análisis para examinar la espiga recombinante desarrollada en laboratorios del Centro Médico Universitario de Ámsterdam, la Facultad de Medicina de Harvard, la Universidad de Oxford y la empresa suiza ExcellGene. Así, se ha demostrado que todos los lotes de esta proteína imitan las características clave de la glicosilación de los viriones analizados en la Universidad de Tsinghua (China).

MÉTODOS COMPUTACIONALES

Por otro lado, el estudio también utiliza métodos computacionales para examinar las características de las proteínas que daban forma a algunos de los rasgos de glicosilación que se observaban en todas las muestras. Al respecto, el investigador principal del Instituto de Bioinformática de la Agencia para la Ciencia, la Tecnología y la Investigación de Singapur, Peter Bond, que dirigió el trabajo computacional, ha declarado que "la modelización nos permitió arrojar luz sobre cómo la proteína influye en la estructura de los glicanos y por qué la glicosilación era tan consistente". Este enfoque predictivo, detalla, también podría tener un valor potencial en el desarrollo de terapias contra nuevas variantes u otros virus emergentes.

"La capacidad de producir imitaciones de la proteína espiga del SARS-CoV-2 con alta fidelidad en muchos laboratorios diferentes, todas las cuales recapitulan las firmas de glicanos del virus auténtico, es de gran beneficio para el diseño de vacunas, las pruebas de anticuerpos y el descubrimiento de fármacos", concluye el profesor Crispin.

Fuente: Infosalus. Disponible en <https://cutt.ly/hmHUA1E>

Delta: las 5 mutaciones que hacen a esta variante del coronavirus más contagiosa y preocupante

9 jul. La variante delta del coronavirus fue detectada en India en octubre de 2020 y hasta ahora ha llegado al menos a 96 países.

En algunos de estos países se ha vuelto la variante dominante, como en el caso de Singapur, Reino Unido y Portugal.

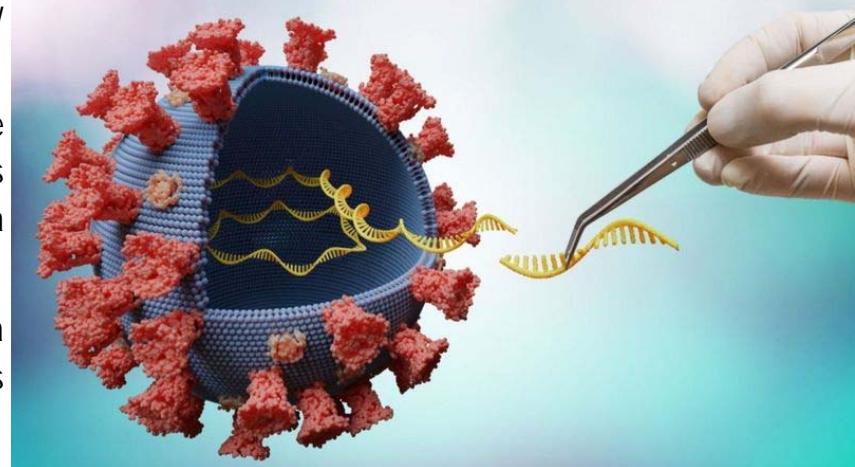
Los datos preliminares muestran que es más transmisible que otras variantes, conlleva un mayor riesgo de hospitalización y reinfección, y genera un cuadro de síntomas ligeramente diferentes (más dolor de cabeza y menos tos, por ejemplo).

Se estima que la variante delta es entre 30% y 60% más transmisible que otras variantes del coronavirus.

En Reino Unido, ya se ha vuelto dominante y representa el 90% de los casos nuevos.

Esta variante ha suscitado preocupaciones sobre la posibilidad de evadir la protección de las vacunas, pero no hay confirmación de esta hipótesis.

En otras palabras, los estudios hasta ahora muestran que las vacunas siguen siendo eficaces contra la delta.



En Brasil, la ciudad de São Paulo ya admitió que la delta se está extendiendo en la ciudad, pero no se sabe en qué medida o si llegará a ser dominante.

Pero ¿qué hace que esta variante delta sea más preocupante?

En términos generales, es un conjunto de "mejoras" genéticas que facilitan la propagación e invasión del cuerpo humano.

Pero no debemos ignorar la problemática ambiental involucrada, es decir, cómo el comportamiento de la sociedad sin medidas de control y prevención también influye en la transmisión de estas variantes.

Mutaciones 'ventajosas' para el coronavirus

El Sars-CoV-2, el coronavirus que causa la enfermedad de covid-19, no tiene tanta capacidad para mutar como el virus de la gripe, por ejemplo.

Pero cuando surgen nuevas variantes, necesitan tener características "ventajosas" que las hagan viables en un entorno de tanta competencia y selección para invadir los cuerpos humanos.

En una presentación sobre la variante delta al gobierno sudafricano, el bioinformático Tului de Oliveira, director del laboratorio Krisp de la Universidad KwaZulu-Natal (Sudáfrica), enumeró las principales características de la variante delta.

Es más transmisible y es más probable que reinfecte a las personas que ya se han enfermado con otras cepas, pero aún no hay pruebas claras de si la delta causa una enfermedad más grave o si escapa a la protección que brindan las vacunas.

Oliveira también enumera tres grupos de mutaciones relevantes de la variante delta:

Pero ¿qué representa todo esto? Vayamos a cada uno de ellos.

1. Invasión celular más eficiente

Una vez dentro, utiliza la estructura celular para multiplicarse.

En el caso de la variante delta, existen dos mutaciones relevantes en la espiga, que se conocen por los códigos L452R y T478K.

Pero, ¿qué significan estos números y letras? La primera letra es el tipo de aminoácido que existía antes del cambio (L, símbolo de lisina), el número corresponde a la ubicación (452º de 1273 aminoácidos) y la última letra es el aminoácido que entró en su lugar (R, símbolo de arginina).

En términos generales, un virus es un ácido nucleico (ADN o ARN) rodeado por conjuntos de aminoácidos (proteínas).

La capa externa sirve para adherirse e invadir la célula humana, por ejemplo, y la capa interna sirve como un manual de instrucciones que se utilizará para producir nuevos virus dentro de la célula invadida.

Durante este proceso de producción de virus, los aminoácidos circundantes pueden sufrir tres tipos de mutación: eliminación (deleción), aparición (inserción) o cambio (sustitución).

Estas mutaciones no ocurren por ningún motivo específico y, a menudo, se pierden en el camino.

Pero algunas de ellas se establecen y comienzan a aparecer a partir de la replicación del virus.

Este es el caso de dos mutaciones delta clave: L452R y T478K.

El cambio de L a R en la posición 452 y el cambio de T a K en la posición 478 resultaron ser "ventajosos" para el virus porque ayudaron al invasor a adherirse mejor en la puerta de entrada (la enzima ACE2).

Esto explica por qué esta variante se ha vuelto más transmisible.

Además de una invasión más eficiente, hay una tendencia a que cuantos más virus invadan las células, más virus se replicarán, aumentando la carga viral.

Por lo tanto, habrá más virus que se propagarán al toser o estornudar, por ejemplo.

Un estudio dirigido por investigadores de los Centros para el Control y la Prevención de Enfermedades de China encontró que una persona infectada con la variante delta puede tener hasta 1.000 veces más virus en su cuerpo que alguien infectado con versiones tempranas del coronavirus al comienzo de la pandemia, a finales de 2019.

Esta carga viral más alta también puede estar asociada con una mayor gravedad de la enfermedad, ya que la variante tiende a afectar a más células respiratorias humanas.

2. Activación más eficiente y teoría de la creación de coronavirus en el laboratorio

Para invadir la célula humana, no es suficiente que un virus encuentre una puerta de entrada y se adhiera a ella: primero debe activarse.

En el caso de Sars-CoV-2, esta activación ocurre a través de una enzima en el cuerpo humano (llamada furina) que corta la espiga del coronavirus en dos: S1 y S2.

Después de este corte, llamado clivaje, una parte de la espiga (S1) se adhiere a la célula humana y la otra (S2) fusiona su membrana con la membrana de la célula humana, permitiendo la inserción de material genético e iniciando la producción de más virus.

Al cortar la espiga, la enzima hace que se abra y revele secuencias genéticas ocultas que lo ayudan a unirse más estrechamente a las células del tracto respiratorio humano, por ejemplo.

Una mutación cercana a esta ubicación puede alterar aún más este comportamiento.

Este es el caso de la variante delta, que porta una mutación (P681R) en esa región.

"Cuanto más sensible a la furina humana, más eficiente será la espiga del virus. Este proceso de fusión activado por furina está mediado por el área desde el aminoácido en la posición 618 hasta la posición del aminoácido 1273", explica el virólogo José Eduardo Levi, coordinador de investigación y desarrollo de la red

de laboratorios Dasa, e investigador del Instituto de Medicina Tropical de la Universidad de São Paulo (USP).

"Una mutación en esta región, como P681R, hace que esta fusión sea más rápida. Esta mutación aparece tanto en las variantes delta como la alfa, descubierta en el Reino Unido, y en algunos casos en la gamma, descubierta en Brasil ", agrega.

Las mutaciones en esta región del coronavirus son tan relevantes que están en el centro de dos puntos centrales de la pandemia.

Primero, se cree que esta afinidad por la furina humana fue crucial para permitir que el virus saliera de otras especies animales y comenzara a infectar a los humanos a fines de 2019.

En segundo lugar, este mecanismo es tan eficiente y atípico entre los tipos de coronavirus que infectan a los humanos que se ha convertido en el principal argumento de quienes afirman sin evidencia que el SARS-CoV-2 se generó o modificó en el laboratorio.

"Todos los coronavirus que infectan a los humanos tienen un dominio determinado, un área específica que reconoce la furina", explica Levi.

"Pero el SARS-CoV-2 está muy humanizado. En otras palabras, es mucho más eficiente de lo que se ha visto en otros coronavirus, que tienen un reconocimiento razonable de la furina".

"Y solo el SARS-CoV-2 tiene esta mutación, esta inserción de cuatro aminoácidos. Ese es el argumento más fuerte de que este coronavirus se creó en el laboratorio".

"Porque hasta ahora, no se ha encontrado ningún coronavirus intermedio que apunte a que fue mejorando poco a poco. Este llegó listo para ser segmentado por la furina humana", agrega el científico.

Según el experto la falta de esta secuencia de cuatro aminoácidos en el coronavirus SARS-CoV puede explicar por qué causó una epidemia de SARS limitada a Asia en 2003, que no llegó a convertirse en una pandemia que se ha extendido por todo el mundo como SARS-CoV-2.

3. Escapar parcialmente de anticuerpos y vacunas

Fernando Spilki, profesor de la Universidad Feevale y coordinador de la Red Corona-Ômica, en el Ministerio de Ciencia, Tecnología e Innovación de Brasil, utiliza la analogía de las piezas de Lego para explicar el papel de las mutaciones en los eventuales escapes de las variantes del sistema inmunológico y las vacunas.

Al aprender a defenderse, las células de defensa, como los anticuerpos neutralizantes, utilizan partes de los invasores para saber cómo identificarlos y combatirlos.

Cuando se producen mutaciones en el coronavirus, por ejemplo, es como si las partes de los anticuerpos ya no encajaran bien con las del invasor, lo que facilita el escape.

Por lo tanto, el virus puede al mismo tiempo mutar para acoplarse de manera más eficiente a la puerta de entrada de la célula y escapar parcialmente del encaje con anticuerpos neutralizantes.

Para Spilki, "es como si el virus creara vías para escapar del sistema inmunológico y desarrollara formas más efectivas de transmisión".

Explica que todos estos cambios fueron "previstos" en experimentos de laboratorio, que son capaces de analizar la influencia de cada intercambio, inserción o supresión de estas pequeñas piezas sobre el

comportamiento del coronavirus.

En el caso de la variante delta, las mutaciones vinculadas a ella son la sustitución T19R y la delección 157-158del.

Volviendo a la analogía de las piezas de Lego, la sustitución del aminoácido T (treonina) por el R (arginina) en la posición 19 dificulta que el sistema de defensa del cuerpo identifique al invasor para combatirlo.

Lo mismo ocurre con la "falta" de aminoácidos en las posiciones 157 y 158.

En general, las proteínas tienen dos extremos, uno llamado N-terminal y el otro C-terminal.

En el caso de los coronavirus, la región N-terminal (DTN) se considera más antigenica o inmunogénica.

Es decir, el sistema de defensa humano "percibe" mejor y produce más anticuerpos en su contra.

La espiga (proteína S) es la más antigenica de ellas, por lo que generalmente se producen vacunas dirigidas a esta estructura para enseñar al sistema de defensa del cuerpo a identificarla para combatir el coronavirus en su conjunto.

Aquí es donde entra en juego la mutación como una forma de obstaculizar la lucha contra el coronavirus.

Los cambios (deleciones y sustituciones) en la estructura de la variante delta en un área antigenica (DTN) dificultan la actuación del sistema de defensa del organismo.

"¿Por qué rayos comienza a eliminar partes de su genoma? Tiene que tener una razón poderosa para eso. ¿Cuál? La respuesta inmune humana, ya sea natural por infección o inducida por vacunas", explica Levi.

"En general, la delección es perjudicial, o sea, hace que el virus sea ineficaz y acabe siendo eliminado. Pero en el caso de las variantes del coronavirus, estas delecciones están siendo ventajosas porque eliminan regiones que provocan una respuesta inmune muy fuerte en el huésped y así logran escapar (del sistema de defensa humano)", agrega.

Hasta ahora, hay evidencia de que la variante delta puede escapar de los anticuerpos de personas que ya han sido infectadas con la variante beta (descubierta en Sudáfrica).

Pero aún no hay evidencia de que sea capaz de escapar a la respuesta inmune generada por las vacunas.

Vale la pena recordar que ninguna de estas mutaciones es exclusiva de una u otra variante. Lo que las vuelve preocupantes es su conjunto.

Es decir, que al mismo tiempo tengan nuevas características que las hacen invadir mejor las células, ser más eficiente para activarse y escapar del sistema de defensa.

Según Levi, el contexto de varias variantes que tienen mutaciones aleatorias que son relativamente similares se llama convergencia evolutiva.

Esto se debe, entre otras razones, a que la presión evolutiva de la selección natural contra las formas más diversas de coronavirus en el mundo es prácticamente la misma: las personas están adquiriendo inmunidad, ya sea por la vacuna o porque se infectaron con el virus.

Fuente: BBC News. Disponible en <https://cutt.ly/YmHVGCG>

Esquema de Soberana 02 + Soberana Plus alcanza 91,2% de eficacia

8 jul. La eficacia del candidato vacunal Soberana 02 en su esquema de tres dosis junto a Soberana Plus es del 91,2%, con lo cual supera los requisitos de la Organización Mundial de la Salud (OMS) para que un candidato vacunal contra la COVID-19 se convierta en vacuna, que es del 50%.

Este resultado fue establecido por un Comité Independiente, y aunque el logro científico ya cumple con la condición de vacuna, su uso de emergencia será autorizado en su momento por el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED).

Este mismo esquema de vacunación se prueba hoy en niños y adolescentes cubanos, mediante el ensayo clínico de Soberana-Pediátria, cuyo objetivo es evaluar la seguridad, la reactogenicidad y la inmunogenicidad de los candidatos vacunales profilácticos anti SARS-CoV-2.

El pasado 21 de junio, se informó que el candidato vacunal Abdala presenta una eficacia del 92,28% en su esquema de tres dosis.

El expediente del candidato vacunal Abdala, con una eficacia del 92,28%, ya fue presentado por su desarrollador (el Centro de Ingeniería Genética y Biotecnología) a la entidad reguladora cubana, el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED), para obtener el autorizo de uso de emergencia.

		Grupo Vacuna	Grupo Placebo	HR IC 95%	EVIC 95% vs. Control sintético
3 dosis	N	13452	13895		
(Análisis Intermedio1)	Enfermedad sintomática	5 (0.04%)	51 (0.37%)	91.2%* (77.9%; 96.5%)	91.9%** (79.9%; 96.7%)
	Infección	21 (0.16%)	78 (0.56%)	75.7* (60.7%; 85.0%)	--
	ESS	0 (0.00%)	1 (0.01%)	100%* (No estimable)	--
	Fallecidos	0 (0.00%)	3(0.02%)	100%* (No estimable)	--

Fuente: Instituto Finlay de Vacunas

Ambos resultados se obtienen en un escenario de circulación de las nuevas cepas en el país.

Díaz-Canel: Un resultado que demuestra con qué empeño han trabajado nuestros científicos

La combinación de dos dosis del candidato vacunal Soberana 02 y una del Soberana Plus en el esquema de 0-28-56 días tiene una eficacia de 91,2 por ciento, informó el Doctor en Ciencias Vicente Vérez Bencomo, director del Instituto Finlay de Vacunas (IFV), en la reunión de este jueves del Grupo temporal de trabajo del Gobierno para la prevención y control de la COVID-19.

El Primer Secretario del Partido Comunista de Cuba y Presidente de la República, Miguel Díaz-Canel Bermúdez, felicitó a al IFV y otras instituciones que participaron en la creación de Soberana, "un resultado —dijo— que demuestra con qué empeño han trabajado nuestros científicos".

Vérez Bencomo recordó que el anuncio de la eficacia del esquema Soberana 02 más Soberana Plus ocurre exactamente 415 días después (o a 59 semanas) de que el Presidente de la República se reuniera en el Centro de Neurociencias de Cuba (Cneuro) con un grupo de científicas y científicos y les pidiera obtener una vacuna cubana contra el virus SARS-CoV-2.

Sobre ese encuentro, semanas atrás, en el Centro de Ingeniería Genética y Biotecnología (cuando se anunció a sus trabajadores la eficacia de 92,28 por ciento del candidato vacunal Abdala), el propio Primer Secretario del Partido reveló que hizo aquella solicitud con la convicción de que los científicos cubanos podían obtenerla.

Era necesario —señaló entonces Díaz-Canel— tener vacunas propias para lograr soberanía en el enfrentamiento a la COVID-19, convencido “de que los países pobres no iban a poder tener en poco tiempo las vacunas disponibles que el mundo rico estaba produciendo para priorizar a los ricos”.

Vérez Bencomo explicó que la eficacia de 91,2 por ciento del esquema Soberana se refiere a su capacidad de prevenir la enfermedad sintomática de la COVID-19 entre los inmunizados.

Recordó que el resultado se validó en la fase 3 del ensayo clínico realizado en ocho municipios de La Habana, precisamente cuando en la capital circulaba masivamente la cepa detectada originalmente en Sudáfrica (la Beta), “considerada como “la bestia” en cuanto a burlar las vacunas contra el SARS-CoV-2”.

Las características de la cepa Beta, sin embargo, no son las mismas de la detectada en la India (la cepa Delta), la cual, argumentó el líder del IFV, es muy transmisible, pero mucho más susceptible a las vacunas.

En la tarde de este jueves, las trabajadoras y trabajadores del Instituto Finlay de Vacunas se reunieron en instalaciones del centro para celebrar los exitosos resultados que celebra Cuba toda.

Como señaló el doctor Vérez Bencomo en la reunión previa con la dirección del país, los científicos del IFV están a medio del camino; “nos queda mucho por hacer, y no descansaremos hasta que toda la población esté inmunizada con las vacunas cubanas”, se comprometió.

El encuentro del Grupo temporal de trabajo del Gobierno para la prevención y control de la COVID-19 de este jueves fue presidido también por el Primer Ministro, Manuel Marrero Cruz, el vicepresidente de la República, Salvador Valdés Mesa, y Roberto Morales Ojeda, secretario de Organización y Política de Cuadros del Comité Central del Partido Comunista de Cuba.

Fuente: Cubadebate. Disponible en <https://cutt.ly/umHMwuC>

EFICACIA



Aprueba el CECMED el Autorizo de Uso de Emergencia del candidato vacunal cubano ABDALA

9 jul. El Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos (CECMED) decidió en el día de hoy, otorgar el Autorizo de Uso de Emergencia (AUE) a la vacuna cubana 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 se cumple con los requisitos y parámetros exigidos en cuanto a calidad, seguridad y eficacia para este tipo de trámite.

Después de concluir un riguroso proceso de evaluación del expediente presentado ante el CECMED, para la solicitud del AUE y haber realizado las inspecciones a las plantas involucradas en el proceso productivo, una vez confirmado que se cumple con los requisitos establecidos y a partir de los datos obtenidos en los Ensayos Clínicos Fase I y Fase II concluidos y un Ensayo Clínico Fase III en ejecución, que ha demostrado una eficacia en la prevención de formas sintomáticas de la enfermedad del 92.28 %, así como un adecuado perfil de seguridad, avalado por la cantidad de dosis aplicadas en los ensayos clínicos realizados, el estudio de intervención en poblaciones de riesgos y la intervención sanitaria que se lleva a cabo en nuestro país.

Considerando lo anterior, el CECMED hace efectiva la aprobación mediante la RESOLUCIÓN No. 113 de fecha 9 de julio del año 2021, aprobada por su Directora.

Fuente: CECMED. Disponible en <https://cutt.ly/vmH96IG>

Avanzan ensayos clínicos de los candidatos vacunales anti-COVID-19 del Instituto Finlay de Vacunas

9 jul. Los ensayos clínicos con los candidatos vacunales anti-COVID-19 del Instituto Finlay de Vacunas (IFV) continúan su desarrollo con vistas a proporcionar más alternativas para el enfrentamiento a la enfermedad, señaló hoy Dagmar García Rivera, directora de Investigaciones de esa institución.

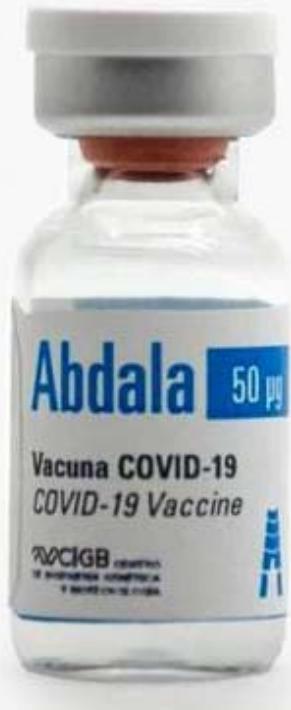
En conferencia de prensa en esta capital, la doctora en Ciencias precisó que el ensayo Soberana Pediatría, con dos dosis de Soberana 02 más una de Soberana Plus, avanza en su fase II, donde se extenderá a dos policlínicos de los municipios Playa y Marianao, de La Habana.

Añadió que el objetivo es demostrar la seguridad e inmunogenicidad de ese esquema heterólogo en los niños y adolescentes, para lo cual ya culminó la inclusión en la fase I para ambos grupos etarios, así como en la fase II para los de 12 a 18 años de edad.

Por tanto, especificó que de la muestra total de 350 sujetos, están incluidos los 50 de la primera etapa y los 150 de la segunda, que corresponden al grupo de los adolescentes.

Dijo que esta semana transcurre el reclutamiento de los más pequeños, quienes se vacunarán entre el martes y el jueves de la semana próxima, y el lunes se comenzará a administrar la segunda dosis de los candidatos vacunales.

Los primeros resultados estimamos que estén disponibles en el venidero mes de agosto, y a partir de ese



momento se decidirá regulatoriamente su curso, acotó.

En cuanto a Soberana Plus expresó que se está empleando para reforzar la inmunidad en individuos previamente vacunados con Soberana 02 y en los expuestos al virus, quienes han desarrollado un determinado nivel de inmunidad.

Culminamos el ensayo clínico fase I en el mes de febrero y su informe final se entregó al Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos , asimismo, hay una publicación en fase final de arbitraje al respecto, agregó la especialista.

También se refirió a que en la actualidad se conduce un ensayo fase II con 450 sujetos, que se encuentra en evaluación de las muestras, tras lo cual se espera obtener sus resultados este mes.

García Rivera comentó que se determinó la mejor formulación de Soberana 01 en cuanto a inmunogenicidad y están proponiendo un ensayo clínico fase II en la provincia de Cienfuegos, en el cual compararán la respuesta inducida por este candidato respecto al esquema heterólogo de Soberana 02.

Fuente: Agencia Cubana de Noticias. Disponible en <https://cutt.ly/tmH7fYO>

¿Por qué no han disminuido los enfermos con COVID-19 a pesar de la intervención sanitaria?

10 jul. Al cierre del 7 de julio se acumulaban en el país más de siete millones de dosis administradas con los candidatos vacunales cubanos anti-COVID-19, de ellas, más de seis millones pertenecían a Abdala, vacuna que obtuvo la víspera el autorizo de uso de emergencia por el Centro para el Control Estatal de Medicamentos, Equipos y Dispositivos Médicos, y demostró un 92,28 por ciento de eficacia ante la enfermedad sintomática.

No obstante, los casos positivos al virus continúan ascendiendo, hasta el punto de reportarse al cierre del 8 de julio seis mil 422 contagios y 28 fallecidos, de ahí que muchos se preguntan por qué el aumento de la vacunación no se refleja en una disminución de los infectados con el SARS-CoV-2.

Al respecto, la Agencia Cubana de Noticias conversó con la Doctora en Ciencias Técnicas Miladys Limonta Fernández, coordinadora de proyectos de desarrollo de candidatos vacunales anti-COVID-19 del Centro de Ingeniería Genética y Biotecnología, quien explicó que la eficacia alcanzada por Abdala en su Fase III es para evitar la gravedad, la criticidad o la muerte, pero no está demostrado que impida la infección.

Señaló, además, que con una sola dosis no se está protegido, pues esto solo se logrará cuando transcurran entre 15 y 28 días después de completar el esquema de vacunación de tres dosis, ya que el organismo necesita tiempo para alcanzar los máximos valores de inmunidad y elevar los títulos de anticuerpos.

En la actualidad, se trabaja con el Ministerio de Salud Pública (MINSA) para determinar cuántas de las personas enfermas han sido vacunadas con las tres dosis.



La también Máster en Procesos Biotecnológicos significó que las mayores cifras de contagio se reportan en territorios donde no se ha culminado la administración de la vacuna, y muchas veces las personas se piensan inmunizadas con una dosis e incumplen los protocolos sanitarios.

Abdala contribuirá a cortar la transmisión del nuevo coronavirus, pero requiere del cumplimiento estricto de las medidas higiénicas y de distanciamiento, así como la reducción de la movilidad de la población, al ser más transmisible la variante Delta presente en la nación.

Por su parte, Eulogio Pimentel Vázquez, vicepresidente del Grupo Empresarial BioCubaFarma, expresó que la eficacia de los candidatos vacunales se obtuvo después de los 14 días de la última dosis, y tras ese tiempo es cuando empieza a evidenciarse un efecto sobre el control de la enfermedad.

Se trata de un proceso paulatino y que, en términos de eficacia, es consecuencia de haber acatado estrictamente el protocolo con las tres dosis, subrayó.

En ese sentido, destacó que este 8 de julio fue cuando se cumplieron los 14 días de aplicada la última dosis en los primeros cuatro municipios de La Habana contemplados en la intervención sanitaria en grupos y territorios de riesgo, mientras, la mayoría de los otros sitios no han completado el esquema de inmunización.

La eficacia y la efectividad de una vacuna en términos matemáticos se calculan igual, pero hay una diferencia sustancial, la efectividad es lo que ocurre en la práctica médica cotidiana, sin que esté asociada a un ensayo clínico, indicó.

Pimentel Vázquez agregó que el MINSAP determina la efectividad mediante estudios protocolizados, y las empresas de BioCubaFarma y los promotores de las vacunas no participan en esos análisis, pero con la información del comportamiento tras la vacunación en el sector biofarmacéutico establecieron algunos indicios del resultado.

Al comparar el promedio de la incidencia actual de la COVID-19 con la del mes de febrero --cuando ninguna de las instituciones del Grupo Empresarial había comenzado la inmunización-- se determinó que existen seis veces menos trabajadores infectados, en medio de un contexto de transmisión cuatro veces superior en el país.

Dichas evidencias también en términos graves y críticos revelan un panorama extremadamente alejador, pues solo un caso del sector biofarmacéutico llegó a la gravedad y no ha fallecido ningún inmunizado, puntualizó el especialista.

Comentó que en estos momentos contribuyen con el MINSAP con estos datos, para finalmente obtener la efectividad de las vacunas en el proceso de intervención sanitaria.

El vicepresidente de BioCubaFarma enfatizó en que la efectividad de una vacuna se acercará a la eficacia del ensayo clínico, en la medida en que sean mejores el proceso y el programa de inmunización.

La práctica ha demostrando que la vacuna no basta, hay que continuar cumpliendo los protocolos sanitarios y de esta forma contribuir todos a que nuestros inmunógenos sean más efectivos y eficaces.

Fuente: Agencia Cubana de Noticias. Disponible en <https://cutt.ly/lmJaSee>



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[Design of multi-epitope vaccine candidate against SARS-CoV-2: a in-silico study.](#)

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Patentes registradas en Patentscope

Estrategia de búsqueda: *Vaccine in the title or abstract AND 20210701:20210710 as the publication date 49 records.*

1.[20210205445](#)Vaccine Adjuvant

US - 08.07.2021

Clasificación Internacional [A61K 39/39](#) Nº de solicitud 17186366 Solicitante Wisconsin Alumni Research Foundation Inventor/a Bruce Steven Klein

A Dectin-2 ligand vaccine adjuvant and a method of making and using the Dectin-2 ligand vaccine adjuvant in a vaccine to immunize a patient are disclosed. Also discloses is a vaccine composition comprising a BI-Eng2 antigen and methods of using the vaccine composition to immunize a subject against a fungal infection.

2.[20210196808](#)CANCER VACCINE

US - 01.07.2021

Clasificación Internacional [A61K 39/00](#) Nº de solicitud 17055293 Solicitante UNIVERSITY COLLEGE CARDIFF CONSULTANTS LTD Inventor/a Andrew GODKIN

The present disclosure relates to an immunogenic agent comprising Dna J heat shock protein family (Hsp40) member B7 or an immunogenic fragment thereof; a DNA vaccine comprising a nucleic acid encoding said protein or at least one immunogenic fragment thereof; a pharmaceutical composition or vector or DNA vaccine for use in the treatment of cancer; and a method of treating cancer comprising the use of said immunogenic agent or pharmaceutical composition or vector or DNA vaccine.

3. [20210205446](#) CONJUGATE VACCINE TARGETING A DISEASE-CAUSING BIOLOGICAL PROTEIN
US - 08.07.2021

Clasificación Internacional [A61K 39/39](#) N° de solicitud 17200552 Solicitante OSAKA UNIVERSITY
Inventor/a Hironori NAKAGAMI

The present invention provides a vaccine containing a complex of a peptide consisting of the amino acid sequence of SEQ ID NO: 1 and an epitope of a disease-causing biological protein such as DPP4, IL-17A, IgE, S100A9 or PCSK9, which vaccine uses a less antigenic carrier protein and is capable of inducing antibody production to serve as an effective vaccine.

4. [202148029274](#) NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS

IN - 02.07.2021

Clasificación Internacional [A61K /](#) N° de solicitud 202148029274 Solicitante IMMATICS BIOTECHNOLOGIES GMBH Inventor/a MAHR, Andrea

We claim: 1. A synthetic peptide comprising an amino acid sequence selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388, and variant sequences thereof that are at least 88% homologous to SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388, and wherein said variant binds to molecule(s) of the major histocompatibility complex (MHC) and/or induces T cells cross-reacting with said variant peptide; and a pharmaceutical acceptable salt thereof, wherein said peptide is not a full-length polypeptide. 2. The peptide as claimed in claim 1, wherein said peptide has the ability to bind to an MHC class-I or -II molecule, and wherein said peptide, when bound to said MHC, is capable of being recognized by CD4 and/or CD8 T cells. 3. The peptide or variant thereof as claimed in claim 1 or 2, wherein the amino acid sequence thereof comprises a continuous stretch of amino acids according to any one of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388. 4. The peptide or variant as claimed in any of claims 1 to 3, wherein said peptide or variant thereof has an overall length of from 8 to 100, preferably from 8 to 30, and more preferred from 8 to 16 amino acids, and most preferred wherein the peptide consists or consists essentially of an amino acid sequence selected from a group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388. 5. The peptide or variant as claimed in any of Claims 1 to 4, wherein said peptide is modified and/or includes non-peptide bonds. 6. The peptide or variant thereof as claimed in any of Claims 1 to 5, wherein said peptide is part of a fusion protein, in particular comprising N-terminal amino acids of the HLA-DR antigen-associated invariant chain (ii). 7. A nucleic acid, encoding a peptide or variant thereof as claimed in any one of claims 1 to 6, optionally linked to a heterologous promoter sequence. 8. An expression vector capable of expressing the nucleic acid as claimed in claim 7. 9. A recombinant host cell comprising the peptide as claimed in any one of claim 1 to 6, the nucleic acid as claimed in claim 7 or the expression vector as claimed in claim 8, wherein said host cell preferably is an antigen presenting cell, such as a dendritic cell. 10. The peptide or variant thereof as claimed in any one of claims 1 to 6, the nucleic acid as claimed in claim 7, the expression vector as claimed in claim 8, or the host cell as claimed in claim 9 for preparation of a medicine. 11. A method for producing the peptide or variant thereof as claimed in any one of claims 1 to 6, the method comprising culturing the host cell as claimed in claim 9 that presents the peptide as claimed in claim 1 to 6, or expresses the nucleic acid as claimed in claim 7 or expresses the expression

vector as claimed in claim 8, and isolating the peptide or variant thereof from the host cell or its culture medium. 12. An in vitro method for producing activated T lymphocytes, the method comprising contacting in vitro T cells with antigen loaded human class I or II MHC molecules expressed on the surface of a suitable antigen-presenting cell or an artificial construct mimicking an antigen-presenting cell for a period of time sufficient to activate said T cells in an antigen specific manner, wherein said antigen is a peptide as claimed in any one of claims 1 to 4. 13. An activated T lymphocyte, produced by the method as claimed in claim 12, that selectively recognizes a cell which presents a polypeptide comprising an amino acid sequence as claimed in one of claims 1 to 4. 14. A method for killing target cells in a patient which target cells present a polypeptide comprising an amino acid sequence as claimed in any one of claims 1 to 4, the method comprising administering to the patient an effective number of activated T cells as claimed in claim 13.15. An antibody, in particular a soluble or membrane-bound antibody, that specifically recognizes the peptide or variant thereof as claimed in any of claims 1 to 5, preferably the peptide or variant thereof as claimed in any of claims 1 to 5 when bound to an MHC molecule. 16. A medicament for the diagnosis and/or treatment of cancer comprising of a peptide as claimed in any one of claims 1 to 6, the nucleic acid as claimed in claim 7, the expression vector as claimed in claim 8, the cell as claimed in claim 9, the activated T lymphocyte as claimed in claim 13 or the antibody as claimed in claim 15. 17. The medicament as claimed in Claim 16, wherein the said medicament is for the diagnosis/ treatment of cancer selected from the group of glioblastoma, breast cancer, colorectal cancer, renal cell carcinoma, chronic lymphocytic leukemia, hepatocellular carcinoma, non-small cell and small cell lung cancer, Non-Hodgkin lymphoma, acute myeloid leukemia, ovarian cancer, pancreatic cancer, prostate cancer, esophageal cancer including cancer of the gastric-esophageal junction, gallbladder cancer and cholangiocarcinoma, melanoma, gastric cancer, testis cancer, urinary bladder cancer, or uterine cancer, and other tumors that show an overexpression of a protein from which at least one peptide selected from SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388 is derived from. 18. A kit comprising: (a) a container comprising a pharmaceutical composition containing the peptide(s) or the variant as claimed in any one of claims 1 to 6, the nucleic acid(s) as claimed in claim 7, the expression vector(s) as claimed in claim 8, the recombinant cell(s) as claimed in claim 10, the activated T lymphocyte(s) as claimed in claim 13 or the antibody as claimed in claim 15, in solution or in lyophilized form; (b) optionally, a second container containing a diluent or reconstituting solution for the lyophilized formulation; (c) optionally, at least one more peptide selected from the group consisting of SEQ ID No. 1 to SEQ ID No. 417, and (d) optionally, instructions for (i) use of the solution or (ii) reconstitution and/or use of the lyophilized formulation.19. The kit as claimed in claim 18, further comprising one or more of (iii) a buffer, (iv) a diluent, (v) a filter, (vi) a needle, or (v) a syringe. 20. The kit as claimed in claim 18 or 19, wherein said peptide is selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388.21. A method for producing a personalized anti-cancer vaccine or a compound- based and/or cellular therapy for an individual patient, said method comprising: a) identifying tumour-associated peptides (TUMAPs) presented by a tumour sample from said individual patient; b) comparing the peptides as identified in a) with a warehouse of peptides that have been pre-screened for immunogenicity and/or over-presentation in tumours as compared to normal tissues c) selecting at least one peptide from the warehouse that matches a TUMAP identified in the patient; and d) formulating the personalized vaccine or compound-based or cellular therapy based on step c)wherein said warehouse peptide comprises an amino acid sequence selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388.22. The method as claimed in claim 21, wherein said TUMAPs are identified by: a1) comparing expression data from the tumour sample to expression data from a sample of normal tissue corresponding to the tissue type of the tumour sample to identify proteins that are over-expressed or aberrantly expressed in the tumour sample; and a2) correlating the expression data with sequences of MHC ligands bound to MHC class I and/or

class II molecules in the tumour sample to identify MHC ligands derived from proteins over-expressed or aberrantly expressed by the tumour. 23. The method as claimed in claim 21 or 22, wherein the sequences of MHC ligands are identified by eluting bound peptides from MHC molecules isolated from the tumour sample, and sequencing the eluted ligands. 24. The method as claimed in any of claims 21 to 23, wherein the normal tissue corresponding to the tissue type of the tumour sample is obtained from the same patient.25. The method as claimed in any one of claims 21 to 24, wherein the peptides included in the warehouse are identified based on the following steps: aa. Performing genome-wide messenger ribonucleic acid (mRNA) expression analysis by highly parallel methods, such as microarrays or sequencing-based expression profiling, comprising identify genes that over-expressed in a malignant tissue, compared with a normal tissue or tissues; ab. Selecting peptides encoded by selectively expressed or over-expressed genes as detected in step aa, and ac. Determining an induction of in vivo T-cell responses by the peptides as selected comprising in vitro immunogenicity assays using human T cells from healthy donors or said patient; or ba.Identifying HLA ligands from said tumour sample using mass spectrometry; bb. Performing genome-wide messenger ribonucleic acid (mRNA) expression analysis by highly parallel methods, such as microarrays or sequencing-based expression profiling, comprising identify genes that over-expressed in a malignant tissue, compared with a normal tissue or tissues; be. Comparing the identified HLA ligands to said gene expression data; bd.Selecting peptides encoded by selectively expressed or over-expressed genes as detected in step be; be. Re-detecting of selected TUMAPs from step bd on tumour tissue and lack of or infrequent detection on healthy tissues and confirming the relevance of over-expression at the mRNA level; and bf. Determining an induction of in vivo T-cell responses by the peptides as selected comprising in vitro immunogenicity assays using human T cells from healthy donors or said patient. 26. The method as claimed in any of claims 21 to 25, wherein the immunogenicity of the peptides included in the warehouse is determined by a method comprising in vitro immunogenicity assays, patient immunomonitoring for individual HLA binding, MHC multimer staining, ELISPOT assays and/or intracellular cytokine staining.27. The method as claimed in any of claims 21 to 26, further comprising identifying at least one mutation that is unique to the tumour sample relative to normal corresponding tissue from the individual patient, and selecting a peptide that correlates with the mutation for inclusion in the vaccine or for the generation of cellular therapies. 28. The method as claimed in claim 27, wherein said at least one mutation is identified by whole genome sequencing. 29. A T-cell receptor, preferably soluble or membrane-bound, that is reactive with an HLA ligand, wherein said ligand has at least 75% identity to an amino acid sequence selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388.30. The T-cell receptor as claimed in claim 29, wherein said amino acid sequence is at least 88% identical to SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388. 31. The T-cell receptor as claimed in claim 29 or 30 , wherein said amino acid sequence consists any of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388.32. The T-cell receptor as claimed in any of claims 29 to 31, wherein said T-cell receptor is provided as a soluble molecule and optionally carries a further effector function, such as an immune stimulating domain or toxin. 33. A nucleic acid, encoding for a TCR as claimed in any one of claims 29 to 32, optionally linked to a heterologous promoter sequence. 34. An expression vector capable of expressing the nucleic acid as claimed in claim 33. 35. A host cell comprising the nucleic acid as claimed in claim 33 or the nucleic acid encoding an antibody as claimed in claim 15 or the expression vector as claimed in claim 34, wherein said host cell preferably is a T cell or NK cell.36. A method for producing the T cell receptor as claimed in any one of claims 29 to 32, said method comprising culturing a host cell as claimed in Claim 35, and isolating said T cell receptor from said host cell and/or its culture medium. 37. A pharmaceutical composition comprising at least one active ingredient selected from the group consisting of a) the peptide selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388b) a

T-cell receptor reactive with a peptide and/or the peptide-MHC complex according to a); c) a fusion protein comprising a peptide according to a), and the N-terminal amino acids 1 to 80 of the HLA-DR antigen-associated invariant chain (li); d) a nucleic acid encoding for any of a) to c) or an expression vector comprising said nucleic acid, e) a host cell comprising the expression vector of d, f) an activated T-lymphocyte, obtained by a method comprising contacting in vitro T cells with a peptide according to a) expressed on the surface of a suitable antigen presenting cell for a period of time sufficient to activate said T cell in an antigen specific manner, as well as a method to transfer these activated T cells into the autologous or other patients; g) an antibody, or soluble T-cell receptor, reactive to a peptide and/or the peptide - MHC complex according to a) and/or a cell presenting a peptide according to a), and potentially modified by fusion with for example immune- activating domains or toxins, h) an aptamer recognizing a peptide selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388 and/or a complex of a peptide selected from the group consisting of SEQ ID No. 193, SEQ ID No. 1 to SEQ ID No. 192, SEQ ID No. 194 to SEQ ID No. 388 with a MHC molecule, i) a conjugated or labelled peptide or scaffold according to any of a) to h) and a pharmaceutically acceptable carrier, and optionally, pharmaceutically acceptable excipients and/or stabilizers.38. An aptamer that specifically recognizes the peptide or variant thereof as claimed in any of claims 1 to 5, preferably the peptide or variant thereof as claimed in any of claims 1 to 5 that is bound to an MHC molecule.

5.20210196812 INORGANIC POLYATOMIC OXYANIONS FOR PROTECTING AGAINST ANTIGENIC DAMAGE DURING PATHOGEN INACTIVATION FOR VACCINE PRODUCTION

US - 01.07.2021

Clasificación Internacional [A61K 39/145](#) N° de solicitud 16994500 Solicitante Najít Technologies, Inc.
Inventor/a Ian J. Amanna

Provided are methods for rapidly inactivating a pathogen, or for producing a vaccine composition containing an inactivated noninfectious pathogen having retained antigenicity and/or immunogenicity, comprising exposing the pathogen to a chemical inactivating agent (e.g., one or more chemical oxidizing, alkylating or crosslinking agents) in the presence of inorganic polyatomic oxyanions in an amount and for a time sufficient to render the pathogen noninfectious while enhancing retention of pathogen antigenicity and/or immunogenicity relative to that retained by contacting the pathogen with the chemical inactivating agent alone. The methods are broadly applicable to pathogens having RNA or DNA genomes (e.g., including viruses, bacteria, fungi, and parasites). Also provided are vaccine compositions (medicaments) containing a pathogen inactivated by exposure to an inactivating agent in the presence of elevated concentrations of inorganic polyatomic oxyanions, and methods for eliciting an immune response in a subject by administering the vaccine compositions.

6.20210196807 CANCER-SPECIFIC T-CELL RECEPTORS

US - 01.07.2021

Clasificación Internacional [A61K 39/00](#) N° de solicitud 17119899 Solicitante UNIVERSITY COLLEGE CARDIFF CONSULTANTS LTD. Inventor/a Andrew SEWELL

The present disclosure relates to a new anti-cancer peptide; a vector encoding same; a pharmaceutical composition or immunogenic agent or bispecific or vaccine comprising said anti-cancer peptide; use of said anti-cancer peptide, vector, pharmaceutical composition, immunogenic agent, bispecific or vaccine to treat cancer; a method of treating cancer using said anti-cancer peptide, vector, pharmaceutical composition, immunogenic agent, bispecific or vaccine; and a combination therapeutic for the treatment of cancer comprising said anti-cancer peptide, vector, pharmaceutical composition, immunogenic agent, bispecific or vaccine.

7.3843780 KOMBINATIONSIMPFSTOFF

EP - 07.07.2021

Clasificación Internacional [A61K 39/108](#) N° de solicitud 19756193 Solicitante INTERVET INT BV

Inventor/a JACOBS ANTONIUS ARNOLDUS CHRISTIAAN

The present invention pertains to a vaccine comprising (a) an immunologically effective amount of a *Streptococcus suis* IgM protease antigen, (b) an immunologically effective amount of an *Escherichia coli* fibrillar antigen, and (c) an immunologically effective amount of a *Clostridium* toxoid, and also pertains to use of the vaccine in a method for protecting pigs against a pathogenic infection with *Streptococcus suis*, *Escherichia coli* and *Clostridium*.

8.[WO/2021/130210](#) PROCESS FOR DESIGNING A RECOMBINANT POXVIRUS FOR A THERAPEUTIC VACCINE

WO - 01.07.2021

Clasificación Internacional [A61K 39/00](#) N° de solicitud PCT/EP2020/087597 Solicitante TRANSGENE

Inventor/a GRELLIER, Benoît

The present invention generally relates to a process for designing a recombinant poxvirus for a therapeutic vaccine, i.e. personalized cancer vaccine, said recombinant poxvirus comprising one or more expression cassettes, each for expression of a fusion of a plurality of peptides, i.e. neopeptides, characterized in that it comprises performing by processing means (11) of a server (1) the steps of : (a) selecting a first subset of candidate peptides, wherein said peptides present transmembrane scores below a TMS threshold; (b) determining an optimal distribution of the candidate peptides from said first subset to the expression cassette(s) among a plurality of possible distributions, wherein said optimal distribution presents, if there are at least two expression cassettes, the lowest range between the hydropathy scores of at least two expression cassettes; (c) for each expression cassette, determining an optimal slot allocation of the candidate peptides as function of cassette slot occupancy rule so as to select the peptide fusion with the lowest TM score; (d) determining a DNA transfer sequence comprising the nucleotide sequence of the one or more expression cassette(s) for generation of said recombinant poxvirus.

9.[202141026824](#) SENSOR BASED INTELLIGENT ROBOTIC ARM TO VACCINATE PEOPLE AGAINST COVID-19

IN - 02.07.2021

Clasificación Internacional [A61K /](#) N° de solicitud 202141026824 Solicitante Mustafa Musa Jaber

Inventor/a Mustafa Musa Jaber

The Sensor Based Intelligent Robotic Arm to Vaccinate People against COVID-19 (SIRA) helps the government/hospital to make use of the SIRA to vaccinate the patient in a contactless manner by automatically checking the health conditions of the patient using temperature, humidity, and face recognition sensors. The COVID-19 vaccine syringe helps to inject the vaccine to the patient by a robot. The robot arm handles the syringe in a contactless manner to avoid the spread of the viruses to the doctors/nurses. The revolvable arm helps to move/fold the robot arm in all the angles. The calibration unit measures the various values. The conveyor belt is assisting the robot by rolling out the syringe continuously one by one. The battery supports the continuous function of the robot every time. The temperature, humidity, and face recognition sensors are measuring the patient health values and decide whether the patient is fit to take the vaccine or not. If the patient is fit then the robot vaccinates the patient else recommends for future dates. The SIRA control unit helps to monitoring and managing the successful functioning of the whole SIRA system. By using this SIRA, the government/hospitals to make use of the SIRA to vaccinate the patient in a contactless manner by automatically checking the health conditions of the patient using temperature, humidity, and face recognition sensors.

10.[20210205433](#)Vaccines against Chlamydia sp.

US - 08.07.2021

Clasificación Internacional [A61K 39/118](#) Nº de solicitud 17155264 Solicitante Statens Serum Institut
Inventor/a Frank Follmann

The present invention describes an efficient vaccine against a *Chlamydia trachomatis* (Ct). The vaccine is based on recombinant fusion molecules that are capable of generating a high titered neutralizing antibody response that is protective against various Ct serovars. Our invention furthermore describe the combination of these antibody promoting fragments with Ct antigens that are targets for T cells with the aim to provide a vaccine that activate both arms of the immune system.

11.[20210202058](#)METHOD, MOBILE DEVICE AND STORAGE MEDIUM FOR VACCINE ADMINISTRATION REMINDING

US - 01.07.2021

Clasificación Internacional [G16H 20/17](#) Nº de solicitud 17012083 Solicitante COMPAL ELECTRONICS, INC. Inventor/a HAO-CHEN WENG

A vaccine administration reminding method includes the steps of providing a vaccination reminder message to a user of a mobile device according to a vaccine administration receiver's birth date, displaying a list of potential hospitals according to a user behavior of the user on the mobile device, and recording a vaccination hospital selected by the user from the list. The user behavior may include browsing a web page of the vaccination hospital on the mobile device or dialing a telephone number of the vaccination hospital on the mobile device.

12.[3843782](#)EBOLAIMPFSTOFFZUSAMMENSETZUNGEN UND VERFAHREN ZU IHRER VERWENDUNG

EP - 07.07.2021

Clasificación Internacional [A61K 39/12](#) Nº de solicitud 19787066 Solicitante CENTRE HOSPITALIER UNIV VAUDOIS CHUV Inventor/a KISELJAK DIVOR

Materials and methods for the prevention of Ebola virus are provided. This disclosure is related to vaccine compositions comprising one or more Ebola virus (EBOV) glycoproteins as well as methods of preventing an EBOV infection comprising administering such compositions. In particular, modified EBOV glycoproteins are provided that form trimers and induce an immune response.

13.[20210205428](#)TUMOR CELL VACCINES

US - 08.07.2021

Clasificación Internacional [A61K 39/00](#) Nº de solicitud 17109757 Solicitante NEUVOGEN, INC. Inventor/a Bernadette Ferraro

The present disclosure provides an allogeneic whole cell cancer vaccine platform that includes compositions and methods for treating and preventing cancer. Provided herein are compositions containing a therapeutically effective amount of cells from one or more cancer cell lines, some or all of which are modified to (i) inhibit or reduce expression of one or more immunosuppressive factors by the cells, and/or (ii) express or increase expression of one or more immunostimulatory factors by the cells, and/or (iii) express or increase expression of one or more tumor-associated antigens (TAAs), including TAAs that have been mutated, and which comprise cancer cell lines that natively express a heterogeneity of tumor associated antigens and/or neoantigens. Also provided herein are methods of making the vaccine compositions, methods of preparing, and methods of use thereof.

14.[20210205439](#)Recombinant Modified Vaccinia Virus Ankara (MVA) Equine Encephalitis Virus Vaccine
US - 08.07.2021

Clasificación Internacional [A61K 39/15](#) Nº de solicitud 17140357 Solicitante Bavarian Nordic A/S
Inventor/a Robin Steigerwald

The present invention relates to recombinant modified vaccinia virus Ankara (MVA) and to methods of using the same. In particular, the invention relates to recombinant MVA comprising a nucleotide sequence encoding for a structural protein of an equine encephalitis virus (EEV) excluding encoding for a capsid protein of the EEV, a composition in particular a pharmaceutical composition, a vaccine or kit comprising the recombinant MVA, uses and methods thereof e.g., suitable for treating and/or preventing a western, Venezuelan, and/or eastern equine encephalitis virus caused disease.

15. [20210205434](#)ZIKA VIRUS VACCINE

US - 08.07.2021

Clasificación Internacional [A61K 39/12](#) Nº de solicitud 15999469 Solicitante CureVac AG Inventor/a Benjamin PETSCHE

The present invention is directed to an artificial nucleic acid and to polypeptides suitable for use in treatment or prophylaxis of an infection with Zika virus or a disorder related to such an infection. In particular, the present invention concerns a Zika virus vaccine. The present invention is directed to an artificial nucleic acid, polypeptides, compositions and vaccines comprising the artificial nucleic acid or the polypeptides. The invention further concerns a method of treating or preventing a disorder or a disease, first and second medical uses of the artificial nucleic acid, polypeptides, compositions and vaccines. Further, the invention is directed to a kit, particularly to a kit of parts, comprising the artificial nucleic acid, polypeptides, compositions and vaccines.

16. [3844178](#)IMPFSTOFF ZUR VERWENDUNG BEI DER PROPHYLAXE UND/ODER BEHANDLUNG EINER ERKRANKUNG

EP - 07.07.2021

Clasificación Internacional [C07K 14/005](#) Nº de solicitud 19765206 Solicitante INPROTHER APS Inventor/a HOLST PETER

The present invention relates to an adenoviral vector capable of encoding a virus-like particle (VLP), said VLP displaying an inactive immune-suppressive domain (ISD). The vaccine of the invention shows an improved immune response from either of both of the response pathways initiated by CD4 T cells or CD8 T cells.

17. [20210205438](#)PREPARATION OF INFLUENZA VIRUS VACCINE ANTIGENS

US - 08.07.2021

Clasificación Internacional [A61K 39/145](#) Nº de solicitud 17151840 Solicitante Seqirus UK Limited Inventor/a Christoph HAUSSMANN

A number of improvements for preparing vaccine antigens from disintegrated influenza viruses are disclosed. A splitting step can be followed by detergent exchange. Splitting can take place in the presence of a buffer with a higher ionic strength and/or in the presence of phosphate buffer.

18. [20210205430](#)VIRB10 FOR VACCINATION AGAINST GRAM NEGATIVE BACTERIA

US - 08.07.2021

Clasificación Internacional [A61K 39/02](#) Nº de solicitud 17142792 Solicitante UNIVERSITY OF FLORIDA RESEARCH FOUNDATION, INCORPORATED Inventor/a Anthony F. BARBET

The invention pertains to the use of VirB10 to immunize a host against an infection by a bacterium having T4SS. The invention provides a vaccine comprising VirB10, a fragment of VirB10, a polynucleotide encoding VirB10 or a polynucleotide encoding a fragment of VirB10 and a pharmaceutically acceptable carrier and/or adjuvant. The invention also provides a method of immunizing a host against an infection caused by a bacterium having T4SS, the method comprising administering to the host a vaccine of the invention. The vaccines and the methods of the invention can be used to immunize against infections caused by bacteria having T4SS in dogs, rabbits, cats, pigs, cattle, sheep, goats, deer, horses, rodents and humans.

19. [20210196818](#)VACCINES WITH INTERLEUKIN-33 AS AN ADJUVANT

US - 01.07.2021

Clasificación Internacional [A61K 39/39](#) N° de solicitud 17188648 Solicitante The Trustees of the University of Pennsylvania Inventor/a David Weiner

Disclosed herein is a vaccine comprising an antigen and IL-33. Also disclosed herein is a method for increasing an immune response in a subject in need thereof. Further disclosed herein is a method for treating cancer in a subject in need thereof. The methods may comprise administering the vaccine to the subject.

20. [20210196813](#)Utilizing Vaccines to Treat Cancer and Enhance the Success Rate of Cancer

Immunotherapy

US - 01.07.2021

Clasificación Internacional [A61K 39/145](#) N° de solicitud 17134663 Solicitante Rush University Medical Center Inventor/a Andrew ZLOZA

Methods treating cancer are provided. The methods include intratumorally administering a therapeutically effective dose of a vaccine to a subject in need thereof.

21. [3325015](#)Liposomale adjuvanssammensætninger

DK - 05.07.2021

Clasificación Internacional [A61K 47/18](#) N° de solicitud 16745318 Solicitante Zoetis Services LLC Inventor/a DOMINOWSKI, Paul, Joseph

The invention provides a liposomal adjuvant composition comprising an external membrane and an internal compartment, the external membrane comprising: a quaternary ammonium compound; a sterol; a phospholipid; and a glycolipid. Vaccine compositions comprising the liposomal adjuvant of the instant invention are also provided.

22. [20210205444](#)MICROMOLDED OR 3-D PRINTED PULSATILE RELEASE VACCINE

FORMULATIONS

US - 08.07.2021

Clasificación Internacional [A61K 39/39](#) N° de solicitud 17143871 Solicitante Massachusetts Institute of Technology Inventor/a Ana Jaklenec

Emulsion-based and micromolded (“MM”) or three dimensional printed (“3DP”) polymeric formulations for single injection of antigen, preferably releasing at two or more time periods, have been developed. Formulations are preferably formed of biocompatible, biodegradable polymers. Discrete regions encapsulating antigen, alone or in combination with other antigens, adjuvants, stabilizers, and release modifiers, are present in the formulations. Antigen is preferably present in excipient at the time of administration, or on the surface of the formulation, for immediate release, and incorporated within the formulation for release at ten to 45 days after initial release of antigen, optionally at ten to 90 day intervals for release of antigen in one or more additional time periods. Antigen may be stabilized through the use of stabilizing agents such as trehalose glass. In a preferred embodiment for immunization against polio, antigen is released at the time of administration, and two, four and six months thereafter.

23. [WO/2021/127797](#)NUEVO USO DE FORMULACIÓN INMUNOGÉNICA BCG QUE EXPRESA UNA PROTEÍNA DE VIRUS RESPIRATORIO SINCICIAL CONTRA hMPV

WO - 01.07.2021

Clasificación Internacional [A61K 39/04](#) N° de solicitud PCT/CL2020/050193 Solicitante PONTIFICIA UNIVERSIDAD CATOLICA DE CHILE Inventor/a KALERGIS, Alexis

La invención se refiere al nuevo uso de una formulación inmunogénica que contiene la cepa Bacilo de Calmette y Guerin (BCG) en una concentración entre 104-109 bacterias, que expresa al menos una proteína o fragmento inmunogénico del virus respiratorio sincicial (VRS, Human orthopneumovirus), en

una solución tampón salina farmacéuticamente aceptable porque sirve para preparar una vacuna útil para prevenir prevenir, tratar, o atenuar infecciones de metapneumovirus humano (hMPV).

24. [202148029271](#) NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS

IN - 02.07.2021

Clasificación Internacional [A61K /](#) Nº de solicitud 202148029271 Solicitante IMMATICS

BIOTECHNOLOGIES GMBH Inventor/a SINGH, Harpreet

NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN

IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS 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.

25. [202148029272](#) NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS

IN - 02.07.2021

Clasificación Internacional [A61K /](#) Nº de solicitud 202148029272 Solicitante IMMATICS

BIOTECHNOLOGIES GMBH Inventor/a MAHR, Andrea

NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN

IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS 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.

26. [202148029275](#) NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS

IN - 02.07.2021

Clasificación Internacional [A61K /](#) Nº de solicitud 202148029275 Solicitante IMMATICS

BIOTECHNOLOGIES GMBH Inventor/a MAHR, Andrea

NOVEL PEPTIDES, COMBINATION OF PEPTIDES AND SCAFFOLDS FOR USE IN

IMMUNOTHERAPEUTIC TREATMENT OF VARIOUS CANCERS 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.

27. [20210205233](#) INJECTABLE CRYOGEL VACCINE DEVICES AND METHODS OF USE THEREOF

US - 08.07.2021

Clasificación Internacional [A61K 9/70](#) Nº de solicitud 17083720 Solicitante President and Fellows of Harvard College Inventor/a Sidi A. Bencherif

The invention provides polymer compositions for cell and drug delivery.

28.[3845242](#) IMMUNTOLERANZINDUZIERENDES MITTEL UND THERAPEUTIKUM ODER PROPHYLAKTIKUM FÜR ALLERGISCHE ERKRANKUNGEN

EP - 07.07.2021

Clasificación Internacional [A61K 39/39](#) Nº de solicitud 19854211 Solicitante UNIV TOKUSHIMA Inventor/a KIDO HIROSHI

An object of the present invention is to provide an allergen vaccine for treatment or prevention of an allergic disease, while reducing the risk of developing an immediate type allergy including anaphylaxis. The present inventors have found that (1) oral inoculation of a composition comprising a particular antigen (allergen) and SF10 into subjects having allergic diseases can suppress the development of an immediate type allergy caused by sensitization with the antigen, and (2) oral inoculation of a composition comprising a particular antigen (allergen) and SF10 into subjects not having allergic diseases can inhibit establishment of sensitization to the antigen, and have completed the present invention.

29.[3845656](#) VERBESSERTER LENTIVIRALER VEKTOR

EP - 07.07.2021

Clasificación Internacional [C12N 15/867](#) Nº de solicitud 19855599 Solicitante PHAROS VACCINE INC Inventor/a LEE HYUNSOO

The invention belongs to the field of biomedicine. Specifically, the present invention relates to improved t lentiviral vector, and preparation method and uses thereof. Specifically, the present invention relates to a lentiviral vector especially suitable for preparing a therapeutic T cell.

30.[20210196815](#) MEANS AND METHODS FOR TREATING HERPESVIRUS INFECTION

US - 01.07.2021

Clasificación Internacional [A61K 39/245](#) Nº de solicitud 16080292 Solicitante HELMHOLTZ ZENTRUM MÜNCHEN - DEUTSCHES FORSCHUNGZENTRUM FÜR GESUNDHEIT UND UMWELT (GMBH)

Inventor/a Wolfgang HAMMERSCHMIDT

The present invention provides herpesviruses, such as EBV, which lack at least one viral miRNA. Such herpesviruses lacking at least one viral miRNA are advantageously not capable of packaging their genome into the capsid, thereby producing HVLPs, which are substantially free of their herpesvirus genome or the nucleic acid molecule encoding the proteinaceous part of the HVLP and viral miRNA. Such HVLPs may be used as vaccine.

31.[20210198304](#) VACCINE AGAINST KLEBSIELLA PNEUMONIAE

US - 01.07.2021

Clasificación Internacional [C07H 15/26](#) Nº de solicitud 16768301 Solicitante Idorsia Pharmaceuticals Ltd Inventor/a Sharavathi Guddehalli Parameswarappa

The present invention relates to a synthetic saccharide of general formula (I) that is related to *Klebsiella pneumoniae* serotype O1, O2, O2ac, and O8 O-polysaccharide and carbapenem-resistant *Klebsiella pneumoniae* ST258 O-polysaccharide and conjugate thereof. Said synthetic saccharide, said conjugate and pharmaceutical composition containing said synthetic saccharide or said conjugate are useful for prevention and/or treatment of diseases associated with *Klebsiella pneumoniae*. Furthermore, the synthetic saccharide of general formula (I) is useful as marker in immunological assays for detection of antibodies against *Klebsiella pneumoniae* bacteria.

32.[WO/2021/138582](#) FUSION PROTEINS AND METHODS OF USE THEREOF

WO - 08.07.2021

Clasificación Internacional [A61K 39/00](#) Nº de solicitud PCT/US2020/067698 Solicitante THE JOHNS HOPKINS UNIVERSITY Inventor/a YARCHOAN, Mark

The invention features compositions and methods for treating and preventing cancer. In one aspect, isolated fusion proteins are provided that comprise a DNAJB1 portion and a PRKACA portion. In a further aspect, compositions are provided, including immunogenic compositions that comprise an isolated fusion protein comprising a DNAJB1 portion and a PRKACA portion. In a yet further aspect, a cancer vaccine is provided that comprises an isolated fusion protein comprising a DNAJB1 portion and a PRKACA portion.

33.[3845639](#) VERFAHREN ZUR BEWERTUNG VON ANTIINFEKTIVA, IMPFSTOFFEN ETC. UNTER VERWENDUNG VON IMMORTALISIERTEN MONOZYTISCHEN ZELLEN UND INDUZIERTEN ZELLEN EP - 07.07.2021

Clasificación Internacional [C12N 5/10](#) Nº de solicitud 19856074 Solicitante MICAN TECH INC Inventor/a MIYAZAKI KAZUO

The present invention has been made in view of a problem regarding stability, reproducibility, economy, and easiness of operation in studies for a monocyte- or dendritic cell-mediated infectious microorganism, and is directed to provide a method for maintenance culturing a monocyte- or dendritic cell-mediated infectious microorganism utilizing a monocyte having a proliferative capacity. The present invention is based on the finding that a dengue virus efficiently infects a proliferable human monocytic cell obtained by introducing a gene into a CD14-positive cell and a cell having a phagocytic capacity obtained by inducing the monocytic cell to differentiate (e.g., dendritic cell) and proliferates therein. Thus, provided is a novel method for evaluating a pharmaceutical such as a compound or a vaccine for treating an infection with a monocyte- or dendritic cell-mediated infectious microorganism.

34.[20210205425](#)TREATMENT OF URTICARIA

US - 08.07.2021

Clasificación Internacional [A61K 39/00](#) Nº de solicitud 17057438 Solicitante EVAX AG Inventor/a Antonia GABRIEL

The present invention relates to compositions, immunogenic or vaccine compositions and pharmaceutical compositions for the prevention or treatment of urticaria of equine mammals, preferably of horses. Furthermore, the invention provides methods for preventing or treating urticaria of equine mammals, preferably of horses.

35.[20210196816](#)ALGAE COMPRISING THERAPEUTIC AND/OR NUTRITIONAL AGENTS

US - 01.07.2021

Clasificación Internacional [A61K 39/385](#) Nº de solicitud 16335114 Solicitante TomAlgae CVBA Inventor/a Viktor Chepurnov

An alga, particularly a diatom, comprising one or more selected from the group consisting of: a therapeutic agent (such as an immunogenic agent; antibody; anti-microbial agent; anti-parasitic agent and appetite promoter); an exogenous nutritional agent; and an enhanced level of an endogenous nutritional agent, used as a diet enhancer, a drug delivery device, a vaccine delivery device and/or an animal feed, or for use for use in therapy, a method of preparing an alga comprising: providing a dehydrated alga; and rehydrating the alga in the presence of a therapeutic agent or nutritional agent, and related kits.

36.[20210198670](#)METHOD FOR KNOCKING OUT N-MYRISTOYLTRANSFERASE (NMT) GENE FROM EIMERIA TENELLA

US - 01.07.2021

Clasificación Internacional [C12N 15/113](#) Nº de solicitud 17133300 Solicitante LANZHOU VETERINARY RESEARCH INST., CHINESE ACADEMY OF AGRICULTURAL SCIENCES Inventor/a Jianping CAI

The present disclosure provides a method for knocking out an N-myristoyltransferase (NMT) gene from *Eimeria tenella*, and belongs to the technical field of microorganisms. The method includes: mixing

sporozoites of *Eimeria tenella* with a pCRISPR::EtNMT plasmid and a pEtNMT::DHFR plasmid, and subjecting a resulting mixture to electrotransformation to obtain NMT gene-knockout *Eimeria tenella*. The method provided by the present disclosure can successfully knock out the NMT gene from *Eimeria tenella*, which lays a foundation for studying the function of the *Eimeria tenella* gene and developing a vaccine therefor.

37. [20210198322](#) Mutant of L1 Protein of Human Papillomavirus Type 39

US - 01.07.2021

Clasificación Internacional [C07K 14/025](#) Nº de solicitud 15734715 Solicitante Xiamen University
Inventor/a Shaowei LI

The invention relates to a mutated HPV39 L1 protein (or a variant thereof), a sequence encoding the same, a method for preparing the same, and a virus-like particle comprising the same, wherein the protein (or a variant thereof) and the virus-like particle can induce the generation of neutralizing antibodies against at least two HPV types (e.g. HPV39 and HPV68, or HPV39, HPV68 and HPV70), and therefore can be used to prevent infection by said at least two HPV types, and a disease caused by said infection, such as cervical cancer and condyloma acuminatum. The invention further relates to the use of the protein and the virus-like particle in the manufacture of a pharmaceutical composition or a vaccine for preventing infection by said at least two HPV types, and a disease caused by said infection, such as cervical cancer and condyloma acuminatum.

38. [20210205436](#) RECOMBINANT MOPEIA VIRUS AND VACCINE PLATFORM

US - 08.07.2021

Clasificación Internacional [A61K 39/12](#) Nº de solicitud 17106928 Solicitante INSTITUT PASTEUR
Inventor/a Sylvain BAIZE

A recombinant attenuated Mopeia virus (MOPV) comprising a recombinant genomic S segment that encodes a nucleoprotein having attenuated exonuclease activity, and optionally further encodes a non-MOPV arenavirus glycoprotein. Use of the recombinant attenuated MOPV to induce an immune response in a subject.

39. [20210196809](#) CANCER VACCINE

US - 01.07.2021

Clasificación Internacional [A61K 39/00](#) Nº de solicitud 16492534 Solicitante President and Fellows of Harvard College Inventor/a Juan Pablo Maianti

Provided herein are systems, compositions, and methods for generating immunogenic peptides or epitopes from tumor associated antigens (e.g., in vivo or ex vivo). Polynucleotides (e.g., genes) encoding the tumor associated antigens may be edited at selected target sites by nucleobase editors comprising a catalytically-inactive Cas9 and a cytosine deaminase, leading to the expression of heteroclitic or cryptic peptides that are more immunogenic than the native peptide derived from the tumor associated antigens. The heteroclitic or cryptic peptide elicit strong tumor-specific immune response (e.g., T-cell response or B-cell response), which inhibits tumor growth and metastasis.

40. [20210196811](#) Recombinant Herpesvirus of Turkey Vectors Expressing Antigens of Avian Pathogens and Uses Thereof

US - 01.07.2021

Clasificación Internacional [A61K 39/12](#) Nº de solicitud 17017342 Solicitante Zoetis Services LLC
Inventor/a Sing RONG

The invention relates to recombinant viral vectors for the insertion and expression of foreign genes for use in safe immunizations to protect against a variety of pathogens. The invention also relates to multivalent compositions or vaccine comprising one or more recombinant viral vectors for protection against a variety

of pathogens. The present invention relates to methods of making an using said recombinant viral vectors.

41. [WO/2021/129247](#) MONOCLONAL ANTIBODY OF COXSACKIEVIRUS A6 TRUE VIRUS AND USE THEREOF

WO - 01.07.2021

Clasificación Internacional [C07K 16/10](#) N° de solicitud PCT/CN2020/129945 Solicitante SINOVAC BIOTECH CO., LTD. Inventor/a WU, Ruixia

Disclosed are a monoclonal antibody capable of reacting with a Coxsackievirus A6 true virus, a kit containing the monoclonal antibody and the use thereof. The monoclonal antibody is prepared by immunizing a mouse with a purified CA6 virus solution. The monoclonal antibody is used for detecting the CA6 virus or diagnosing hand-foot-and-mouth disease. The monoclonal antibody has a wide range of applications in the preparation of a rapid detection kit and the development and research of a vaccine.

42. [20210196814](#) Recombinant Modified Vaccinia Virus Ankara (MVA) Respiratory Syncytial Virus (RSV) Vaccine

US - 01.07.2021

Clasificación Internacional [A61K 39/155](#) N° de solicitud 17202230 Solicitante Bavarian Nordic A/S Inventor/a Cedric Cheminay

Provided herein are recombinant modified vaccinia virus Ankara (MVA) strains as improved vaccines against infection with Respiratory Syncytial Virus (RSV virus) and to related products, methods and uses. Specifically, provided herein are genetically engineered recombinant MVA vectors comprising at least one nucleotide sequence encoding an antigenic determinant of an RSV membrane glycoprotein and at least one nucleotide sequence encoding an antigenic determinant of an RSV nucleocapsid protein. Also provided herein are products, methods and uses thereof, e.g., suitable to affect an immune response in a subject, or suitable to diagnose an RSV infection, as well as to determine whether a subject is at risk of recurrent RSV infection

43. [3843781](#) VERFAHREN UND ZUSAMMENSETZUNGEN ZUR HERSTELLUNG EINES VIRUS

EP - 07.07.2021

Clasificación Internacional [A61K 39/12](#) N° de solicitud 19768730 Solicitante UNIV OXFORD INNOVATION LTD Inventor/a GILBERT SARAH

The invention relates to methods for generating a recombinant adenovirus comprising a nucleotide sequence encoding a heterologous gene of interest for use as a vaccine comprising the steps of inserting the heterologous gene of interest into the adenovirus genome by recombining terminal protein complexed adenovirus genomic DNA (TPC-Ad gDNA) with a polynucleotide comprising a nucleotide sequence encoding the gene of interest and having 5' and 3' ends that are homologous to the insertion site sequence of the adenovirus genomic DNA in an in vitro recombination reaction, transfecting cells growing in individual vessels with a dilution of the in vitro recombination reaction mixture from (i) such that a number of such individual vessels contain a single cell that is infected by a recombinant adenovirus comprising the nucleotide sequence encoding the heterologous gene of interest, and identifying those individual vessels in which a single cell has been infected by the recombinant adenovirus comprising the nucleotide sequence encoding the heterologous gene of interest. Suitably said TPC-Ad gDNA comprises serotype-matched terminal protein and adenovirus genome, and said gene of interest codes for a single epitope, a string of epitopes, a segment of an antigen or a complete antigen protein. The invention also relates to recombinant adenoviruses and compositions made using these methods.

44. [WO/2021/129898](#) POLIPÉPTIDOS QUE COMPRENDEN MUTANTES DEL VEGF-A HUMANO CON RE-ARREGLOS DE PUENTES DISULFURO Y COMPOSICIONES QUE LOS CONTIENEN

WO - 01.07.2021

Clasificación Internacional Nº de solicitud PCT/CU2020/050011 Solicitante CENTRO DE INGENIERIA GENETICA Y BIOTECNOLOGIA Inventor/a BEQUET ROMERO, Mónica

Polipéptidos que comprenden mutantes funcionales de una isoforma del factor de crecimiento del endotelio vascular A (VEGF-A) humano, que se pliegan en un re-arreglo no natural de puentes disulfuro, donde la segunda y la cuarta cisteína de la cadena polipeptídica de los mutantes solo se encuentran formando puentes intramoleculares, y la séptima y la octava cisteína de los mutantes solo se encuentran formando puentes intermoleculares. La invención también comprende preparaciones antigénicas que contienen al menos uno de estos polipéptidos, así como las composiciones farmacéuticas que comprenden dichas preparaciones antigénicas y adyuvantes vacunales. Las preparaciones antigénicas de la invención se emplean en la manufactura de un medicamento para el tratamiento de enfermedades cuyo avance se relaciona con el incremento de la angiogénesis, la inflamación y la inmunosupresión, así como para la restauración del sistema inmune.

45. [20210205441](#) MODIFIED HSV GD PROTEIN AND VACCINE CONTAINING SAME

US - 08.07.2021

Clasificación Internacional [A61K 39/245](#) Nº de solicitud 16641420 Solicitante KM Biologics Co., Ltd. Inventor/a Hiroaki MORI

The modified HSV gD protein of the present invention is a modified protein of a herpes simplex virus (HSV) envelope glycoprotein D (gD), wherein the modified HSV gD protein is derived from a wild-type HSV gD by modification of at least one of B cell epitopes having low or no neutralizing antibody-inducing activity compared to a B cell epitope present in a receptor-binding domain (RBD) (decotopes) in the ectodomain of the wild-type HSV gD, so that the modified epitope does not function as an epitope.

46. [202147027015](#) STABLE VACCINE AGAINST CLOSTRIDIUM DIFFICILE

IN - 02.07.2021

Clasificación Internacional [C07H /](#) Nº de solicitud 202147027015 Solicitante IDORSIA PHARMACEUTICALS LTD Inventor/a EMMADI, Madhu

The present invention relates to a synthetic saccharide of general formula (I) that is related to Clostridium difficile PS-II cell-surface polysaccharide and conjugate thereof. Said synthetic saccharide, said conjugate and pharmaceutical composition containing said synthetic saccharide or said conjugate are useful for prevention and/or treatment of diseases associated with Clostridium difficile. Furthermore, the synthetic saccharide of general formula (I) is useful as marker in immunological assays for detection of antibodies against Clostridium difficile bacteria.

47. [2021203796](#) Use of amino acid sequences from Mycobacterium tuberculosis or corresponding nucleic acids thereof for diagnosis and prevention of tubercular infection, diagnostic kit and vaccine therefrom
AU - 01.07.2021

Clasificación Internacional [C07K 14/35](#) Nº de solicitud 2021203796 Solicitante QIAGEN Australia Holding Pty. Ltd. Inventor/a

The present invention refers to the use of gene sequences or portions thereof characterized in that the same belong to the classes of in vitro and ex vivo induced, repressed or conserved genes in Mycobacterium tuberculosis currently infected human macrophages and to corresponding peptides or consensus peptides or proteins for the preparation of specific bio-markers for the diagnosis and prevention of active or latent disease.

48. [3845564](#) VERBESSERTE THERAPEUTISCHE T-ZELLE

EP - 07.07.2021

Clasificación Internacional [C07K 16/30](#) Nº de solicitud 19854222 Solicitante IMMUNOTECH BIOPHARM CO LTD Inventor/a WANG YU

The invention belongs to the field of biomedicine. Specifically, the present invention relates to improved therapeutic T cells and methods for their preparation. Specifically, the present invention relates to preparing improved therapeutic T cells by co-expression of an exogenous antigen-specific receptor protein and a dominant negative TGF- β type II receptor in T cells through lentiviral vector transduction.

49. [3844274](#) NEOANTIGEN-ENGINEERING UNTER VERWENDUNG VON SPLEISSMODULIERENDEN VERBINDUNGEN

EP - 07.07.2021

Clasificación Internacional [C12N 15/113](#) N° de solicitud 19758737 Solicitante ROCHE INNOVATION CT COPENHAGEN AS Inventor/a ERICHSEN KAMILLE DUMONG

The invention relates to the field of immunotherapy and vaccine treatment of diseased cells via enhancing the immune response to the diseased cells. In the context of the present invention this is done by engineering neo-antigens in cells via oligonucleotide mediated production of aberrant RNA transcripts which, when transcribed in the cell, result in the generation or increased expression of aberrant polypeptides. Extracellular display of these polypeptides, of peptide fragments derived provides antigen epitopes (neoantigen) for detection by the immune system.

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

Results Search in US Patent Collection db for: (ABST/vaccine AND ISD/20210710->20210701), 6 records.

PAT. NO.	Title
1 11,053,509	Plant-produced chimaeric Orbivirus VLPs
2 11,053,296	Peptides and combination of peptides for use in immunotherapy against ovarian cancer and other cancers
3 11,053,285	Nucleic acids encoding human immunodeficiency virus type 1 (HIV-1) N-terminal deleted gp120 immunogens and methods of use
4 11,052,143	Vaccine for protection against ETEC-induced diarrhea comprising dmLT
5 11,052,114	Peptides and combination of peptides of non-canonical origin for use in immunotherapy against different types of cancers
6 11,052,113	Peptides and combination of peptides of non-canonical origin for use in immunotherapy against different types of cancers

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